

Evidence *in* Context

Issue: Youth Residential Treatment
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Health research — synthesized and contextualized for use in Newfoundland & Labrador

Youth Residential Treatment Options in Newfoundland & Labrador

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Newfoundland & Labrador Centre for

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About NLCAHR

The Newfoundland & Labrador Centre for Applied Health Research, established in 1999, contributes to the effectiveness of the health and community services system of the province and the physical, social, and psychological wellbeing of the population. NLCAHR accomplishes this mandate by building capacity in applied health research, supporting high-quality research, and fostering more effective use of research evidence by decision makers and policy makers in the province's health system.

About the Contextualized Health Research Synthesis Program

In 2007, NLCAHR launched the Contextualized Health Research Synthesis Program (CHRSP) to provide research evidence to help guide decision makers in the provincial health system on issues of pressing interest to Newfoundland & Labrador.

CHRSP does not conduct original research, but rather analyzes the findings of high-level research (systematic reviews, meta-analyses and health technology assessments) that have already been done on the issue in question. The findings of these studies are synthesized and are subjected to a systematic process of 'contextualization': they are analyzed in terms of their applicability to the conditions and capacities of the unique context of Newfoundland & Labrador.

Our contextual analysis includes assessment of the specific forms that the issue takes in this province as well as the applicability of proposed solutions and methods to locally available physical and human resources, cultural conditions and financial capacities. CHRSP uses a combination of external experts and local networks to carry out and contextualize the research synthesis and to facilitate the uptake of the results by research users.

CHRSP focuses on three types of projects: health services/health policy projects; health technology assessment (HTA) projects; and projects that combine the two to examine processes for the organization or delivery of care involving a health technology.

About the CIHR-IHSPR

This CHRSP project was funded in part by the Canadian Institutes of Health Research (CIHR)- Institute of Health Services and Policy Research (IHSPR). IHSPR is committed to championing and supporting excellent health services and policy research and knowledge translation to identify, understand and address health system needs and challenges and to contribute to health system accessibility, responsiveness, effectiveness, efficiency and sustainability.

Who Should Read This Report?

This report provides a synthesis of the relevant research-based evidence on treatments for youth in a residential context, the design and organization of youth residential treatment centres and the health economics of treating youth with complex needs.

This report is intended to inform and assist those decision makers in the Newfoundland & Labrador government departments and Regional Health Authorities that are responsible for providing services to youth with complex needs. The findings of our synthesis are specifically interpreted for the context of Newfoundland & Labrador, but decision makers from other jurisdictions, especially those that share similar features in terms of potential clients, geography and resources, may also find the content helpful.

This report includes explanations of research terms and technical language so that there is no need to have a specialized child services or child health background to understand the content. It also includes references to an online companion document that provides additional detail and technical information related to the report.

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Companion Report

See the YRT companion report for additional background materials relating to this document, including:

- search strings used
- information about the assessment tool, AMSTAR
- a list of primary research papers cross-referenced against the systematic reviews included in this report
- an independent critique of an included study by the lead author of this report

www.nlcahr.mun.ca/research/chrsp/residential.php

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Youth Residential Treatment Options in Newfoundland & Labrador

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Glossary of Acronyms

ACRA	Adolescent Community Reinforcement Approach
ALA	Alternative Living Arrangement
AMSTAR	Assessment of Multiple Systematic Reviews
ART	Aggression Replacement Therapy
BT	Behavioural Therapy
CANS	Child and Adolescent Needs and Strengths
CBT	Cognitive Behavioural Therapy
CBT-G	Group Cognitive Behavioural Therapy
CPS	Collaborative Problem Solving
CYFS	Child, Youth and Family Services, NL
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorder
FNIHB	First Nations and Inuit Health Branch of Health Canada
FT	Family Therapy (includes Conjoint Family Therapy)
FFT	Functional Family Therapy
FST	Family Systems Therapy
GPT	Group Psychotherapy
ILA	Independent Living Arrangement
IPT	Individual Psychotherapy
JSO	Juvenile Sexual Offender
LTS	Long-Term Support
MDFT	Multidimensional Family Therapy
MI	Motivational Interviewing
MRAT	Milieu, Recreational & Adventure-based Therapy
MST	Multisystemic Therapy
PCR	Psychiatric Community Residence
PCNY	Provincial Committee on the Residential and Treatment Needs of Children and Youth
PGC	Peer-Group Confrontation
PPEP	Psychoanalytic/Psychodynamic/Ego Psychology
PSE	Psycho-Social Education
PSST	Problem Solving Skills Training
PDT	Psychodynamic Therapy
PT	Psychotherapy
RET	Rational Emotive Therapy
RP	Relapse Prevention
RTC	Residential Treatment Centre
SOTP	Sex Offender Treatment Program
ST	Satiation Therapy
TFC	Treatment/Therapeutic Foster Care
TCOM	Total Clinical Outcomes Management
VS	Vicarious Sensitisation
YO	Young Offender
YRT	Youth Residential Treatment

The Research Question

In March 2009, the Government of Newfoundland & Labrador announced a plan to create two residential treatment centres: one for youth with complex mental health needs and one for youth with addictions. To that point, youth with complex mental health needs or addictions who could not be placed in a caregiver home were being sent out of province for residential treatment or provided with alternative service plans such as Independent Living Arrangements (ILA). These treatment options quickly became problematic because of unsustainable costs (Office of the Auditor General, 2010). The new treatment centres are intended to provide young people with residential treatment options that were previously unavailable in this province.

A past attempt to implement residential treatment services for youth in the province was characterized by a range of challenges and obstacles (Burford & Sullivan, 1990). Accordingly, decision makers in the Department of Health and Community Services, Labrador Grenfell Health and Eastern Health were seeking to identify and evaluate the best available research-based evidence on these services. This contextualized health research synthesis is designed to address their request by answering the question:

Given the characteristics of the client base and the social, geographic, economic and political contexts of Newfoundland & Labrador, what does the scientific literature tell us about effective ways to implement appropriate and efficient residential treatment programs for all children and youth aged 10 to 21 with complex needs in the province?

Key Messages From This Report

- The evidence does not conclusively demonstrate that residential treatment is, or is not, an effective component of a high-quality system of care for children and youth.
- Some recent primary research shows that YRT can be effective for youth with very elevated levels of risk; these findings will require contextualized replication before they can be deemed applicable to Newfoundland & Labrador.
- The strongest reasons for establishing YRT centres in the province are to keep youth with complex needs closer to their families and communities, centralize and coordinate services for clients, and simultaneously reduce expenditures.
- Given the lack of high-quality evidence for YRT programming and organization, in particular for Aboriginal youth, any treatment facility will require an integrated evaluation component to monitor the effectiveness of the treatment interventions, and the organization and administration of the centres.
- Based on limited available evidence and current best practices, findings on the milieu and treatment design aspects of a residential treatment center suggest that:
 - Residential treatment centres are most effective for very high-risk youths with complex needs
 - A central point of access with a structured assessment strategy should be used to support decisions about the use of these placements.
 - The milieu models adopted should be portable to community environments (e.g., not token economies or level systems that are not sustainable by parents)
 - Treatment should have a cognitive-behavioral component that is trauma-informed and actively involves families.
- There are limited gains in health outcomes from residential treatment compared to community-based treatment. However, in the specific context of Newfoundland & Labrador, geography may affect the feasibility of providing high quality community-based interventions in multiple, widely dispersed locations.

Background

1. Youth with Complex Needs

In the context of this report, the term “youth with complex needs” describes youth that have complex social, psychological, emotional and/or behavioural difficulties at home, in school and in their community¹. Youth with complex needs often have troubled backgrounds involving abuse or neglect; they may have substance abuse issues; and they may also have developmental or learning disabilities. They are characterized as being at-risk for a range of negative health and social outcomes. Youth with complex needs are often involved with social services and are either monitored by, or under the care of, a child welfare services agency.

A survey carried out in 2008 by Child, Youth and Family Services (CYFS) in Newfoundland & Labrador documented the profile of youths placed in out-of-province treatment settings or supported in specialized living arrangements, all of whom may be considered to have complex needs. Their backgrounds include family histories of neglect (67%), emotional abuse (70%), physical abuse (35%), sexual abuse (22%), family violence (63%), substance abuse (63%), mental health concerns (63%), and family breakdown (53%). These youths also presented with a range of behavioural and mental health issues: FAS/FASD (44%), developmental delays (33%), substance abuse (36%), attachment issues (26%), ADD/ADHD (24%), irregular school attendance (52%), negative peer involvement (47%), violence towards others (35%), extreme defiance-oppositional behaviour (32%) and verbal abusiveness (28%) (Abell, Moshenko, & van Leeuwen, 2008). Within this group, most of the youths were of European decent, but those from Innu and Inuit communities were proportionately over-represented². It has been noted that the majority of youths in care have at least three presenting problems at any point in time and exhibit

multiple disturbed and disturbing behaviours simultaneously (Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003).

2. Youth Residential Treatment (YRT)

Despite a long history and extensive utilization, youth residential treatment still does not have a consistent definition in the research literature. In large part, this absence of clarity results from the fact that the intervention termed ‘residential treatment’ is best understood as a combination of three separate components—a residential setting, a treatment and a milieu. These three ‘active ingredients’ of residential treatment are challenging to deconstruct and to operationalize in a research context. The following is a brief description of each of these components.

Residential Setting. This component of residential treatment is the ‘safe-place-to-live’ aspect of the intervention, and it is this that drives the utilization of this approach (Lyons, 2004). The vast majority of youth referrals to residential treatment come from the child welfare and juvenile justice sectors and are often for high-need children and youths who do not have adequate living situations in their communities. Children and youths who are in child welfare may already be in a compromised living situation (e.g., removed from parents and/or family), making the use of a highly structured, safe placement desirable from the perspective of worried and challenged case workers. For youths with juvenile justice involvement, referral to residential treatment can be seen as a mechanism to ensure the safety of the community without resorting to the incarceration of a young person.

Residential treatment for children and youths with learning and/or developmental disabilities is

¹ Please note that, in this report “youth with complex needs” does not refer to children and adolescents with complex medical needs arising from multiple physiological and/or neurological issues, to whom the term has also been applied in the research and health services literatures.

² Approximately 3,000 Innu live in Labrador in the communities of Sheshashiu and Natuashish. They are considered a First Nations band. Approximately 2,200 Inuit live in Nunatsiavut, Labrador, mainly in five communities: Hopedale, Nain, Makkovik, Postville and Rigolet.

normally no longer considered appropriate. Some youths with more severe disabilities may obtain services that include a **residential placement**; these services differ in that they are supportive in nature rather than being focused on treatment. Such residential placements are also intended to be for longer durations than a residential treatment centre would normally provide and may be considered a form of assisted living. Accordingly, most referrals to **residential treatment** in North America now come through the child welfare or juvenile justice sectors.

Milieu. Once young persons are placed in a residential treatment centre, the facility must consider how to manage the fact that a significant component of residential treatment involves the interactions among a group of high-need individuals. There is substantial controversy in the literature about the nature and importance of milieu (Whittaker, 2004; Zimmerman & Cohler, 2000). It can be argued that the milieu *is* the treatment. Others view the milieu as something to be managed in order to potentiate treatment. Whenever two or more youths are placed in the same residential treatment environment, a plan is required to manage their interactions and mediate any potential conflicts.

A substantial number of formal milieu strategies have been developed over the past fifty years. Originally, behaviour management strategies were predominant, with token economies and level systems³ being the mainstay of milieu management in residential treatment (Pazaratz, 2008). However, few parents or foster parents are able to maintain a token economy after discharge from residential treatment, a fact that substantially reduces the generalizability of these approaches (Affronti & Levison-Johnson, 2009). Token economies and level systems are highly structured environments that may produce “setting effects” as described below. They have fallen into increasing disfavour over the past decade and are being replaced by

other milieu approaches such as Positive Behaviour Interventions and Support (PBIS) (Carr et al., 2002), Aggression Replacement Therapy (ART) (Glick, 1996), and Collaborative Problem Solving (CPS) (Greene & Ablon, 2006). These newer strategies all focus on positive problem solving in interpersonal relationships. Their philosophies, strategies, and lessons learned are designed to be portable to homes and schools after transition from residential treatment.

Treatment. Once a client is placed in a well managed residential treatment milieu, treatment is provided. The treatment component consists of active interventions by mental health professionals that attempt to address the behavioural and emotional needs of the children and youths living in these residences (including psychiatric, psychological, counseling, and other treatments) Educational programming, occupational health and recreation-based initiatives, and possibly cultural or social programming, may also be offered.

Treatment approaches are generally independent of the location in which they are provided. Most evidence-based practices, with the possible exception of Multisystemic Therapy (MST)⁴, make no demands on the living situation of the child or youth participating in the treatment. Thus cognitive behavioural therapy can be provided in a residential treatment setting or on an outpatient basis. The only aspects of residential care unique to the living situation would be milieu-based interventions that require the presence of other children and youths. From this perspective, then, there is basically no difference between treatment options in community-based interventions and treatment options in residential care. Any treatment that can be used in one of these environments can easily be used in the other. Therefore, given these circumstances, it is not particularly relevant to review treatments *per se*, as the efficacy of any given treatment sheds no light on its relative utility in a residential centre.

³ A token economy is a program of treatment in which the patient earns tokens, exchangeable for rewards, for appropriate personal and social behaviour and loses tokens for antisocial behaviour. Like token economies, level systems are a kind of contingency management. Once a person reaches a given level, they earn the privileges of that level and those below it. (Dorland, 2007)

⁴ “MST services are delivered in the natural environment (e.g., home, school, community). The treatment plan is designed in collaboration with family members and is, therefore, family driven rather than therapist driven. The ultimate goal of MST is to empower families to build an environment, through the mobilization of indigenous child, family, and community resources that promotes health.”(MST services - executive summary, 2007)

3. YRT Pathways, Alternatives & Challenges

In Newfoundland & Labrador, the vast majority of youths in residential treatment arrive at their placement as youths who are *in care* and who have previous experience with other elements of the continuum of care for youth with needs. The phrase “in care” denotes that the government has assumed guardianship of, and taken responsibility for, a young person and thus acts in place of the parent. According to a 2009 report by the province’s Office of the Child and Youth Advocate (OCYA), children are designated as in care through one of three paths:

1. Under a Voluntary Care Agreement, a parent can voluntarily transfer the care of a child to the regional Child, Youth & Family Services (CYFS) director. These Agreements are generally of short duration, and the parent retains formal custody of the child.
2. If a formal risk assessment indicates that a child is in need of protective intervention, then he/she can be removed from the parent’s care through a warrant executed by a CYFS social worker and a peace officer.
3. Finally, children can be placed in care for the purposes of adoption. In cases where adoption does not occur, children remain in care of the regional CYFS director.

In Newfoundland & Labrador, protective intervention is the most common pathway to in-care status, and Section 62 of the provincial Child, Youth and Family Services Act requires that “placement of a child shall be conducted in the least disruptive manner to the child” (Government of Newfoundland & Labrador, 1998). The Act further requires the social worker to “first consider placement with a relative or person with whom the child has a significant relationship.” Many, if not most, of such youths in care can be adequately served by placement with either immediate family members or “significant others”, i.e., other

individuals and/or families known to the youth and his/her parents such as neighbors or family friends, or in private foster homes (Office of the Child and Youth Advocate, Province of Newfoundland & Labrador, 2009).

For youths with greater needs, the next level in the continuum of care includes community-based residential placements such as therapeutic foster homes, none of which exist in the province at present, and group homes. Unlike standard foster homes, therapeutic foster homes require that caregivers have specialized experience and/or training that will enable them to deal effectively with the child’s needs. If the child’s particular combination of emotional and/or behavioural issues renders foster home placement inappropriate, then he/she may be placed in a group home (Fowler, 2008). In Newfoundland & Labrador, there are a few community-based residential programs for young people⁵, mostly concentrated in the St. John’s area. Key Assets (originally named the St. Francis Foundation) provides a variety of residential and support services to children, youth and families. Shalom Inc. also offers residential and support services for young people 12-16 years of age who are under the care of Eastern Health’s Director of Child, Youth and Family Services. Choices for Youth provides housing and lifestyle development supports to youth in the St. John’s metropolitan area, though it does not operate a group home *per se*. As well, there is a range of shelters and other facilities throughout the province that are open to youth in need but that do not serve the child and youth population exclusively.

Overall, however, the province provides only a limited number of youth residential placement options, especially outside of the Eastern Avalon/St. John’s area (Fowler, 2008). Moreover, as of October 2010 the province did not have any **residential treatment centres**. The province’s major tertiary care children’s hospital – the Janeway Hospital – only has one seven-bed acute mental health

⁵ These do not include private foster homes or placements with other family or significant others.

unit for assessment and short term treatment of children and youth. Although Aboriginal youth are proportionately over-represented among in-care youths, there are no dedicated Innu or Inuit child and family service agencies administered by the Government of Newfoundland & Labrador or by any of the four Regional Health Authorities⁶. As a result, the Provincial Committee on the Residential and Treatment Needs of Children and Youth (“PCNY”) found in 2003 that “there is still a group of highly vulnerable children and youth with needs [i.e., youth with complex needs] that are not adequately met through existing organizations or systems of care.”

This situation has led to lengthy and expensive *ad hoc* alternatives, including Independent Living Arrangements (ILA), Alternative Living Arrangements (ALA) or out-of-province placements (OPP) for treatment. In an ILA or ALA, the youth is placed in rented accommodations staffed full time by individuals who may (or may not) be trained to provide care to youth. In May 2009, Newfoundland & Labrador had 613 children/youths in care. Of these, 16 were in ILAs, 41 were in ALAs and 41 were in OPPs. One hundred and twelve of these youths in care were from the Innu Zone, and twenty-one of them were in OPPs. It is clear that the youths in ILA/ALA/OPP placements have complex needs and could be candidates for residential treatment in Newfoundland & Labrador. The PCNY survey data indicate that these groups of youths in care scored worse than others in care on many aspects of child history, including: neglect, family substance abuse, violence, family violence, family psychiatric disturbance, and sexual abuse (Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003). Young people in ILAs and OPPs also scored worse in the different categories of issues presented at intake, including: special education needs, negative peer involvement, violence towards others, irregular school attendance, developmental delay, depression-

anxiety, and attachment disorder (Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003).

One additional pathway through which youths may enter in-care programs is the corrections system. Since the implementation of the Youth Criminal Justice Act in 2003, the number of young people sentenced to serve time in correctional facilities has decreased and the number of court orders that place young offenders under the auspices of child welfare organizations has increased (Fowler, 2008; Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003). The PCNY report states:

There is a strong correlation between the characteristics of young people involved with youth corrections and the characteristics of young people in the child welfare system who are considered to be the most challenging. Many of these youth float back and forth between systems.

In the context of residential treatment in general, one particular sub-group of juvenile offenders warrants special consideration: juvenile sex offenders. Because of the risk to the community, a residential treatment placement for youth who are sexually aggressive is relatively common in many jurisdictions. From a rehabilitation standpoint, a safe placement with treatment was initially seen as more desirable than incarceration for young sex offenders. However, the use of residential treatment for sexual offenders is often a component of sentencing. The combination of justice and treatment components within this intervention make it rather complex since sex offender treatment can be provided in a corrections setting, in a residential treatment center, or in the community. The role of the courts also complicates any understanding of admission criteria and length of stay (Lyons, 2004).

⁶ The Charles J. Andrew Youth Treatment Centre is based in Sheshatshiu, Labrador and provides addiction services to Innu youth. The CJA Centre is funded by the federal National Native Alcohol and Drug Abuse Program and operates independently of the Department of Child, Youth & Family Services, the Department of Health & Community Services and the Regional Health Authorities. The Centre is staffed by paraprofessionals, has limited resources and an inconsistent history of operation. It is not integrated with the child and youth services provided by the Province.

Regardless of the path, over the past twenty years, there has been a dramatic shift in the interpretation of which child and youth needs indicate placement in a residential treatment center. First and foremost, the use of residential treatment for children ages 12 and younger has declined significantly overall, and most current opinion is opposed to placing children 12 and under in residential treatment except in exceptional circumstances involving very high-risk behaviour and where no community living arrangement is feasible (American Association of Children's Residential Treatment Centers, 2009; Lyons, 2004). Since younger children are easier to manage safely than adolescents because of developmental characteristics (e.g., physical size, capacity for redirection), children under the age of 11 are unlikely to require the structured settings provided by residential treatment. As expressed in *The System of Care Philosophy* (Stoul & Friedman, 1986), the current consensus is that growing up in a family environment is preferable to growing up in a congregate care environment and therefore, the placement of children in residential treatment should be a very rare event (Hodges, Ferreira, Israel, & Mazza, 2010). Second, since the mid-1990s, developmental and learning disabilities have lost ground as indicators for residential treatment. Most current decision models that support the placement of youths in residential treatment focus on psychopathology and risk behaviours, not functional impairments⁷. The clinical thinking behind this policy shift has been that developmental and learning disabilities are best addressed in the environment in which the challenges occur.

Thus, the combination of high-risk behaviours and mental health needs has become the standard admission criterion for youth residential treatment in many jurisdictions. Appendix A describes one example of a decision model for YRT placement that

incorporates both risk behaviour and mental health needs. The model has been shown to optimize the effectiveness of YRT by selecting for youth who are well-suited for residential treatment (Lyons, 2009).

In the context of youth with complex needs, stigma may play a critical role in the seeking and delivery of mental health services. In general, mental health studies define stigma as the negative beliefs and reactions that other people have regarding a person's mental health challenges. Discrimination resulting from these beliefs is referred to as "social stigma" or "real stigma". The belief held by an individual with mental health challenges that discrimination or negative attitudes exist in others is referred to as "perceived stigma". "Self stigma" is used to refer to negative beliefs and reactions one has regarding his/her own mental health challenges.

In adult mental health contexts, stigma is believed to lead to delays in identifying mental health challenges, delays in seeking treatment, feelings of isolation, and discrimination in work and housing (dosReis, Barksdale, Sherman, Maloney, & Charach, 2010; Sirey et al., 2001; Wang et al., 2005). However, with adolescents the finding on the impact of stigma on seeking mental health treatment is mixed (Golberstein, Eisenberg, & Gollust, 2008).

While most mental health experts would agree that stigma is a major problem in the field, research on stigma suffers from serious methodological limitations. It is a phenomenon that nearly everyone is sure exists and is relevant but it is exceptionally difficult to define and measure. First, stigma is a subjective experience. On the one hand, stigma can exist in other people's perceptions of mental illness or it can reside in the person with mental illness. Thus, an employer may be hesitant to hire a youth with a mental health challenge

⁷Youth with developmental and/or learning disabilities, in addition to highly complex needs, represent a group with particularly difficult challenges for treatment. While some youth with especially severe developmental and/or learning disabilities may require a residential **placement**, most will not require residential **treatment**. For those youths with complex needs who also have developmental and/or learning disabilities, the challenges of appropriate residential treatment are many. Treatment strategies and approaches designed for youth without such disabilities may not be as effective and may require additional programming and supports to produce a positive change in behaviour. In addition, finding effective treatment in a community for youth with co-existing mental health and developmental challenges can be difficult. As a result, there is the risk that these youths may end up in residential treatment centres for inappropriately prolonged periods of time through multiple referrals or extended stays. They may also manifest aggressive behaviour, over-stimulation and other behavioural challenges that place additional stress on the residential treatment centre's staff and clients.

because the employer has stigmatized that youth's condition. On the other hand, the employer may not hire the youth for other reasons, but the youth believes that he/she was rejected because of mental illness. Either of these phenomena has been described as stigma. Since there is also 'stigma' involved in holding stigmatizing attitudes or opinions, it is a socially unacceptable set of internal beliefs and this further complicates measurement.

The role of stigma in residential treatment is deeply complicated and has not received much study. One could argue that being placed in residential treatment might serve to stigmatize a youth by removing him or her from the community. Much as psychiatric hospitalization is thought to increase stigma by identifying a level of need that requires removal from the community, residential treatment could complicate life for youth by branding them as having significant mental health concerns⁸. Alternatively, the milieu aspects of residential treatment in which youth experience other youth with similar challenges might reduce the experience of stigma by addressing feelings of isolation ("I am different") that appear to be a crucial aspect of self stigma and perceived stigma. Both outcomes are possible with the risk that residential treatment episodes can result in further stigmatization.

⁸ Anecdotally, child welfare workers report difficulties finding foster homes for youth returning from residential treatment as foster parents are worried about their capacity to manage these youth's behaviour (personal communications).

Synthesis of the Evidence

1. Scope of the Review

According to the CHRSP methodology (see www.nlcahr.mun.ca/chrsp), this report is limited to the relevant systematic review literature. We have based our synthesis on evidence identified through a comprehensive search for published and unpublished systematic review materials, including: systematic review studies, meta-analyses, health technology assessments (HTAs) and grey literature that includes a systematic review component. A full description of our search methodology is provided in the companion document.

The initial approach to our search was to treat youth residential treatment as a generic treatment model. The results were quite limited and so the Research Team decided to deconstruct youth residential treatment, as it related to Newfoundland & Labrador, into several distinct components. Each component was expected to have a more robust review literature that would supplement the evidence identified in the initial search. The full set of search strategies is summarized below:

1. Evidence for the effectiveness of youth residential treatment as an unspecified or generic treatment program (our initial search).
2. Evidence for the effectiveness of treatments for youth with addictions.
3. Evidence for the effectiveness of treatments for youth with disruptive behaviours.
4. Evidence for the effectiveness of treatments for sexually aggressive youth.
5. Evidence for the effectiveness and/or appropriateness of youth residential treatment for Innu and Inuit youth generally and the effectiveness and/or appropriateness of treatments for Innu and Inuit youth with addictions and/or conduct disorder and /or who are sexually aggressive.
6. Evidence for the influence of site design, of staffing and of governance on the effectiveness of youth residential treatment centres.
7. Evidence regarding the health economics of youth residential treatment centres.

Given the multi-disciplinary nature of the topic, we conducted our searches through several periodical indexes (i.e., PubMed, CINAHL, PsycINFO, Embase, ERIC, Academic Search Premier, Canadian Research Index, Psychology and Behavioural Sciences Collection and Social Work Abstracts) and two databases cataloguing review literature in health research (Cochrane Library/DARE and Health-evidence.ca). Our searches were limited to studies in English and French that were published between 1994 and 2009. We used published hedge strings to distinguish the review papers we sought from primary research, opinion pieces and comment pieces.

In our search for evidence on the effectiveness of treatments for Innu and Inuit youth, we discovered a near-total absence of systematic review literature in peer-reviewed journals. Owing to the relatively high risk that Innu and Inuit youth will have complex needs and potentially require residential treatment, the Research Team decided by consensus to add a comprehensive search of the “grey literature.” In this case, we searched for research carried out by governments, private consultants or other researchers that was not published in publicly available media. We searched for grey literature from Canadian federal and provincial government departments and agencies, national and regional First Nations and Inuit organizations (as well as similar organizations in the United States, Australia, New Zealand, Sweden, Norway, Iceland and Denmark), as well as graduate theses.

The results of all our searches were exported to RefWorks, an online reference management software package. Two of the authors (PN, RK) coded the references for inclusion by subject area and type

Table 1: AMSTAR score distribution of the included systematic reviews

Study Subject Area	Study Setting	AMSTAR Score (out of 11)			Number of Studies
		High quality 9-11	Middle quality 6-8	Low quality 0-5	
YRT as general treatment program	Residential only		1	3	4
Youth with addictions	Residential only				0
	Mixed or non-residential		3	7	10
Youth with conduct disorders	Residential only	1		1	2
	Mixed or non-residential	2	5	9	16
Sexually aggressive youth	Residential only				0
	Mixed or non-residential		9	5	14
First Nation & Inuit youth	Residential only				0
	Mixed or non-residential		9	5	14
All Subject Areas	All settings	3	18	25	46

of publication (e.g., systematic review, narrative review, best practices, etc.). The same two authors critically appraised the methodology of the included systematic reviews using the AMSTAR instrument (Shea et al., 2007a; Shea et al., 2007b) (see the companion document for details on AMSTAR). The AMSTAR scoring showed “substantial agreement” between the raters, with a Cohen’s Kappa⁹ value of 0.68 (95% confidence interval: 0.624 to 0.732). Any discrepancies in coding were resolved through discussion until a consensus was reached. The full text of the references, along with summary documents including an annotated bibliography and the AMSTAR scores, was then sent to the Team Leader (JL) who carried out the synthesis.

2. Methodological Issues in YRT Research

Research on the effectiveness¹⁰ of residential treatment is complicated by a variety of factors. The first complication is, as noted above, the fact that the concept of residential treatment combines two distinct components, placement and treatment. Residential treatment *de facto* requires that the child or youth live in a facility. Although specific licensing guidelines vary across jurisdictions, generally speaking residential treatment centres can vary from a house with as few as eight children and live-in parents to an institution with hundreds of beds and dormitory-style living arrangements. When you have eight or fewer children or youths in a living arrangement, it is generally referred to as a group home. Group homes often have different outcomes expectations than do residential treatment centres (Lyons, 2004).

The treatments used can vary across residential treatment sites and within sites. For example, a number of facilities now use either Aggression Replacement Therapy or Collaborative Decision Making as their milieu approaches, while others use

⁹ Cohen’s Kappa is a statistical measure of inter-rater agreement. Landis and Koch proposed that values between 0.61 and 0.80 may be considered to indicate a “substantial agreement” (Landis & Koch, 1977).

¹⁰ Effectiveness is the ability of an intervention to produce the desired beneficial effect in real-world usage, compared to efficacy which is the ability of an intervention to produce effects under ideal circumstances (Dorland, 2007).

behavioural management strategies based on token economies. Some larger facilities have specialized treatment on site that is used with only a subset of the residents. For example, an Anger Management group might target only those youths with this specific need while a trauma group might be used only with those youths with significant trauma experience (e.g., Glick, 1996; Greene & Ablon, 2006).

Thus, any study of a set of residential treatment centers (RTCs) must deal simultaneously with both the placement and the treatment components of their approaches. Given the enormous variability that exists across these dimensions, any study of one site, or even a small group of sites, will have very limited generalizability.

A second complication in residential treatment research is designing studies with sufficient statistical power¹¹. A study's power is decreased with fewer participants. Several aspects of residential treatment effectively reduce power (Lyons, 2004).

- Residential treatment centres tend to average around 25 beds, making it a challenge to recruit a sufficient sample size unless the study is system-wide.
- Although in the past five years the average length of stay has declined, it remains the case that residential treatment episodes average a year or longer in most jurisdictions, in addition to a follow-up period to assess the sustainability of the outcomes. Such long duration makes these interventions very resource intensive, further limiting sample size.
- A year-long intervention that requires placement in a living arrangement makes randomized clinical trials nearly impossible from both a feasibility and an ethical perspective.

A third complication is that traditional measurement approaches do not effectively distinguish between treatment effects and setting effects (Lyons, 2009). Treatment effects are changes that occur in the child or youth because of the treatment and that can be potentially sustained outside the residential setting. Setting effects are outcomes that result from the structure of the RTC setting and are entirely contingent on maintaining this structure. Anecdotal reports from employees of the child and youth services system suggest that children and youth sometime respond positively to the structure of residential treatment programs, but that this response lasts only so long as the treatment continues and the setting's structure is in place.

In addition to the analytic challenges described above, there are also substantial concerns about the quality of both the reviews we have synthesized and the studies on which those reviews were based. These concerns need to be taken seriously, since they suggest the need for caution in drawing conclusions and policy implications from our synthesis. The shortcomings of the existing literature can be summarized as follows.

First, as is the case in much of the behavioural, social and health sciences, the quality of many of the existing reviews is problematic. We found a total of forty-six relevant systematic reviews published between 1994 and 2009. Applying our chosen rating methodology (AMSTAR), we found that only twenty-one reviews scored above 5 (out of 11), with only three reviews meeting the criteria for the highest quality methodology (9 out of 11 or better, see Table 1, previous page). Two of these reviews addressed cognitive behaviour therapy (CBT) for conduct disorder and other disruptive behaviour disorders that may or may not be used in RTCs. The third addressed parent training/education programs for the same behaviour problems, programs that are challenging to provide within a residential treatment center for geographic and logistical reasons. Thus, none of the highest -rated reviews addressed the

¹¹ Statistical power can be thought of as the capacity of a study to detect a real treatment effect in the sample. A more formal description of statistical power is the probability that the study test rejects a false null hypothesis, such that an increase in power results in a decrease in the chances of mistakenly not rejecting a false null hypothesis. In other words, an increase in statistical power is an increase in the ability to detect an effect.

issue of effectiveness of RTCs as a whole, but only specific treatments that may, or may not, be applied in a residential setting.

Furthermore, there is a problem of potential bias within the reviews themselves. One of the methodological problems in the papers reviewed is the general lack of program evaluation independent of program originators or program participants. Residential treatment is an endeavour that relies on the placement of children and youth within its facilities. Any evaluator employed by such a facility to evaluate its program could be said to be in a conflict of interest that militates against publishing negative findings. There is evidence that indicates that, in this field of research, the allegiance of the researcher has a direct impact on the conclusions drawn by the research (Miller, Wampold, & Varhely, 2008). Thus, this potential bias may be transmitted into the reviews, as none of the reviews controlled for this possible confound.

This problem was most evident in the narrative reviews that were identified in the search; these were generally descriptive and non-critical in nature, and they frequently over-stated a positive bias in favor of RTC interventions. A good example is Grietens & Hellinckx (2004) where a positive mean effect size varying from 0.9 to .31 is interpreted as “moderate optimism” concerning effectiveness. Furthermore, these reviews often did not seem to be independent of pre-existing support for, or subjective bias towards, the value of residential treatment. Therefore, with a few exceptions, the narrative reviews are of uncertain credibility in terms of objective critical analysis. As a result, they were not included in this synthesis.

Secondly, many of the primary research studies examined in the systematic reviews we identified had a number of significant methodological deficits. In some cases, the reviews recognize some of these deficiencies (e.g., Weiss et al., 2005). However, the number of these deficiencies, their magnitude and their scope are so worrisome that even those reviews with the best AMSTAR ratings may not be able to appropriately assess the data

presented and analyzed. These deficiencies include the following:

- inadequate description of the RTC programs studied
- unacknowledged heterogeneity of the RTC programs studied
- a lack of program fidelity (i.e., the accurate reproduction of a treatment protocol) both within and between RTCs
- heterogeneity of outcome measures – lack of standardized research measures for key outcome criteria, such as social function, work experience, educational attainment, symptom reduction, cognitive abilities, etc.
- over-reliance on one outcome measure, in particular “recidivism”
- inadequate descriptions and inadequate characterization of inception cohorts, for example: what were the co-morbid psychiatric disorders in the populations studied? What were the family typologies? Were there any parental psychopathologies and what were they?
- inadequate post-hoc analyses to determine whether there were sub-groups within the study population that demonstrated different outcomes (positive or negative)
- lack of assessment for harmful or negative outcomes
- lack of independent objective evaluation of programs by individuals that were **not** working in, or associated with, the RTC
- lack of characterization of essential program features such as staff competencies, staff composition, specific program components, duration of interventions, duration of follow-up, etc.
- lack of analysis of the mediating impact of environmental and contextual factors (e.g., nature of the discharge environment)

3. Evidence for YRT as a Generic Treatment Program

The search for review articles studying YRT as a generic treatment program identified four systematic reviews (see Table B1, Appendix B). Taken together, the four articles included a total of 166 primary research studies. There was very little overlap among the systematic reviews, with only one study cited in more than one review article (see the companion report, available on our website, for details).

Given the substantive limitations of both the existing primary and the review literatures, and based on a critical examination in the reviews scoring greater than 5/11 on the AMSTAR scale, as well as consideration of the evidence in the lower quality reviews, the following conclusions as to the potential value of youth residential treatment (YRT) can be provided:

- **Evidence for the effectiveness of any specific YRT model is inconclusive.**
- **Evidence for the harm of any specific YRT model is inconclusive.**
- **Evidence for the effectiveness of generic YRT is inconclusive.**
- **Evidence for the harm of generic YRT is inconclusive.**
- **Evidence for the effectiveness of generic CBT delivered in YRT is minimal and with small to very small effects.**
- **Evidence for the harm of generically provided CBT in RTC is unknown.**
- **Evidence for the effectiveness of parent training/education programs in conjunction with YRT is limited.**
- **Evidence for the harm of parent training/education programs in RTC is unknown.**

In addition, based on the research evidence (or lack thereof), the following observations concerning YRT

as a generic treatment program can be made:

- It is not possible to reach any considered generalizations concerning important issues pertaining to the cultural or ethnic applicability of any YRT program although the one review that tried to address this issue did not find any culturally or ethnically determined effects on outcomes (Lipsey & Wilson, 1998). More specifically, it is not possible to reach any considered generalizations concerning the impact (positive or negative) of generic YRT or of any specific type of YRT or of any specific treatment modality within an YRT centre (such as CBT for example) for Innu and Inuit youth.
- Those reviews that addressed the primary outcome of recidivism for juvenile offenders were not able to demonstrate substantive and sustained positive effects associated with YRT interventions compared to standard of care and usual practice comparator groups. Evidence indicated that adding lower-intensity community-based aftercare to residential interventions can slightly decrease rates of recidivism. It is not clear whether this is due to: specific types of aftercare programs, unique individuals working in aftercare programs, specific characteristics of the young people involved that could favour success in aftercare programs, or simply a treatment duration effect¹².
- Unfortunately, the lower quality reviews are the ones that most directly addressed the key questions of interest for the present synthesis. The Frensch and Cameron (2002) review reports a varying positive effect of residential treatment and of family involvement to potentiate and maintain functional gains. Unfortunately, the AMSTAR score for this review was only 4 out of 11. Hair (2005) also reports positive effects across seven studies but this review achieved an AMSTAR score of only 4.

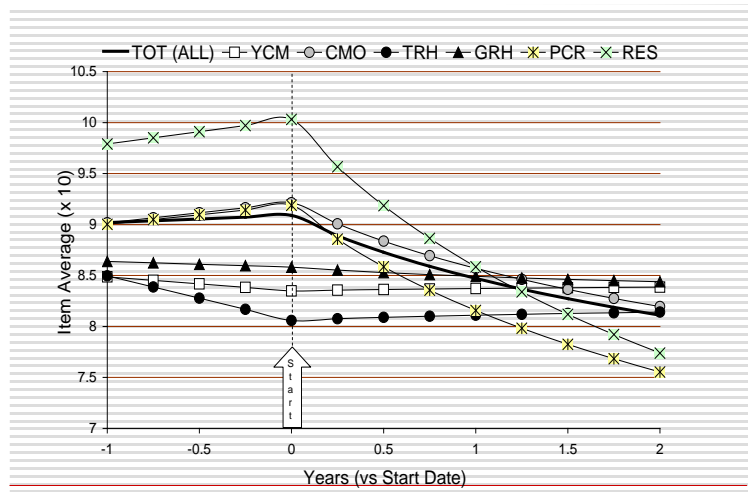
¹² Treatment effect is also called a 'dose response effect': for treatments that work, more treatment is often better than less treatment. As such, a relationship sometimes can be observed between the amount (i.e. duration or dose) of treatment and the improvement in the person.

A recent study completed by this report's lead author and colleagues has some relevance to the present review¹³. Although too recent to be included in any of the systematic reviews, it directly assesses the value of residential treatment within a large complex system of care with multiple treatment components (Lyons, Woltman, Martinovich & Hancock, 2009). This study analyzed outcomes from residential treatment, psychiatric community residences (PCR), care management organizations (CMO), youth case management¹⁵ and group homes from 2003 through 2007, encompassing more than 30,000 episodes of care in the state of New Jersey, USA.

Figure 1 (right) demonstrates outcome trajectories using the Child and Adolescent Needs and Strengths (CANS; see Appendix A) (Lyons, 2004) for each program type. This 'hinged' trajectory analysis calculates growth curves before entry and after entry into each program type. Declining curves indicate improved overall functioning. "Residential Treatment" can be seen as a step up as youth placed in residential treatment are often experiencing an escalation of symptoms and risk behaviours that results in increasing the intensity of the intervention from a community-based approach to a congregate care intervention—that is, a step up to a higher intensity of services. Following the initiation of residential treatment they improve rapidly until, after six months, they have a CANS score comparable to those in CMO services. As this study covers more than 2,500 youth in residential treatment across more than 50 different treatment sites in the state of New Jersey, these findings may actually have more generalizability than a systematic review of a set of much smaller studies. After this study was

Figure 1: Hinge analysis of outcome trajectories to and after program initiation across the New Jersey system of care for children and youth, 2003-2007.

TOT (ALL): Global average; YCM: Youth Case Management (supportive); CMO: Case Management Organization (intensive community); TRH: Treatment Home (one child/youth); GRH: Group Home; PCR: Psychiatric Community Residence; RES: Residential Treatment.



completed, New Jersey implemented a decision support model that referred high-need, high-CANS scoring children to residential treatment. The results showed that outcomes of residential treatment episodes consistently improved over time, indicating that selecting appropriate youth for residential treatment is crucial for achieving more effective treatment outcomes. Recently, Weiner and McEwen (2010) reported on a hinge analysis of placement outcomes in Illinois that found similar results.

4. Evidence for Treatment of Youth with Addictions

Ten systematic reviews were identified that looked specifically at the treatment of youth with addictions (see Table B2, Appendix B.) Seven of the review articles included a total of 132 separate primary research articles, while three review articles

¹³ To address any potential conflicts of interest, an independent critical appraisal of the referenced study was requested and is included in the companion document.

¹⁴ Care management organizations (CMO's) are agencies that provide a full range of treatment and support services to children with the most complex needs. They work with child-family teams to develop individualized service plans. The CMO's goals are to keep children in their homes, their schools and their communities. (Department of Children and Families, State of New Jersey, 2007).

¹⁵ Youth Case Management offers services for moderate risk children and youth who do not meet the care requirements of CMOs. Services include assessing, monitoring and coordinating services to enable children to stay in their communities. (Department of Children and Families, State of New Jersey, 2007).

did not provide citations for the included studies. The review articles had little overlap (although more than those for YRT as a Generic Treatment Program): 83% of the primary research articles (n=110) were cited by only one review, and twenty-two primary research articles were cited in two to four review articles (see companion document for details). All of these included alcohol and eight also included a broader category of drug abuse. Only three reviews scored higher than a five on AMSTAR.

In the highest quality review, Waldron and Turner (2008) focused on treatment and drew the conclusion that evidence existed that three treatment approaches—Multidimensional Family Therapy (MDFT), Functional Family Therapy (FFT) and Group Cognitive Behavioural Therapy (CBT-G) — could be deemed to be “*well-established*”¹⁶ therapies according to the criteria set out by Chambless and Hollon (1998).

Waldron and Turner do not report evidence that one treatment was better than any other and offered no insights as to whether these treatments could or should be provided within residential treatment settings. The second highest rated review (Vaughn & Howard, 2004) produced similar findings but it also determined CBT-G to be the most effective of treatments, with an effect size that was clinically meaningful (greater than 0.20) and with at least one year of follow-up.

None of the existing reviews specifically addressed the effectiveness of treatment in a residential setting for substance abuse. Some of the reviews included preventive interventions in addition to treatment approaches (Elliott, Orr, Watson, & Jackson, 2005; D. Gray, Saggars, Sputore, & Bourbon, 2000; Toumbourou et al., 2007). One of the reviews focused on resistance to treatment rather than treatment effectiveness (Orr-Brown & Siebert, 2007).

Despite these limitations, this literature can provide some specific findings concerning approaches to treatment:

- **Group-based interventions may be effective when they utilize a cognitive-behavioural framework.**
- **Family therapies also appear to be effective, but they are less, or not at all, amenable to residential treatment settings.**
- **No direct recommendations are possible with regard to the provision of any of these approaches in the specific context of residential treatment.**

5. Evidence for Treatment of Youth with Disruptive Behaviours

Eighteen systematic reviews were found for the treatment of youth with Conduct Disorder. Twelve review papers provided citations for the included primary research studies, which together comprised 257 separate articles. In this group, the amount of overlap was marginal: 206 (80%) of the primary research studies were cited by only one review article, 43 (17%) were cited by two or three reviews, and 8 (3%) were cited by four or five review articles (see the companion report for details). Four review articles provided the total number of included primary research articles without individual citations, for a total of 308 studies (Brestan & Eyberg, 1998; Mathur, Kavale, Quinn, Forness, & Rutherford Jr, 1998; Weisz, Jensen-Doss, & Hawley, 2006; Weisz, Doss, & Hawley, 2005). Two more studies provided neither citations nor total numbers for the included primary research articles (see Table B3, Appendix B).

Very few studies limited themselves only to youth with diagnoses of Conduct Disorder. The most likely additional diagnosis included was Oppositional Defiant Disorder. In effect, this literature can be described as an assessment of the treatment of disruptive behaviour disorders in youth. Although we included systematic reviews that included family therapies as one of many treatment options, we excluded those systematic reviews that focused exclusively on family therapies, since they are rarely feasible in a residential treatment context. One

¹⁶ Chambless & Hollon originally defined “empirically supported therapies” as well-established if their effectiveness was statistically supported by at least two independent randomized clinical trials (Chambless & Hollon, 1998).

moderately rigorous systematic review (AMSTAR = 8) studied the methodologies used in primary research on youth with disruptive behavioural disorders (Weisz et al., 2005). It notes that most of the 236 included studies failed to meet accepted standards of study design with regard to sample size, selection, and the recording of key factors concerning settings and participants (e.g., ethnicity). As a result, the authors caution that the findings of much of the primary research they reviewed may lack external validity and may not be particularly generalizable.

The highest ranked systematic review, a Cochrane review (Armelius & Andreassen, 2007) is highly relevant to this report since it addressed CBT for “antisocial behaviour” in youth who were in residential treatment. This study is significant because the authors were able to demonstrate that, while single studies usually do not find significant reductions in antisocial behaviour, research that pools data from multiple studies does indicate a statistically significant decrease in antisocial behaviour at one year follow-up compared to standard treatment, with an estimated odds ratio¹⁷ of 0.69 and an average 10% decrease in recidivism. However, the authors note that these clinically modest gains were not observed at twenty-four months. Their conclusion is that CBT is “a little more effective than standard treatment for youth in residential settings... but there is no evidence of more long-term effects or that CBT is any better than alternative treatments.”

The next two highest AMSTAR-ranked reviews scored nine out of eleven (Gold et al., 2004; Montgomery et al., 2006), and there were another five studies scoring higher than five (Black et al., 2009; Eyberg, Nelson, & Boggs, 2008b; Fossum et al., 2008; McCart et al., 2006; Weisz et al., 2005). Most of the treatments included family-based interventions that are generally precluded from use in residential settings. However, the group treatment approaches that were reviewed could be applied in residential settings. The included reviews

found small effect sizes for group and individual CBT as well as for group behavioural therapy (BT) (see Table B4, Appendix B). In a novel systematic review, Gold and colleagues (2004) reviewed eleven studies of music therapy and report moderate to strong effect sizes particularly for youth with disruptive or developmental disorders. Also of relevance, Weiss, et al (2005) found no evidence of an iatrogenic effect¹⁸ from group treatment of youth with disruptive disorders.

In sum, these reviews portray statistically significant but clinically small effects of treatments for youth with disruptive behaviour disorders. There is little direct evidence to support one treatment over another in a residential treatment context. The review literature does not report any evidence of harm from any treatments for conduct disorder or other disruptive behaviour disorders among youth.

6. Evidence for Treatment of Sexually Aggressive Youth

There is a fairly large body of research on youth or juvenile sex offenders and the findings are suggestive that treatment is better than no treatment, but the quality of the research is sufficiently mixed to warrant some caution in the interpretation of findings. Using this report’s inclusion criteria, fourteen systematic reviews were found that were published between 1994 and 2009 (see Table B4, Appendix B). These reviews covered a total of 381 primary research studies. The majority of these were cited in only one review article (302, 79%). Fifty (13%) were cited in two review articles and twenty-eight (7%) were cited in three to five review articles (see the companion report for details).

In the most recently published meta-analysis, Reitzel and Carbonell (2006) combined findings from four published and five unpublished studies of treatment effectiveness with juvenile sex offenders (JSO). These nine studies taken together involved

¹⁷ The odds ratio is the likelihood of an outcome occurring in an experimental group compared to a control group.

¹⁸ An iatrogenic effect would see the youths with the worst behaviours influencing the less disruptive youths to be more disruptive through their interactions in group treatment.

2,986 participants (predominantly male), including a Canadian sample (in Thunder Bay). Most, though not all, of the studies involve treatment in residential settings. The overall effect size for treatment was 0.43, with higher effect sizes for the more scientifically rigorous studies (five out of the nine studies). The average sexual re-offending rate was 7.37% for the treatment sample and 18.93% for the control/comparison samples. Cognitive behavioural treatment approaches outperformed other treatment strategies but the authors did not test the relative value of residential versus community-based treatment. Two studies used community-based Multisystemic Treatment (MST) and these studies had the greatest reduction in recidivism but also the highest actual rates of post-intervention re-offending, suggesting that they had been targeted to much higher-risk offenders than the other studies.

An earlier meta-analysis (Walker, McGovern, Poey, & Otis, 2004) had an estimated effect size of 0.37 across 10 studies using slightly different inclusion criteria. The review quotes the cautionary finding that effect sizes are much higher for self-reported outcomes compared to objectively measured deviant sexual arousal outcomes. Both of these outcomes have better effect sizes than actual recidivism rates. However, the review agreed with the basic premise that cognitive behavioural interventions have reasonably good evidence of effectiveness with a JSO population based on the existing research. These authors did not provide any information about the proportion of youth who were in residential placements during their period of treatment. The included articles suggest that a significant subset of youth were in residential placements at the time of the treatment; however, the two studies of MST were clearly community-based.

Most of the existing systematic reviews in this literature focus on predicting recidivism rather than on testing treatment effects. However, some of these reviews include treatment as a predictor of recidivism. For example, a Canadian review (Hanson & Bussiere, 1998) reports that treatment participation was related to reduced relapse over

a sample of 61 studies of recidivism. Similarly, another systematic review reported that treatment participation is related to reduced recidivism (Fortune & Lambie, 2006). Unfortunately, the location of treatment was not included in that review.

In one of the first studies that specifically tested the impact of location of treatment, Alexander (1999) found that JSO treatment provided in prisons had a lower recidivism rate than treatment provided in hospital. Recidivism rates of offenders treated as outpatients were lower than those treated in hospitals as well. However, whether residential treatment is more similar to prison or to hospital settings is unclear from this paper. Caldwell (2009) specifically tested the impact of secure placement and found no statistically significant effect on recidivism, although the rate for residential treatment (7.1%) was lower than either community-based treatment (7.3%) or treatment in a secured facility (7.9%).

In sum, it appears that the value of treatment in the reduction of recidivism for youth who are sexual offenders is fairly clear. What is unclear is whether that treatment should be provided in a residential treatment setting or not.

7. Evidence for Treatment of Innu & Inuit Youth

The issue of residential treatment for Innu and Inuit youth is particularly difficult. First and foremost, Innu and Inuit communities have very few services for youth with complex needs in addition to significant geographic difficulties accessing services outside of their communities. Out-of-community placements, and often out-of-province placements, offer a solution to meeting their needs, albeit one that is problematic in terms of cost, separation from family and cultural isolation. Further compounding the problem, Innu and Inuit peoples in Canada have a tragic history of abuse in residential schools. Since residential treatment facilities have a similar name to residential schools and, like them, require the removal of youth from their communities to live in an institution, parents and children may

have negative opinions about residential treatment services. As a result, youth are less likely to accept a YRT placement and parents are less likely to access the services (Gone, 2009; Kishk Anaquot Health Research, 2003).

Our search for evidence for the treatment of Innu and Inuit youth established that there are few independent, rigorous, scientific studies addressing Aboriginal¹⁹ youth with complex needs and, as a result, very little in the way of high-level review literature (see Table B5, Appendix B). Four systematic reviews were identified, which together referenced 118 primary research publications. All but one of the primary research articles were cited by only one review article. Most review papers are narrative (Chansonneuve, 2007) rather than systematic and draw on sources of evidence of highly variable quality (Korhonen, 2004). Much of the primary research that exists has been carried out by government agencies or by consultants hired by governments and/or Aboriginal groups, and very little of it is peer-reviewed or published (Ogborne, Paglia-Boak, & Graves, 2005).

The lack of research is not due to any lack of risk among Canadian Aboriginal populations for complex needs. Although Aboriginals are twice as likely to abstain from alcohol than other Canadians, alcohol and drug abuse are major issues in Aboriginal communities (NLCHI, 2004). In Newfoundland & Labrador, Aboriginal youths are two to six times more at risk for all alcohol-related problems, at greater risk to use solvents and drugs more frequently and at younger ages, and seventeen times more likely to attempt suicide than non-Aboriginal youth (Currie, 2001). Compared to non-Aboriginal youth, Innu and Inuit youth are also at higher risk for FASD/FAS, physical and sexual abuse, parental neglect and negative peer involvement (Nunatsiavut Government, 2008).

Current research links the prevalence of complex needs among Innu, Inuit and other Aboriginal youth to histories of multi-generational trauma dating back, at least, to the era of residential schooling

(Chansonneuve, 2007; Gone, 2009). Consequently, there is a widely held view among researchers in the field that it should not be assumed that evidence about treatment models that were developed for, and evaluated on non-Aboriginal youth, is applicable to Aboriginal youth (Brady, 1995; Chansonneuve, 2007; Kassam, 2006; Kishk Anaquot Health Research, 2003). One narrative review concluded that there is sufficient evidence to indicate that standard psychotherapeutic consultation methods are culturally inappropriate for Inuit youth and, as a result, not effective (Kassam, 2006). Furthermore, with respect to **residential** treatments in particular, the stigma and negative associations of residential schooling in Labrador Innu and Inuit cultures are expected to pose significant obstacles to acceptance (Kinney & Corbin, personal communications). Research carried out on behalf of the Solicitor General of Canada supports this opinion. It found that a key element in successful healing initiatives across six different Canadian Aboriginal communities was the prevention of institutionalization (Lane, Bopp, Bopp, & Norris, 2002). This study is also consistent with the most recent (narrative) review carried out by the First Nations and Inuit Health Branch of Health Canada (FNIHB) that cautions against generalizability without evidence, despite the report's contradictory assertion that "the only individual factors shown to have a significant influence on treatment outcomes are problem severity, social support and mental health status" (Ogborne et al., 2005).

It is important to note that there is substantial variation in the quality and the approach of the studies included in the four systematic reviews that are relevant to the treatment of Innu and Inuit youth with complex needs. However, all agree on findings similar to those found in the narrative review and primary research literatures (Calma, 2008; Chansonneuve, 2007; Currie, 2001; Delfabbro & Day, 2003; Lane et al., 2002). The consensus is that the following design components are necessary to achieve effective service delivery for Innu and Inuit populations:

¹⁹ Aboriginal is a term used to describe all First Nations peoples (including Innu) and Inuit peoples.

1. Culturally sensitive programming and service delivery, e.g., language and customs of social interaction;
2. Service delivery that encompasses a holistic perspective of the person (individual, social, cultural, spiritual);
3. Community involvement in, and control over, programs; and
4. Outreach as the preferred model of service delivery.

In other words, an ideal treatment would be delivered by trained professionals who share, or are closely related to, the client's ethnic background and it would be delivered in a manner that respects, builds on, and incorporates the client's history, culture, and community in all aspects of the treatment approach (Calma, 2008). The untested application of evidence-based practices from other cultures in Innu, Inuit and other Aboriginal communities is thus not recommended by researchers in the field (Isaacs, Huang, Hernandez, & Echo-Hawk, 2005).

There is a small amount of primary research on the impact of treatment for sexual offenders in Aboriginal youth populations. One fairly recent study focused on differential outcomes (Rojas & Gretton, 2007). In this study, 102 Aboriginal youth were compared to 257 non-Aboriginal youth in terms of the types of sexual offense, variations in response to treatment, and the related co-factors. Aboriginal youth were much more likely to have significant trauma and substance-related co-factors, although the nature of the offences was similar to non-Aboriginal youth. Significantly, Aboriginal youth had significantly higher rates of recidivism following treatment (approximately twice as likely to re-offend within 5 years).

8. Evidence Regarding Site Design, Staffing & Governance

There is very limited scientific literature on issues of site design and the organization of residential treatment centres. However, the current (and growing) best practice literature emphasizes

engaging families during the residential treatment episode (American Association of Children's Residential Treatment Centers, 2009). The obvious way to accomplish this goal is to have residential treatment placements within reasonable travel distance from where parents and other family members live.

Of course, the challenge with close-to-home placements is that they can be associated with higher run-away rates (Eisengart, Martinovich, & Lyons, 2008). When it is difficult or impossible to get home, youth are somewhat less likely to elope from treatment centers. Those closer to home often have more temptation to run. However, it appears that some programming is associated with lower runaway rates than others (Eisengart et al., 2008), so that this challenge can be addressed through more effective treatment and living milieux.

Existing best practices on staffing emphasize the use of both trained professionals and staff with similar cultural backgrounds as the youth served. Meeting these two goals simultaneously can be challenging. In Newfoundland & Labrador, it suggests an emphasis on the continuing development of training for child care workers and counselors/therapists among Innu and Inuit communities.

Residential Treatment Centres vary considerably in terms of governance. Some are private for-profit, some are private not-for-profit and some are government owned and operated. There is little to no research on these issues although there are some relevant commentaries, (e.g., Gharabaghi, 2009). A decision about governance of residential treatment centres in Newfoundland & Labrador should involve a full, contextualized discussion of the relative merits of each type of governance structure.

That discussion should also include a review of the history of youth residential treatment services in the province and their governance structures. There were few publicly available documents that addressed the subject prior to the recent spate of reports on children "in care" (Fowler, 2008; Office of the Child and Youth Advocate, Province

of Newfoundland & Labrador, 2009; Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003; Provincial Committee on the Residential and Treatment Needs of Children and Youth, 2003). In order to deepen our understanding of this history, the Research Team interviewed Heather Modlin, who currently serves as a Director with the Key Assets foster care agency and whose involvement in youth residential treatment in this province dates back to the early 1990s when she worked at the Coach House assessment and stabilization centre. At that time, according to Ms. Modlin, there were only five group homes serving the whole island of Newfoundland, all of which were located in St. John's²⁰. Outside of St. John's, there was a number of Independent Living Arrangements (ILAs) that were not staffed by professionally trained personnel.

The story of Coach House is instructive in that it illustrates many of the historical challenges and gaps in the broader service landscape for youth with complex needs in this province. A 1990 report by Gale Burford and Michelle Sullivan, researchers at Memorial's School of Social Work, provides a "post-mortem" on the facility. Coach House opened in 1987, ten years after the province's Department of Social Services had officially committed itself to a policy of de-institutionalization (Burford & Sullivan, 1990). During this period, the province moved to shut existing institutional facilities and replace them with community-based group homes like those mentioned above. These community-based group homes retained formal independent control over admissions and discharges, creating a situation in which departmental staff encountered obstacles in securing placement for youth whose behaviours "could not, or would not, be tolerated in their homes of origin, foster homes or other child welfare group home facilities." The situation escalated into a crisis in 1984 with the passage of the federal Young Offenders Act, which limited the potential for youth incarceration and thus further restricted the placement options available to the Child Welfare division of what was then the Department of Social Services.

²⁰ These included (1) Shalom, a group home for girls established in 1973; (2) the Mercy Residence for girls, run by the Sisters of Mercy but now closed; (3) Presentation House for children under 12, run by the Presentation Convent and now also closed; (4) St. Francis home for boys, established in 1978 currently known as Waypoints; and (5) the Mount Cashel Manor, which later evolved into the Choices for Youth Program.

In this context, the Department decided that it would assert absolute control over admissions to, and discharges from, Coach House. It was intended that this facility could not be selective in accepting or rejecting young people referred by the department, particularly those whose behaviour had been considered unmanageable by other services operated by Child Welfare and the Department of Health. Government had thus originally intended that Coach House would serve only as a centre for emergency behavioural stabilization, followed by prompt referral to a more appropriate placement setting. However, as Burford and Sullivan point out, government failed to develop a network of medium- and long-term placement facilities to which young people could go when they left Coach House. The result was that some of the most troubled youth ended up in long-term, open-ended placements in the facility, itself ill-equipped to handle assessment and treatment of clients with complex needs. Coach House was closed in 1990 after only three years of operation.

There is emerging evidence on the potential value of a centralized process for placement in residential treatment. Since the business models of most residential treatment centres require that they maintain occupancy of 90% or above, they are motivated to find youth and keep them in care as a business priority. This creates a potential conflict with effective and rapid treatment and re-integration with the community. The largest study of the impact of centralized placement is the analysis by Lyons (2009) presented on page 13. Over the five years of that study, New Jersey implemented a centralized placement process that was community-based and that reduced the number of youth placed in residential treatment while simultaneously improving the outcomes of residential treatment. While this is only a single scientific publication, the sample was more than 30,000 youth over five years and included more than 80 different residential providers.

The study by Chor and colleagues (2008) of the Child and Youth Investment Team approach

to centralized placement decision making also demonstrated a positive impact on outcomes in residential treatment in a different jurisdiction with a large sample across more than 50 residential providers.

9. Evidence Regarding the Health Economics of YRT

The objective of this section is to synthesize the systematic review literature that addresses the health economic evidence for youth residential treatment. In general, health economic research seeks to compare the costs of two or more interventions relative to their respective consequences (Drummond et al., 2005). Different measurements of these consequences will yield different comparisons of the alternative interventions:

- a) **Cost effectiveness analysis:** The monetary costs of an intervention are considered in terms of a single common health outcome that is measured in natural units. In the case of youth residential treatment, outcomes may include: discharge from care, behavioural improvements, secondary school completion, years free from alcohol and drug use, etc.
- b) **Cost utility analysis:** The monetary costs of an intervention are considered in terms of a single outcome or of multiple outcomes that are valued in relative terms, i.e., that are weighted. The combined outcome is measured in units that capture both the quantity and quality of the effects of the intervention, with the most common measure being the quality-adjusted life-year or QALY²¹.
- c) **Cost benefit analysis:** The monetary costs of an intervention are considered relative to a single or multiple health outcomes that are valued in monetary units; in this case, health outcomes are assigned a monetary value.

For this report we searched for systematic reviews

from 1995 to 2010 that surveyed health economic research comparing residential treatment against other treatment modalities for youth with complex needs (see the companion report for details on searches). Our search yielded one systematic review (Romeo, Byford, & Knapp, 2005) which scored five out of eleven on the AMSTAR scale. The small number of reviews was not unexpected: conducting health economic research requires evidence of health outcomes, so that the lack of good quality research on youth residential treatment as previously described greatly limits the capacity to produce good quality health economic research on the same topic.

The review paper by Romeo and colleagues (2005) evaluated a broad range of published studies on mental health interventions for adolescents. Among these, one study involved a comparison of residential and non-residential settings (Grizenko & Papineau, 1992). That study involved a residential treatment program for children with complex needs (6-14 years) that was transformed into a day-treatment program. A detailed chart review on two equal samples was carried out (n = 23 for both groups). The findings from the cost effectiveness analysis indicate that both groups improved significantly in terms of discharge from program, behavioural improvement, family function and school integration. There were no significant differences between the groups in terms of pre-treatment variables or post-treatment outcomes, but residential treatment was shown to have significantly higher costs and longer lengths of stay (see Table 2, right).

We identified surprisingly little primary research evidence corroborating or contradicting these findings. One study evaluated the effectiveness of the Minnesota Model for adolescents with addictions in both residential and outpatient programs (Winters, Stinchfield, Opland, Weller, & Latimer, 2000). One of its main findings is that the additional costs associated with residential

²¹ QALY combines time and an assessment of quality of life, i.e., utility. A QALY unit is based on a scale that assumes that one year of life lived in perfect health is worth 1 QALY (1 Year of Life × 1 Utility = 1 QALY). A year of life that is lived in a state of less than perfect health is worth less than 1; to get an exact QALY value, the utility value associated with a given state of health is multiplied by the years lived in that state.: TIME x UTILITY = QALY. QALYs are expressed in terms of "years lived in perfect health", e.g., half a year lived in perfect health is equivalent to 0.5 QALYs, the same as 1 year of life lived in a compromised state of health with utility 0.5 (Drummond, Sculpher, Torrance, O'Brien, & Stoddart, 2005).

care were not matched proportionately to any positive increase in treatment outcomes.

Several studies were based on data from the American Drug Abuse Treatment Cost Analysis Program (DATCAP). One study evaluated the costs and benefits of two “representative” substance abuse treatment programs for adolescents, one residential and one outpatient (Zavala et al., 2005). A detailed cost-benefit analysis showed that residential treatment was approximately six times more expensive in terms of total annual costs, but the authors did not report any health outcome data or cost effectiveness analysis. Another DATCAP-based study calculated the costs of residential treatment programs for youth with addictions (French, Popovici, & Tapsell, 2008). Based on one treatment program, they found that: the total cost reached a mean of \$1,487,883 per client per year; the average weekly cost was \$1,295 per client; and the average cost per episode was \$10,640. Yet another DATCAP study considered residential treatment for substance abuse for all ages (French, Salomé, & Carney, 2002). That study found that the net treatment benefits of \$21,329 were considerably higher than the treatment costs of \$4,912; and the average net benefit (total benefits – total costs) was \$16,418 per client, with a benefit–cost ratio of 4.34.

Despite the lack of relevant cost effectiveness and cost utility evidence for residential treatment, there is no dispute that, in Western developed countries, the **societal costs** of **not** treating youth with complex needs are substantial:

- The costs associated with child abuse and neglect in the United States were recently estimated to reach a total of \$6,055,675 (in 1999 dollars) per case (Conrad, 2006) and these costs were broken down as follows: direct costs (medical and social services, foster care, community police and judicial costs) reached \$17,319 per case; indirect costs (juvenile facilities costs, criminal justice costs,

Table 2: Residential vs. Day Treatment comparison (cost values in 1990 \$CDN)

	Residential Treatment		Day Treatment		Significance
	Mean	SD	Mean	SD	p
Length of stay	19.7	8.8	6.1	1.9	0.0001
Cost of treatment	\$61,412	\$27,330	\$9,213	3,111	0.0001

special education costs and costs for increased use of health care and mental health services) reached \$40,143 per case; opportunity costs (lost productivity, including injury, incarceration and long-term unemployment, and taxes that are subsequently not earned or paid) reached \$5,998,216.

- Another recent U.S. study compared the incurred costs, from birth to adolescence, for three youth profiles: a non-abused and non-delinquent child; an abused, delinquent and violent youth; and a homicidal youth (Zagar, Zagar, Bartikowski, & Busch, 2009). The total expenses, victimization costs, and criminal justice expenditures reported for each group varied greatly; on average, the costs were \$150,754 for controls, \$352,000 for the abused, delinquent and violent youth, and \$3,935,433 for homicidal youth.
- In another US study, Foster and Jones (2005) reported on the economic implications of conduct disorder (CD) among adolescents in four poor communities. They found that the costs increased with symptom severity and over time. For the last year of high school, the public health care costs for an “average youth with conduct disorder” exceeded \$14,000, compared to \$2,300 for youths without conduct problems. The excess public health care costs of CD over a seven-year period exceeded \$70,000 per child.
- A follow-up study of children into adulthood (age 28) living in the UK showed that service costs were ten times higher in those with diagnosed conduct disorder and 3.5 times higher in those with conduct problems compared to individuals with no conduct issues (Scott, Knapp, Henderson, & Maughan, 2001). The mean additional individual costs reached £70,019 for the CD group and £24,324 for the conduct problem group, as opposed to £7,423

for the no conduct problem group. The most important cost drivers were those associated with crime, educational provision, foster and residential care, followed by state benefits.

This patchwork of health economic evidence relevant to youth residential treatment suggests that most treatments for high-risk youth can be expected to be cost effective compared to no treatment. It also indicates that different program designs have quite different measures of cost effectiveness or cost utility. A partial analysis of the costs associated with treating high-risk youths in Newfoundland & Labrador in 2003, including the use of Out of Province Placements (OPP) and Independent Living Arrangements (ILA), indicates an estimated annual cost of over \$1.5M per youth (see Appendix C). In spite of certain cost-intensive aspects of youth treatment in the province (e.g., remote geographic locations, specialized programming requirements for Innu and Inuit clients), these figures strongly indicate that there are more cost effective means to treat high-risk youths than OPPs and ILAs.

Contextualization for Newfoundland and Labrador

A key feature of this report, as of all other CHRSP studies, is that the questions we have asked, and the evidence we have sought and analysed, are tailored to the specific characteristics of the Newfoundland & Labrador context. We have done this contextualization work at various points throughout this report and what we present now is a summary of the most salient contextual factors and findings.

A range of contextual factors is likely to influence the effectiveness of youth residential treatment options delivered in this province. Some of these factors may be truly unique to Newfoundland & Labrador, and are hardly, if ever, reflected in the research evidence. In other cases, contextual factors relevant to this province may be shared by other jurisdictions but not by most of those that have produced the existing research record. Moreover, it is often the case that research studies do not explicitly address contextual factors at all, making it impossible to even begin considering their impact. A detailed list of the types of contextual factors that are expected to influence the effectiveness of youth residential treatment options in this province is presented in the table that follows.

As an example of how contextual factors could influence YRT effectiveness, consider that the potential client base for Newfoundland & Labrador is expected to have a significant number of clients with Fetal Alcohol Spectrum Disorder (FASD) (Abell et al., 2008). Primary research evidence indicates that Aboriginal youth with complex needs and FASD may be more prone to aggression (Rojas & Gretton, 2007) and may likely benefit from specialized programming and site design (Peadon, Rhys-Jones, Bower, & Elliott, 2009). Effective youth residential treatment for the province may thus require accommodations for this particular group of clients that takes into account their specific needs as well as the needs of the other clients that would be sharing space

with them in a residential treatment centre.

The systematic review research literature did not provide evidence concerning the many levels of contextual factors that influence youth residential treatment. Unlike the heterogeneity of residential treatment programming and design, the heterogeneity of contextual factors that characterize youth residential treatment centres was hardly, if ever, considered in the identified systematic review articles. The most common contextual factors that were mentioned, though generally with limited evidence, were:

1. the need to embed residential treatment within a broader continuum of care that would include local community-based services for high-risk youths, including but not limited to foster care, therapeutic foster care, group homes, outreach programs and counseling; and
2. the enhanced effectiveness of integrating family participation into the treatment program (Hair, 2005).

Similarly, primary research and narrative reviews that focused on treatment of Innu and Inuit youth virtually always emphasized the importance of client- and community-level contextual factors for Aboriginal youth treatment, although scant evidence was provided to corroborate or characterize these findings.

Nonetheless, in interviews with key informants, several levels of contextual factors were identified that can be expected to influence the effectiveness of youth residential treatment in Newfoundland & Labrador. The types of contextual factors involved range from those related to the individual client all the way to those factors that manifest at the level of the health care and child welfare systems.

Table 3: Factors of Relevance in Contextualization

Client-related factors	
Demand factors	<ul style="list-style-type: none"> ○ Number of youths with complex needs requiring residential treatment ○ Number of youths at risk of multiple treatment episodes ○ Impact on demand of stigma as perceived or expressed by clients, families, peers
Co-morbidity factors	<ul style="list-style-type: none"> ○ Youth with learning or developmental disabilities ○ Youth with fetal alcohol syndrome or fetal alcohol spectrum disorder ○ Youth with reactive attachment disorder ○ Youth with criminal histories or criminally violent histories ○ Youth with history of sexual or physical abuse or neglect ○ Youth with both complex psychological/emotional/behavioural needs and substance use needs
Cultural/social characteristics of client population(s)	<ul style="list-style-type: none"> ○ Cultural/ethnic homogeneity/heterogeneity ○ Impact of cultural differences (e.g., traditions of daily living, housing and activities) on effectiveness of service delivery ○ Language issues affecting program design and delivery ○ Risk of social isolation of ethnic minority clients ○ Risk of conflict among clients based on ethnicity/culture ○ Risk of ineffectiveness of culturally inappropriate treatment approaches
Factors related to site of service/design	
Factors related to location	<ul style="list-style-type: none"> ○ Distance or remoteness for family visits ○ Impact of location on risk of running away ○ Proximity to high-risk environments, e.g. adult treatment centres ○ Proximity and access to academic and research environments ○ Acceptability of treatment centre to host community
Factors related to architectural design of treatment centre	<ul style="list-style-type: none"> ○ Availability of secure treatment module within the treatment facility ○ Availability of private space for family visits ○ Availability of accommodations for visiting families ○ Capacity of facilities to match a physical environment to a graduated programming of services, e.g., separate wings within a building or separate buildings within a compound ○ Design of physical environment that is culturally acceptable to minority ethnic populations
Economic factors	
	<ul style="list-style-type: none"> ○ Availability of additional resources for RHAs to staff and administer the treatment centres ○ Challenges to provincial budget if demand exceeds the capacity of YRT centres ○ Challenges to fund recruitment and retention of staff ○ Challenges of sharing costs across jurisdictions (e.g., between NL, Nunatsiavut, Ottawa) ○ Challenges of including budgeting for aftercare programming as a part of youth residential treatment ○ Challenges of including budgeting for evaluation and monitoring as a part of youth residential treatment
Political factors	
	<ul style="list-style-type: none"> ○ Challenges of potential public dissatisfaction with spending on high-risk youth ○ Challenges of possible abuse or other adverse events within residential treatment facilities ○ Possible pressures for a provincially funded centre for Innu and Inuit youth only ○ Availability of strong provincial oversight and involvement with the centres ○ Availability of effective public education campaigns to explain YRT services and to manage public expectations

Table 3 (continued): Factors of Relevance in Contextualization

Factors related to human resources	
Factors related to capacity	<ul style="list-style-type: none"> ○ Challenges of recruitment and retention of appropriately trained child care professionals ○ Availability of professionals with appropriate language and cultural expertise (i.e., for Innu and Inuit) ○ Availability of staff with appropriate temperaments for long-term retention ○ Capacity to train future child care professionals
Factors related to retention	<ul style="list-style-type: none"> ○ Availability of peer support and consultation ○ Access to continuing education and training opportunities ○ Appropriate supervision and debriefing ○ Workloads and schedules ○ Availability of relief workers ○ Appropriateness of part-time workers
Factors related to training	<ul style="list-style-type: none"> ○ Availability of adequately trained child-youth workers, especially training in de-escalation techniques ○ Availability of case managers to coordinate and monitor multi-component treatment plans
Factors related to organization and delivery of services	
Factors related to the continuum of care	<ul style="list-style-type: none"> ○ Degree of integration of youth residential treatment into a broader system of graduated levels of care for youth with complex needs, i.e., “step down services” ○ Degree of individual case management for client navigation and follow-up ○ Risk of inappropriate placements (because of lack of alternative, more appropriate services) ○ Challenges related to releasing clients to families that have elevated levels of need ○ Challenges of transition from YRT at discharge or at age of majority
Factors related to the implementation of services	<ul style="list-style-type: none"> ○ Challenges of matching appropriate milieus to different sub-groups of clients in residential care ○ Challenges of integrating milieu and/or treatment components with follow-up service delivery in home, community and school settings ○ Availability of independent evaluation components to monitor outcome measures (during treatment and for follow-up) ○ Capacity to analyse and use results of independent evaluations to enhance services ○ Challenges to provide a full range of youth-related services beyond treatment alone, including, social, educational, cultural, and physical/recreational ○ Availability of effective guidelines for the use of drugs, restraints, and seclusion (if used) ○ Availability of effective guidelines for managing high-risk sub-groups of clients, including sexual offenders, youths with violent histories, youths with histories of self-harm
Factors related to organization of services	<ul style="list-style-type: none"> ○ Approach to intake including admission procedures and criteria ○ Employment of a dedicated manager and administrative support staff ○ Availability of video-conferencing for distant or remote communities
Other system factors	
	<ul style="list-style-type: none"> ○ Challenges to integrate services across existing treatment centres in the province ○ Challenges arising from involvement of multiple administrative authorities (Child, Youth & Family Services, Health & Community Services, Education, the RHAs) and governments (NL and Nunatsiavut, e.g. July, 2009 closure of the National Native Alcohol and Drug Abuse Program treatment centre in Nunatsiavut) ○ Challenges involved in referring Aboriginal youth to out-of-province (access to coverage under federal Insured Services program)

Implications for Decision Makers

The systematic review literature does not conclusively demonstrate that residential treatment is, or is not, an effective component of a high-quality system of care for children and youth. There is no compelling evidence for the effectiveness, or for the harm, of youth residential treatment in any generic or any specific model. Some recent primary research, however, including the recent study by this report's lead author, indicates that residential treatment can play an important role in treating very high-need youth (Lyons et al., 2009). While this is encouraging given the documented and relatively high levels of need among potential youth clients in this province, these findings require contextualized replication before being generalizable to Newfoundland & Labrador.

At the present time, the most compelling reasons for having youth residential treatment located in the province are to maintain youth with complex needs within the province, to keep young people closer to their families and communities and simultaneously to reduce expenditures. An in-province treatment option would facilitate visits with family members and their potential ongoing inclusion in the treatment of youth in care, either by face-to-face visits or through existing tele-communication infrastructure (NLCHI, 2010).

Given the lack of high-quality evidence for youth residential treatment programming and organization, especially among Innu and Inuit youth, any new treatment facility will require an integrated evaluation component that can monitor the effectiveness of the treatment models and inform the design and delivery of services. Expertise and support for any evaluation and monitoring components could be accessed from the university and from the colleges in the province with programs and faculty in the related areas. At the same time, such partnerships could serve to further expand expertise and capacity for high-needs child care services within the province.

However, based on the existing science, it is a hard to justify expenditures on the placement components of residential treatment rather than on the treatment components. In other words, investing in community-based treatment may be at least as cost-effective as investing in residential treatment facilities and it may be even more cost-effective. In the specific context of Newfoundland & Labrador, however, geography may affect our capacity to achieve high quality community-based interventions in multiple, widely dispersed locations as compared to two high-quality centralized residential treatment facilities. The development of high-quality intensive community options requires developing and sustaining skilled treatment providers across a set of high-need communities. Such a goal is potentially quite complex in terms of recruitment, training, and retention. However, innovations in tele-psychiatry (Frueh et al., 2000; Mucic, 2008) and the development of approaches that emphasize natural supports (Bruns & Walker, 2009) may potentiate a community-based solution for most youth.

It may be that, as discussed earlier, the limits of normal science make identifying the actual value of residential treatment in a system of care improbable. The fact that the primary author's recent analysis of system-wide data for a large American state suggests a significant value of residential treatment for very high-need, very high-risk youth is significant and consistent with current views of best practice. Despite its very large sample size, this study represents a system-wide analysis within a single jurisdiction only and, therefore, requires contextualized replication if we wish to generalize its findings to Newfoundland & Labrador. The fact that its lead author is also the Team Leader of the current report inclines us to even greater modesty.

Despite progress in the development of intensive community options, it remains the case that very few jurisdictions are able to function without any placements in residential treatment centers. It is generally seen as preferable to keep youth closer to their home and communities by having options available within the province. If such options are developed, as the government has indicated it is going to do, it is strongly recommended that the province develop a centralized intake process for the use of this treatment. Further, the province should use a structured decision-support tool, such as the CANS or other evidence-based assessments, to ensure that it is the needs of the youth that drive the decision-making, rather than competing pressures that might favour placements that are not in the best interests of the youth and his/her family.

In sum, the decision regarding the use of residential treatment in Newfoundland & Labrador cannot be fully based on existing science. Further, if the province moves forward with opening residential treatment sites, the design of these programs and facilities is more likely to be driven by a best practices model than by an evidence-based one. Insufficient evidence exists to make clear recommendation on the milieu and treatment design aspect of a residential treatment center. What best practices suggest is that:

- Only extremely high risk youth should be placed in residential treatment centers.
- A central point of access with a structured assessment strategy should be used to support decisions about the use of these placements.
- The milieu model should be one that is portable to community environments (e.g., not token economies or level systems that are not sustainable by parents).
- Treatment should have a cognitive-behavioural component that is trauma-informed and actively involves families.

Appendix A: Decision Model for YRT

The following table provides decision criteria used in the State of Illinois Department of Children and Family Services (IDCFS) for placement in residential treatment. This decision model has established validity in identifying youth most likely to have better outcomes from residential treatment (Chor, McClellan, Jordan, & Weiner, 2008) and for improving overall performance of residential treatment across an entire state (Lyons et al., 2009). The model utilizes the Child and Adolescent Needs and Strengths (CANS) tool which is a communimetric tool²² (Lyons, 2009) that utilizes four levels in its ratings (see next page).

The decision models arising from the CANS are essentially complexity models resulting from patterns of actionable ('2' or '3') or immediate/intensive ('3') needs (Lyons, 2004; Lyons & Weiner 2009). A rating of '3' is reserved for acutely dangerous or completely disabling needs. These models are used in a large number of jurisdictions in the United States for managing placements in residential treatment (and other types of programs) embedded within the Total Clinical Outcomes Management (TCOM) framework (Lyons & Weiner, 2009). TCOM is a strategy for always bringing complex systems back to the objectives of the system. In the child/youth serving system, TCOM is a framework for ensuring that the work always remains focused on children/youth and families rather than on all the other complexities that can influence decision-making and outcomes.

Review of this decision model makes it clear that functioning neither drives complexity of the case nor the intensity of the treatment response. Intensive treatment, particularly at the residential treatment level, is driven by complexity of psychopathology and risk behaviours. In fact, there is an evolving body of experience that suggests

that youth who are low-functioning but not high-risk may be harmed when placed in residential treatment settings with high-risk youth (who sometimes function at a much higher level). These low-functioning youth are reported to have a higher probability of becoming followers of youth who engage in high-risk behaviour.

In sum, the current view is that residential treatment is an appropriate option only for youth with very complex, very high-risk needs that simply cannot be managed in community even with intensive in-home care.

(An independent critique of the research cited as Lyons et al., 2009 is available in the Companion Document.)

²² QA Communimetric tools are specifically designed to communicate the clinical process among clinicians of different clinical backgrounds and allow the use of technology to support improved care.

Table A1: RESIDENTIAL TREATMENT CENTER placement criteria for Illinois Department of Children and Families using the Child and Adolescent Needs and Strengths (CANS)

- 0 No evidence/no need for action
 1 Watchful waiting/prevention
 2 Action/need interfering in some notable way
 3 Immediate or intensive action/dangerous or disabling

Criterion 1: At least two or more '3' among the following needs

- Psychosis
- Attention deficit/Impulse
- Depression
- Anxiety
- Oppositional Behaviour
 - Antisocial Behaviour
 - Attachment
 - Adjustment to Trauma
 - Substance use
 - Anger Control
 - Affect Dysregulation
 - Eating Disturbance
 - Behavioural Regression
 - Somatization

Criterion 2: Three or more '2' among the following needs

- Psychosis
- Attention deficit/Impulse
- Depression
- Anxiety
- Oppositional Behaviour
 - Antisocial Behaviour
 - Attachment
 - Adjustment to Trauma
 - Substance use
 - Anger Control
 - Affect Dysregulation
 - Eating Disturbance
 - Behavioural Regression
 - Somatization

Criterion 3: A rating of '2' or '3' on Developmental

Criterion 4: At least one '3' among the following risk behaviours

- Suicide Risk
- Self Mutilation
- Other Self Harm
- Danger to Others
- Sexual Aggression
- Fire Setting
- Delinquency

Criterion 5: Three or more '2' among the following risk behaviours

- Suicide Risk
- Self Mutilation
- Other Self Harm
- Danger to Others
- Runaway
- Sexual Aggression
- Fire Setting
- Delinquency
- Judgment
- Social Behaviour
- Sexually Reactive Behaviour

To be suggested for RTC, a child should meet (EITHER Criteria 1 OR 2 OR 3) AND (Criteria 4 OR 5)

- If Criterion 3 is met consider a specialty program
- If Sexual Aggression is rated a '2' or '3' consider a specialty program
- If Physical/Medical is rated a '2' or '3' consider a specialty program
- If Delinquency is rated a '2' or '3' consider a specialty program

Appendix B: Systematic Reviews Included in This Report

Table B1: Summary of evidence for YRT as generic treatment program

Citation	Quality	Focus of the review	Key findings
(Lipsey & Wilson, 1998)	AMSTAR: 7 # studies: 115 # participants: n/a	Setting: 83 studies in institutional settings (including 9 that involved residential centers administered by mental health or private agencies), & 117 non-institutional Treatments: Treatments delivered in institutional settings included group & individual counseling, skills training, BT, milieu therapy, teaching family home program, & “multiple services.”	Only two interventions were shown to have consistently positive effects on rates of recidivism by institutionalized juveniles: interpersonal skills training & the teaching family home program (332). Other interventions showed generally positive effects, but the evidence for these effects was less consistent. Only milieu therapy showed consistent null effects. The general program characteristic most strongly related to effect size (for the institutionalized participants) was administration of treatment by mental health personnel (as opposed to juvenile justice personnel) (328).
(Knorth, Harder, Zandberg, & Kendrick, 2008)	AMSTAR: 5 # studies: 27 # participants: 2345	Setting: residential Treatments: intramural psychiatric treatment, MST, family-oriented treatment, BT, PDT, CBT, social skills training	“...children and youth, after a period of residential care – on average – improve in their psychosocial functioning... Striking findings in this context are that: - behaviour-modification components and family-focused components in the treatment interventions seem to achieve positive results; - specific training, aimed at social-cognitive and social-emotional skills of youths, can generate a significant strengthening of a treatment effect” (136).
(Hair, 2005)	AMSTAR: 4 # studies: 11 # participants: 2,533	Setting: residential Treatments: psycho-educational, milieu therapy, others	“...residential treatment appears to be a valuable intervention as part of a system of care for severely emotionally and behaviourally troubled youth. The outcome research also has demonstrated that post-discharge changes depend on family involvement, community supports, and aftercare services” (570).
(Frensch & Cameron, 2002)	AMSTAR: 2 # studies: 14 # participants: 3,153	Setting: residential Treatments: psycho-educational, social skills training, BT, teaching family home, CBT, family therapy, group counseling	“...residential services have been found to improve functioning for some children. At the same time, any success or gains made by children and youth during treatment are not easily maintained and tend to dissipate over time... Successful patterns of adjustment appear to hinge on two factors: the posttreatment environment to which a child or youth is discharged, and the degree of family involvement during treatment” (335).

Table B2: Summary of evidence for treatment of youth with addictions

Citation	Quality	Focus of the review	Key findings
(Waldron & Turner, 2008)	AMSTAR: 7 # studies: 20 # participants: 2,307	Setting: all outpatient Treatments: Seven Challenges, ACRA, CBT, FFT, multidimensional family therapy, MI, MST, Minnesota Model	Group CBT was the only treatment designated as “well-established,” though other variations of CBT “appear promising” (255). “Three treatment approaches, multidimensional family therapy, functional family therapy, and group CBT emerged as well-established models for substance abuse treatment. However, a number of other models are probably efficacious, and none of the treatment approaches appeared to be clearly superior to any others in terms of treatment effectiveness for adolescent substance abuse” (238).
(Vaughn & Howard, 2004)	AMSTAR: 7 # studies: 17 # participants: 1,928	Setting: residential and non-residential Treatments: group CBT, BT, MST, various family therapies, life-skills programs, psycho-educational therapy, supportive group counseling, interactional group treatment, aftercare services, individual counseling, individual CBT	Group CBT received the highest level of evidentiary support (ES>0.20 with at least 1 year follow-up or replication), though BT & psycho-educational therapy fell within the 2nd highest evidence category (ES >0.20 with relatively strong design but less than 1-year follow-up & no replication) Treatments were classified based on the strength of evidence ranging from ‘A’ (highest) to ‘D’ (lowest), and ‘I’ (indeterminate) Class A: Multidimensional family therapy and group CBT Class B: BT, CBT & FFT, FST ¹⁰ , FFT, Multisystemic treatment, Combined Botvin life-skills training, Prothrow-Stith Anti-Violence Program, and Values Clarification Program (VC), Psycho-educational therapy Class C: Supportive group counseling, Interactional group treatment, Aftercare services, Residential treatment services with multiple and variable components Class D: Individual counseling, Family education, Adolescent group treatment, Individual CBT Class I: Parent group method, Minnesota Model 12-Step Program, Coping skills training, Brief strategic family therapy, General group treatment, Purdue brief family therapy, Training in parenting skills
(D. Gray, Sputore, Bourbon, & Sagers, 2000)	AMSTAR: 6 # studies: 14 # participants: not specified	Setting: residential and non-residential Treatments: n/a	“The three evaluations which covered some 18 treatment programmes were either inconclusive or suggested only modest gains.” (16) “Of those interventions evaluated, restrictions on the supply of alcohol appear to have produced the most tangible results. This may be because the results are more easily demonstrable.” (20) “These few studies suggest that-as among other populations-there is no simple solution to the problem of excessive alcohol consumption among Aboriginal people.” (20)

Table B2 (continued): Summary of evidence for treatment of youth with addictions

Citation	Quality	Focus of the review	Key findings
(Orr-Brown & Siebert, 2007)	AMSTAR: 5 # studies: 13 # participants: 2,194	Setting: residential and non-residential Treatments: ACRA, family therapies, BT/CBT, Minnesota model, and MI	<p>“The family therapy, Minnesota Model, and the cognitive/ cognitive-behavioural modalities examined in this review show promise for addressing the needs of adolescent substance abusers. However, because the research on these methods in adolescent populations is limited, it is difficult to conclude that they are truly effective in reducing substance abuse.” (24)</p> <p>“The MI studies reviewed here indicate that the strategies for addressing resistant behaviours and reducing substance abuse can be successfully utilized to increase treatment involvement and improve treatment results. The MI approach to reducing client resistance and increasing motivation to change can be used as part of any treatment modality for adolescent substance abuse.” (24)</p>
(Watkins, 2006)	AMSTAR: 5 # studies: 26 # participants: n/a	Setting: residential & non-residential Treatments: Alcoholics Anonymous, ACRA, family therapies, MI, Minnesota Model, psycho-educational therapy, social/ behavioural skills training, wilderness/ experiential programs, various other group & individual treatments	<p>The evidence reviewed “show[ed] treatment in a residential setting to be effective, although gains diminished over time (where assessed)...” (7).</p> <p>“Any treatment services for youth with substance use issues must address negative environmental factors, enhance community interactions, and provide for ongoing treatment contacts for youth. A variety of options should be available, from basic help lines or conversations with counsellors, to structured therapy, to crisis interventions when needed” (10).</p>
(Williams & Chang, 2000)	AMSTAR: 5 # studies: 61 # participants: >26,079	Setting: residential & non-residential Treatments: family therapies, Minnesota Model, social/ behavioural skills training, wilderness/ experiential programs, various other individual & group therapies	<p>“Methodologically stronger studies have usually found most adolescents receiving treatment to have significant reductions in substance use and problems in other life areas in the year following treatment... Variables most consistently related to successful outcome are treatment completion, low pretreatment substance use, and peer/ parent social support/ nonuse of substances. There is evidence that treatment is superior to no treatment, but insufficient evidence to compare the effectiveness of treatment types” (138).</p>
(Perepletchikova, Krystal, & Kaufman, 2008)	AMSTAR: 4 # studies: 21 # participants: 2,491	Setting: not specified Treatments: ACRA, family therapies, CBT, MI, MST, psycho-educational therapy, various other individual & group therapies	<p>“The strongest empirical support has been provided for Multidimensional Family Therapy (MDFT) and group administered CBT.” (1146)</p> <p>“Combination of CBT with family-based interventions may be a promising strategy for longer-term efficacy.” (1146)</p> <p>“Data on pharmacological and combined treatment strategies in adolescents are too preliminary to suggest definitive guidelines in the medication management of adolescents with alcohol use disorders.” (1146)</p>
(Wagner, 2008)	AMSTAR: 4 # studies: n/a # participants: n/a	Setting: n/a Treatments: n/a	<p>“...[the] paucity of developmentally informed research on the effectiveness of clinical trials has kept the field ignorant regarding whether and when development-treatment interactions may occur in adolescent alcohol treatment” (S345).</p>

Table B2 (continued): Summary of evidence for treatment of youth with addictions

Citation	Quality	Focus of the review	Key findings
(Toumbourou et al., 2007)	AMSTAR: 3 # studies: n/a # participants: n/a	Setting: n/a Treatments: n/a	"In general, psychosocial treatment is better than no treatment, but much more research is needed to evaluate which approaches work better for which individuals. There are potential risks of escalating problems where treatment programmes aggregate young people with antisocial behaviour" (1397).
(Kaminer, 2005)	AMSTAR: 2 # studies: n/a # participants: not specified	Setting: not specified Treatments: n/a	"Recruitment of adolescents from diverse referral sources, maintaining group heterogeneity by including prosocial kids, employing competent and well trained therapists, maintaining an effective supervision apparatus, conducting manualized interventions that include clear 'trouble shooting' protocols and examining processes and mechanisms of change will assure minimalization of 'harmful' adverse effects. There is a need to empirically support this assertion by continued advancement for research and dissemination of adolescent [substance use disorder] treatment." (1772)

Table B3: Summary of evidence for treatment of youths with disruptive disorders

Citation	Quality	Focus of the review	Key findings
(B. Armelius & Andreassen, 2007)	AMSTAR: 11 # studies: 12 # participants: 4,820	Setting: residential Treatments: CBT ¹²	Results favor CBT with an odds ratio of 0.69; average reduction in recidivism of about 10%. "CBT seems to be a little more effective than standard treatment for youth in residential settings. The effects appear about one year after release, but there is no evidence of more long-term effects or that CBT is any better than alternative treatments" (1).
(Gold, Voracek, & Wigram, 2004)	AMSTAR: 9 # studies: 12 (3 on LD children) # participants: 188 (46 LD)	Setting: not specified Treatments: music therapy	Effect size = 0.61. "Music therapy produces a clinically relevant effect of a considerable size and is therefore recommended for clinical use. Specifically, clients with behavioural or developmental disorders, or with multiple psychopathologies, may benefit from music therapy" (1060).
(Montgomery, Bjornstad, & Dennis, 2006)	AMSTAR: 9 # studies: 12 # participants: 943	Setting: non-residential Treatments: Behavioural or Cognitive Behavioural media-based interventions	Effect sizes for media-based interventions alone ranged from 0.12 to 32.6; as an adjunct to medication=2.71 to 39.55. For straightforward cases, media-based interventions may "be enough to make clinically significant changes in a child's behaviour, and may reduce the amount of time primary care workers have to devote to each case. They can also be used as the first stage of a stepped care approach. Consequently this would increase the number of families who could possibly benefit from these types of intervention, releasing clinician time that can be reallocated to more complex cases" (2).
(J. R. Weisz et al., 2005)	AMSTAR: 8 # studies: 236 (96 on conduct-disordered children) # participants: 427 (153 conduct-disordered)	Setting: non-residential, some correctional Treatments: learning-based treatments (child-focused), parent-focused treatments, family-focused, teacher-focused, mixed	The authors' methodological analysis of youth psychotherapy outcome research revealed that "reporting on important sample characteristics (e.g., ethnicity) showed major gaps, and more than half the studies failed to use well-standardized procedures to ensure appropriate sample selection. Because sample sizes left most studies underpowered, and procedures to enhance treatment fidelity were generally weak, many of the treatments investigated may not have received fair tests. Studies were particularly weak in clinical representativeness of their samples, therapists, and settings, suggesting a need for increased emphasis on external validity in youth treatment research" (337).
(McCart, Priester, Davies, & Azen, 2006)	AMSTAR: 8 # studies: 77 # participants: 6,471	Setting: residential and non-residential Treatments: PT vs. CBT	"The mean effect size of PT (0.47) and the mean effect size of CBT (0.35) were both in the small to medium range, suggesting that these interventions can be effective for treating aggressive behaviour problems among youth" (538). "Youth age was found to moderate the outcome of the 2 interventions, with PT having a stronger effect for preschool and school-aged youth and CBT having a stronger effect for adolescents" (527).
(Black, Milam, & Sussman, 2009)	AMSTAR: 7 # studies: 16 # participants: 860	Setting: non-residential Treatments: sitting-meditation interventions	Median effect sizes were slightly smaller than those obtained from adult samples and ranged from "0.27 to 0.70 for psychosocial/behavioural outcomes. Sitting meditation seems to be an effective intervention in the treatment of physiologic, psychosocial, and behavioural conditions among youth" (e532).
(S. M. Eyberg, Nelson, & Boggs, 2008)	AMSTAR: 6 # studies: 13 # participants: n/a	Setting: not specified Treatments: Anger Control Training, Group Assertive Training, Multi-dimensional Foster Care, MT, PT, PSST, RE	Using criteria developed by the "task force on promotion and dissemination of psychological procedures" (215), the authors designate Parent Management Training (Oregon Model) as the only "well-established" treatment in their review (229). The rest of the treatments were deemed "probably efficacious." Similar to McCart et al (2006), these authors recommend that "clinicians consider parent training as the first line approach for young children and reserve direct child-training approaches for older youth who presumably have greater capacity to benefit from the cognitive-behavioural approaches of child training programs" (233).

Table B3 (continued): Summary of evidence for treatment of youths with disruptive disorders

Citation	Quality	Focus of the review	Key findings
(Fossum, Handegård, Martinussen, & Mørch, 2008)	AMSTAR: 6 # studies: 65 # participants: 4,971	Setting: BT , CBT, BT+CBT, FT , PDT Treatments: not specified	The overall mean effect size in controlled studies was 0.62, indicating moderate reduction in oppositional and aggressive behaviours (445). Of the 5 treatments studied, only BT+CBT failed to register an effect size larger than 0.55. The authors conclude that psychosocial treatments aimed at reducing aggressive behaviour have positive effects.
(Miller et al., 2008)	AMSTAR: 5 # studies: 23 (3 on conduct-disordered children) # participants: 1,060 (377 conduct-disordered)	Setting: not specified Treatments: Modified CBT, FT, PT, Child Training, Individual Videotape, Group Videotape, Group Discussion	The authors determined that "the allegiance of the researcher to the treatment being studied was clearly related to the effect produced. It appears that allegiance is robustly related to the results of clinical trials; in the current study, the superiority of any treatment to another was due to the researcher's allegiance to the superior treatment" (11).
(Harris & Pattison, 2004)	AMSTAR: 5 # studies: 9 # participants: n/a	Setting: mixed setting Treatments: CBT, PDT, Humanistic Therapies, Creative Therapies	CBT – "moderate effectiveness with a limited range of severe behavioural and conduct problems, such as antisocial disorder and impulsivity as well as less severe problems such as aggressive and antisocial behaviour in school settings...; self-harming practices including substance abuse, repeated suicide attempts, anorexia nervosa; and the symptoms of sexual abuse." PDT – "effective with a range of behavioural and conduct problems in the 5-13 year age group... [On the other hand] the authors were unable to locate evidence on the effects of psychodynamic therapy for... school-related issues and self-harming practices." Humanistic – "One study found that client-centred therapy was not effective for pre-adolescents with behavioural problems." Creative – " Group drama therapy is found to be effective for children at risk of developing behavioural or emotional problems in the school context... while music therapy is effective in reducing a wide range of symptoms in children who have been sexually abused... We were unable to identify studies that met the inclusion criteria for this report on the effects of creative therapies with behavioural problems, depression, medical illness or self-harming practices... Overall – "There is some evidence that a combination of cognitive-behavioural therapy, psychodynamic and client-centered therapy enhances the effectiveness of therapy using a single approach. Evidence was found for this in relation to verbal and physical aggression... suggesting that a multi-modal approach to therapy may be useful."
(Beelmann, Pfingsten, & Lösel, 1994)	AMSTAR: 4 # studies: 50 # participants: n/a	Setting: residential & non-residential Treatments: Social Competence Training	Results showed that SCT was moderately effective. However, effect sizes were lower than in previous studies...Two main problems were identified. First, significant effect sizes were found only when direct goal criteria (e.g., social-cognitive skills) were evaluated, whereas there were few effects on broader constructs (e.g., social adjustment). Second, long-term effects were weak" (260).

Table B3 (continued): Summary of evidence for treatment of youths with disruptive disorders

Citation	Quality	Focus of the review	Key findings
(Brestan & Eyberg, 1998)	AMSTAR: 4 # studies: 82 # participants: 5,272	Setting: residential & non-residential Treatments: Anger management therapies, Assertiveness Training, Delinquency Prevention Program, MT, PT, PSST, RE, time-out, Plus Signal Seat Treatment	"Two interventions were identified that met the stringent criteria for well-established treatments: videotape modeling parent training program, and parent-training programs based on Patterson and Gullion's (1968) manual Living With Children" (180).
(Taylor, Eddy, & Biglan, 1999)	AMSTAR: 4 # studies: 19 # participants: 1,803	Setting: residential & non-residential Treatments: Dinosaur School, Think Aloud, Cognitive Restructuring, CBT, Anger management therapies, PSST (+ PT), Social Relations Training, Peer Coping Skills Training, Social Skills Training, Second Step Curriculum, Assertiveness Training, Cognitive Mediation Training	This review "illustrates that the evidence for the value of interpersonal skills training is limited. There is some evidence of short-term effects, but there is limited evidence that these effects are maintained over time... Clearly, the accumulated evidence supports the conclusion that skills training programs, by themselves, are an inadequate intervention to substantially reduce conduct problems in children or adolescents. However, such programs may serve as one useful component of a comprehensive effort to affect conduct problems" (175-176).
(Mathur et al., 1998)	AMSTAR: 4 # studies: 64 # participants: 283	Setting: non-residential Treatments: Social skills instruction (various formats)	The results of this review suggest that "skills interventions had limited empirical support for their overall effectiveness" (193). "Despite the fact that these results are disappointing, they concur with those of several previous syntheses" (199).
(Weiss et al., 2005)	AMSTAR: 4 # studies: 66 # participants: n/a	Setting: not specified Treatments: 115 separate treatment groups. Iatrogenic effects only	"In this article, we considered two interrelated hypotheses: (a) that adolescent group treatments are iatrogenic and (b) that deviancy training underlies these iatrogenic effects. In our review, we found little strong evidence for either hypothesis" (1042).
(Bennett & Gibbons, 2000)	AMSTAR: 3 # studies: 30 # participants: 2127	Setting: residential (4 studies, 104 subjects) & non-residential (30 studies, 2,023 participants) Treatments: CBT	"...child-based CBT interventions have a small to moderate effect in decreasing antisocial behavior... A trend was found for child age to correlate positively with post-treatment effect size, suggesting that current child-based CBT interventions for antisocial behavior are more effective for adolescents and older elementary-school aged children than for younger elementary-school aged children" (1).
(Pattison & Harris, 2006)	AMSTAR: 3 # studies: n/a # participants: n/a	This publication is a book. We only have a summary of their results.	see entry for Harris & Pattison (2004) above
(Steiner & Dunne, 1997)	AMSTAR: 3 # studies: n/a # participants: n/a	n/a	"To be effective, treatment must be multimodal, address multiple foci, and continue over extensive periods of time. Early treatment and prevention seem to be more effective than later intervention" (122s).

Table B4: Summary of evidence for treatment of sexually aggressive youth

Citation	Quality	Focus of the review	Key findings
(Brooks-Gordon, Bilby, & Wells, 2005)	AMSTAR: 8 Studies: 1+13 Subjects: 127 + 1,446 (RCT's + non-RCT's)	Setting: Residential and non-residential Treatments: Expressive + CB (+ FT); VS; RP; CBT; SOTP; GPT; IPT; Edu.	Research in this area is characterized by limited high quality (RCT) data and less methodologically rigorous research designs; it may be suggested that all treatments are unproven. One RCT study does suggest that a cognitive approach (relapse prevention) results in a clinically significant improvement in one set of psychometric scores on specific types of children. The existence of different child types and treatment success is an important and under-studied issue.
(R. K. Hanson et al., 2002)	AMSTAR: 8 Studies: 43 Subjects: 9,454	Setting: Residential and non-residential Treatments: CB; IPT; BT; ST.	Mixed adults and youth. Cognitive behavioural and systemic treatments result in lower recidivism rates for sexual offenses (treatment: 12.3% , control: 16.8%, statistically significant) as well as in general (treatment: 27.9%, comparison: 39.2%). However, findings relating specifically to institutionalized youth did not find any significant improvements. Dropouts have higher recidivism rates, and not all studies include dropout results. Current treatments are generally and consistently better than older ones.
(Reitzel & Carbonell, 2006)	AMSTAR: 8 Studies: 9 Subjects: 2,986	Setting: Residential and non-residential Treatments: CB + RP; CB; PT (Sexual Trauma); PSE; PPEP; Humanistic; BT; MST; Unspecified	Youth only. Treatment generally and consistently shown to reduce recidivism rates. Higher quality of study correlates to bigger effect size. Odds ratio was 0.43 and was significant. Random and incidental assignment had better outcomes than assignment based on risk/needs. Cognitive treatments had better outcomes, but not significantly.
(Gerhold, Browne, & Beckett, 2007)	AMSTAR: 7 Studies: 12 Subjects: 1,315	Setting: Residential and non-residential Treatments: Forensic psychiatry treatments; Specialized sex offender treatments; CBT; MST; non-specific therapies	Youth only. Focus on factors influencing recidivism. Past behaviour is the best predictor (previous assaults, multiple or stranger victims). Not much found regarding treatment effectiveness, other than completers had lower rates of recidivism than dropouts or control groups.
(R. K. Hanson & Bussiere, 1998)	AMSTAR: 7 Studies: 9/61 Subjects: N.A./28,972 (w/ & w/o youth)	Setting: Residential and non-residential Treatments: Not described	Mixed adults and youth (very few). Offenders who failed to complete treatment were at higher risk for reoffending than those who completed treatment. Focus on factors influencing recidivism.
(R. K. Hanson & Morton-Bourgon, 2005)	AMSTAR: 7 Studies: 82 Subjects: 29,450	Setting: Residential and non-residential Treatments: Not described	Mixed adults and youth (very few). Offenders who failed to complete treatment were at higher risk for reoffending than those who completed treatment. Focus on factors influencing recidivism.
(Winokur, Rozen, Batchelder, & Valentine, 2006)	AMSTAR: 7 Studies: 33 Subjects: 2,192	Setting: Residential and non-residential Treatments: CBT; Healthy Lifestyles CB; Offense-specific CBT (+PGC & RP, +MRAT, +Edu, +consultations & LTS); TFC; VS	Youth only. Combined effect size for treated 0.47 (significant) for any re-offense and 0.25 (significant) for sex re-offense. Cognitive behavioural treatments were the only ones used for effect size calculations.
(Hall, 1995)	AMSTAR: 6 Studies: 12 Subjects: 1,313	Setting: Residential and non-residential Treatments: BT; CBT; Hormonal treatments; FT; GPT; Interpersonal institutional programs; IPT	Mixed adults and youth. Treatment marginally more effective than nothing (0.19 vs. 0.27). Cognitive behavioural and hormonal treatments were the most effective, behavioural alone least.

Table B4 (continued): Summary of evidence for treatment of sexually aggressive youth

Citation	Quality	Focus of the review	Key findings
(McCann, 2006)	AMSTAR: 6 Studies: 18 Subjects: 3,189	Setting: Residential and non-residential Treatments: Not described	Youth only. Nothing to say about treatment effects.
(Cottle, Lee, & Heilbrun, 2001)	AMSTAR: 5 Studies: 23 Subjects: 15,265	Setting: Residential and non-residential Treatments: Not described	Youth only. Nothing to say about treatment effects.
(Redlak, 2003)	AMSTAR: 4 Studies: 13 Subjects: 1,681	Setting: Residential and non-residential Treatments: Not described	Youth only. None of the studied treatment variables were predictive of sexual recidivism (any treatment, motivation to change, treatment completion)
(Alexander, 1999)	AMSTAR: 3 Studies: 79 Subjects: 1,025/10,988 (juveniles/total)	Setting: Residential and non-residential Treatments: RP; GPT; BT; Other; Unspecified	Mixed adults and youth. Treatment dropouts not included in the meta-analysis. Lowest rates of recidivism among juveniles (7%). Group and behavioural treatments had better outcomes than RP. Treatment effectiveness found to be less in 1990's (11%) compared to 1980's (3%).
(Caldwell, 2009)	AMSTAR: 3 Studies: 63 Subjects: 11,219	Setting: Residential and non-residential Treatments: Not described	Youth only. Sexual recidivism during adolescence have monthly sexual recidivism rates > 4x than adult recidivism rates. Level of secured placement (community, residential, or secured custody) does not significantly influence sexual recidivism rates.
(C. E. Walker & McCormick, 2005)	AMSTAR: 3 Studies: 10 Subjects: 644	Setting: Residential and non-residential Treatments: MST; VS; PET; RT; Eclectic	Youth only. Overall weighted average $r = .37$; self-report studies $r = .48$; level of arousal $r = .42$; sexual offense recidivism $r = .26$. CBT had largest effect sizes. Therapist qualifications were positively associated with outcomes.

Table B5: Summary of evidence for treatment of Innu & Inuit youth

Citation	Quality	Focus of the review	Key findings
(Gone & Alcántara, 2007)	AMSTAR: 6 Studies: 2+7 Subjects: 176 + n/a (Controlled, included in review + not controlled or too small, excluded)	Population: Native American youth in New Mexico, USA (1); Native American adults Pacific Northwest USA (2) Setting: Non-residential Treatments: Zuni Life Skills Development Curriculum (1), Coping with Depression Course (2)	Both interventions were adapted or designed for an Aboriginal patient population, and both reported effective health outcomes compared to control groups; however, the strength of the findings is moderate at best given the small number of included studies as well as limited number of participants. Both interventions were preventive, not rehabilitative (1=suicide prevention, 2=depression prevention). Authors write: these “two quasi-experimental outcome studies... provided the only empirical outcome evidence in over three decades of scientific literature” for Native American mental health interventions. Furthermore: “in the absence of compelling empirical evidence demonstrating which treatments impart the most significant benefits to distressed Native people, caution and restraint regarding professional endorsement of untested approaches and practices were indicated until such time as more rigorous evaluations were undertaken and reported in the literature.”
(Jiwa, Kelly, & Pierre-Hansen, 2008)	AMSTAR: 5 Studies: 6+5+4 Subjects: 51,129+255+27,071 (Quantitative, qualitative or mixed, survey)	Population: Mixed Canadian First Nation & Inuit and Native American (USA) mostly adult populations. Setting: Community-based, non-residential Treatments: Family intervention, integrated traditional activities, integrated physical fitness training, use of Aboriginal treatment providers, community mentoring to decrease vehicle accidents, community patrols (Quantitative)	Culturally relevant family interventions increased alcohol abuse treatment effectiveness, but not drug abuse. Found evidence of correlation between negative self-concept and substance use among First Nation youth; fitness training eliminated the increase in substance use prevalence, but did not decrease rates (effective prevention, not treatment). Community Mobile Treatment models have been shown to be effective in reducing severe, community-wide substance abuse among adults (near 50% at 6 month follow up); however CMT models are resource intensive and thus require community volunteers and take up to 2 years.
(Delfabbro & Day, 2003)	AMSTAR: 5 Studies: 70 Subjects: n/a	Population: anti-social Aboriginal/Torres Strait Islander or Maori cultural background (10-18 years) Setting: Residential and non-residential Treatments: Residential: Outstation camps, corrective institution programming, custom culturally oriented substance abuse programs, “sobering up centres”	Authors found virtually no research formally evaluating any programs; available research was descriptive and lacking in standardized measures/control groups. Petrol sniffing was the “most significant health issues”; secondary intervention appeared to be the most effective level of intervention. Culturally relevant programs were the most effective, but poor quality data makes it difficult to generalize any findings.

Table B5 (continued): Summary of evidence for treatment of Innu & Inuit youth

Citation	Quality	Focus of the review	Key findings
(D. Gray et al., 2000)	AMSTAR: 2 Studies: 14 Subjects: n/a	Population: adult Australian Aboriginals Setting: Residential and non-residential Treatments: Adapted 12-step programs	Authors found a paucity of evaluation data of existing residential programs, making it difficult to determine if they were effective. Residential treatment programs generally had small or equivocal health outcomes, and were not assessed as cost-effective given the expense involved in maintaining a residential treatment model.

Appendix C: Economic costs of children in care for Newfoundland & Labrador

Analysis of the costs related to youth residential treatment in Newfoundland & Labrador: Data obtained from 2003 report

Analysis of the costs related to youth residential treatment in Newfoundland & Labrador			
Type of residential care	N =64	Annually per child	Total annual budget (2008-2009)
Group home		\$100,000 - \$125,000	
Newfoundland & Labrador Youth center		\$100,000	
Out-of-province treatment	8	\$130,000 - \$500,000	\$4 238 555 (2003)
Independent living arrangements	9	\$450,000	\$3 359 096 (2003)
Youth corrections system	40 closed custody 50 open custody		
Cost of high need youth in care – high risk of placement breakdown		\$562,000	

Eastern Health Child Youth & Family Services Financial Summary 2005-2006 and 2008-2009			
		2003 report estimates	2008-2009 data
In-Care		\$1100 to \$1800/day	\$20 781 460
Child Welfare			\$1 520 535
Hostel Costs			\$13 403
Protection			\$2 131 764
Youth correction services		\$1100 to \$1800/day	\$1 093 406
Community corrections			\$48 767

Estimated projected costs based on present day situation							
Years extrapolated to*:	2010	2011	2012	2013	2014	2015	Estimated 5 year total
N=9 Independent living arrangements	4 070 198	4 012 053	3 954 738	3 898 241	3 842 552	3 787 659	23 565 440
N=8 in Out-of-province treatment	5 135 834	5 062 465	4 990 144	4 918 856	4 848 587	4 779 321	29 735 207
N=3 high need cases	2 042 917	2 013 732	1 984 965	1 956 608	1 928 657	1 901 104	11 827 984
Total	11 777 382	11 090 261	10 931 858	10 775 719	10 621 810	10 470 099	65 140 706
Per Child (N= 20)	562 548	554 513	546 593	538 786	531 090	523 505	3 257 035

*Costs projected from 2003 reported costs assuming a 3.5% change in the consumer price index for health care and 5% discount rate from 2010 to 2015.

Residential treatment and outreach program, 12 children per year: based on the OOP and high risk children							
Years extrapolated to*:	2010	2011	2012	2013	2014	2015	Total
Bridge funding	3 885 337						3 885 337\$
Total start-up budget	3 586 373						3 586 373\$
Operating costs	3 885 337	3 829 832	3 775 121	3 721 190	3 668 030	3 615 630	22 495 141\$
Mortgage buy back option: [25 years, 5.5% rate]	264 282	251 697	239 711	228 297	217 425	207 072	1 408 484\$
Other medical care, accidents (ER, hospitalizations) @ 5%	194 267	191 491	188 756	186 059	183 401	180 781	1 124 756\$
In care psychiatric: 4children*\$2290/diem*30 days	261 726	257 987	254 302	250 669	247 088	243 558	1 515 329\$
TOTAL (n=12)	12 079 333	4 533 019	4 459 901	4 388 228	4 317 959	4 249 056	34 027 496\$
Per child	1 006 611	377 752	371 658	365 686	359 830	354 088	2 835 625\$

*Costs projected from 2003 reported costs assuming a 3.5% change in the consumer price index for health care and 5% discount rate from 2010 to 2015.

Estimate of independent living arrangements that are expected to continue							
Years extrapolated to*:	2010	2011	2012	2013	2014	2015	Estimated total 5 year
N=9 Independent living arrangements	4 070 198	4 012 053	3 954 738	3 898 241	3 842 552	3 787 659	23 565 440
Per child	452 244	445 784	439 415	433 138	426 950	420 851	2 618 382

*Costs projected from 2003 reported costs assuming a 3.5% change in the consumer price index for health care and 5% discount rate from 2010 to 2015.

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