Introduction
The inhalation of psychoactive solvents such as glue, gasoline and lysol can provide the user with an instant rush of euphoria and other effects that some users find rewarding (e.g., loss of inhibition, altered sense of reality, hallucinations). However, the solvent user risks several debilitating effects such as loss of motor skills, seizures, diarrhea, abdominal pain, anxiety, irritability and even death from a single use. Chronic inhalation can be addictive and may result in damage to internal organs, peripheral nerves and failure of the liver and kidneys. Chronic users experience a range of mental health problems, from mild impairment to severe dementia. They also tend to have social and emotional problems, including violent behaviors and depression. Physical and sexual abuse (often involving family members) is also common among solvent abusers as are other forms of substance abuse.

The use and abuse of solvents by youth is an international concern, with rates varying widely. Among 40 countries reporting lifetime use prevalence data during the 1990s, 16 reported rates of less than 5%, 15 reported rates of between 5% and 10%, while 10 reported rates between 10% and 20%. Rates in poorer communities and among Aboriginal people are reported to be much higher. For example, in Sao Paulo, Brazil, nearly 24% of 9-18 year olds living in poverty had tried inhalants. In Africa, inhalants and cannabis appear to be the most commonly used illicit substances by youth. Studies of First Nations communities in the United States and Canada have shown that, in some communities, up to 60% of youth report use of inhalants. Inhalants are also a serious concern among Aboriginal people in Australia (G. Roberts 2004, “Youth and Drugs” in World Youth Report 2003: The Global Situation of Young People. New York: United Nations).

National and local responses to solvent abuse are wide-ranging, but in general have centred on community interventions, youth and retailer education and treatment for chronic users. In Canada, one major national response to solvent abuse among First Nations youth has been the establishment of nine residential solvent abuse treatment centres. Three of the centres were established in 1996 under the federally funded National...
Native Youth Substance Abuse program (NNYSA) through a partnership between First Nations people and Health Canada. The NNYSA program works in partnership with the National Native Alcohol and Drug Abuse Program (NNADAP), whose goal is to support First Nations and Inuit people and their communities in establishing and operating programs aimed at arresting and offsetting high levels of alcohol, drug and solvent abuse among their target populations living on-reserve. The nine residential solvent abuse treatment centres are linked through the Youth Solvent Abuse Committee (YSAC) network involving program directors, NNYSA representatives and various field experts. The network’s mission is to provide culturally appropriate treatment and community intervention programming for First Nations youth who abuse solvents and their families.

The nine treatment programs designed by YSAC have approximately 112 treatment beds for First Nations youth aged 12 to 26. Programs vary by structure, from co-ed to gender based, and from continuous to block intake. Initially, all programs were to be of six months duration. However, some directors and treatment staff have found this to be too long. Drop-out rates had been quite high and some families object to their children being away from home for extended periods of time. Three centres have therefore been pilot testing four-month programs and YSAC is seeking additional empirical support for alternatives to the six-month model.

To assist YSAC in assessing the potential implications of moving to a four-month program this project addressed:

- what others are doing in the field in terms of program length and length of client stay in a program
- general program design, focusing on alternatives to the six-month design (including where possible how a program operates and is evaluated);
- potential negative consequences for youth and facilities associated with programs of different lengths; and
- recommendations for implementing alternatives to the six-month model.

Any lessons from the pilot studies of the four-month programs implemented at three of the YSAC centres were also considered.

**Conclusions**

There is still much to be learned about residential treatment programming for First Nations youth who abuse solvents, and the issues of program length and client length of stay are far from resolved. However, at present there is no clear evidence from the existing literature and research that residential treatment programs for young solvent abusers need to be of any specific duration (e.g. six months) and reports from YSAC programs that are piloting four month programs suggest that these are running well and meeting client needs. However, more research is clearly needed including research on treatment outcomes.
The literature, interviews and other materials obtained for this report do, however, point toward the following general conclusions concerning the main issues of concern for the present project. In reviewing the conclusions, the reader must keep in mind that few of the programs reviewed for this report (both YSAC and the general literature) have been scientifically evaluated and that most of the evidence for program success is anecdotal or based on uncontrolled studies.

- Full recovery is often a lengthy process that may require several episodes of intensive treatment and longer-term care in the community.
- Community reintegration is a concern when youth are placed in residential care outside their home community, so there is need for extensive community based follow-through.
- Physical detoxification from solvents may take up to one month (or possibly longer for some). During this time counselling may have limited impact.
- It can take several weeks for some clients to adjust to the routine and discipline of a residential program.
- Client retention for a period (2-4 months), but not necessarily longer, may be needed for longer-term outcome success, but much depends on the client, his/her family and aftercare in the home community.
- Residential treatment programs do not need to run on a fixed cycle or to have a set length of treatment. Continuance in residence can be assessed on an ongoing basis and take account of client needs and motivations.
- Length of stay has been shown to be influenced by gender in some cases. This may reflect gender differences with respect to treatment needs and motivations.
- Some clients live in circumstances that seriously threaten their recovery and alternative, long-term or permanent accommodations but may be required. However, this does not have to be in a residential treatment program.
- Parents of First Nations youth vary in their support for six-month residential programs and some clearly prefer shorter programs.
- Drop out rates are higher in longer-term residential programs and attrition is common among residential treatment programs in general.
- A role for the family in the recovery process, although ideal, cannot be assumed.
- Dropout rates are influenced by client selection and other factors within the control of program managers and staff (e.g., program schedule, a welcoming environment, staff competence, how much fun clients can have, individual attention, smoking policy, process to handle stated intentions to leave).
- Most premature discharges are self-initiated. Loneliness, a desire to be with friends, families and partners, an unwillingness to accept program restrictions and discipline of the program, and/or to return to drugs are contributing factors.
- Self-initiated discharges also occur when emotional issues begin to be addressed.
- There is general support for the view that programs for First Nations Youth should teach about traditional values and skill.
- Premature discharge does not mean that a client has not benefited from treatment.
• Premature discharge does not preclude a client from receiving aftercare services or from returning for further treatment.
• Some YSAC programs admit clients who are not chronic solvent abusers for whom long-term residential treatment might be appropriate. Some mainly use other drugs while others have delinquency or mental health problems. This may reflect community needs or occupancy requirements. It is not known how this influences length of stay but it can be assumed that the needs of chronic abusers and experimental users are different.
• Drop out rates vary between YSAC programs. However, it is not known if this reflects client or program factors.

The literature, interviews and other materials obtained for this report also suggest there could be some negative consequences of residential treatment programs of varying lengths:

• Clients sometimes promote or reinforce deviant attitudes and behaviors. It is not known if this is more or less likely in short- or long-term programs but may be more likely in programs with a high turnover and few clients who can be role models for new admissions.
• For programs with an official fixed length of treatment, premature terminations may contribute to a sense of failure.
• Re-entry to the home community can be challenging and especially so for those absent for long periods.
• Residential treatment programs may expose problems of physical and sexual abuse, sometimes perpetrated by close relatives, and this may lead to client drop out.
• Clients may become bored or frustrated if they are required to stay in a program for long periods.

**Recommendations**
Most recommendations concern the need to evaluate YSAC programs and any changes to their length and related matters. A few tentative recommendations concerning program operations and staff development are also provided.

*It is recommended that...*
YSAC continue with their pilot studies of four-month programs as there appears to be valid reasons for doing so. However, continuance in treatment up to and beyond four months would preferably reflect client needs and motivations rather than fixed policies. Best practices in treatment suggest client treatment be flexible and client-based because each youth develops at his/her own pace depending on their characteristics and needs.

Indicators of the impact of changing to a four-month model should be collected. These include pre-post measures of client length of stay and mode of discharge, pre-post...
measures of program participation and progress within treatment, and possible client and family satisfaction with treatment.

These activities will not, however, show whether or not four or six-month programs are any more or less effective in reducing solvent abuse and other problems among the clientele. Outcome evaluations will be needed for this.

*It is therefore recommended that...*  
Outcome studies of YSAC programs be developed and implemented. These studies would involve the collection of standardized client intake data, including data on drug use, social function and cognitive impairment and standardized follow-up information at, say 3, 6, and 12 months after discharge.

Where appropriate and if resources permit, such evaluations should incorporate culturally relevant research tools and evaluation techniques (i.e., return to the research participant with their transcribed interview to account for possible cultural variances in the collection/release of information).

Guidelines for conducting such evaluations have been developed by the World Health Organization. These are available online ([http://www.who.int/substance_abuse/publications/psychoactives/en/](http://www.who.int/substance_abuse/publications/psychoactives/en/)).

It is, however, important to note that outcome evaluations require additional resources and researchers with appropriate training. Some significant barriers to traditional evaluations in this area should also be recognized. They include: need for parental consent to conduct research involving minors; programs are generally located great distances from research centers; clients often live in remote communities and are thus difficult to follow-up; programs are small but quite variable which limits the generalizability of results of any one study; and some programs are unstable and have a high staff turnover. Careful planning is therefore essential and it is imperative that YSAC directors and staff are involved in the planning process.

*It is therefore recommended that...*  
YSAC directors, managers and others attend workshops on program evaluation to ensure support for any future evaluative projects.

*It is therefore recommended that...*  
any changes to policies regarding program length need to be clearly communicated to the communities served by YSAC and its referring agencies. Health Canada may also need to approve these and any other changes depending on contracts with local service providers.
It is recommended that...
Variations in YSAC programs and their clients and the communities they serve be recognized and respected. A “one size fits all” or standardized treatment model thus seems inappropriate.

It is recommended that...
YSAC programs continue and if necessary expand their community reintegration phases of treatment.

It is recommended that...
YSAC continue to keep as up-to-date as possible about progress in the field of youth solvent abuse in general and residential treatment in particular. One way to facilitate this is to continue participation in international activities.