The Next Stage: Delivering Tobacco Prevention and Cessation Knowledge through Public Health Networks

A literature review prepared by the Ontario Tobacco Research Unit for the Canadian Public Health Association

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March 31, 2010

Production of this report has been made possible through a financial contribution from Health Canada. The views expressed herein do not necessarily represent the views of Health Canada.

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Executive Summary

In Canada, tobacco control practices, programs and policies occur at the national, provincial and local levels. These activities are often divided into three categories: prevention, protection and cessation. While federal, provincial and territorial governments play an important role through the provision of strategic direction and funding and the development of programs and legislation, important tobacco control efforts also occur at the local/regional level within the public health community. To ensure that local/regional tobacco control activities in Canada are successful, it is necessary that public health practitioners, leaders and policy-makers are informed of their effectiveness. This report provides a review of the literature and best/better initiatives regarding the effectiveness of protection, prevention and cessation activities that are potentially relevant to the public health community.

Key findings

Health promotion

The key principles of health promotion include creating healthy public policy and supportive environments, strengthening community action, developing personal skills and reorienting health services away from treatment and care and improving access to health services (Ottawa Charter for Health Promotion, 1986).

One review attempted to ascertain the effectiveness of the first three principles and found that healthy public policy was a key strategy. In the context of tobacco control this may include taxation and annual real price increases on tobacco products, smoke-free air laws, advertising bans and other legislative controls on the tobacco industry, evidence-based cessation services and funding for mass media campaigns. Among the best/better practice initiatives, those that supported policy change were largely specific to the development and implementation of indoor smoke-free air laws. Initiatives that sought to change advertising and taxation policy were not identified.

Further, key actions identified as central to the health promotion strategies outlined in the Ottawa Charter include intersectoral collaboration and interorganizational partnerships, community participation and engagement in planning and decision making, creating healthy settings, with emphasis upon schools, workplaces and communities/municipalities, political commitment, funding and infrastructure for social policies, and awareness of the socio-environmental context. Many of these were identified among the best/better practice initiatives included in this report.

Media-based public education campaigns

There is strong evidence that mass media campaigns are effective in preventing tobacco use, reducing consumption and increasing cessation when they are part of a comprehensive tobacco intervention and consist of long-term, high intensity counter advertising. They may also increase public support for tobacco control polices and programming, such as smoke-free policies, and contribute to the denormalization of tobacco. Characteristics of effective mass media campaigns are as follows:

1. High frequency, reach and long duration.
2. A variety of messages that are novel and targeted to motivate different people to attempt cessation.
3. A variety of paid media, public relations, special events and promotions in a coordinated effort integrated with school and community-based programs, as well as the other elements of a comprehensive tobacco reduction program.
4. Incorporation of lessons learned from experiences throughout the world. International campaign reviews can provide direction based on lessons learned from previous campaigns.
5. Grounded in rigorous and state-of-the art research on effectiveness. Formative research and evaluation, process and outcome evaluation should be combined to ensure the greatest likelihood that the campaign will effectively build awareness and knowledge, and change attitudes and behaviours as desired.

Public health advocacy

No reviews were identified that evaluated the effectiveness of public health advocacy for tobacco control. Nonetheless, there is some evidence in the academic literature regarding the effectiveness of advocacy in advancing the adoption of indoor smoking laws, bylaws and policies in Canada and throughout the world. In addition, comprehensive tobacco control advocacy guidelines have been developed by the NGO community (http://strategyguides.globalink.org/). Elements of public health advocacy are found in most of the initiatives identified through the best/better practice sources, especially within prevention and protection.

Prevention

Theories

One review focused upon the theoretical foundation upon which youth tobacco prevention interventions are based. Findings indicated that smoking reduction was higher in school-community based settings and/or when programming was based upon cognitive behaviour therapy or life skills training. Social influence and participatory planning was the predominant theory and model upon which prevention programs identified through the best/better practice sources were based.

School-based programs

The literature is historically undecided over the effectiveness of school-based prevention programs, especially regarding their long-term effects. Findings should therefore be interpreted with caution. Recommendations from the literature include:

1. Include active learning, awareness of influences of smoking, skill building, deconstructing media messages that promote tobacco use, and youth involvement in developing and implementing interventions.
2. Implement programs in conjunction with other community tobacco control initiatives
3. Adapt to the needs and cultures of minority groups
4. Adapt to fit with different education curricula

5. Take advantage of electronic media and communications.
6. Last at least 15 sessions and include booster sessions

Many of the recommendations outlined in the literature are reflected, to different extents, in the ten school based prevention initiatives identified through the best/better practice sources. They were largely based upon social influences theory, however some also incorporated health beliefs model, the theory of reasoned action, participatory planning models and a cognitive developmental stages model to inform program development.

Most had also undergone process and/or formative evaluations, while some had also undergone outcome and/or impact evaluations. An experimental evaluation of a classroom based integrated *Smoking Zine* program (the *Smoking Zine* website used conjunctly with a paper-based journal, a small group form of motivational interviewing, and tailored e-mails) found that the program significantly reduced the adoption of heavy cigarette use among non-smokers at six months. Promising findings were also identified through the literature and the best/better practice sources regarding school-based Aboriginal smoking prevention programs.

Community-based programs
There is some limited evidence that supports the effectiveness of community interventions when compared to single strategies. The following is recommended to those involved in the development of community programs.

1. Build upon elements of existing programs that have been shown to be effective rather than repeating methods that have achieved limited success.
2. Programs need to be flexible to the variability between communities so that the different components of a given program can be modified to achieve acceptability.
3. Developmental work with representative samples of the target audience to ensure appropriate messages and activities are implemented.
4. Program messages and activities should be guided by theoretical constructs about how behaviours are acquired and maintained (i.e., Social Learning Theory).
5. Community activities must reach the intended audience if they are to be successful in influencing the behaviour of the intended audience.

Four school-community based initiatives identified through the best/better practice sources were based upon community development principles and incorporated the stages of change theory, social learning theory, health beliefs model, theory of reasoned action, and social influences theory. They were developed and implemented in collaboration with a variety of community partners.

Family prevention programs
There is a lack of evidence on the effectiveness of family tobacco prevention programs and further research is encouraged to investigate their long-term effectiveness and any associated mechanisms of change. However, findings from the literature indicate that the most effective interventions have well-trained facilitators, emphasize active parental

involvement and the development of skills in social competence, self-regulation and parenting.

Family prevention best/better practice initiatives were based upon the bio-psychosocial, resiliency and social ecology models, and social learning theory. Components included drug, alcohol and tobacco training sessions for parents and children (separately and together), booklets mailed to parents, telephone follow-up from health educators, and parental inclusion in a school drug prevention working group.

Youth development and engagement
A youth development approach aims to help youth thrive through community engagement practices. Youth engagement is a key component of youth development and is defined as the "meaningful participation and sustained involvement of a young person in an activity with a focus outside of him or herself".

While there is a lack of research on the effectiveness of youth engagement in tobacco control activities, a formative evaluation from the grey literature and best/better practice initiatives provide some insight. Examples of activities found among programs that reflect youth development principles include peer education, planning of school and community-based events such as cessation services, forming youth advisory and action committees and developing campaigns and action materials. Further, the employment of youth advisors from underserved neighbourhoods and the formation of partnerships within the target communities may help facilitate the recruitment of underserved youth into youth-oriented tobacco initiatives.

Enforcement of minimum age of purchase laws
Effective strategies identified in the literature include active enforcement or the use of comprehensive educational strategies (personal visits, mobilizing community support). A multiple component strategy (i.e., youth access policies, community and retailer education and vending machine policies) has also been identified as effective. Evidence also suggests that effectiveness is compromised if monitoring for compliance occurs less than four to six times a year. Additional barriers include the lack of prosecution of clerks found in violation of the law and the availability of cigarettes through the internet, vending machines and the social and illicit markets. These strategies are reflected in the best/better practice enforcement initiatives whereby a multiple component initiative and the production of a staff training video based upon a peer-to-peer approach were implemented and distributed respectively.

Protection

Reducing children's exposure to SHS
A Cochrane review of family and carer programs for reducing children's exposure to ETS (i.e., smoke-free legislation, health promotion, socio-behavioural therapy, technology, education and clinical interventions) concluded that the evidence was insufficient to support the use of one intervention over the other. Another found some association between comprehensive tobacco control programs and a decrease in smoking

in homes. More specifically, there was indirect evidence to link mass media campaigns to an increase in the prevalence of smoke-free homes. While there is a lack of research in this area, various interventions identified in the grey literature and through best/better practice sources provide some insight into program effectiveness.

Supporting the development and implementation of smoke-free policies
There is a paucity of research on the most effective ways to support the development and implementation of smoke-free policies. Nykiforuk et al., (2010) conducted a knowledge synthesis review of the scientific and practice-based evidence concerning smoke-free spaces policy development and implementation. Based upon their findings, the following better practices are recommended.

1. Consideration of the Policy Context
2. Policy as part of a Comprehensive Program or Strategy
3. Preparation, Planning and Logistics as central to policy success at both the development and implementation stages
4. Collaboration, Leadership and Support
5. Communication and Media
6. Issue Framing and Information Provision
7. Construction of the Policy
8. Countering Opposition
9. Enforcement
10. Policy Reinforcement - monitoring, evaluating, and celebrating Successes

Four best/better practice initiatives focused upon workplace policies and one upon a smoke-free playground and parks bylaw. Each initiative consisted of community partnerships, multi-media campaigns and/or the production of educational materials. All were based upon participatory planning models, with community mobilization, development and social marketing principles also being used. In addition, one focused upon the development policies within Aboriginal communities.

Enforcement of smoke-free policies
While no reviews were identified in the literature, guidelines from the international NGO community and findings from the best/better practice initiatives indicate the following to be effective components of an enforcement strategy: early and visible enforcement following policy implementation, placing onus on owners and individuals, pursuing legal action if businesses repeatedly violate laws, educational efforts aimed at the public to raise awareness and support for the law, guidance materials for workplaces and a combination of proactive and reactive enforcement and compliance lines. It is also recommended that quitlines and other cessation measures be implemented to support the anticipated rise in individuals interested in quitting, as well as evaluation and monitoring to address any weaknesses in enforcement.

Cessation

Behavioural Interventions

Individual (brief and intensive) therapy, group therapy and proactive telephone counselling that incorporate support and encouragement into practice appear to be the most effective for reducing tobacco use. Four or more sessions is also recommended to increase success. Further, tailored self-help materials may aid in cessation when compared to no interventions and motivational interviewing lasting at least 20 minutes is encouraged for individuals not interested in quitting. Initiatives that incorporate multiple formats are also encouraged in the US Public Health clinical practice guidelines. Consistent with the above evidence, brief interventions, group and individual therapy, proactive and reactive telephone counselling, cognitive behavioural therapy, skill development and motivational techniques were employed in the initiatives examined for this review.

Research examining the success of cell-phone and web-based smoking interventions is promising, however this is a relatively new area of cessation and more research is needed to deliver information on best/better practices. While a cell-phone based intervention was not identified among the best/better practice initiatives, three interventions contained interactive web-components; all were youth cessation initiatives.

Settings and providers

The literature indicates that counselling (group and individual) and pharmacological interventions are just as effective when offered in the workplace as in other settings. There is less evidence for the use of self-help interventions, social support and competitions and incentives in the workplace.

Advice and counselling from physicians and nurses are also effective and interventions by other health professionals such as pharmacists, dentists and psychologists are encouraged. The US Department of Health strongly recommends that physicians advise every patient that smokes to quit and the Registered Nurses of Ontario has released best practice guidelines for integrating smoking cessation into daily nursing practice. These guidelines emphasize minimal and intensive interventions, especially with pregnant and postpartum women, re-engagement of patients who relapse, knowledge of community resources, consideration of gender, tailoring interventions towards diverse populations, and the encouragement of smoke-free homes.

The best/better practices for smoking cessation also illustrate interventions in a variety of settings, such as community health centres (Aboriginal), the home and primary care (maternal) and postsecondary campuses (youth and young adults), and by provider type such as teachers, ex-smokers and elders for aboriginal initiatives.

Pharmacotherapy

The literature indicates that NRT (i.e., inhaler, lozenge, nasal spray, patch and gum), bupropion and verenicline are effective cessation aids. The use of pharmacotherapy as an adjunct to behavioural therapy is more effective than when either is used on its own. Importantly, there is not enough evidence to recommend the use of pharmacotherapy in

youth and pregnant women. The combination of NRT and behavioural interventions were employed in three of the cessation interventions identified in this review.

Special populations
There is an extreme paucity of research and availability of evaluated local/regional public health interventions on effective cessation strategies for special populations and populations with high rates of smoking. While there is emerging research on strategies for youth, pregnant women and mental health and addiction populations, evidence is especially lacking for Aboriginal, LGBT and socio-economically deprived populations, blue collar workers and young adults.

Youth
Promising strategies for youth cessation include multi-component programs that take place in structured youth settings. Programs should be fun and interactive, tailored to the issues faced by youth and incorporate multiple forms of communication such as the internet and text messaging. Further, programs that consist of five sessions have been found to improve program effectiveness. The incorporation of cognitive behaviour therapy, motivational enhancement, social influences training and the stages of change theory is encouraged. More research is needed on the use of pharmacotherapy before it can be recommended as a cessation aid for youth. Three cessation programs for youth were identified among the best/better practice initiatives and reflect some, if not most of this evidence.

Young adults
In addition to expediting research on the development and implementation of evidence-based tools, tentative practice recommendations for young adult cessation programs include the implementation of comprehensive programs that restrict smoking and the advertising and sale of tobacco products on campuses and in young adult-prominent workplaces. Further, marketing and public education campaigns developed in consultation with young adults, tailored psychosocial counselling, the provision of free NRT, incentives and the promotion of social support in the form of peer support, group counselling, and text messaging are encouraged. Price/tax increases are also recommended. Many of these recommendations were reflected in *Leave the Pack Behind*, an Ontario program for young adults on college and university campuses. It is a recommended provincial best practice.

Pregnant women
The importance of incorporating tobacco interventions into standard antenatal care is emphasized in the literature. Further, due to the relationship between smoking during pregnancy and socioeconomic deprivation, there is a need to adopt wider community strategies to reduce social inequalities in health into tobacco reduction strategies.

Promising strategies identified in the grey literature include shifting the focus of interventions to include women's health as motivation for cessation, increased tailoring of interventions, and the incorporation of harm reduction, stigma reduction, and a woman-centred approach into clinical practice. The US Department of Health further

recommends the provision of face-to-face psychosocial interventions and counselling that exceed minimal advice to quit, at the first visit and through pregnancy. These findings were reflected in the maternal program identified through best/better practice sources; however the provision of competition and incentives was also a key program component.

Mental health and addictive disorders

Most reviews find that a combination of tailored psychological (cognitive behaviour therapy, motivational enhancement) and pharmacological interventions (NRT, Bupropion) is useful in reducing tobacco use; however they stress the need for more research in this area. The integration of tobacco interventions into the mental health and addiction setting is also highlighted as an important component to smoking cessation interventions for this population. One best/better practice initiative provided a cessation program for individuals with psychiatric disorders. Lessons learned from this experience include the importance of teaching slowly using repetitive messages, reviewing previous learning and providing frequent rewards for short-term successes.

Aboriginal

Emerging research in Aboriginal cessation largely stems from Australia. While it is recognized that the findings from Indigenous Australian cessation programs may not be relevant to the Canadian context, they are worth examining due to the paucity of research in this area. Reviews of such programs demonstrate the potential for programs that combine NRT with face-to-face counselling or support and train aboriginal health workers in brief cessation counselling. Further, suggestions from the Canadian grey literature note that while there is a lack of knowledge on Aboriginal populations' intention to quit, motivational enhancement may be a more successful strategy for increasing quit rates than simply providing programs tailored to individuals who already have high intentions of quitting.

The three Aboriginal cessation programs identified through the best/better practice sources were developed in consultation with Aboriginal community members, and incorporated cultural themes into teachings and counselling. Informal group sessions and holistic programming were also characteristic of these programs. Further, significant support was provided to reduce barriers that may prevent adults from attending sessions. Providers included trained facilitators, an ex-aboriginal smokers and health promotion personal and interventions took place in the school, in the community or in community health centres.

Introduction

Tobacco use in Canada

According to the most recent results from the Canadian Tobacco Use Monitoring Survey (CTUMS, 2009) approximately 17% of Canadians are current smokers. This varies across the country, whereby British Columbia and Ontario are the only provinces that experience rates below the Canadian average (14.7% and 16. 8% respectively). By sex, approximately 19% of males and 16% of females aged 15 and over are current smokers and it is estimated that among youth (15 -19 years old), 16% of males and 12% of females are current smokers. Further, 25% and 18% of young adult (20-24 years old) males and females are current smokers respectively. While young adults have experienced declines in recent years (from 32% to 28% in one year) current smoking remains high in this age group, especially among males (CTUMS, 2009).

While smoking prevalence has declined significantly in Canada since the 1960s, this trend seems to have slowed within the past 10 years (Reid & Hammond, 2009). Further, smoking is a socio-economically stratified behaviour, whereby relatively deprived populations experience higher rates of smoking. In Canada, such groups include Aboriginal populations, populations with mental health and addiction disorders, blue collar workers and individuals with low incomes and lower educational attainment (Smith, Frank & Mustard, 2009; Greaves et al., 2006; Health Canada, 1996). This is consistent throughout high-income countries and consequently, tobacco use is considered a major contributor to inequalities in health (Marmot, 2006; Jha et al., 2006). One reason that may account for the trend noted above is the relatively slower decline in smoking among these vulnerable populations (Smith, Frank & Mustard, 2009). While there is a paucity of Canadian research on temporal trends in smoking by socioeconomic groups (Phillip, Frank & Mustard) this trend has been documented in other high income countries (Graham, 2007; Osler, et al., 2000; Giskes et al., 2000) and should be a significant concern for tobacco control and public health activities in Canada.

Tobacco control in Canada

In Canada, tobacco control practices, programs and policies occur at the national, provincial and local levels. These activities are often divided into three categories: prevention, protection and cessation. Prevention initiatives are meant to discourage smoking initiation and reduce smoking prevalence, especially among youth. Examples of prevention activities include youth access laws, advertising restrictions, school-based programs, youth engagement and media-based public education. Protection initiatives are designed to protect non-smokers and persons not actively engaged in smoking from the harmful effects of second hand smoke (SHS) through the development, implementation and enforcement of policies that prohibit smoking in public settings such as the workplace. These are generally supported by public health advocacy, education and media campaigns, as well as monitoring and enforcement activities. Finally, cessation programs, practices and policies create environments conducive to quitting and

encourage individuals to quit smoking or remain abstinent through a variety of modalities and settings.

While government plays an important role in tobacco control through the provision of strategic direction and funding and the development of programs and legislation, important tobacco control efforts also occur at the local level within the public health tobacco control community. For instance, front-line public health practitioners may develop and deliver initiatives in their communities including, but not limited to, public education campaigns, cessation services and specific initiatives targeted to vulnerable populations. They may also advocate for policy change and/or enforce tobacco control policies. In addition to public health practitioners, local and regional public health leaders and policy-makers develop tobacco control programming and set policy for their communities.

To ensure that local/regional tobacco control activities in Canada are successful, it is necessary that public health practitioners, leaders and policy-makers are informed of their effectiveness. This report summarizes the evidence for effective tobacco control practices, programs and policies that are of potential relevance to local/regional public health agencies. It also examines relevant initiatives at regional and local levels that have been evaluated and deemed promising or effective. It is important to remember, however, that this report presents merged findings between the peer reviewed and grey literature and the best/better practice initiatives. In each case, the sources are specified and caution should be taken when drawing conclusions.

Finally, this review summarizes the evidence in relation to effective practices, programs and policies targeted to high risk, vulnerable populations (i.e., young adults; Aboriginals; those having low incomes; those with mental health issues and recent immigrants). The effectiveness and limitations of nicotine replacement therapies in relation to these populations will be examined. This review concludes with a discussion of the successes, knowledge gaps and challenges in Canadian tobacco control that are relevant to the local/regional public health community.

Methodology

Four components comprised the search for effective, evidence-based tobacco control programs, practices and policies:

1. A review of the academic literature
2. A review of the Canadian Council for Tobacco Control Research Catalogue
3. A scan of Canadian public health agencies and tobacco control NGO websites to identify relevant grey literature
4. A scan of best/better practice sources

Academic literature

A keyword search was performed using PubMed, health-evidence, Web of Science and the Cochrane library. Reviews were included based upon quality and their date of publication. Quality was assessed based upon a combination of the following: an appropriate research question was clearly articulated and addressed, a description of the methodology was provided, the literature search was comprehensive, and the authors addressed both the quality of studies included and whether or not they were similar enough to make combining them reasonable. However, reviews that may not have been considered for inclusion due to quality issues (i.e., methodology was lacking) were included if a significant lack of research existed for a certain topic. Furthermore, results were limited to reviews from 2005 to 2010, using the search terms below. However, due to a paucity of literature in a certain areas relevant to the public health community, some reviews published prior to 2005 were included. Reference lists from relevant articles were also scanned for supplementary material. A list of reviews included in this report is found in Appendix A.

Searches were conducted using the following keywords:
Prevention: (Tobacco or Smoking or Cigarettes) and Prevention and Review
Cessation: (Tobacco or Smoking or Cigarettes) and Cessation and Review
Protection: (Tobacco or Second hand Smoke or Environmental Tobacco Smoke) and Protection and Review
Public Health: (Health promotion or public health or advocacy) and tobacco control
Best practice: (tobacco use or tobacco control) and best practice or better practice
Special populations: (Vulnerable or special or high risk or social inequalities) and Tobacco use and Intervention

Canadian Council for Tobacco Control Database

The Canadian Council for Tobacco Control (CCTC) is a non-governmental organization concerned with the tobacco epidemic. The CCTC is committed to ensuring the timely and practical transfer of critical knowledge and skill development for effective local, provincial, and national action on tobacco issues. The Council further acts as a key facilitating agent to coordinate and support advocates in tobacco control (www.cctc.ca).

The Tobacco Control Reference Catalogue (TCRC) is CCTC's online database, containing over 25,000 tobacco control resources such as journal articles, books, reports, programs, organizations, websites, and multimedia files. An advanced search of the TCRC was performed by a CCTC information specialist. Results were limited to material from 2005 to 2010. Search terms included: protection, prevention, cessation, evaluation, public health, public education, advocacy, best practice and community policy.

Public agencies and NGO websites

A website scan of public health agencies and NGOs relevant to tobacco control in Canada was performed. Local public health agencies were identified and accessed through a document obtained from the Canadian Public Health Association. Non-governmental organization websites were identified through the Canadian Public Health Association's website and through the author's knowledge of the NGO community. Websites were searched for tobacco control activities and evaluation materials.

Best/better practice sources[1]

The Program Training and Consultation Centre (PTCC) Better Practices toolkit, the Canadian Best Practices Portal for Health Promotion and Chronic Disease Prevention (CBPP) and the Canadian Cancer Society's (Manitoba Division, Knowledge Exchange Network) Information Package for Evidence-informed Interventions were searched for effective tobacco control programs, policies and practices. Furthermore, although not evaluated through a best/better practice source, two Aboriginal cessation case studies from a Cancer Care Ontario report were included due to the lack of material available for this population. A description of identified interventions and evaluations/ratings are found in Appendices B and C respectively. A description of each resource is found below.

Program Training and Consultation Centre
(http://www.ptcc-cfc.on.ca/english/bpt/bpt-resource-listing/)

The PTCC is a resource centre of the Smoke-Free Ontario Strategy and the Ontario Health Promotion Resource System. It is responsible for providing training and technical assistance to health professionals working in tobacco control in Ontario. The Centre works closely with Tobacco Control Area Networks (TCANs) and Ontario public health units. The Better Practices Toolkit (2003 – 2006) was designed to help tobacco control practitioners in Ontario make the best use of limited resources when planning a successful tobacco control initiative.

The Centre defines better practices as "the most appropriate actions for situations based on the knowledge and capacities available at the time." The term "better" is used rather

[1] While it is recognized that these sources use different terminology to describe the efficacy of interventions (i.e., best, better, recommended, effective, moderate strength), to maintain consistency this report will describe them as best/better practice initiatives and sources.

than “best” as it “more accurately reflects the existing evidence base together with the reality of community practice in tobacco control, such as the requirement to implement programs even though definitive impact evaluation is not available or possible and the flexibility to respond to local needs and issues.”

Tobacco control initiatives included in the toolkit were reviewed by two research experts (8 reviewers in total), using a standard methodology. Initiatives were assessed based upon their effectiveness and plausibility and awarded either a ‘recommended or ‘plausible’ designation. Reviewers’ comments and ratings are located on the PTCC website. Below are key definitions:

- Better practices: tobacco control programs that have been deemed by experts to be "recommended" or "promising".

- Recommended practices: tobacco control programs that have high ratings on effectiveness and plausibility.

- Promising practices: tobacco control programs that either have a high quality process evaluation that showed positive results and are deemed plausible; or have methodologically weaker evaluation designs, but high plausibility scores.

- Effectiveness: whether the tobacco control program has a positive outcome or impact evaluation using a good quality research design. Effectiveness ratings are as follows:
  1 = Good impact or outcome design, positive results
  2 = Good impact or outcome design, negative results
  3 = Process implementation assessment only, positive results
  4 = Process implementation assessment only, negative results
  5 = No evaluation/poor design

- Plausibility: a tobacco control expert’s assessment on whether or not a program has all the necessary components for effective tobacco control. Specifically, plausibility criteria included:

  - Formative methods that included consultations and focus groups used to assess relevance, comprehension, and acceptability of activities, materials, methods, etc.
  - Feedback was gathered and integrated on program implementation, site response, participant response, practitioner response, and provider competency.
  - Appropriate theoretical foundations were applied.
  - Appropriate process guidelines were evident and that a collaborative approach was used.
  - Promotional activities were visible to the intended audience and the project was sustainable.

- Community leaders supported the initiative, there was community buy-in, community resources were mobilized, and overall, the project fills a unique need within the community that was not addressed by other initiatives.
- The evidence to support the initiative was current, and reliable.
- The initiative was judged to be feasible to be recreated other communities.
- The potential impact was deemed to be worth the estimated costs.
- The intervention's success/failure was able to be measured and evaluated.

The Canadian Best Practices Portal for Health Promotion and Chronic Disease Prevention (CBPP) (http://cbpp-pcpe.phac-aspc.gc.ca)

The portal is a compendium of community interventions related to chronic disease prevention and health promotion that have been evaluated, shown to be successful, and have the potential to be adapted and replicated by other health practitioners working in similar fields. The Portal helps to improve public health program decision-making by enabling front-line health practitioners to access well evaluated and effective chronic disease prevention and health promotion interventions. Launched in November of 2006, it is a major project of the Centre for Chronic Disease Prevention and Control within the Public Health Agency of Canada. Components of the portal include a catalogue of best practice systematic review sites, a searchable database of interventions and resources to help professionals reach their public health planning, chronic disease prevention and health promotion goals. The portal defines best practice as follows:

> "Best Practices are interventions, programs/services, strategies, or policies which have demonstrated desired changes through the use of appropriate well documented research or evaluation methodologies. They have the ability to be replicated, and the potential to be adapted and transferred. A best practice is one that is most suitable given the available evidence and particular situation or context.
>
> In the context of population health / health promotion, such practices are used to demonstrate what works for enhancing the health status and health-related outcomes of individuals and communities, and to accumulate and apply knowledge about how and why they work in different situations and contexts."

The intervention database incorporates the interventions of other collections that are based upon various evidence-based review methodologies. For this report, interventions identified through the portal were linked to the following collections: Research Tested Intervention Programs (US National Cancer Institute), Evidence-based Information Package (Canadian Cancer Society, Manitoba Division) and the Substances Abuse and Mental Health Services Administration (US Department of Health and Human Services). Finally, the portal uses a comprehensive search, selection and inclusion process. This process of inclusion is described as follows:

1. Literature and collection search by priority topic
2. Assess quality of evaluation or study design

a. The type of quantitative or qualitative study design is one of five selection criteria used to assess this category. Tobacco-related interventions identified for this review were evaluated through either experimental or quasi-experimental studies. For clarity, definitions, as per the portal, are as follows:
    i. Experimental design (controlled studies with random assignment of participants in experimental conditions – e.g., RCTs, Solomon Four Group design, etc.)
    ii. Quasi-experimental design (controlled studies without random assignment, but employing control/comparison groups, or counter-balanced designs)

3. Search for additional information on selected individual interventions
4. Expert review using inclusion criteria (as follows):
    a. Has the intervention been assessed, reviewed or rated by experts in the field?
    b. Do the evaluation/research results show that the intervention has had a positive effect on the health outcomes?
    c. Is this intervention relevant to health promotion and chronic disease prevention in Canada?
    d. Does the intervention address primary and/or secondary level prevention rather than tertiary prevention?
    e. Is the intervention community-based, or implemented 'universally'? Or - Is this intervention relevant to the population health approach?
    f. Does the intervention come from a credible source?
    g. Has the intervention been developed, or regularly updated, within the last ten years?
    h. Does the intervention appear to have been developed free of commercial interests that may compromise the integrity of the resource?
5. Prioritize selected interventions for annotation
6. Select resources

Information Package for Evidence-informed Interventions Canadian Cancer Society, Manitoba Division, Knowledge Exchange Network
(http://www.cancer.ca/Manitoba/Prevention/MB-Knowledge%20Exchange%20Network/MB-Information%20packages.aspx?sc_lang=en)

The Canadian Cancer Society's evidence-based information packages aim to support evidence-based decision-making in designing programs and anticipating outcomes. Interventions are assembled into packages deemed either "effective" or "moderate-strength" interventions. The inclusion process begins with a search of sources that are known and respected by the research community for creating rigorous systematic literature reviews or evaluating already published systematic reviews. These include:

- Health-evidence.ca
- Effective public health practice project (City of Hamilton)

- The Cochrane Collaboration
- Centre for Reviews and Dissemination databases
- The Guide to Community Preventive Services
- National Institute for Health and Clinical Excellence
- EPPI-Centre
- The Campbell Collaboration
- Agency for Healthcare Research and Quality

Relevant reviews are then read for evidence, focusing upon recommendations from any rigorously designed interventions that were effective in eliciting behaviour change and recommendations for any effective strategies used in the interventions. All interventions considered to be well-designed and effective in eliciting behaviour change are further evaluated for relevance to the topic, research design and strength, and specific outcomes of the interventions. Evidence is then assembled into packages that include an introduction, a summary report of the evidence, individual descriptions of effective interventions, and guidelines for adaptation. Relevant definitions are found below:

Effective interventions:

- Must show effectiveness in eliciting desired changes
- Gathered from systematic reviews and/or meta-analyses
- Has a high quality of design (e.g. Randomized controlled trial with large sample, rigorously evaluated)

Moderate Strength interventions:

- Must show effectiveness in eliciting desired changes
- Gathered from systematic reviews and/or meta-analyses or through separate literature searches
- Has a lower quality of design (e.g. RCT with small sample, quasi-experimental design, etc.)

Results

Due to their relevance to the public health community and the three pillars of tobacco control, this section will first discuss the findings in relation to health promotion, media-based education campaigns and public health advocacy. It will then more specifically examine the results in relation to prevention, protection and cessation.

Effective health promotion for tobacco control

As outlined in the Ottawa Charter for Health Promotion (1986), key principles of health promotion include creating healthy public policy and supportive environments, strengthening community action, developing personal skills and reorienting health services away from treatment and care and improving access to health services. While very few authors have discussed these health promotion strategies in the context of tobacco control (Slama et al., 2007; Slama 2005), Jackson et al., (2007) draw from eight health promotion reviews (which all used established criteria to determine quality of the studies) to ascertain their effectiveness. These findings are discussed and then summarized in Table 1 below.

The main finding identified by the authors is the recognition of healthy public policy as an effective and thus key health promotion strategy (Jackson et al., 2007). The Ottawa Charter describes healthy public policy as the following:

> Health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions and to accept their responsibilities for health.
>
> Health promotion policy combines diverse but complementary approaches including legislation, fiscal measures, taxation and organizational change. It is coordinated action that leads to health, income and social policies that foster greater equity. Joint action contributes to ensuring safer and healthier goods and services, healthier public services, and cleaner, more enjoyable environments.
>
> Health promotion policy requires the identification of obstacles to the adoption of healthy public policies in non-health sectors, and ways of removing them. The aim must be to make the healthier choice the easier choice for policy makers as well.

In the context of tobacco control this includes taxation and annual real price increases on tobacco products, smoke-free air laws, advertising bans and other legislative controls on the tobacco industry, evidence-based cessation services and funding for mass media campaigns (Slama, 2005). Among the best/better practice initiatives, those that supported policy change were largely specific to the development and implementation of indoor

smoke-free air laws. Initiatives that sought to change advertising and taxation policy were not identified. This is consistent with the literature that questions why, despite knowledge that it is one of the most effective tobacco control policies, tobacco taxation and price increases have not received greater priority from the health promotion and public health community (Sweaner et al., 1992). Furthermore, it is important to consider that a healthy public policy is one that underpins other areas that affect health and wellbeing. Given that tobacco use is associated with socioeconomic disadvantage, advocating for wider socioeconomic policy changes, such as those that reduce poverty, improve access to life opportunities (i.e., higher education and training opportunities) and/or equalize socioeconomic inequalities (i.e., progressive taxation, greater social assistance) are also needed (Graham, 2006).

In addition to healthy public policy, Jackson et al., (2007) found that the creation of supportive conditions and environments, through action at the policy, social and individual level, is essential in order to ensure the effectiveness of the other health promotion strategies. For a health promoter this may entail the development and implementation of comprehensive programs that prevent individuals from taking up smoking and motivate them to quit, the provision of cessation interventions and advocacy to encourage the adoption of public health and tobacco issues onto the policy agenda (Slama, 2005). Many of these activities are reflected in the best/better practice initiatives that are described throughout this document. Examples include the development and implementation of smoke-free air laws, the delivery of cessation services in a variety of settings and public education campaigns that expose tobacco industry tactics and promote the dangers of smoking and SHS (see protection, cessation and prevention sections respectively and Appendix B). While a campaign that lobbied for the placement of a tobacco issue onto the local policy agenda was not identified, advocacy was evident in a variety of initiatives, such as those that sought to increase support for smoke-free laws and those that sought to engage youth in advocacy programs.

Furthermore, while the authors felt more research and evidence was required to determine its effectiveness (Jackson et al., 2007), Slama (2005) notes that strengthening community action is important in the context of tobacco control as it lends support to enforcement of smoke-free regulations, facilitates the provision of cessation advice and treatment and contributes to tobacco/tobacco industry denormalization. Among the best/better practice initiatives, most of the community initiatives were protection and cessation oriented. This was especially the case when the initiative targeted special populations such as young adults, the LGBT community and Aboriginals. Moreover, youth engagement and tobacco industry denormalization were consistent themes found among the community prevention programs.

In addition to community action, personal skill development (i.e., health education, communications and training and skills development) was considered an ineffective health promotion strategy when implemented in isolation (Jackson et al., 2007). Interestingly, this was especially the case for interventions targeting socio-economically disadvantaged groups and communities. Consequently, to support personal skill development, the authors highlight the need for strategies that create structural level

conditions to support health and increase access to goods, products and services. In relation to tobacco control, effective health promotion attempts to help individuals develop personal skills and self-efficacy that enable them to refrain from taking up and/or quit smoking (Slama, 2005). This was reflected in all of the prevention and cessation initiatives identified through the best/better practice sources. Further, protection initiatives, through the development of smoke-free air laws, also contributed to the creation of conditions that encourage and support prevention and cessation.

While the final principal of health promotion was not addressed by Jackson et al., (2007), Slama (2005) notes that effective health promotion increases motivation for behaviour change and improves accessibility to cessation services through the reorientation of health services (Slama, 2005). Among the cessation initiatives identified through the best/better practice sources, motivation to quit was assessed through the stages of change models and motivational techniques were sometimes used to encourage those uninterested in quitting to explore their smoking behaviour and cessation options. Competitions and incentives, media campaigns and smoke-free polices were also used to increase motivation. Importantly, in addition to focusing upon changing the behaviour of the smoker, one initiative sought to increase the number of physicians and nurses providing brief interventions to their clients.

None of the best/better practice interventions demonstrated a comprehensive and integrated national and/or provincial smoking cessation system, a system that Canada and most provinces/territories are lacking. Such systems, as found in England, are often based upon a centralized, nationally coordinated structure and consist of dedicated cessation clinics with expanded access to behavioural and pharmacotherapy and subsidized and expanded coverage for the costs of services, particularly for disadvantaged groups (McNeill et al., 2005 as cited in Hammond & Reid, 2009).

In addition to determining the individual effectiveness of the principles of health promotion outlined by the Ottawa Charter, Jackson et al., (2007) emphasize that intervention success is greatly improved when multiple health promotion strategies are employed at multiple levels and sectors. Notably, they also identify key actions that are central to the health promotion strategies outlined in the Ottawa Charter (Table 1). These include intersectoral collaboration and interorganizational partnerships, community participation and engagement in planning and decision making, creating healthy settings, with emphasis upon schools, workplaces and communities/municipalities, political commitment, funding and infrastructure for social policies, and awareness of the socio-environmental context.

Table 1: Effective health promotion for tobacco control

Health promotion strategy	Levels	Effectiveness	Relevance to tobacco control	Key cross-cutting actions
Healthy public policy	Structural (policy)	Effective strategy	Taxation and price increases Smoke-free air laws Advertising bans Product regulation Evidence-based cessation services Funding for mass media campaigns	Inter-sectoral collaboration and inter-organizational partnerships
Supportive environments	Structural Social Individual	Effective strategy	Comprehensive programs Work, school and community based cessation services Advocacy to adopt issues onto the policy agenda	Community participation and engagement in planning and decision making
Developing personal skills	Individual	Effective when supported by structural level conditions that support health and increase access to goods, products and services	The development of personal skills and self-efficacy that enable individuals to refrain from taking up and/or quit smoking	Creating healthy settings, with emphasis upon schools, workplaces and communities and municipalities
Strengthening community action	Social	More evidence required to determine effectiveness	Supports development and enforcement of smoke-free laws Facilitates the provision of cessation advice and treatment Contributes to tobacco denormalization	Political commitment, funding and infrastructure for social policies Awareness of the socio-environmental context
Reorienting health services	Structural Social	Not assessed	Increase motivation for behaviour change Improve accessibility to cessation services through health services	

Finally, Jackson et al., (2007) utilized case studies to illustrate the power of integrating several health promotion strategies at the structural, social and individual levels. Partnership development was considered key to the success of all case studies. Partnership is defined as the joint action between partners (national and local agencies and the public) and implies the equal sharing of power (Naidoo & Wills, 2000). While the process of developing partnerships was not documented in the best/better practices initiatives, every initiative was developed in collaboration with a wide range of partners. The effectiveness of partnerships for health promotion is further highlighted by Gillies (1998). Specifically, the author highlights the following as important for the effective development of partnerships: local community involvement in action agenda setting and in the practice of health promotion and durable structures such as local committees and councils. In the same vein, Naidoo and Wills (2000) identify the following general factors as important to successful alliances and partnerships in health promotion:

- Members must have sufficient time to devote to interagency activity
- A coordinator helps maintain commitment and identify potential resources
- Members must have sufficient status and authority in their own organization to influence decisions
- There must be a shared vision and concept of health
- There must be shared goals and targets for promoting health
- There must be support for collaboration and a mechanism for getting things done
- It is important to demonstrate achievements (i.e., monitoring the process of the alliance, measuring outcomes and the achievements of original objectives)

Media-based public education campaigns

There is strong evidence that mass media campaigns are effective in preventing tobacco use, reducing consumption and increasing cessation when they are part of a comprehensive tobacco intervention and consist of long-term, high intensity counter advertising (National Cancer Institute, 2008; Guide to Community Preventive Services, updated Feb 2010; National Institute for Health and Clinical Excellence, 2007; CDC 2007). They may also increase public support for tobacco control polices and programming, such as smoke-free policies, and contribute to the denormalization of tobacco (NCI, 2008). Furthermore, Campaign for Tobacco-Free Kids (2007) summarises the characteristics of effective mass media campaigns as follows:

1. High frequency, reach and long duration.
2. A variety of messages that are novel and targeted to motivate different people to attempt cessation.
3. A variety of paid media, public relations, special events and promotions in a coordinated effort integrated with school and community-based programs, as well as the other elements of a comprehensive tobacco reduction program.
4. Incorporation of lessons learned from experiences throughout the world. International campaign reviews can provide direction based on lessons learned from previous campaigns.

5. Grounded in rigorous and state-of-the art research on effectiveness. Formative research and evaluation, process and outcome evaluation should be combined to ensure the greatest likelihood that the campaign will effectively build awareness and knowledge, and change attitudes and behaviours as desired.

This section will now provide a brief discussion on the effectiveness of media-based public education campaigns in the context of prevention, protection and cessation.

Prevention

A Cochrane review of mass media interventions for the prevention of smoking by young people found some evidence to support their use (Sowden, 1998). The authors confirm that the success of campaigns improve when they are based upon solid theoretical foundations, use formative research to inform and tailor their messages to reach their target audience, last longer and are more intense.

Some of these principles are reflected in the *Don't Be a Butthead-Stay Smoke-Free* initiative, a comprehensive mass media campaign developed by the North West Territories' Department of Health and Social Services in consultation with a communications company. The campaign lasted approximately one year (May 2004-May 2005), and targeted non-smoking youth between the ages of 8 to 14 to stay smoke-free "throughout their teenage years and beyond." Campaign components included a commitment campaign, a school challenge, the development of a website and CD-ROM, event attendance, school presentations, advertising and promotions (i.e., movie trailers, newspapers, radio adverts and posters), tobacco curriculum for grades 3-9, an informational video, a brochure for adults and teacher and community kits. While the campaign's evaluation found that it had met most of its objectives, the difficulty in attributing changes in smoking behaviour to the campaign due to other potential influencing factors was highlighted (Malatatest & Associates Ltd & Genesis Group Ltd, 2005). In addition to the *Don't Be a Butthead* campaign, many of the key findings outlined by Sowden et al., (1998) are found, to different extents, in the six best/better practice prevention initiatives for which media campaigns were components (Table 2). Importantly, tobacco and tobacco industry denormalization, minimum age of purchase laws and the health effects of tobacco use and SHS were the messages most often disseminated through these campaigns.

Table 2: Prevention: media-based best/better practice initiatives

Initiative	Description
Developing student action committees in Simcoe County Schools	The creation of Student Tobacco Action Committees and a media Campaign led by youth
Midwestern Prevention Project	Television managers, teachers and peer leaders are trained in drug prevention skills and program delivery Main components of the intervention includes a media campaign, parent program, classroom education, community organization and health policy development
York Region Chinese Anti-Tobacco Education Campaigns	Components of the initiative include a needs assessment, media campaign (using media channels targeting Chinese community in York Region, the GTA and its surrounding areas); dducational and promotional activities (culturally-sensitive messages and educational materials targeting specific audience groups); and a final evaluation.
Engaging youth via a youth mass media campaign and a youth advisory committee	Youth mass media campaign (focusing on tobacco industry and truth behind tobacco advertising) Development of a youth advisory committee for the Ottawa Council on Smoking and Health
Truth Campaign	Mass media campaign (web, print and television) highlighting the profit-driven, deceitful nature of big tobacco. Also uses graphic images and facts about death and disease caused by tobacco
Not to Kids! A media campaign to reduce the sale and supply of tobacco to kids	Initiative consisted of a mass media campaign, community-based activities, retailer and school initiatives and a tobacco hotline

Finally, an innovative social marketing campaign targeting young refugees and immigrants living in the Greater Vancouver Area was identified in the grey literature. *Smoke Screen 2: through the eyes of new Canadians*, with funding from Health Canada, consisted of three phases: a community consultation process with 194 young newcomers, the production of 12 peer-driven ads that de-glamorize tobacco use and focus group testing to determine how and which adverts to disseminate. Ads were aired on youth-chosen television stations, on the transit system, in newspapers, and there was an internet-based social networking component and web page. Evaluation results showed that the campaign had high reach and promoted positive changes in attitudes and, to a lesser extent, in behaviour among the target audience (Stoll & Guinn, 2006).

Protection

Little research has been conducted on the effectiveness of mass media and public education campaigns for protection. In one review, there was indirect evidence to link mass media campaigns and an increase in the prevalence of smoke-free homes (Thomson et al., 2006).

Table 3: Protection: media-based best/better practice initiatives

Initiative	Description
Breathing Space: community Partners for smoke-free homes	Campaigns ran throughout summer 2000 (3 months) and winter 2001 (4 weeks) using various forms of media. The campaign was complemented by various community-based activities.
Smoke-free homes and asthma pilot sites: media campaigns	The main components of the campaign included: a series of radio commercials highlighting the harmful effects of second-hand smoke and advertising the purple envelopes; the distribution of purple envelopes that contains information on smoke-free homes; and the distribution of a video about second-hand smoke to prenatal instructors and a local hospital.
Media campaign to build support for a smoke-free bylaw in Ottawa	A bilingual media campaign (fact sheets, a website, advertisements on radio, on buses and in print media and a report on ventilation). Workplaces and businesses received appropriate educational material including 'No-smoking' signs. Monitored ongoing public support for smoke-free public places and workplaces.
Promotion campaign to support implementation of the smoke-free bylaw in Waterloo Region	Components included community of the school and health community, and the development of education and promotional materials.
Education and Enforcement Strategy to support the Peterborough smoke-free spaces bylaw	A media campaign that targeted residents, visitors and close-by rural municipalities in order to raise awareness of smoke-free workplaces and by-law amendment.
Bylaws and signage to encourage smoke-free playground and parks in Simcoe County	A communication campaign to promote the new outdoor smoking by-law and reinforce the importance of a smoke-free lifestyles and protection from SHS.

In the same vein, the US National Cancer Institute (2008) and the Centers for Disease Control (2007) demonstrate the importance of media interventions and health communications as a best practice approach to raising awareness of the physical and social effects of environmental tobacco smoke as well as support for smoke-free policies. Furthermore, public education and media campaigns were key components of most of the protection best/better practice initiatives (Table 3). Content of these campaigns generally included the health effects of SHS, especially among youth, smoke-free homes, the need

for comprehensive legislation, bylaw requirements and amendments, and how individuals can promote and support the law and voice their complaints about compliance.

Cessation

Another Cochrane review examined the effectiveness of mass media interventions for smoking cessation in adults (Bala et al., 2008). Interventions were those that included communication through television, radio, newspapers, billboards, posters, leaflets or booklets, with the intention of encouraging smokers to quit and maintaining abstinence in non-smokers. The campaigns were carried out alone or in conjunction with other tobacco control programs. While the authors note that their results were based upon a heterogeneous group of studies, they found evidence for the effectiveness of mass media campaigns when part of a comprehensive tobacco control program. Among the three best/better practice cessation initiatives for which media campaigns were implemented, two were part of wider comprehensive tobacco control programs (Table 4).

Table 4: Cessation: media-based best/better practice initiatives

Initiative	Description
Quit Smoking Contest	Part of comprehensive 6 month campaign where smokers made a pledge in exchange for entry into a draw for a prize when smoke-free status was assessed. There was a strong media element and local community involvement.
Quit & Win Buffalo	Contest challenges smokers to be abstinent for a specific period of 30 days in order to be eligible for prizes. The contest is promoted one and a half months before competition (flyers and posters distributed at major area employers, hospitals, pharmacies and physician offices) and approximately two weeks prior to the start of the contest, it is promoted in the daily newspaper
Smoking Cessation for Lower Literacy Clients in Peterborough	This initiative used media to promote their smoking cessation groups to their target audience.

Further, Bala et al (2008) did not find evidence of a differential effect of media campaigns by age, education, ethnicity and gender. However a recent systematic review found considerable evidence to indicate that media campaigns to promote cessation are often less effective among socio-economically disadvantaged groups (Nierderdeppe et al., 2008).

Public health advocacy

While no reviews were identified in the literature, this topic warrants a discussion as the public health community in Canada has played a significant role in advocating for local, regional and national policy change, especially in the context of protection (Wakefield & Chapman, 2001). Public health advocacy is often defined as “the process of gaining political commitment for a particular goal or program and identified by some as a critical

population health strategy" (Johnson, 2009). Common elements include: an emphasis on collective action to effect desired systematic changes; a focus on changing upstream factors like laws, regulations, policies, institutional practices, prices and product standards; and an explicit recognition of the importance of engaging in political processes to effect desired policy changes. It is therefore important for creating environments supportive for health. Further, Chapman (2004) highlights the central role of the media when he defines public health advocacy as the "strategic use of the news media to advance a public policy initiative, often in the face of opposition." However, in addition to the media, advocacy strategies draw from a range of tactics, such as:

- Creating and maintaining coalitions
- Application of information and resources to effect systemic chances that chance the way people in a community live
- Bringing together disparate groups to work together for a common goal
- Gathering and presenting evidence-base for desired changes, however scientific evidence alone is rarely enough to achieve desired political support for public health goals

In addition to tobacco control advocacy guidelines developed by the NGO community (http://strategyguides.globalink.org/), there is some evidence in the academic literature regarding the effectiveness of advocacy in advancing the adoption of indoor smoking laws, bylaws and policies in Canada and throughout the world (Asbridge, 2004; Drope & Glantz 2003). Further, as will be demonstrated throughout this report, elements of public health advocacy are found in most of the prevention and protection initiatives identified through the best/better practice sources.

Prevention

To prevent tobacco use among youth, the CDC's *Best Practice for Comprehensive Tobacco Control Programs* identifies a comprehensive strategy as a best practice approach. This involves coordinated community and school-based programs implemented in conjunction with price increases of tobacco products, sustained media campaigns and the adoption of smoke-free environments. Restricting the sale of tobacco products to youth through community mobilization, stronger local laws directed at retailers, active enforcement and retailer education with reinforcement were also identified as important components of a comprehensive strategy.

This section identifies and explores effective tobacco prevention activities relevant to the public health community in Canada. Specifically, the following is explored: theories, school-based programs, community-based programs, youth development and engagement, family prevention programs and enforcement. Ten reviews were identified in the academic literature (Appendix A) and 20 prevention initiatives were identified through best/better practice sources. Findings are described below under the appropriate category.

Theories

One review focused upon the theoretical foundation upon which youth tobacco prevention interventions are based. Hwan, Yeagley & Petosa (2004) conducted a meta-analysis to determine the effectiveness of adolescent psychosocial smoking prevention programs for students in grades 6 to 12 in the United States. Interventions identified in the review consisted of social influence, cognitive behaviour and/or life skills components and were either school or school-community based. Smoking reduction was higher in school-community based settings and/or when programming was based upon cognitive behaviour therapy or life skills training. Social influence and participatory planning was the predominant theory and model upon which prevention programs identified through the best/better practice sources were based.

School-based prevention programs

Historically, the literature has been undecided over the effectiveness of school-based prevention programs, especially regarding their long-term effects. Findings should therefore be interpreted with caution (Table 5)

Dobbins et al., (2008) conducted a systematic review of the literature from 1985 to 2007. They also conducted in-depth interviews and focus groups with Canadian practitioners involved in tobacco use programming. Their review highlights three previous reviews that reported positive or promising effects of school-based prevention programs on short and long-term smoking initiation. Educational sessions on social norms, reinforcement training, peer and adult-led support groups and media campaigns were typical of effective interventions, as were using providers such as teachers, researchers and peers.

Table 5: Effective characteristics of school-based programs

Intervention	Characteristics & Components	Settings	Providers	Other
School programs	• Interactive social influences or social skills training • Refusal and cognitive skills building • Deconstructing tobacco media messages • Youth engagement • Media campaigns • Reinforcement training • At least 15 sessions Booster sessions • Community volunteering • Community partnerships	• School	• Teachers • Health professional • Peers	• Implement in conjunction with community initiatives • Part of comprehensive approach • Adapt to education curricula and needs of cultures of minority groups • Take advantage of electronic media and communications

Results also highlighted components of the most successful interventions in relation to smoking behaviour. These included school curricula, social norms and influence training, social reinforcement and refusal skills training and cognitive skills enhancement such as activities that focus upon self-esteem, decision making, self-control and coping skills. Providers of the most effective interventions included teachers, health professionals and/or peers. Importantly, in the absence of ongoing intervention, effects on smoking behaviour appeared to diminish over time. While similar findings on the sustainability of effects were also found by Wiehe et al., (2005) and Ranney et al., (2006), Flay (2009), critiques the methodology of these reviews and demonstrates that long-term effects are possible, especially when programs consist of interactive social influence or social skills training, include at least 15 sessions up to at least grade nine and produce substantial short-term effects.

Findings from the interviews and focus groups also identified effective strategies and components of school-based programs (Dobbins et al., 2008). These included a comprehensive approach that includes increased tobacco taxes, community-wide smoking bans, healthy public policy, denormalization, counter advertising and partnership working. Support from the public health community and youth engagement in project development and implementation were also identified as important. Based upon their conclusions, Dobbins et al., (2008) recommended the following for effective tobacco use prevention.

1. Include active learning, awareness of influences of smoking, skill building, deconstructing media messages that promote tobacco use, and youth involvement in developing and implementing interventions.
2. Implement programs in conjunction with other community tobacco control initiatives
3. Adapt to the needs and cultures of minority groups
4. Adapt to fit with different education curricula
5. Take advantage of electronic media and communications.

In addition to Dobbins et al. (2008), Thomas and Perera (2007) reviewed studies on the effectiveness of school-based programs for preventing smoking among children and adolescents. While the authors did not find evidence for the effectiveness of school-based programs, they concluded that those which are based upon the social influences model and are combined with other components, such as community interventions and social competence training, may result in improved effectiveness. The authors also highlighted the need for more research in this area to inform programming and practice. Finally, while not highlighted amongst the reviews, some evidence indicates that school-based programs are more effective when implemented in high risk settings, such as schools with high smoking rates among senior students (Leatherdale et al., 2006; Brown et al., 2002; Cameron et al., 1999).

While no reviews on prevention initiatives for Aboriginal youth were identified, a recently developed Aboriginal youth prevention program was found through the grey literature. *Teaming up for Tobacco-free kids (Butt Out)* is a prevention program by Alberta Health Services, whereby university student volunteers educate elementary students about various societal aspects of smoking and boost confidence and social skills (McKennitt et al., 2009). This program was recently adapted through consultations with a team of Aboriginal post-secondary students, Elders, Aboriginal community members, and Aboriginal youth. Major changes involved shifting the focus of programming from prevention to the culturally appropriate use of tobacco and adopting a holistic approach that encompasses the spiritual, physical, mental and emotional approaches to health (McKennit et al., 2009). The program, recently piloted in two schools in Alberta (McKennitt et al., 2010), was modified to focus on the following:

- Using the medicine wheel to enhance understanding
- Including discussions of the traditional role of tobacco in Aboriginal culture
- Showing how the ingredients of cigarettes are different from traditional tobacco
- Explaining the difference between using tobacco traditionally versus recreationally
- Coaching youth in ways to deal with peer pressure to use tobacco recreationally

Many of the recommendations outlined in the literature are reflected, to different extents, in the ten school based prevention initiatives identified through the best/better practice sources (Table 6). Consistent with the literature, they were largely based upon social influences theory, however some also incorporated health beliefs model, the theory of reasoned action, participatory planning models and a cognitive developmental stages model to inform program development.

Table 6: School-based best/better practice prevention initiatives

Initiative	Description
Lungs are for life: grade 3 lesson plans and resources	Curriculum
Lungs are for Life: grades 4-8 revised modules Helping students say NO to tobacco and other harmful substances	Curriculum
Lungs are for life: grade 9 Helping students say NO to tobacco and other harmful substances	Curriculum
Lungs are for life: grade 10 lesson plans and resources: Helping students say NO to tobacco and other harmful substances	Curriculum
Keep it Clean (KIC)	Curriculum
Encouraging teachers to implement smoking prevention (Lungs are for Life) in the classroom in a Northern community	Curriculum
The Smoking Zine: using the internet for smoking prevention and cessation with Youth	Web-assisted tobacco intervention (may be used as part of school curriculum, community initiative or on its own)
The power of many: tobacco action guide for this generation	A youth action guidebook developed in consultation with young people (includes advocacy and leadership tools, profiles of successful youth initiatives, ways youth can become involved in their communities and provides information on tobacco industry practices).
Developing student action committees in Simcoe County Schools	Student Tobacco Action Committees (STACs) were created to build leadership capacity among youth through peer-led initiatives implemented by the Student Tobacco Action Committees (STACs) and provide opportunities to implement a project of their choice promoting tobacco-free living and related healthy living choices in their school community Media Campaign sought to increase communication skills of youth and provide a forum to share their messages about tobacco use prevention with peers and other community youth.
Preventing substance abuse among Aboriginal Youth (grades 3 to 5)	Fifteen 50-minute weekly sessions during the spring term of each school year conducted by group leaders and older peers. Booster sessions received semi-annually for 3.5 years (delivered in two 50-minute sessions)

Importantly, while not addressed in the literature, most had undergone process and/or formative evaluations, while some had also undergone outcome and/or impact evaluations. Further, an experimental evaluation of a classroom based integrated *Smoking Zine* program (the *Smoking Zine* website used conjunctly with a paper-based journal, a small group form of motivational interviewing, and tailored e-mails) found that

the program significantly reduced the adoption of heavy cigarette use among non-smokers at six months (Norman et al., 2008).

Finally, one school based initiative that targeted Aboriginal youth in the United States was identified. Consistent with the literature and the initiative described above, the intervention was tailored to incorporate culturally appropriate content into the curriculum, such as values, legends and stories, and addressed substance use issues relevant to Aboriginal society. Further, booster sessions occurred semi-annually for 3.5 years. This intervention was empirically evaluated and results demonstrated that, at 30 and 42 months follow-up, the intervention groups' alcohol, smokeless tobacco and marijuana use were significantly lower than that of the controls' (Schinke et al., 2000).

Community-based programs

The CDC (2007) defines effective community programs as those that "involve and influence people in their homes, work sites, schools, and places of worship, places of entertainment, health care settings, civic organizations, and other public places." They further define a community as one that:

> …encompasses a diverse set of entities, including voluntary health agencies; civic, social, and recreational organizations; businesses and business associations; city and county governments; public health organizations; labor groups; health care systems and providers; health care professionals' societies; schools and universities; faith communities; and organizations for racial and ethnic minority groups.

One Cochrane review evaluated the effectiveness of community interventions compared to single component or school based programs was identified in the literature. (Sowden, Arlblaster & Stead, 2003) (Appendix A). The authors defined community interventions as those that used "coordinated, widespread, multi-component programs to influence behaviour and often involved community members in the development and implementation of the programs." Programs often focused upon age restrictions and disease prevention, utilized mass media and/or included school components. The authors concluded that there is some limited evidence to support the effectiveness of community interventions when compared to single strategies and recommended the following to those involved in the development of community programs.

1. Build upon elements of existing programs that have been shown to be effective rather than repeating methods that have achieved limited success.
2. Programs need to be flexible to the variability between communities so that the different components of a given program can be modified to achieve acceptability.
3. Developmental work with representative samples of the target audience to ensure appropriate messages and activities are implemented.

4. Program messages and activities should be guided by theoretical constructs about how behaviours are acquired and maintained (i.e., Social Learning Theory).
5. Community activities must reach the intended audience if they are to be successful in influencing the behaviour of the intended audience.

Table 7: Community-based best/better practice prevention initiatives

Initiative	Description
Lungs are for Life: Community involvement and teacher-advisor program: Helping students say NO to tobacco and other harmful substances	Incorporated community involvement projects for students (i.e., Deliver LAFL lessons to youth, implement school smoking cessation programs, industry awareness campaigns, lobby for smoke-free places and federal tax increases). Program also consisted of teacher-advisor program lessons.
York Region Chinese Anti-Tobacco Education Campaigns	Needs assessment: a. Needs assessment focused on the needs and issues related to tobacco and exposure to ETS. Media campaign; b. Media channels targeting Chinese community in York Region, the GTA and its surrounding areas; Educational and promotional activities; c. Series of culturally-sensitive messages and educational materials targeting specific audience groups; Final evaluation: d. Media Campaign Evaluation assessing the effectiveness of the Campaign;
Engaging youth via a youth mass media campaign and a youth advisory committee	Developed a youth mass media campaign (focusing on tobacco industry and truth behind tobacco advertising) and a youth advisory committee for the Ottawa Council on Smoking and Health
Midwestern Prevention Project (drug prevention)	Main components: Mass media campaign (newspaper articles. Television and radio talk show interviews, coverage of training) Parent program (Refine school policy, monitor school grounds and the surrounding neighbourhood for drug use, plan and implement parent skills training) Classroom education (skills training for resistance of drug use), community organization and health policy development

The four school-community based initiatives identified through the best/better practice sources were based upon community development principles and incorporated the stages of change theory, social learning theory, health beliefs model, theory of reasoned action, and social influences theory (Table 7). Initiatives included the development of a student action committee and a media campaign; an interactive prevention/cessation website; the expansion of the Lungs are for Life curriculum to include community involvement projects for grade 10 students; and a comprehensive drug prevention project that

consisted of a mass media campaign, classroom education, community organization, health policy change and a parent program. As emphasized by the CDC (2007), they were developed and implemented in collaboration with a variety of community partners.

Table 8: Effective characteristics of community-based prevention programs

Intervention	Characteristics & Components	Settings	Providers	Other
Community programs	• Mass media campaigns • School components • Focus upon age restrictions, disease prevention and/or policy change • Youth community volunteer projects • Parental and community involvement • Web-based components • Community partnerships	• Community	• Community members and organization	• Build upon existing effective programs • Developmental work with target audience • Community activities must reach intended audiences if they are to be successful

Family prevention interventions

Thomas, Perera & Lorenzetti (2007) conducted a systematic review of family-based programs that sought to prevent children and adolescents from smoking. Interventions that focused on preventing alcohol or drug use were also included provided they reported outcomes for tobacco use. Participants included children and family members and the interventions sought to deter tobacco use through changing parenting behaviour, parental or sibling smoking behaviour and improving family communication and interaction. The authors concluded that well designed interventions may strengthen family non-smoking attitudes and promote non-smoking behaviour among youth and other family members. Further, the extent of implementer training and the fidelity of implementation appeared to be higher in those studies with positive outcomes. However, it was not possible to draw firm conclusions about the efficacy of family interventions and their long-term effects due the quality of the current evidence.

In the same vein, Petrie et al., (2007) conducted a systematic review of parenting programs that aim to prevent tobacco, alcohol and drug abuse in youth under 18 years of age. The authors concluded that parenting programs can be effective in reducing or preventing substance use and that the most effective interventions emphasized active parental involvement and the development of skills in social competence, self-regulation and parenting. Consistent with the review described above, the paucity of research in this area is highlighted, as is the need to further investigate mechanisms of change and long-term effectiveness.

Three better/best practice interventions were identified that sought to prevent/reduce tobacco use through family programs (Table 9).

Table 9: Family prevention best/better practice initiatives

Initiative	Description
Strengthening Families Program	Weekly sessions consist of separate, concurrent training sessions for parents and children (one hour in length), immediately followed by family sessions in which parents and children practice skills learned in their separate sessions (one hour). The seventh meeting consists of only a one-hour family session.
Family Matters	Four booklets are separately mailed to a parent (usually the mother) in the home of the child. Each booklet begins with identification of the topics for the booklet, followed by a question answer\section, a description of suggested activities, a summary, and a preview of the next booklet. Two weeks after each mailing, a health educator contacts the parent by telephone to assure that the booklet was received, to determine if the booklet has been read and if activities were completed.
Midwestern Prevention Project (drug prevention)	This comprehensive program includes a parent program that consists of a principal, four to six parents and two student peer leaders from each school who meet throughout the school year to: a. Refine school policy to institutionalize prevention programming in the school b. Monitor school grounds and the surrounding neighbourhood for drug use c. Plan and implement parent skills training twice a year for all parents, with a focus on parent child communication and prevention support skills

They were based upon a variety of theories such as the bio-psychosocial, resiliency and the social ecology model of adolescent substance and social learning theory. Components included drug, alcohol and tobacco training sessions for parents and children (separately and together), information booklets mailed to parents followed up with telephone reinforcement from a health educator and parental inclusion in a school drug prevention working group that discussed drug, alcohol and tobacco related issues and attempted to refine school policy to institutionalize prevention programming. This group also implemented skills training sessions for all parents that focused on parent-child communication and prevention support skills.

Table 10: Effective characteristics of family prevention programs

Intervention	Characteristics & Components	Settings	Providers	Other
Family prevention programs	• Parental involvement • Development of social competence, self-regulation and parenting skills • Improving family communication and interaction • Group sessions for parents and children followed by family sessions to practice newly acquired skills	• School • Home	• Well-trained facilitators • Health educators	• Implementer training and fidelity of implementation appear to be determinants of success

Youth Development and engagement

A youth development approach aims to help youth thrive through community engagement practices. Resiliency is also a central concept of youth development programs and the goal is not only to reduce unhealthy behaviours and risk factors, but to increase personal strengths and protective factors (Grantmakers in health, 2002; Roth & Brooks-Gunn, 1998; Gallagher et al., 2005 as cited in Fiisel et al., 2008). Thus, Roth & Brooks-Gunn (2003) appropriately note,

> …youth development programs seek to enhance not only adolescents' skills, but also their confidence in themselves and their future, their characters and their connections to other people and institutions by creating environments both at and away from the program, where youth can feel supported and empowered (p.180).

Youth engagement is another key component of youth development and is defined as the "meaningful participation and sustained involvement of a young person in an activity with a focus outside of him or herself" (Centre of Excellence for Youth Engagement, no date). It has been used synonymously with "involvement", "participation", "community service", and "volunteering." Youth engagement or participation is therefore encouraged at every phase of program development and implementation.

Reviews on the effectiveness of youth development and/or engagement in tobacco control were not identified in the academic literature. In a report submitted to Health Canada on tobacco control research on youth, O'Loughlin et al., (2004) concluded that, due to a small number of studies, the evidence was weak to associate participation in tobacco control advocacy activities to a reduction in youth smoking. It was also not possible to identify strategies that have been successful in engaging, involving and

supporting youth in tobacco control. However, in a more recent report, Fiisel et al., (2008) note that while youth development is a relatively new concept in tobacco control and the literature to support its effectiveness is not extensive at this time, it does provide evidence that it is associated with positive attitudes and behaviours and a reduction in problem behaviours.

The *Youth Action Alliance Program* (YAA), an Ontario initiative part of the province's smoking prevention programming until recently, is a community-based program founded upon youth development principles. Adhering to a peer leadership model, the program sought to improve knowledge and skills and provide young people with the capacity to engage in community mobilization, education and policy-related tobacco control issues. Thus, youth planned, developed and implemented initiatives that addressed tobacco prevention needs in local communities. Further, while most groups operated out of public health agencies, some were based in the community, such as youth centres. At its peak, the program was implemented in 56 youth clusters throughout Ontario.

Fiissel et al., (2008) conducted a formative evaluation of the *YAA* program. Key findings demonstrate that *YAA* had been successfully implemented, the program was having positive impacts on sub-communities, particularly in schools, and it had generally functioned in accordance with youth development principles. While most *YAA* events were educational or promotional (presentations, street marketing etc…) and a number of groups engaged in cessation related activities (quit kits, contests and cigarette exchange), advocacy activities to affect policy change were relatively lacking. Furthermore, a formative evaluation of *T-Dot (Toronto don't own Tobacco)*, the *YAA* administered through Toronto Public Health, provided insight into the effective recruitment of youth from underserved areas into the program. Measures that facilitated recruitment included employing youth advisors from the relevant neighborhoods and forming community partnerships within the neighborhood (Bierre et al., 2010). Finally, while this initiative has recently lost funding, some *YAAs* continue to operate in conjunction with local public health agencies. The provincial government is currently re-developing this program and is engaging youth in the process.

Another Canadian program, which reflects to some extent youth development principles, is *exposé*, Ottawa Public Health's smoking prevention program. Since its inception in 2002 as a school-based tobacco control program, *exposé* has increasingly engaged youth in local tobacco control activities. Youth advisors (adults), youth facilitators (paid college or university students) and public health staff work in collaboration to lead high school student volunteers in the planning of school and community based activities. It is noted that while this program provides more opportunity for the skill development of older youth facilitators than younger high school students, *exposé* is perceived to have had a greater community impact. This is perhaps due its broader resource base, strong partnership with community organizations and length of time that it has been in operation (Fiissel et al., 2008).

While there is a lack of research on youth engagement in tobacco control activities, best/better practice initiatives provide some insight. Of the 19 prevention initiatives

identified, youth development principles were reflected in five. This included an initiative that developed student tobacco action committees and a youth-engaged media campaign; the development of a youth advisory committee for a city council and a youth mass media campaign; community volunteer projects as part of the Lungs are for Life curriculum; and a youth action guidebook developed in consultation with adolescents; (See Table 6 and 7). Another example is the Youth Tobacco Vortal Project, an internet-based program that teaches youth about tobacco control and links them to various youth-oriented action activities in their area (Appendix B). Underlining theories include participatory planning models, social influences, community development and mobilization and the core values of health promotion such as the broad determinants of health and empowerment. Finally, each initiative conducted a formative and process evaluation; however the internet initiative and action guidebook also conducted outcome and impact evaluations respectively.

Enforcement of minimum age of purchase laws

Two reviews and one article that evaluated the effectiveness of youth access interventions were identified in the academic literature (Richardson et al., 2009; Stead & Lancaster, 2005; Difranza, 2005). Stead and Lancaster's (2005) review examined the impact of interventions that seek to prevent minors from purchasing tobacco. Strategies that targeted retailers were evaluated, such as education, law enforcement, community mobilization and multi-component strategies. The authors concluded that active enforcement or the use of comprehensive educational strategies (i.e., personal visits, mobilizing community support) were more effective in decreasing the sale of cigarettes to minors than providing retailers with information about illegal sales. Importantly, the authors note that complete and sustained compliance was not attained in any of the interventions evaluated and thus an impact on underage smoking prevalence was difficult to measure. The authors also highlight evidence to suggest a reduced effectiveness if monitoring for compliance occurs less than four to six times a year.

A systematic review by Richardson and colleagues (2009) similarly concluded that youth access interventions that contain multiple components (i.e., youth access policies, community and retailer education and vending machine policies) and are supported by active enforcement are the most effective in reducing illegal sales of tobacco products to minors. The authors also discussed a variety of factors that appeared to influence effectiveness. These included age and sex of store clerks (young males are more likely to sell to minors) and the sex, diversity and stage of smoking of the potential buyer. Barriers that impeded effectiveness included the lack of enforcement and prosecution of retailers violating the law and alternate sources of cigarettes such as the internet, vending machines and the social and illicit markets.

Table 11: Effective characteristics of the enforcement of minimum age of purchase laws

Intervention	Characteristics & Components	Settings	Providers	Other
Enforcement of minimum age of purchase laws	• Active enforcement • Comprehensive educational strategies • Monitoring for compliance 4-6 times per year • Multiple components • Prosecution of retailers found in violation of law • Community partnerships	• Community • Schools • Workplaces	• Enforcement officers • Retailers	• Barriers to effectiveness: lack of enforcement and prosecution, alternate sources of cigarettes such as the internet, vending machines and social and illicit markets

Finally, Difranza (2005) identified best practices for enforcing state laws in the United States that prohibit the sale of tobacco to minors. The author identified the following as effective strategies: a law enforcement strategy with a state agency coordinating enforcement, state funding of test purchases for enforcement and the prosecution of offenders with penalties of violating the law and effective merchant education. Difranza (2005) further notes that warnings in lieu of penalties, reliance upon non-funded local enforcement, and limitations placed on enforcement authority or the conduct of test purchase are not recommended for the effective enforcement of youth access laws.

Many of these strategies are reflected in the best/better practice enforcement initiatives: *Retail Sales Compliance Training Video "19 and Prove it" and Tobacco Control Act training course* and *Not to Kids! A media campaign to reduce sale and supply of tobacco to kid* (Appendix A). Respectively, these consisted of a multiple component intervention (media campaign, community based activities, retailer and school initiatives and a tobacco hotline) and the production of a retail staff training video based upon a peer-to-peer approach were implemented and distributed. The theoretical foundations upon which these initiatives were based include community development, community mobilization, social marketing and participatory planning models. Finally, a variety of stakeholders, such as health units, community and youth centres, local school boards, retail owners, managers and clerks, and other health and tobacco organizations collaboratively developed and implemented these initiatives.

Protection

The Framework Convention on Tobacco Control, the first global public health treaty, requires ratifying nations to adopt comprehensive smoke-free policies. Specifically, Article 8 of the treaty emphasizes the need for protection and requires that each party:

> …adopt and implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels the adoption and implementation of effective legislative, executive, administrative and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places." (FCTC Article 8.2.)

While evidence to support the effectiveness of smoke-free policies is continuously growing (Naiman, Glazier & Moineddin, 2010; International Agency for Research on Cancer, 2009) there is a paucity of academic literature regarding the effective development and implementation of smoke-free policies (Nykiforuk, 2010). Three reviews and two relevant journal articles were identified in the academic and grey literature (Appendix A) and two separately evaluated interventions were identified among the public health grey literature. Eight interventions were identified through the best/better practice sources (Appendix B).

Interventions to reduce children's exposure to SHS

A Cochrane review of family and carer programs for reducing children's exposure to SHS (i.e., smoke-free legislation, health promotion, socio-behavioural therapy, technology, education and clinical interventions) concluded that the evidence was insufficient to support the use of one intervention over the other (Priest et al., 2008). Furthermore, another review of population-based policy options for increasing the prevalence of smoke-free homes found some association between comprehensive tobacco control programs and a decrease in smoking in homes (Thomson et al., 2006). More specifically, there was indirect evidence to link mass media campaigns to an increase in the prevalence of smoke-free homes.

However, two interventions that sought to reduce the exposure of children to SHS were identified in the grey literature that provide insight into program effectiveness. British Columbia's *Kids Need Breathing Space!* was a health promotion project implemented by BC's Interior Health (IH) in partnership with Health Canada and the Heart and Stroke Foundation of BC and Yukon. The project was launched in 2002 after survey data indicated high levels of exposure to SHS in homes and vehicles among children living in the region (Hill & Poole, 2005). *Kids Need Breathing Space!* followed a best practice approach that combined a mass media campaign with community-based interventions. The campaign consisted of three phases. Components of the third phase were described in the evaluation report and included television, radio and newspaper campaigns, the

development and distribution of resources, a contest, a community partnership plan, school activity kits, a community grants plan and corporate sponsorships.

The initiative was evaluated through participant interviews in all three phases. Interviews were conducted with parents of young children, health care professionals, teachers, community partners, and corporate partners. Media surveys were also conducted to determine recall and effectiveness of the TV & radio campaigns. In March 2005, Venture Research conducted a post-project survey of IH residents to measure change in knowledge, attitudes and behaviours in relation to SHS and children's health. Key findings demonstrated:

- Smoking in the homes reportedly declined from 19% to 9% from 2002 to 2005.
- Smoking in vehicles reportedly declined from 24% to 14% from 2002 to 2005.
- The percentage of individuals who believe that certain health problems in children may be caused or made worse by SHS increased from 93% to 96%.
- The most effective sources of information about SHS included TV commercials on BC stations (82% of respondents rated them as "good" or "very good"), information packages from children's schools (71%), radio commercials on BC stations (62%), and pamphlets from a Doctor's/ Dentist's office (50%).
- Among those who have changed their behaviour towards smoking in the past three years, the *Kids Need Breathing Space* campaign was a contributing factor reported by 42% of respondents.

The second initiative, New South Wales' 2005 campaign to reduce young children's exposure to environmental tobacco smoke (ETS) in homes and cars, was a program conducted under the auspices of the ETS and Children Project Taskforce (the Cancer Council NSW, the National Heart Foundation, Asthma NSW, SIDS and Kids NSW, and NSW Health) (ETS and Children Project Taskforce, 2005). The campaign sought to increase awareness among parents and carers of the health effects of ETS, increase knowledge of strategies for reducing children's and infants' exposure to ETS in homes and cars; increase the number of smoke-free homes and cars; increase the number of health professionals routinely identifying infants and children 0-6 at risk of exposure; and provide information and advice to the parents and/or carers. The campaign was launched in September 2002, and concluded in December 2005. Components included:

1. A media campaign using TV, local radio and billboard advertising, as well as coverage in the local and national press
2. Information and resource dissemination: stickers, magnets, key-rings, posters, brochures, advice and referral through selected health professional networks (primarily by child health nurses)
3. A community grants scheme
4. Health professional training
5. Development of a website (http://www.smokefreezone.org)
6. A colouring contest

Similar to the findings described in the above initiative, significant behavioural changes and improvements in key attitudes were identified by the evaluation. Key findings demonstrate a 56% increase in the number of smoke-free homes and a 42% increase in smoke-free vehicles. Further, more than two-thirds of those who had yet to ban smoking in the home appeared open to implementing bans in the future. The research also showed a greater proportion of people rejecting inadequate protection strategies (such as smoking in a separate room) and the myth that only visible smoke is potentially harmful. Similarly, the results showed a significant scope for increases in interventions by health professionals (ETS and Children Project Taskforce, 2005).

Additionally, two initiatives through the best/better practice sources were identified that sought to protect children and/or the general public from exposure to SHS in the home (Table 12).

Table 12: Reducing children's exposure to SHS: Best/better practice initiatives

Initiative	Description
Breathing Space: community Partners for smoke-free homes	To increase public awareness of the negative health impacts of second hand smoke toward the goal of affecting attitudinal and behavioural change. Campaigns ran throughout summer 2000 (3 months) and winter 2001 (4 weeks) using various forms of media. The campaign was complemented by various community-based activities.
Smoke-free homes and asthma pilot sites: media campaigns	To increase the number of homes with children under 12 years-old where smoking is not allowed. The main components of the campaign included: a series of radio commercials highlighting the harmful effects of second-hand smoke and advertising the purple envelopes; the distribution of purple envelopes that contains information on smoke-free homes; and the distribution of a video about second-hand smoke to prenatal instructors and a local hospital.

Breathing space: community partners for smoke-free homes was a wide-reaching multimedia campaign that was developed in partnership between a number of health units in Ontario. Further, *Smoke-free homes and asthma pilot sites: media campaigns* targeted parents, grandparents, prenatal instructors and adult caregivers of children under 12 years of age to increase the number of homes where smoking is not allowed. While both were comprehensive campaigns, they did not find a statistically significant difference in the number of smoke-free homes before and after the campaign. This may be due to their relatively short duration, as those initiatives described above both took place over three year periods.

Table 13: Effective characteristics of programs that seek to reduce children's exposure to SHS

Intervention	Components and processes	Target groups	Other
Reducing children's exposure to SHS	• Mass media and public education • Community-based interventions • Community and corporate partnerships • Health professional training • Significant duration • Evaluation through participant interviews	• Parents of young children • Health professionals • Caregivers • Grandparents • Prenatal instructors	• Some evidence to associate comprehensive tobacco programs to a decrease in smoke-free homes

Supporting smoke-free policies

Nykiforuk et al., (2010) conducted a knowledge synthesis review of the scientific and practice-based evidence concerning smoke-free spaces policy development and implementation. This consisted of a review of the current scientific evidence and expert working groups. Results culminated in ten common themes regarding the development and implementation of smoke-free policies. The authors, however, note that due to the poor quality of the smoke-free policy literature, guidelines are based upon descriptive evidence and should be considered better rather than best practices.

1. Consideration of the Policy Context
2. Policy as part of a Comprehensive Program or Strategy
3. Preparation, Planning and Logistics as central to policy success at both the development and implementation stages
4. Collaboration, Leadership and Support
5. Communication and Media
6. Issue Framing and Information Provision
7. Construction of the Policy
8. Countering Opposition
9. Enforcement
10. Policy Reinforcement - monitoring, evaluating, and celebrating Successes

Based upon these ten themes, an expert working group made research and action recommendations. In addition to that discussed above regarding the state of the literature, overarching recommendations emphasized the adoption of the guidelines in conjunct with one another and that their application should vary in response to the contextually relevant circumstances (i.e., schools, homes, municipal or provincial workplaces).

In addition to this review, a journal article was identified that analyzed the public health campaign to support development, implementation and enforcement of British Columbia's Capital Regional District's (CRD) smoke-free workplace bylaw (Drope & Glantz, 2003). Success of CRD's campaign was dependent on a variety of factors such as the drafting of a strong bylaw and active enforcement by public health authorities. Furthermore, the development of a strong public health education campaign on the dangers of SHS was highlighted as a key component of the strategy and as a means to counter tobacco industry misinformation. The comprehensive communication strategy also ensured public understanding of the bylaw. As part of this campaign, health officials distributed information and toolkits to all hospitality establishments, telephone lines were created for the public to lodge complaints and the law was promoted in bars and newspapers for one year. Finally, while health advocates formed one taskforce to represent all proponents of the bylaw, the authors note that advocacy efforts are more effective in influencing policy-makers when there are multiple well-recognized advocates with high public credibility and who continually reiterate the arguments for tobacco control and the science that supports it.

Furthermore, a recently published journal article focused upon the development of a smoke-free outdoor area (SFOA) policy in New Zealand. Halkett & Thompson (2010) explored how a smoke-free parks and playground educative policy was successfully conceived and developed by and for Kapiti Coast District Council in New Zealand. Similar to the literature on indoor smoke-free laws, the authors highlight a collaborative and participatory approach between public health, local government, community groups and the community at large as important in the development and implementation of Kapiti's policy. The importance of media in the success of the educative smoke-free policy was also highlighted. Main factors that encouraged policy adoption included public support, the relative simplicity and low cost of the policy and alignment with desired community outcomes. Further recommendations based upon Kapiti's experience include dissemination of policy development updates to interested local organizations (local sport clubs, NGOs), Aboriginal representation on any working group and sufficient pre- and post-evaluation of the new policy.

The lessons learned and the guidelines outlined in the literature are for the most part reflected in the five best/better practice protection initiatives that supported the development and implementation of a smoke-free policy (Table 14). Four focused upon the workplace and one upon a smoke-free playground and parks bylaw. Each initiative consisted of community partnerships, multi-media campaigns and/or the production of educational materials. Other components included the production of guidance materials for workplaces, monitoring of support for smoke-free policies and community mobilization activities such as a high school and postsecondary smoke-free ad contest and consistently updating relevant NGOs on campaign activities. All of the initiatives were based upon participatory planning models, with community mobilization, development and social marketing principles also being used.

Table 14: Supporting smoke-free policies: best/better practice initiatives

Initiative	Description
Media campaign to build support for a smoke-free bylaw in Ottawa	A bilingual media campaign (fact sheets, a website, advertisements on radio, on buses and in print media and a report on ventilation). Workplaces and businesses received appropriate educational material including 'No-smoking' signs. Monitored ongoing public support for smoke-free public places and workplaces.
Promotion campaign to support implementation of the smoke-free bylaw in Waterloo Region	Components included community of the school and health community, and the development of education and promotional materials.
Education and Enforcement Strategy to support the Peterborough smoke-free spaces bylaw	A comprehensive initiative to create an environment conducive to reducing tobacco use in Peterborough County by supporting the successful implementation of a new smoke-free bylaw in the City of Peterborough. Components included a media campaign that targeted residents, visitors and close-by rural municipalities and the development and implementation of an enforcement strategy that provides visible, consistent and fair enforcement of the bylaw through routine inspections and responses to complaints from the public.
Bylaws and signage to encourage smoke-free playground and parks in Simcoe County	A communication campaign to promote the new outdoor smoking by-law and reinforce the importance of a smoke-free lifestyles and protection from SHS.
Enhancing Tobacco Control Policies in Northwest Indian Tribes	The initiative consisted of a Tribal Policy Workbook, regional workshops for Tribal representatives and visits by project staff to work with Tribes towards the adoption of a policy resolution.
Clearing the Air in Workplaces: a resource binder	The creation of a binder or a resource kit on workplace smoking policy development.

While the literature did not discuss the development and implementation of smoke-free laws in areas that experience high rates of smoking, such as in Aboriginal communities, one best/better practice intervention provides insight. This initiative targeted federally-funded Indian tribes in Washington and Oregon. It consisted of a culturally appropriate tobacco consultation process, during which tribal representatives attended a workshop that provided an overview of the project, the health risks of SHS and smoking and an introduction to the Tribal Tobacco Policy Workbook. Project staff then visited each tribe to work with members of the tribal health committee. The intervention was evaluated using a quasi-experimental study design and found that the consultation led to significant changes in the restriction of smoking at tribal council meetings, in tribal work settings and in private offices.

Table 15: Effective characteristics of initiatives that seek to support the development and implementation of smoke-free policies

Intervention	Components and processes	Target groups	Other
Supporting smoke-free policies/laws	• Consideration of policy context • Policy developed as part of comprehensive strategy • Preparation, planning and logistics • Leadership and support • Mass media public health campaigns • Issue framed accordingly • Drafting of a strong policy • Preparation to counter opposition • Collaboration and partnerships between government, public health, community groups and community at large • Multiple, well-known advocates • Strong enforcement • Policy reinforcement (monitoring, evaluation and celebrating success)	• General public • Workplaces and businesses • Policy makers • Surrounding municipalities and visitors	NA

Finally, it is important to note that guidelines and lessons learned from successful case studies are generally specific to the development and implementation of indoor smoke-free policies. They may therefore be more suited for jurisdictions lacking comprehensive policies such as in many low- and middle-income countries. Research and documentation of successful initiatives that are of greater relevance to the Canadian context is needed. Examples of relatively innovative protection areas include the prohibition of smoking in vehicles with children, smoke-free parks and recreation, restrictions in other outdoor areas such as beaches patios and outside doorways and in multi-unit dwellings. In some jurisdictions, the public health community has already played a significant role in the development and implementation of these innovative policies (Region of Waterloo, 2009; City of Hamilton, 2009; Play, live, be tobacco-free). While lessons learned from public health's support of smoke-free indoor air policies are surely transferable, the documentation and evaluation of novel initiatives will help inform the work of those in other jurisdictions where such policies do not exist.

Enforcement of smoke-free policies

No reviews were identified on effective smoke-free enforcement policies, programs or practices. However, as briefly mentioned, Drope & Glantz's (2003) account of BC's CRD's smoke-free bylaw highlights the importance of effective enforcement for achieving high compliance rates. More specifically, this example demonstrates the importance of a system that places onus on the owners and operators of establishments in

addition to individual smokers, as well as the effectiveness of pursuing legal action against those businesses that fail to comply repeatedly.

Much of the literature that informs effective enforcement stems from NGO guidelines, which are based upon lessons learned from the field. For example, the Global Smokefree Partnership (2009) recently released a detailed guide that describes smoke-free inspection and enforcement strategies and protocols. It also provides evidence and best practices from jurisdictions having already implemented smoke-free policies. Another document jointly produced by HealthBridge, the WHO Country Office for India and the Indian government (John, 2008) describes global best practices in the enforcement of tobacco control policies. For the enforcement of smoke-free regulations, lessons learned are as followed:

1. Planned enforcement is a key component of successful enforcement
2. Educational efforts aimed at the general public (media advocacy, telephone hotline, establishing a website, paid advertising) is critical for preparing the population for legislation and enforcement
3. Guidance materials and outreach efforts to businesses and employers are a key component of smoke-free environment efforts
4. Early and visible sanctions promote political will and commitment of enforcement staff
5. Effective enforcement involves a combination of proactive inspections and reactive complaint investigations
6. Compliance lines are key to ensuring community reporting of offences
7. Quit lines and other cessation services should be set up and promoted, in conjunction with a media campaign
8. Evaluation and monitoring allows for the identification of weaknesses in procedures, practices and or polices, contributes to financial planning and future enforcement efforts

Table 16: Effective characteristics of enforcing smoke-free laws

Intervention	Components and processes	Target groups	Other
Enforcement of smoke-free laws	• Planned enforcement • Educational efforts aimed at general public • Guidance materials and outreach to businesses • Early and visible sanctions • Proactive and reactive enforcement • Compliance lines • Delivery and promotion of quit lines and other cessation services • Evaluation and monitoring	• Workplaces and businesses • General public • Surrounding municipalities and visitors	NA

One enforcement initiative was identified among the protection case studies (Table 14). To support the development and implementation of the City of Peterborough's new bylaw, the public health unit developed and implemented an enforcement strategy in conjunction with an education campaign. This initiative was largely in line with recommended enforcement strategies identified above and also targeted its promotional activities at visitors and surrounding municipalities.

Cessation

To effectively address smoking cessation and the treatment of nicotine dependence, the World Health Organization advocates a broad policy framework that encompasses three main strategies: a public health approach to change the social climate and promote supportive environments; a health systems approach to promote and integrate clinical best practices into a health care system; and a surveillance, research and information approach that allows for the exchange of information and knowledge (WHO, 2003). It is recognized that cessation activities and responsibilities vary at the local/regional public health level throughout Canada and it is beyond the scope of this report to discuss these variations. Therefore, this section will summarize the literature on effective practices, programs and policies that create environments that encourage cessation and abstinence, as well as the literature on clinical best practices for the treatment of tobacco use. It will then explore the evidence on effective cessation strategies for high risk/vulnerable populations.

Creating supportive environments

The World Health Organization (2003) highlights the importance of incorporating a public health approach into smoking cessation activities. Such an approach establishes environments that not only motivate individuals to quit, but which are conducive to remaining smoke-free. The adoption of the following is thus recommended: an annual tax increase on tobacco products; comprehensive smoke-free environments; a total ban on direct and indirect advertising, promotion and sponsorship; building structural capacity for tobacco control programming; public education/awareness programs; and advocacy activities that actively promote locally relevant programs.

Clinical best practice

Forty-three reviews that evaluated the effectiveness of interventions that treat tobacco dependence were identified in the literature (including special populations) (Appendix A). Twenty cessation interventions were also identified through best/better practices sources (Appendix B). Results are summarized below.

Counselling

Format

Evidence indicates that proactive individual, group and telephone counselling are effective in assisting individuals quit smoking (Mottillo et al., 2009; Lancaster & Stead, 2005; Stead & Lancaster, 2005; Stead, Perera & Lancaster, 2006). Further, the current U.S. Public Health Clinical Practice Guideline and the Guide to Community Preventive Services both recommend these methods to help smokers quit (Fiore et al. 2008; Guide to Community Preventive Services, updated 2010). Compared to self-help and other less intensive interventions, the chances of quitting are approximately doubled when group therapy is used as a cessation method. However, there is not enough evidence to evaluate whether group therapy is more effective or cost-effective than intensive individual counselling (Stead & Lancaster, 2005). When compared to no intervention, self-help

interventions, or the structured programming for smokers trying to quit without intensive contact with a therapist, may increase quit rates, especially if materials are tailored for the individual, but the effect is likely to be small (Lancaster & Stead, 2005b). Further, in addition to their effectiveness, the attractiveness of telephone counselling or quitlines is enhanced due to their ability to reach different populations such as those living in rural or remote areas and/or those who have limited mobility. Finally, interventions that are offered in multiple formats result in increased abstinence rates and are encouraged by the US Department of Health (Fiore et al., 2008).

Table 17: Effective characteristics of adult smoking cessation programs

Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
• Group, individual and telephone counselling • Brief advice • Motivational interviewing • Quit and win contests • Cell phone • Web-based • Tailored self-help materials • Marketing and public education campaigns	• NRT (inhaler, gum, patch, lozenge, nasal spray) • Varenicline • SR Bupropion	• Workplace • Health care • Community • Community health centres • Post-secondary campuses	• Physicians • Nurses • Pharmacists • Dentists • Psychologists	• Multiple format behavioural interventions are more effective • Combining pharmacotherapy and behavioural interventions increases the effectiveness of interventions

Intensity, length and type:
The US Department of Health (2008) cites strong evidence to support the use of minimal interventions lasting less than 3 minutes and recommends that every tobacco user be offered at least a minimal intervention, whether or not he or she is referred to an intensive intervention. Four or more sessions of face-to-face counselling is recommended to increase abstinence rates.

Types of counselling and behavioural therapies that result in higher abstinence rates include practical counselling that focuses upon problem solving skills/skills training and the provision of support and encouragement. When compared to brief advice or usual care, motivational interviewing provided by primary care physicians or counsellors that lasts longer than 20 minutes is an effective smoking cessation technique (Lai et al., 2010). Specifically, the US Department of Health (2008) recommends motivational intervention techniques for smokers not interested in quitting, as they appear to be

effective in increasing one's likelihood of making a future quit attempt (Fiore et al., 2008).

Consistent with the above evidence, brief interventions, group and individual therapy, proactive and reactive telephone counselling, cognitive behavioural therapy, skill development and motivational techniques were employed in the best/better practice initiatives examined for this review. Length of the sessions ranged from three minutes to two hours and occurred once to over a 12 week period.

Other interventions

Quit and win contests and competitions and incentives

One Cochrane review evaluated the effectiveness of quit and win contests for smoking cessation (Cahill & Perera, 2008a). While the authors conclude that local and regional level contests appear to deliver quit rates above baseline community rates, the effect on community smoking prevalence is relatively low. This is important to consider as the quit and win contests identified through the best/better practice sources achieved high (30%) quit rates among participants at eight months and one year follow-ups. They were heavily promoted in the media and one was part of a wider six month tobacco intervention. They were based upon stages of change theory, social marketing and/or participatory planning principles.

Table 18: Best/better practice initiative: quit and win and competitions and incentives

Initiative	Description
Quit Smoking Contest	Part of comprehensive 6 month campaign where smokers made a pledge in exchange for entry into a draw for a prize when smoke-free status was assessed. There was a strong media element and local community involvement.
Quit & Win Buffalo	Contest challenges smokers to be abstinent for a specific period of 30 days in order to be eligible for prizes. The contest is promoted one and a half months before competition (flyers and posters distributed at major area employers, hospitals, pharmacies and physician offices) and approximately two weeks prior to the start of the contest it is promoted in the daily newspaper
Maternal smoking and infant birth weight trial (MSIB)	Targeting pregnant women, components included phone contact (on quit day and several days thereafter), group counselling (encouraged if woman has not made progress in 1 month), and mailings of articles of interest. Other components included monetary rewards and a *Pregnancy Outcome Lottery* for women who have not smoked in two weeks.
Workplace tobacco cessation interventions: Incentives vs. No incentives	Targeted blue collar workers and consisted of group and telephone counseling and maintenance sessions over 12 months. A five month cash incentive contest was another component.

Another Cochrane review evaluated the relationship between the inclusion of competitions and incentives in cessation interventions and long term quit rates (Cahill & Perera, 2008b). Competitions and incentives were most often found in workplace interventions. Further, there was limited evidence to associate competitions and incentives to long-term abstinence. Among the best/better practice initiatives, incentives and competitions were provided in comprehensive programs that targeted pregnant women who smoked and blue collar workers in the workplace (Table 11). Results from the workplace intervention are consistent with the literature, as results demonstrate no difference in quit rates between incentive and non-incentive groups after one year.

Cell phone and web-based interventions

Two reviews evaluated the effectiveness of cell phone interventions for smoking cessation. A Cochrane review of four trials found that interventions aimed at cell phone users, which were centred around the delivery and use of any function or applications, did not have an affect on long-term quitting, however short-term results were positive (Whittaker et al., 2009). These results were confirmed in a review of behaviour change interventions delivered through cell phone text messaging (Fjeldsoe et al., 2009). Authors from both reviews highlight the need for more rigorous studies to determine the long-term effects of cell phone-based interventions to fully understand the potential of this medium as a behaviour change tool.

Three articles focused on web-based smoking cessation interventions. A systematic review and meta-analysis of the literature by Shahab & McEwan (2009) found that interactive web-based interventions were effective in aiding cessation. However, they emphasized the need for more research to evaluate the relative efficacy of interactive and static websites. Bock et al., (2008) also highlight the need for additional research to understand how to maximize the interactive capabilities of the internet to produce and sustain health behaviour change. Finally, a meta-analysis of randomized controlled trials (Myung et al., 2009) found sufficient clinical evidence to support the use of web- and computer-based smoking cessation programs for adult smokers. Interestingly, the three best/better practice cessation interventions that were web-based were interactive and targeted youth and/or young adults (Table 21 and 22)

Exercise

One review that evaluated the effectiveness of exercise for smoking cessation was identified (Ussher, Taylor & Falkner, 2008). Thirteen trials that compared cessation rates between exercise groups and control groups were identified by the authors. Exercise prescription and duration of follow-up varied extensively between the studies. Long-term impact on smoking cessation was found in one study where the exercise component doubled the likelihood of abstinence at 12 months. The authors conclude that there is strong evidence to recommend exercise as an aid for reducing tobacco withdrawal and cravings, but due to a small amount of trials and methodological issues, there is insufficient evidence to recommend exercise as a specific aid in smoking cessation. More research based upon high quality trials is needed in this area to inform cessation practice.

A related review by Parsons et al., (2009) investigated the efficacy of interventions for preventing weight gain after smoking cessation. The researchers analyzed interventions designed specifically to aid smoking cessation and limit post-cessation weight gain and those interventions designed to aid smoking cessation that may also have an effect on weight. While some interventions appeared promising, the authors found insufficient evidence to make strong clinical recommendations for effective programming.

Finally, *Commit to Quit* is a smoking cessation program for adult female smokers in the United States identified through the best/better practice sources that provides practical insight into the use of exercise in smoking cessation (Appendix B). The program combined 12 sessions of group-based cognitive behavioural therapy with a tailored exercise program. Session content included self-monitoring, stimulus control, coping with cravings, stress management and other traditional cessation topics. Sessions on healthy eating, weight and mood management and balancing family and work were also included. Exercise sessions occurred three times a week and consisted of a 5-minute warm-up, 30-40 minutes of cardiovascular activity and a 5-minute cool-down. An experimental evaluation of the program found that vigorous exercise combined with cognitive-behaviour therapy facilitated short- and longer-term smoking cessation in the participants. Vigorous exercise also improved exercise capacity and delayed weight gain following smoking cessation.

Setting and providers

Workplace

A Cochrane review evaluated the effectiveness of interventions in the workplace that promote smoking cessation (Cahill & Moher, 2008). Interventions identified in the review were aimed at individual workers, and covered group therapy, individual counselling, self-help materials, NRT and/or social support. The authors concluded that counselling (group and individual) and pharmacological interventions are just as effective when offered in the workplace as in other settings. However, the evidence is less clear for self-help interventions. There was also limited evidence to support the use of social support, competitions and incentives and comprehensive programs in workplace cessation interventions.

The three best/better practice interventions that took place in the workplace utilized multiple-component strategies that included all, if not most of the behavioural interventions identified in the review above (Table 19 and Appendix B). Interventions from these sources were largely tailored to the target audience. While pharmacotherapy was not used, social support and/or competitions and incentives were employed. Furthermore, counselling was provided by trained employees and health advisors. Importantly, two of the three initiatives specifically sought to target blue collar workers. Underpinning theories included the stages of change model and social cognitive and social learning theory.

Table 19: Settings of best/better practice cessation initiatives

Workplace	Health care	Community	Community health centre	Home & primary care	Postsecondary campus
Incentives vs. No incentives	CHEST: Confrontation, History, Education, Strategies and Treatment	California Smokers' Helpline	Wabano Centre for Aboriginal Health: Sacred Smoke	Maternal smoking and infant birth weight trial (MSIB)	Leave the Pack Behind
Quit Smoking Program	Physician's counselling smokers program	Quit & win Buffalo	Anishnawbe Mushkiki – Sema Kenjigewin Aboriginal Tobacco Misuse Program		
Tools for Health	NRT, advice & education, cognitive behavioural therapy	Quit smoking contest			

Community

One review evaluated the impact of community interventions on adult smoking cessation (Secker-Walker, Gnich, Platt & Lancaster, 2002). Community interventions were defined as "co-ordinated, multidimensional programs aimed at changing adult smoking behaviour, involving several segments of the community and conducted in a defined geographical area, such as a town, city, county or other administrative district." The authors found that while intervention communities were generally more aware of the cessation program promoted, they did not have higher quit rates than those found in control communities. Community based cessation initiatives identified through the best/better practice sources are found in Table 19 and in Appendix B.

Physicians, nurses and other health professionals

One Cochrane review evaluated the effectiveness of smoking cessation advice from medical practitioners in primary care, hospital wards, outpatient clinics and/or industrial clinics (Stead, Bergson & Lancaster, 2008). The authors found that when compared to no advice, the provision of brief advice resulted in a significant increase in the rate of quitting. More intensive advice showed a small advantage over minimal advice and there was a small benefit to follow-up visits. Consequently, the US Department of Health strongly recommends that physicians advise every patient that smokes of their cessation options (Fiore et al., 2008).

The provision of brief advice (3-5 min) by a physician was identified in one of the best/better practice interventions. Dissemination of advice followed the CHEST strategy (confrontation, patient history, education and review of smoking cessation strategies). Similarly, the *Physician's Counselling Smokers Program* sought to encourage the adoption of cessation counselling in the health care setting. This intervention consisted of a medical practice resource file (for physicians and nurses) and visits from masters-level

practice consultants to encourage implementation. Counselling was based upon the National Cancer Institutes 4-As counselling model, and the transtheoretical model of change (Appendix B).

A review by Rice and Stead (2008) on nursing interventions for smoking cessation found that the provision of advice and/or counselling by nursing staff is effective in helping individuals quit smoking, especially in a hospital setting. However, the evidence is weaker when interventions are brief and when the nurse does not have a health promotion or smoking cessation background. Similar advice and encouragement given by nurses at health checks or prevention activities seems to be less effective, but may still have some impact. These findings are largely reflected in the best/better practice health care intervention *NRT, advice and education, cognitive behavioural therapy,* which involved nurses in the delivery of advice and education sessions (4 sessions over 9 weeks) and the provision of NRT. This intervention also involved complementary weekly sessions of cognitive behaviour therapy provided by a masters-level or greater therapist (Appendix B).

In addition to the literature and best/better practice interventions, the Registered Nurses Association of Ontario (RNAO), as part of the *Nursing Best Practice Smoking Initiative,* has developed guidelines for integrating smoking cessation into daily nursing practice (RNAO, 2007). It is noted that these guidelines are also applicable to other health care professionals. Practice recommendations are as follows:

1. Nurses should implement minimal tobacco use intervention using the "Ask, Advise, Assist, Arrange" protocol with all clients.
2. Nurses should introduce intensive smoking cessation intervention (more than ten in minutes duration) when their knowledge and time enables them to engage in more intensive counselling.
3. Nurses should recognize that tobacco users may relapse several times before achieving abstinence and need to re-engage clients in the smoking cessation process.
4. Nurses should be knowledgeable about community smoking cessation resources, for referral and follow-up.
5. Nurses should implement smoking cessation intervention, paying particular attention to gender, ethnicity, and age-related issues, and tailor strategies to the diverse needs of populations.
6. Nurses should implement, wherever possible, intensive intervention with women who are pregnant and postpartum.
7. Nurses should encourage persons who smoke, as well as those who do not, to make their homes smoke-free, to protect children, families, and themselves from exposure to second-hand smoke.

Mojica et al., (2004) also synthesized the evidence on the effectiveness of smoking cessation interventions by a variety of provider types. The authors found that interventions delivered by psychologists, physicians and nurses without NRT were effective. The evidence was less clear for counsellors. The authors also found that the

provision of NRT almost doubled the effectiveness of most providers. Evidence also supports the effectiveness of interventions provided by community pharmacists (Sinclair, Bond & Stead, 2007) and dentists when treating smokeless tobacco users (Carr & Ebbert, 2006).

Finally, the best/better practices for smoking cessation illustrate interventions in a variety of settings such as community health centres (Aboriginal), the home and primary care (maternal) and postsecondary campuses (youth and young adults) (Table 19) and by provider type such as teachers, ex-smokers and elders for aboriginal initiatives.

Pharmacotherapy

Evidence indicates that NRT is an effective cessation aid, increasing an adult's chance of quitting by 50% to 70% (Stead et al., 2008). Effective forms of NRT include the nicotine inhaler, lozenge, nasal spray, patch and gum. It is noted that clinicians should offer 4mg rather than 2mg of nicotine gum to highly dependent smokers (Fiore et al., 2008). Other effective pharmocotherapies include bupropion (Hughes, Stead & Lancaster, 2009) and varenicline (Cahill, Stead & Lancaster, 2008). Nicotine replacement therapy, sustained released bupropion and varenicline are those considered first line cessation medications by the US Department of Health (2008). Finally, according to the US Department of Health (Fiore et al., 2008), there is strong evidence to support the combination of pharmacotherapy and behavioural interventions, specifically counselling. Interestingly, perhaps due to cost, only three of the 20 best/better practice cessation interventions provided NRT to their clients (*Leave the Pack Behind, NRT, Advice & Education, Cognitive Behavioural Therapy and the Sacred Smoke program*). Consistent with the above advice, NRT was combined with behavioural interventions in all three.

Special Populations

While research on efficacious interventions to reduce tobacco use among special populations is lacking (Doolan, Froelicher & Sivaraja, 2006; Ranney et al., 2006), several reviews and interventions were identified. These are summarized below.

Youth

Five reviews were identified that examined the effectiveness of youth tobacco cessation interventions (Appendix A). While most articles acknowledge the lack of research and availability of quality studies to inform effectiveness, promising strategies are emerging. Results from a Cochrane meta-analysis found that interventions that incorporate stages of change theory, motivational enhancement and cognitive behaviour therapy show promise for helping youth quit smoking (Grimshaw & Stanton, 2006). The authors also concluded that the availability of evidence on the use of pharmacological adjuncts was inconclusive due to small sample sizes and heterogeneity of definitions in the available studies. Further, McVea (2006) found little evidence for the effectiveness of clinical-based interventions and Ziedonis et al., (2006) note that treatment is more likely to be

successful if a multi-component intervention is used and tailored towards youth-relevant issues.

More recently, Sussman & Sun (2009) updated their previously conducted meta-analysis on youth tobacco cessation (Sussman, Sun & Dent, 2006). Based upon the results, the authors found that interventions that take place in a setting structured for youth (i.e., classroom, school-based clinics, sports club), consist of fun programming (i.e., games, drama, alternative media), utilize multiple forms of communication (i.e., internet, text messaging) and include at least five sessions improve effectiveness of the intervention. Further, the incorporation of cognitive behaviour therapy, motivational enhancement and social influences training into programming is encouraged. The authors also highlight the need for more research on pharmacotherapy for this group.

A Canadian evaluated initiative identified in the grey literature is British Columbia's *Kick the Nic (KTN).* This program, originally developed by a social worker, local health communities and adolescents on Vancouver Island, was updated in 1997 by the Ministry of Health. Students are initially recruited through marketing techniques such as information sessions, posters, individual invitations and advertising over the school's public address system (Lovato et al., 2002). This program consists of ten 40-minute group sessions focusing on smoking behaviour within a broader framework of healthy choices and is designed to help participants quit following the sixth session. Facilitators receive extensive training. The intervention is based upon social cognitive theory, best practices in practitioner knowledge, research on effective behaviour change methods, and activities adolescents chose as interesting or potentially useful in their attempt to quit smoking. Results from a 2001 evaluation found that *KTN* facilitated cessation and quit attempts among the 291 adolescents who met inclusion criteria. However, result also demonstrated that the program appeared to be more effective among lighter and older adolescent smokers. *KTN* has been adopted for use in other provinces and regions in Canada such as Alberta, Manitoba, Saskatchewan, Ontario, Newfoundland, New Brunswick, Yukon and Prince Edward Island, as well as in other countries such as Hong Kong and France (BC Ministry of Health Services, 2004).

Four cessation programs for youth were identified among the best/better practice initiatives (Table 20). While the programs reflect some of the evidence described above, they are each unique and deserve a brief examination.

Quit 4 Life/Vie 100 Fumer, consists of an interactive web site, a handbook and facilitators' guide for nurses, teachers and professionals who work with youth. Interventions can take place in schools and the community at large. This program is based upon social cognitive theory that uses cognitive behavioural techniques to promote behaviour change.

Table 20: Best/better practice youth cessation interventions

Initiative	Description
Quit 4 Life	Components: Quit4Life website, Quit4Life handbook and Facilitators guide (so teachers, nurses, health professionals etc… can run QFL as a group program)
The Smoking Zine: Using the Internet for Smoking Prevention and cessation with Youth	In addition to quizzes and a discussion forum, a key feature of the website is *Billboard*, which consists of 5 steps to complete: Step 1: Makin' cents (consciousness raising) Step 2:It's your life (assessment of smoking status) Step 3:To change or not to change (reading or stages of change) Step 4: It's your decision (decision balance) Step 5: What now? (next steps)
Not on Tobacco (NOT)	Ten hour-long weekly sessions and four booster sessions, delivered to males and females separately by same gender, trained facilitators. Major program goals are to help participants a. Quit smoking, b. Reduce the number of cigarettes smoked by youth who are unable to quit, c. Increase healthy lifestyle behaviors (e.g., physical activity and nutrition), d. Improve life skills such as stress management, decision-making, coping, and interpersonal skills.
Leave the Pack Behind	Targets young adults on post-secondary campuses. Major components include: outreach programming, brief tobacco interventions provided for campus clinicians, access to counselling centres, social support through trained peer educators, NRT (if donated), a multi-campus website, Leave the pack behind resource binders for: campus clinics, health promoter, student team and continual evaluation.

Not on Tobacco (NOT) consists of 10 weekly group sessions and four booster sessions. Unique to this program is its utilization of gender sensitive materials and organization and facilitation of groups by gender. Facilitators are trained by the American Lung Association. Furthermore, consistent with the findings above, this program emphasizes experimental learning and consists of interactive activities such as role playing, journaling and relaxation techniques. The opportunity for community advocacy and volunteerism is also provided. This program has been implemented in schools and other community settings in rural, suburban and urban areas with a variety of ethnic groups, including American Indians. In Canada, it has been available since 2003 to Manitoba Schools through the Manitoba Lung Association.

An adaptation of *NOT* is the *American Indian NOT program*. Developed in consultation with the American Indian community in North Carolina, this is a culturally tailored program that focuses upon the history of tobacco use among American Indians and why American Indians experience high rates of smoking. There is also an increased emphasis on interactive learning methods that incorporate culturally appropriate and diverse learning styles, group identity and cohesion rather than individual efforts, the use of graphics with cultural themes in media, the impact of a teenager's smoking on family and community, the promotion of youth advocacy and leadership, and the inclusion of activity options that involve family members. This program is based upon social cognitive theory and community development principles.

The Smoking Zine, as discussed in the prevention section, is a WATI that aims to help smokers explore reasons to stop or cut down smoking while helping nonsmokers strengthen their resolve not to smoke. The initiative consists of a five stage website that walks youth through a set of interactive assessments and tailored quizzes based on smoking status. It also consists of a discussion forum and is available in multiple languages. It can be used in a variety of community settings, in the classroom, or as a stand-alone self-directed intervention. As discussed above, an evaluation of the classroom based *Smoking Zine program* (the website, a paper-based journal, a small group form of motivational interviewing, and tailored e-mails) provided cessation motivation for smokers most resistant to quitting at baseline (Norman et al., 2008). The program is based upon the stages of change and social learning theories, health beliefs model and the theory of reasoned action.

Table 21: Effective characteristics of youth cessation programs

Target group	Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
Youth	• Fun programming • Multiple forms of communication • Social influences, social cognitive and stages of change theory • Motivational enhancement and cognitive behaviour therapy • 5 sessions • Booster sessions	• Not enough research to recommend the safe and effective use of NRT for youth	• Settings structured for youth (classroom, school clinic, sport/rec club)	• Health professionals • Trained facilitators • Teachers	• Tailored multi-component interventions are more successful than single-component strategies • Youth engagement encouraged in the development of the programs • Recommendations are tentative due to lack of research for this group

Young adults

One review was identified in the academic literature on smoking cessation for young adults (Appendix A). Bader et al., (2007) performed a knowledge synthesis that consisted of a systematic review, a Delphi panel of experts and focus groups with employed and unemployed young adult smokers. Due to the lack of controlled cessation trials with this population, results were greatly enhanced by expert knowledge and focus groups. While pharmacotherapy was the intervention most used by focus group members, due to significant barriers such as cost, panellists and the young adults were conflicted about its effectiveness. The young adults felt those interventions provided in a non-hospital setting by ex-smokers were the most appealing and, while information and communication technologies were considered potentially useful by the panel, few participants had experience with them. The authors concluded by recommending the five following strategies for facilitating smoking cessation in young adults; expediting research; improving practice through the development of evidence-based tools; reviewing policy that affects this population; engaging young adults in the design and implementation of interventions; and creating an agenda for action.

Table 22: Effective characteristics of young adult smoking cessation programs

Target group	Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
Young adults	• Tailored promotion and delivery of psychosocial counselling • Tailored information • Biofeedback • Brief interventions for campus clinicians • Marketing and public education campaigns • Social support • Incentives	• Free NRT	• Young adult oriented workplaces • Post-secondary campuses	• Ex-smokers • Peers • Campus clinicians • Health promoters	• Implement in conjunct with smoking and advertising restrictions, taxation and measures that decrease the availability of tobacco products • Young adults should be involved in the design and implementation of programs • Recommendations are tentative due to lack of research for this group

Furthermore, a more recent rapid knowledge synthesis prepared for Health Canada made several recommendations for practice (Schwartz et al., 2009). These include the implementation of smoking restrictions on campuses and workplaces where there is a prominence of young adults; marketing and public education campaigns developed in consultation with young adults; tailoring the promotion and delivery of psychosocial counselling to young adults; the provision of free NRT combined with psychosocial counselling; the promotion of social support in the form of peer support, group

counselling and text messaging; the provision of tailored information and biofeedback components in programs; the provision of incentives for participation in interventions and successful quit attempts; and decreasing the availability of tobacco products around campuses and workplaces. Price/tax increases and advertising restrictions were also recommended. The authors note that these recommendations are tentative and programming should be accompanied by rigorous evaluative research.

In addition to the reviews, a 'recommended' provincial program identified through the best/better practice sources provides further insight into effective cessation programming for young adults (Table 19 and Appendix B). *Leave the Pack Behind* is an Ontario program for young adults on college and university campuses. This program is inclusive to many of the recommendations described above such as peer outreach and support, the provision of tailored brief intervention training to campus clinicians, an interactive multi-campus website, print materials, social support through trained peer educators, NRT, and resource binders for campus clinics, health promoters and the student team. Importantly, this program is consistently evaluated to track success and weaknesses and to adapt the program based upon feedback (MacDonald et al., 2007; Lawrance et al., 2006; Travis & Lawrance, 2006).

Aboriginal

No reviews were identified on effective cessation interventions relevant to Aboriginal populations in Canada. However, a recent systematic review was identified on effective interventions to increase smoking cessation among Indigenous Australians (Power, Grealy, Rintoul, 2009) (Appendix A). While it is recognized that the relevance of findings to the Canadian context is limited, due to the paucity of research in this area, it is worth exploring. Based upon seven rigorously evaluated initiatives and four limited evaluated initiatives, the authors found that interventions that combine NRT with face-to-face counselling or support and/or that train Aboriginal health workers in brief cessation counselling were likely to result in increased quit rates. However, evidence on effective interventions that encourage the uptake of these services is nonexistent (Power, Grealy, Rintoul, 2009).

A review identified in the grey literature (Currie, 2010) highlights preliminary research to demonstrate that due to low utilization of physician services and low willingness, Aboriginal smokers may be less likely to use pharmacotherapy than the general population. However, the author also highlights evidence to indicate that Aboriginal men may be more likely to successfully quit smoking through quitlines than non-Aboriginal men (this finding did not apply to women). Finally, the author discusses the lack of knowledge on intentions to quit among Aboriginal populations (an important predictor of cessation) and suggests that implementing programs based upon motivational enhancement may result in greater public health benefits than programs tailored to those who are motivated to quit.

Three Aboriginal cessation programs were among the initiatives identified for this review (Table 23). While one was a best/better practice initiative (*AI NOT* described earlier),

two were identified through a Cancer Care Ontario (2008) document that used a case study approach to discuss lessons learned from Aboriginal cessation interventions.

These programs were all developed in consultation with Aboriginal community members and incorporated cultural themes into teachings and counselling. Informal group sessions and holistic programming were also characteristic of these programs. Further, significant support was provided to reduce barriers that may prevent individuals, especially adults, from attending sessions.

Table 23: Best/better practice Aboriginal cessation programs

Initiative	Description
American Indian Not on Tobacco (AI NOT)	Similar to *NOT* but developed in consultation with the American Indian community Contains significant cultural component and increased emphasis on group identity and cohesion; use of graphics with cultural themes in handouts on cessation and other media; increased focus on the impact of a teenager's smoking on family and community; promotion of youth advocacy and leadership; and inclusion of activity options that involve family members.
Wabano Centre for Aboriginal Health: Sacred Smoke	An eight-week, eight-module program (one 2hr session ever week) that involves facilitated group education and counseling programs (6-8 individuals per group). It is based on Aboriginal teachings and incorporate the Seven Grandfather Teachings on: bravery, honesty, respect, humility, love, wisdom and truth. NRT is available if desired and significant client support is provided.
Anishnawbe Mushkiki – Sema Kenjigewin Aboriginal Tobacco Misuse Program	Facilitated group counseling program adapted from the Health Canada's Quit4Life Program and the Medicine Bag Help for Smokers Program developed by Nechi Institute. It was Implemented as part of the Menodawin Healthy Eating Active Living (HEAL) program and provides a comprehensive and holistic approach in a positive and supportive learning environment. Sessions are informal and are conducted in a circle. There is significant client support.

Providers included trained facilitators, an ex-aboriginal smokers and health promotion personal and interventions took place in the school, in the community or in community health centres. Nicotine replacement therapy appeared to be offered in only one of the adult initiatives. Below are brief descriptions of the initiatives identified through the Cancer Care Ontario document.

The *Sacred Smoke* program by the Wabano Centre for Aboriginal Health targeted adult self-identified smokers. The program was an eight-week, eight-module program

consisting of two-hour weekly group sessions delivered by a health promoter. The curriculum was based upon Aboriginal teachings and offered significant client support such as childcare, transportation, food, flexible evening scheduling and access to NRT. Resources included a program manual for facilitators and Aboriginal personnel with cessation counselling skills. The program was based upon the social determinants of health and a program integration model. Evaluation findings demonstrated positive changes in participants' knowledge, attitudes and behaviours, community mobilization, increased program awareness, a 10% quit rate and a significant reduction in smoking among many of the participants.

Table 24: Effective characteristics of Aboriginal cessation programs

Target group	Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
Aboriginal	• Incorporate cultural themes into teaching and counselling • Address the traditional and commercial use of tobacco • Holistic (physical, spiritual, emotional, mental) • Informal group sessions • Client support • Language considerations • Motivational enhancement	• NRT and other pharmacotherapy	• Community health centres	• Aboriginal non/ex-smokers • Aboriginal health workers trained in cessation counselling, health promotion, addictions and harm reduction • Involve elders and role models	• Base programming upon community participatory research • Recognize the diversity within the Aboriginal population (First Nations, Métis, Inuit, on and off reserve) • Tobacco education can be incorporated into existing community programs • Recommendations are tentative due to lack of research for this group

The *Anishnawbe Mushkiki-Sema Kenjigewin Aboriginal Tobacco Misuse Program* targeted young adults, youth and young women. The program, incorporated into the Healthy Eating Active living program, consisted of a weekly two-hour session taking place over 12 weeks. It consisted of facilitated, informal group counselling adapted from the *Quit 4 Life* and *Medicine Bag Help for Smokers* program and provided a comprehensive, holistic approach in a positive learning environment that promoted self-efficacy and autonomy. Sessions took place in a circle and included guest speakers such as elders. Significant support was also provided such as childcare and transportation, referral to other support services and the use of small incentives such as stress balls. The facilitator was also an Aboriginal ex-smoker. Curriculum consisted of discussions on traditional versus commercial tobacco, the health effects of smoking, challenges of quitting, dealing with stress, anxiety and withdrawal symptoms, support systems,

preparing to quit and staying smoke free. While only three individuals participated in this program, they had all quits smoking at a three month follow-up.

Pregnant women

Three reviews were identified in the smoking cessation and pregnancy literature (Appendix A). A Cochrane review (Lumley et al., 2009) found that while the provision of incentives appears to be the most effective intervention, it is difficult to make specific recommendations regarding programming due to study heterogeneity and lack of information about interventions. Furthermore, there is insufficient evidence to support the safety and efficacy of pharmacotherapy in this population. Naughton et al., (2008) and Einarson & Riordan (2009) also highlight the need for more research. The importance of incorporating tobacco interventions into standard antenatal care was also emphasized (Lumley et al., 2009). Finally, due to the relationship between socioeconomic deprivation and smoking during pregnancy, the need for policies that address socioeconomic inequalities across the life-course is highlighted (Graham, 2010; Lumley et al., 2009).

In addition to the academic literature, a best practices review of smoking cessation interventions prepared for Health Canada (Greaves et al., 2003) highlights the scarcity of effective interventions for pregnant and postpartum women, especially among a variety of sub-populations of pregnant smokers (i.e., Aboriginal, rural, ethnic minorities, heavy smokers and teenage girls). The authors make 14 recommendations for practice based upon their findings, which includes shifting the focus of interventions to include women's health as motivation for cessation, increased tailoring of interventions, and the incorporation of harm reduction, stigma reduction, and a woman-centred approach into clinical practice.

While a paucity of research exists, guidelines have been cautiously developed by the US Department of Health (Fiore, 2008) for the treatment of tobacco dependence during pregnancy. These include the provision of person-to-person psychosocial interventions and counselling that exceed minimal advice to quit, at the first visit and throughout pregnancy. Further, the authors reiterate the use of non-discriminatory methods to assess smoking status, such as using multiple choice questionnaires, and provide examples of effective psychosocial interventions to guide health professional interventions. Examples include a program that provides physician advice combined with an educational video, midwife counselling for ten minutes, self help materials and follow-up letters. Another program provides a 90-minute counselling session combined with bimonthly follow-up calls during pregnancy and monthly calls thereafter. There was inadequate evidence to support the use of pharmacotherapy (Fiore et al., 2008).

Table 25: Effective characteristics of smoking cessation interventions for pregnant women

Target group	Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
Pregnant women	• Competition and incentives • Tailored Face-to-face interventions and counselling • Telephone follow-up • Tailored educational materials • Group counselling	• Not enough research to recommend the safe and effective use of NRT for pregnant women	• Home • Health care	• Nurses • Midwives • Physicians	• Incorporate a harm reduction, stigma reduction and woman-centred approach • Incorporate tobacco interventions into standard antenatal care • Wider community strategies that address socioeconomic deprivation

The *Maternal Smoking Infant Weight Birth Trial* (Table 27) was identified through the best/better practice sources and its programming was largely consistent with the recommendations made by Lumely et al., (2009) and Fiore et al., (2008). In addition to providing monetary incentives, a pregnancy outcome lottery and at least one 45-minute tailored individual counselling session, the program consisted of telephone follow-up, mailed educational materials and group counselling for those having difficulty making progress. Unique to his program is that the individual counselling sessions take place in the woman's home. There was no indication of the use of a stigma reduction and/or a woman-centred approach in the program. Importantly, an experimental evaluation of this intervention found that at eight months gestation, cessation was 43% for the intervention group compared to 20% among the control group. Birth weight was also higher by 92 grams among the intervention group.

Mental health and addictive disorders

Six reviews were identified on the treatment of tobacco dependence in mental health and addiction populations (Appendix A). One review focused upon individuals with severe mental illnesses (Banham & Gilbody, 2010), one on mental health and addictive disorders (including mixed mental health and addictive disorders) (Hitsman et al., 2009), another on co-occurring disorders (Hall & Prochaska, 2009), two on psychiatric illnesses (Fagerström and Aubin, 2009; Kisely & Campbell, 2008) and another on co-morbid populations (Hall, 2007). Most studies found that a combination of tailored psychological (cognitive behaviour therapy, motivational enhancement) and pharmacological interventions (NRT, Bupropion) were useful in reducing tobacco use, however stressed the need for more research in this area. The integration of tobacco interventions into the mental health and addiction setting was also highlighted as an important component to smoking cessation interventions for this population. In addition to these articles, a report from the Centre for Addiction Research of British Columbia (Johnson, 2006) notes that based upon the evidence the following can be strongly endorsed:

1. The integration of tobacco treatment into existing mental health and addictions services
2. Training and support for counsellors and health care providers to incorporate brief interventions into their practice
3. The provision of NRT to all individuals with mental illness and/or addictions who are wanting to quit or reduce smoking
4. Monitoring of medication dosage of individuals who have quit smoking and are taking anti-psychotic medications
5. The implementation of smoke-free spaces to support and encourage individuals with mental illness and addictions to remain smoke-free

A cessation initiative identified through the grey literature is the *Breathing Easy* program, developed by the Canadian Mental Health Association's Simon Fraser Branch in British Columbia. This comprehensive 12-week program aims to help people with psychiatric diagnoses quit smoking through the provision of NRT and cognitive-behavioural and psychosocial approaches. It is facilitated by consumers who are reformed smokers. Furthermore, participants focus upon understanding why they smoke and develop alternate healthy habits, behaviours, thoughts and social circles. Participants are said to form strong bonds and offer support to one another. This program was evaluated in 2006, and results were promising in relation to short-term quit rates and reductions in the number of cigarettes smoked (Wilkman & Baker, 2007).

Table 26: Effective characteristics of cessation programs for individuals with mental health and/or addictive disorders

Target group	Behavioural interventions	Pharmacotherapy	Settings	Providers	Other
Mental health and addictive disorders	• Tailored cognitive behaviour therapy, motivational enhancement • Teach slowly using repetitive messages • Review previous learning a • Provide frequent rewards for short-term successes to increase external motivation	• NRT • Bupropion	• NA	• Counsellors and health care providers • Reformed smokers	• Integrate tobacco treatment into existing mental health and addictions services • Monitor medication dosage of individuals who have quit smoking and are taking anti-psychotic medications • Implement smoke-free spaces to support and encourage individuals with mental illness and addictions to remain smoke-free • Findings are tentative due to lack of research with this group

Similar results were found in the cessation program for individuals with psychiatric disorders that was delivered through the best/better practice initiative, *Smoking cessation programs for women, Francophones and other marginalized groups* (Table 27). Lessons learned from this experience include the importance of teaching slowly using repetitive messages, reviewing previous learning and providing frequent rewards for short-term successes to increase external motivation.

Other special populations

Table 27: Best/better practice initiatives for other special populations

Initiative	Description
Maternal smoking and infant birth weight trial (MSIB)	1. Individual counselling (at least one 45 minute face-to-face tailored counselling at her home) 2. Phone contact (on quit day and several days thereafter) 3. Group counselling (encouraged if woman has not made progress in 1 month) 4. Mailings (articles of interest i.e., SHS in homes) 5. Monetary rewards ($10 and $20 gift certificates given to women having abstained for 2 weeks and on completion of intervention; *Pregnancy Outcome Lottery* for woman who have not smoked in two weeks; held once per month; prize worth $30)
Smoking cessation for women, Francophones and other marginalized groups	1. Delivered smoking cessation and relapse prevention and ETS awareness and training programs to key organizations 2. Provided cessation course at several locations to meet the needs of women, youth fracophones and other marginalized groups (included mental health) 3. Increased awareness about tobacco use in 5 multicultural communities 4. Provided brief interventions for targeted ethnic communities in community health centres
Smoking cessation and the GLBT community initiative: Stop dragging your butt facilitator's program guide	A binder and CD-ROM describing in six parts how to run a group program to help individuals from the GLBT community quit or reduce their tobacco use. Information includes rationale for running a program specifically for the GLBT community, background to the pilot project, specific Issues for gay and bisexual men, lesbian and bisexual women and people Who Have HIV/AIDS, key resources and a How to guide.
Smoking Cessation for Lower Literacy Clients in Peterborough	Sought to increase access to smoking cessation programs, particularly for women and low literacy adults. Components included media promotion of the smoking cessation groups; the delivery of cessation groups; development of additional support materials; and identification, focus testing and dissemination of low literacy level smoking cessation resources.

There is a paucity of research on cessation strategies for special populations, such as the LGBT community, socio-economically disadvantaged populations, blue collar workers and ethnic minorities. While poorly represented in the academic and grey literature, five programs were identified through the best/better practice sources (for LGBT, blue collar workers, lower literacy clients, women, Francophones and other marginalized groups) (Table 27). These programs and/or program materials were developed in consultation with relevant populations, were tailored to incorporate issues faced by these populations and/or involved the target audience in program delivery. Components included increasing the delivery and awareness of cessation programs in relevant community settings (i.e., English language schools for multicultural communities), developing tailored cessation materials, individual and group counselling and training individuals and organizations who work with these populations in cessation and issues related to tobacco use. Furthermore, those initiatives that targeted blue collar workers took place in the workplace. Stages of change, social cognitive and social learning theory, community development and participatory planning principles were employed throughout these interventions.

Discussion

This review summarized the literature and attempted to identify evidence-based and promising tobacco control policies, programs and practices in order to inform the work of the local/regional public health community. This was achieved by searching the academic literature, especially reviews since 2005, the grey literature from public health unit and relevant tobacco control websites and a scan of the CCTC's Tobacco Control Resource Catalogue. A review of best/better practice sources was also conducted. This section will identify study limitations and then briefly discuss key challenges and gaps in knowledge that are relevant to the local/regional public health context in Canada.

There are several limitations to this review. First, analysis of the CCTC Tobacco Control Research Catalogue search results and the search of the academic literature, websites and best/better practice sources were performed by one researcher. While this researcher has a background in tobacco control, this is important to consider as results are subject to one person's interpretation. The inclusion of another researcher in the search and analysis process may improve consistency of findings. The report, however, was reviewed internally by senior tobacco control personnel. Furthermore, while the researcher is knowledgeable of the French language, he or she is not fluent. Therefore, informative documents from the French-speaking public health and tobacco control community in Canada may not have been included in this review.

Numerous gaps and challenges have been identified in relation to the availability of evidence-based research to inform effective practice. First, the initiatives identified through best/better practice sources were largely Ontario-based. The Better Practices Toolkit from the Program Training and Consultation Centre (PTCC) is an Ontario-based initiative that aims to support to the provincial government's smoke-free strategy. Understandably, their initiatives are Ontario-focused. The author was not aware of similar organizations or tools from other provinces. The Canadian Best Practices Portal for Health Promotion and Chronic Disease Prevention (CBBP), an initiative by the Public Health Agency of Canada, strives to include initiatives and interventions from across Canada and includes some interventions from other countries, especially the United States. However, even through this source, many of the tobacco control initiatives identified were Ontario-based. Furthermore, the availability of initiative evaluation reports was especially lacking and varied across the Canadian public health agency and tobacco control NGO websites.

Many of the initiatives and interventions identified through the best/better practice sources were dated. While project information appears to be updated often, the majority of the PTCC's toolkit initiatives were developed and implemented ten years ago. This is also the case for the CBBP. The tobacco control climate in Canada has evolved over the past ten years and the documentation and evaluation of programs, policies and practices specific to the current Canadian context are required (i.e., smoking restrictions in multi-unit dwellings (MUDs), on restaurant patios and outside doorways, smoke-free parks and recreation, contraband, point-of-sale purchasing, plain packaging, retailer density and

licensing schemes, comprehensive cessation services and web-assisted tobacco interventions (WATIs).

Furthermore, a consistent theme identified throughout this report is the lack of research and initiatives available to inform effective programs, policies and practices for protecting, preventing, and reducing tobacco use among vulnerable and special populations. This is an issue of importance as tobacco use is a major contributor to the adult socioeconomic gradient in health and thus a significant contributor to health inequities (Jha & Peto, 2006). However, in Canada, there is a paucity of research on health inequalities in general and in relation to tobacco use in particular. Nonetheless, individuals at the local level are working to prevent and reduce tobacco use among vulnerable populations. For example, Vancouver Community Health Services' *Butt Out to Stop Smoking* program provides education, NRT and behavioural techniques to assist people with serious mental illnesses to quit smoking. This program has experienced numerous successes (Heah, 2007). Furthermore, a Health Canada funded initiative between researchers and the British Columbia Institute of Technology conducted participatory research with young adult trade school students to inform the development of a two-pronged strategy to shift the culture of smoking to which many trade workers are exposed (Dahlstrom & Nay, 2007). Additionally, the *Butt Out* initiative from Alberta is a promising program that aims to encourage the culturally appropriate use of tobacco among Aboriginal youth (McKennitt et al., 2010).

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Appendix A

Reviews identified for this report

Health promotion

Article Title	Authors	Journal	Year
Integrated health promotion strategies: a contribution to tackling current and future health challenges	Jackson SF, Perkins F, Khandor et al.	Health promotion international	2007

Prevention

Article Title	Authors	Journal	Year
Media campaigns			
Mass media interventions for preventing smoking in young people.	Sowden AJ	*Cochrane Database of Systematic Reviews*.	1998
Theories			
A meta-analysis of adolescent psychosocial smoking prevention programs published between 1079 and 1997 in the United States.	Hwang MS, Yeagley KL and Petosa R.	Health Education Behaviour	2004
School-based programs			
The promise of long-term effectiveness of school-based smoking prevention programs: a critical review of reviews.	Flay B	Tobacco Induced Diseases	2009
Effective practices for school-based tobacco use prevention	Dobbins M, DeCorby K, Manske S, Goldblatt E	Preventive Medicine	2008
Systematic review: Smoking cessation intervention strategies for adults and adults in special populations.	Ranney L, Melvin C, Lux, L, McClain E, Lohr KN	Annals of Internal Medicine	2006
School-based programmes for preventing smoking	Thomas R, Perera R.	Cochrane Database of Systematic Reviews	2006
A systematic review of school-based smoking prevention trials with long-term follow-up	Wiehe SE et al.	Journal of Adolescent Health	2005
Community-based programs			
Community interventions for preventing smoking in young people.	Sowden A, Arlblaster L and Stead L.	Cochrane Database of Systematic Reviews	2003
Family prevention programs			
Parenting programmes for preventing tobacco, alcohol or drugs misuse in children <18	Petrie J et al.	Health Education Research	2007
Family-based programmes for preventing smoking by children and adolescents	Thomas R, Baker, Lorenzetti D.	Cochrane Database of Systematic Reviews	2007
Enforcement of minimum age of purchase laws			
Preventing smoking in young people: a systematic review of the impact of access interventions.	Richardson L, Hemsing N, Greaves L, et al.	International Journal of Environmental Research and Public Health.	2009
Interventions for preventing tobacco sales to minors.	Stead LF, Lancaster T.	Cochrane Database of Systematic Reviews.	2005

Protection

Article Title	Authors	Journal	Year
Media campaigns			
Evidence based public health policy and practice: population level policy options for increasing the prevalence of smokefree homes.	Thomson G, Wilson N, Howden-Chapman P.	J of Epidemiology and Community Health	2006
Interventions to reduce children's exposure to SHS			
Family and carer smoking control programmes for reducing children's exposure to environmental tobacco smoke	Priest N, Roseby R, Waters E, et al.	Cochrane Database of Systematic Reviews	2008
Evidence based public health policy and practice: Population level policy options for increasing the prevalence of smokefree homes.	Thomson G, Wilson N, Howden-Chapman P.	J of Epidemiology and Community Health	2006
Supporting smoke-free policies			
Smoke-free spaces: Lessons from a better practices review of a population health intervention.	Nykiforuk C, d'Avernas J, Lovato C, et al.	Centre for Health Promotion Studies, University of Alberta.	2010

Cessation

Article Title	Authors	Journal	Year
Media campaigns			
Mass media interventions for smoking cessation in adults.	Bala M, Strzeszynski L, Cahill K	Cochrane Database of Systematic Reviews	2008
Clinical best practices			
Motivational interviewing for smoking cessation.	Lai DTC, Cahill K, Qin Y, Tang JL.	Cochrane Database of Systematic Reviews	2010
Treating tobacco use and dependence: 2008 update	Fiore et al.	US Department of Health and Human Services, Public Health Service	2008
Behavioural interventions for smoking cessation: a meta-analysis of randomized controlled trials	Mottillo et al.	European heart Journal	2008
Telephone counselling for smoking cessation.	Stead LF, Perera R, Lancaster T.	Cochrane Database of Systematic Reviews	2006
Group behaviour therapy programmes for smoking	Stead LF, Lancaster T.	Cochrane Database of Systematic Reviews	2005
Self-help interventions for smoking cessation	Lancaster T, Stead LF.	Cochrane Database of Systematic Reviews	2005
Individual behavioural counselling for smoking cessation.	Lancaster T, Stead LF.	Cochrane Database of Systematic Reviews	2005
Other behavioural interventions			
Effects of web- and computer-based smoking cessation programs: Meta-analysis of randomized controlled trials	Myung SK, McDonnel DD, Kazinets G et al.	Archives of Internal Medicine	2009
Mobile phone-based interventions for smoking cessation.	Whittaker R, Borland R, Bullen C, et al.	Cochrane Database of Systematic Reviews	2009
Online support for smoking cessation: A systematic review of the literature	Shahab L, McEwen A.	Addiction	2009
Quit and Win contests for smoking cessation	Cahill K, Perera R.	Cochrane Database of Systematic Reviews	2008
Competitions and incentives for smoking cessation	Cahill K, Perera R.	Cochrane Database of Systematic Reviews	2008
Behavior change interventions delivered by mobile telephone short-message service	Fjeldsoe BS, Marshall AL, Miller YD.	American Journal of Preventive Medicine	2009
Interventions for preventing weight gain after smoking cessation	Parsons AC, Shraim M, Inglis J, Aveyard P, Hajek P	Cochrane Database of Systematic Reviews	2009
A review of web-assisted tobacco interventions (WATIs)	Bock BC, Graham AL, Whiteley JA, Soddard JL.	J Med Internet Res	2008

Exercise interventions for smoking cessation	Ussher MH, Taylor A, Faulkner G	Cochrane Database of Systematic Reviews	2008
Setting and provider			
Workplace interventions for smoking cessation	Cahill K, Moher M, Lancaster T	Cochrane Database of Systematic Reviews	2008
Physician advice for smoking cessation	Stead LF, Bergson G, Lancaster T	Cochrane Database of Systematic Reviews	2008
Nursing interventions for smoking cessation	Rice VH, Stead LF	Cochrane Database of Systematic Reviews	2008
Interventions for tobacco cessation in the dental setting	Carr A, Ebbert J.	Cochrane Database of Systematic Reviews	2006
Smoking-cessation interventions by type of provider: A meta-analysis	Mojica WA, et al	American Journal of Preventive Medicine	2004
Community pharmacy personnel interventions for smoking cessation	Sinclair HK, Bond CM, Stead LF	Cochrane Database of Systematic Reviews	2004
Community interventions for reducing smoking among adults	Secker-Walker R, Gnich W, Platt S, Lancaster T	Cochrane Database of Systematic Reviews	2002
Pharmacotherapy			
Nicotine replacement therapy for smoking cessation.	Stead LF, Perera R, Bullen C, Mant D.	Cochrane Database of Systematic Reviews	2008
Nicotine receptor partial agonists for smoking cessation	Cahill K, Stead LF, Lancaster T	Cochrane Database of Systematic Reviews	2008
Antidepressants for smoking cessation	Hughes JR, Stead LF, Lancaster T	Cochrane Database of Systematic Reviews	2007
Youth			
Youth tobacco use cessation: 2008 update	Sussman SP, Sun P	Tobacco Induced Disease	2009
Tobacco cessation interventions for young people	Grimshaw GM, Stanton A	Cochrane Database of Systematic Reviews	2006
Evidence for clinical smoking cessation for adolescents.	McVea, KL	Health Psychology	2006
A meta-analysis of teen cigarette smoking cessation	Sussman SP, Sun P, Dent CW	Health Psychology	2006
Adolescent tobacco use and dependence: assessment and treatment strategies.	Ziedonis D, Haberstroth S, Hanos ZM, Miceli M, Foulds J	Adolesc Med Clin	2006
Young adults			
Tobacco Control for Young Adults: A Rapid Knowledge Synthesis. Best Practices to Reach 12% by 2011	Schwartz, R., Minian, N., Irfan, S.,	Ontario Tobacco Research Unit	2009
Knowledge Synthesis of Smoking Cessation Among Employed and Unemployed Young Adults.	Bader P, Travis HE, Skinner HA	Am J Public Health.	2007

Pregnancy			
Interventions for promoting smoking cessation during pregnancy	Lumley J, Chamberlain C, Dowswell T, Oliver S, Oakley L, Watson L.	Cochrane Database of Systematic Reviews	2009
Smoking in pregnancy and lactation: and review of risk and cessation strategies.	Einarson A, Riordan S.	Eur J Clin Pharmacol	2009
Self-help smoking cessation interventions in pregnancy: a systematic review and meta-analysis	Naughton F, Prevos AT, Sutton S	Addiction	2008
A Best Practices Review of Smoking Cessation Interventions for Pregnant and Postpartum Girls and Women.	Greaves L, Cormier R, Devries K, et al.	British Columbia Centre of Excellence for Women's Health.	2003
Mental Health and Addictive Disorders			
Smoking cessation in severe mental illness: What works?	Banham L and Gilbody S	Addiction	2010
Management of smoking cessation in patients with psychiatric disorders	Fagerström K, Aubin HJ	Current Medical Research and Opinion	2009
Treatment of smokers with co-occurring disorders: Emphasis on Integration in Mental Health and Addiction Treatment Setting Annual	Hall SM, Prochaska JJ	Review of Clinical Psychology	2009
Use of smoking cessation therapies in individuals with psychiatric illness: an update for prescribers.	Kisely S, Campbell LA.	CNS Drugs	2008
Nicotine Interventions with Comorbid Populations.	Hall SM	American Journal of Preventive Medicine	2007
Aboriginal			
Tobacco interventions for Indigenous Australians: a review of current evidence.	Power J, Grealy C, Rintoul D.	Health Promot J Aust	2010

Appendix B

Prevention best/better practice initiatives

School-based programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Lungs are for life: grade 3 lesson plans and resources	Grade 3 students in Ontario	7 core lessons (40-45 min each) Learning about Tobacco; Tobacco and lungs; Nicotine; Decisions; STAR kids I; STAR kids II; Reflect on learning	Social influences	Ontario Lung Association, the Ontario Physical and Health Education Association, in collaboration with academic, curriculum, and public health experts to help guide the research process and to revise materials (OTRU, PTCC, and OPHEA).		Process, formative and outcome

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Lungs are for Life: grades 4-8 revised modules **Helping students say NO to tobacco and other harmful substances**	Elementary educators in Ontario Schools and Public Health Unites	Formation of advisory team to draft and write revisions (education, public health, tobacco education, and research) Background research French adaptation Field test Communications and promotions	Participatory Planning	The Lung Association with the Ontario Physical and Health Education Association, in collaboration with academic, curriculum, and public health experts to help guide the research process and to revise materials (OTRU, PTCC, Centre for Behavioural Research and Program Evaluation, and OPHEA's Curriculum Advisory Committee)	Research in schools	Pilot, formative, process, impact

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Lungs are for life: grade 9 Helping students say NO to tobacco and other harmful substances	Grade 9 students	5 core lessons: Facts, myths and tobacco industry; Tobacco use and abuse; Media advertising; Investing in the community; Decision-making	Social Influences	Ontario Lung Association with the Ontario Physical and Health Education Association, in collaboration with academic, curriculum, and public health experts to help guide the research process and to revise materials (*OTRU, PTCC*, and *OPHEA's Curriculum Advisory Committee*).	Schools	Formative, process and outcome
Intervention	**Target Groups**	**Program Components**	**Theories**	**Partnerships**	**Context**	**Evaluation**
Lungs are for life: grade 10 lesson plans and resources: Helping students say NO to tobacco and other harmful substances	Grade 10 students in Ontario	Three core lessons Discussing dependence Physiological and sociological effects of tobacco use Know your legal rights	Social influences	The Ontario Lung Association, Ontario Physical and Health Education Association, public health representatives, staff members of the Centre for Addiction and Mental Health, volunteers and staff for the local office of *The Lung Association*, and other health-related agencies.	Schools	Formative, process and outcome

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
The Smoking Zine: Using the Internet for Smoking Prevention and cessation with Youth	Youth aged 12 to 19 Health practitioners can also use as part of prevention or clinical program or a stand-alone self-directed intervention Education practitioners can use the to fulfill curriculum requirements	Key features of the website: *Billboard* Five steps to complete: Step 1 Makin' cents (consciousness raising) Step 2 It's your life (assessment of smoking status) Step 3 To change or not to change (reading or stages of change) Step 4 It's your decicion (decision balance) Step 5 What now? (next steps) *Quizzes* *Speak out* (discussion forum)	Stages of change theory; Social learning theory; Health belief model; Theory of reasoned action	The *TeenNet Research Program* based at the University of Toronto, in consultation with volunteers from their Youth Working Group, Toronto Public Health (Tobacco Team) and the YMCA Youth Substance Abuse Program, Toronto.	Schools, homes, health care, community at large	Process, formative and outcome

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Keep it Clean (KIC)	Grades 6 to 8	Classroom curriculum designed for grades, 6, 7 and 8; delivered by nurses or teachers Small groups brainstorming and role playing are employed to facilitate feedback, modelling, rehearsal and expression of positive attitudes.	Social influences and cognitive development stage model	Study conducted by the Centre for Behavioural Research and Program Evaluation, Canadian Cancer Society	Takes place over 3 years (gr. 6 to 8) Conducted in 100 schools in southwest Ontario	Experimental design: Follow-up at the end of grade 8 showed a smoking rate in high risk intervention schools of 16% compared to 27% in high risk control schools.
Encouraging teachers to implement smoking prevention (Lungs are for Life) in the classroom in a Northern community	Primary school teachers and youth (gr. 4-6)	In-service on LUNGS ARE FOR LIFE program to teachers Interactive learning program based on resources from LAFL program to students	Participatory Planning	Algoma Health Unit, Lung Association, Algoma District School Board, the Huron Superior Catholic District School Boards and the Heart Health Coalition	Primary schools	Process

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Developing student action committees in Simcoe County Schools	High school Youth	Creation of Student Tobacco Action Committees Media Campaign	Participatory Planning	Community partnership: Simcoe County District Health Unit, students, schools and School Board representatives, the Lung Association, Cancer Society, Centres for Addiction and Mental Health, Georgian College students, Strolling Youth Players, local media and graphic designers and community churches.	School; March 2000 - March 2001	Formative and process

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
The power of many: tobacco action guide for this generation	Youth	A youth action guidebook, developed in consultation with teens (includes advocacy and leadership tools, profiles of successful youth initiatives, ways youth can become involved in their communities and provides information on tobacco industry practices)	Participatory planning models	PTCC, French and English secondary schools in Ottawa, a College and Big Sisters of Ottawa. Advisory Committee members: Niagara Regional Public Health Department; Simcoe County Health Unit; Ontario Physical and Health Education Association; Ontario Lung Association; Cancer Care Ontario Prevention Unit; Peterborough County-City Health Unit; Youth Tobacco Coalition; University of Toronto; Toronto Public Health; City of Ottawa Public Health; and Sudbury and District Health Unit. The Health Communication Unit, the Lung Association, the OTS Media Network, the Ontario Physical and Health Education Association, the Heart Health Resource Centre, and the Ontario Campaign for Action on Tobacco	Schools	Formative, process, impact

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Preventing substance abuse among Aboriginal Youth	Aboriginal students in grades 3 to 5; in North and South Dakota, Idaho, Montana and Oklahoma	15 weeks in length (not including booster sessions) Fifteen 50-minute weekly sessions during the spring term of each school year conducted by group leaders and older peers Each session incorporates Aboriginal values, legends and stories. Cultural content addresses substance use issues in Aboriginal society and the positive and holistic concepts of health and health promotion among Aboriginal peoples Students learn problem solving, personal coping and interpersonal communication skills and receive	Not stated	Not stated	Schools on 10 socio-economically comparable reservations	At 30 and 42 month follow-ups, the intervention groups' alcohol, smokeless tobacco and marijuana use were significantly lower than that of the controls (Schinke et al., 2000)

		homework assignments Booster sessions received semi-annually for 3.5 years (delivered in two 50-minute sessions)				

Community-based programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Lungs are for Life Community involvement and teacher-advisor program: Helping students say NO to tobacco and other harmful substances	Youth	Community involvement projects for students (i.e., Deliver LAFL lessons to youth, implement school smoking cessation programs, industry awareness campaigns, lobby for smoke-free places and federal tax increases) Teacher-advisor program lessons	Social influences	The Ontario Lung Association, Ontario Physical and Health Education Association, public health representatives, staff members of the Centre for Addiction and Mental Health, volunteers and staff for the local office of *The Lung Association*, and other health-related agencies.	Schools and communities	Formative, process

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Midwestern Prevention Project (drug prevention)	Students in gr. 6 and 7 (research conducted in Kansas and Indianapolis)	Television managers, teachers and peer leaders trained in drug prevention skills and program delivery Main components: *Mass media campaign* *Parent program* *Classroom education* *Community organization* *Health policy*	Social learning theory	Not stated	Community and school; 3 years in length 77% Caucasian, 19% African-American, 2% Hispanic and 1.2% Asian	Quasi-experimental design: Program resulted in significant reductions (at 3 years) in tobacco and marijuana use (but not alcohol), with equivalent reductions for youth at different levels of risk (Pentz et al., 1989, 1990).

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
York Region Chinese Anti-Tobacco Education Campaigns	Chinese population (12 years and older) who speak either Cantonese or Mandarin)	*Needs Assessment* Focused on the needs and issues related to tobacco and exposure to ETS *Media Campaign* *Culturally sensitive educational and promotional activities* *Final evaluation* Assessment of median campaign effectiveness.	Social marketing	The York Regional Chinese Anti-tobacco Public Education Coalition c/o York Region Health Services, York catholic District School Board, Markham, Stouffville Hospital, York Central Hospital and Richmond Hill Central Library and representatives, sponsors and volunteers from major shopping malls, social community centres, restaurants and the media.	Schools Health care Workplaces Community at large	Process and impact

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Engaging youth via a youth mass media campaign and a youth advisory committee	Youth, aged 12-18	Development of Youth mass media campaign (focusing on tobacco industry and truth behind tobacco advertising) Youth advisory committee for the Ottawa Council on Smoking and Health	Community development Participatory planning, Community mobilization	Region of Ottawa-Carleton Health Department, and implemented in collaboration with the Ottawa-Carleton Council on Smoking and Health (OCCSH), high school students and principles, local politicians and media.	School and community	Formative and process

Family prevention programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Strengthening Families Program	Sixth grade students and their parents in rural communities (population less than 8,500) Conducted in a Midwestern US state, median annual household income was $34,000	Conducted by 3-person leader teams, in groups of up to 15 families. Seven weekly sessions Weekly sessions consist of separate, concurrent training sessions for parents and children (one hour in length), immediately followed by family sessions in which parents and children practice skills learned in their separate sessions (one hour). The seventh meeting consists of only a one-hour family session. Within these sessions, parents are taught to clarify expectations, use	Biopsychosocial model Resiliency model Social ecology model of adolescent substance use	Not stated	Typically schools	At 4 year follow-up, new year proportions were significantly lower for the SFP group than for controls for: Ever drank alcohol Ever drank alcohol without parental consent Ever been drunk Ever smoked cigarettes Ever used marijuana (Spoth et al., 2001).

		appropriate disciplinary practices, manage their strong emotions and effectively communicate with their child. Children's session content parallels the parents' content but also includes peer resistance and peer relationship skills training. During the family sessions, families practice conflict resolution and communication skills, and activities designed to increase positive involvement of the child in the family. Videotapes are also used.				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Family Matters	Parents of youth aged 12-14	Four booklets are separately mailed to a parent (usually the mother) in the home of the child. Each booklet begins with identification of the topics for the booklet, followed by a question answer\ section, a description of suggested activities, a summary, and a preview of the next booklet. Two weeks after each mailing, a health educator contacts the parent by telephone to assure that the booklet was received, to determine if the booklet has been read and activities completed, and to encourage family participation.	Social learning theory	Not stated	Study conducted in multiple states in the USA	One-year follow-up showed a significant reduction in smoking onset and a non-significant reduction in alcohol use in the intervention group when compared with controls.

Enforcement of minimum age of purchase laws

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Not to Kids! A media campaign to reduce the sale and supply of tobacco to kids	Youth, general population, tobacco retailers, enforcement officers	Media campaign • Transit shelter ads; • OMG Silverbox Bins; • Radio advertisements; • Cable television advertisements; • TV commercial; • Subway on-line ads; • *Not to Kids!* website; • *Not to Kids!* Moose; • Media releases/articles; • Newspaper advertisements; • Mall posters; • Blue Jays Schedules; Community-based activities • Water bill insertions; • Community pamphlet and	Social marketing Community development Participatory planning Community mobilization	Canadian Cancer Society, the Council for a Tobacco Free Toronto, East End Community Health Centre, Health Canada, Mac's Conveniences Stores Inc., Toronto Public Health, Toronto Catholic District School Board, Toronto District School Board, and Youthlink., Toronto Heart Health, Simcoe County Health Unit and Thunder Bay Health Unit.	Schools, workplaces, communities at large	Formative (focus groups), process (tracking of outputs in the media, community, retailer and environments), impact evaluation(data analysis of community telephone survey and retailer evaluation survey), outcome (retailer compliance checks)

		community poster; • Community displays; • Point of purchase items; Retailer initiative • Retailer binder reproduced and distributed to retailer establishments; • Retailer newsletter; • Retailer evaluation survey; • Retailer date chart and wagglers; • Retailer training; • Retailer video; School initiative • Board policy and enforcement support; • TCA signs for schools; • Curriculum support; • Revised TCA agenda insert; • *Important Information for*				

		Parents packages; • School Assemblies (Winston Man presentations); • Schools Without Borders Workshop Tobacco hotline				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Retail Sales Compliance Training Video "19 and Prove it" and Tobacco Control Act training course	Retail industry	Development of a video and a 2 hour training workshop ($25 cost for retailers to attend) Retail staff training video on the Tobacco Control Act and the consequence of retail tobacco sales to minors	Participatory Planning Social Marketing	Thunder Bay District Health Unit, Tobacco Resource Action Centre, in collaboration with: Health Canada, Health Protection Branch, Scarborough ON; Regional Multicultural Youth Centre, Thunder Bay; Tobacco Free Thunder Bay; Thunder Bay Police; and retail store owners, managers and clerks in the City of Thunder Bay.	Workplace, community at large	Process, formative and outcome evaluation Outcome evaluation showed that district vendor compliance and teen-smoke-free status improved to over 95% and 80%

Mass media and other

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Truth Campaign	Youth, aged 12-17 years old in the US	Mass media campaign (web, print and television) profit-driven, deceitful nature of big tobacco. Also uses graphic images and facts about death and disease caused by tobacco	Behaviour Change	American Legacy foundation funds the project	Media	Findings: Smoking among all students declined from 25% to 18% between 1999 and 2002. 22% of this decline was due to the truth campaign. (Farrelly et al., 2005; Sly et al., 2001)
The Youth Tobacco Vortal Project	Youth	The Vortal website (designed to reach youth with tobacco control messages and news of local tobacco-related activities) Affiliate and satellite sites	Core values of health promotion-broad determinants of health and empowerment	The Health Communication Unit (THCU) at University of Toronto, an Advisory Committee (local health units, resource centres and an expert in youth web-based projects)	April 2001-March 2002	Process and outcome

Protection best/better practice initiatives

Interventions to reduce children's exposure to SHS

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Breathing Space: community Partners for smoke-free homes	**General public**	**Summer 2000:** A multimedia campaign that ran from July 3rd to Sept. 30th 2000 in six different regions. The program included: • Customized transit shelter promotion in all partner communities; • Transit shelter advertising: 2 messages in all partner communities; • Radio advertising: 4 messages reaching all partner communities; • Print advertising: 2 messages reaching all partner communities; • Posters for placement in community partner locations; • Fact pads/sheets for distribution in community partner locations; • Smoke-free home and car decals;	Social marketing Participatory Planning	Began as a collaborative initiative in 1998 among the regional health departments serving the Greater Toronto Area: Hamilton-Wentworth Social & Public Health Services, Halton Region Health Department and the Simcoe County District Health Unit joined soon after. Together, this initiative had a potential reach of over 5 million Ontarians (about 50% of the total population of Ontario). These seven regions	Communities at large	Formative, process, impact and outcome evaluations were conducted for both summer and winter campaigns While the outcome evaluation found no discernable impact on the smoking activities of smokers in their own home or the home of other, the campaign was considered successful because it received: • Substantial media coverage and follow-up of the launch; • Three communication industry awards • Ongoing requests for additional

		Winter 2001 campaign: A four-week campaign using radio advertising on 14 radio stations across the GTA, Hamilton and Simcoe County. • Various community-based activities occurred in conjunction with the radio campaign.		share common media channels, transportation routes and commuter pathways.		information and collateral materials; • Interest in using parts of the campaign from various places, • Campaign information shared with *National Non-Smokers' Rights Association*, *WHO* and *CDC Atlanta*, *University Health Network* and *Cancer Care Ontario*; • Overall positive response to campaign messages from focus group testing, media coverage of launch and evaluation results; • Wide coverage: over 5 million people in the GTA, Hamilton, and Simcoe;

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Smoke-free homes and asthma pilot sites: media campaigns	Parents, grandparents, and adult caregivers of children age 12 and under who were exposed to second-hand smoke in homes or cars, including prenatal exposure.	Goal: to increase the number of homes with children under 12 years-old where smoking is not allowed. The main components of the *Smoke-free Homes and Asthma – Kenora District pilot site* campaign included: 1) A series of radio commercials highlighting the harmful effects of second-hand smoke and advertising the purple envelopes; 2) Distribution of purple envelopes containing a smoke-free homes brochure, a second-hand smoke tear-off fact sheet and smoke-free home/car window clings; 3) Distribution of a video about second-hand smoke to prenatal instructors and a local hospital.	Not stated	The Program Training and Consultation Centre, with an Advisory Committee representing Best Start, Breathing Spaces – Community Partners for Smoke-free Homes, the Health Communication Unit, the Lung Association, the OTS Media Network, and the Ontario Tobacco Research Unit. Implemented in Kenora District, Ontario, by the Northwestern Health Unit.	Schools Homes Health care settings Community at large	Formative, process and outcome evaluations were conducted.

Supporting smoke-free policies

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Media campaign to build support for a smoke-free bylaw in Ottawa	The voting public The politicians themselves who ultimately made the final decision on whether a comprehensive citywide bylaw was passed; Owners and staff of restaurants, bars, bingo/billiard/bowling halls and other workplaces who would be required to implement the bylaw in their respective establishments;	Media campaign on secondhand smoke implemented; (a) Bilingual media campaign (fact sheets, a website, advertisements on radio, on buses and in print media and a report on ventilation (b) The objective of the campaign was to inform City of Ottawa residents of the proposed legislation and to engage with the public and related stakeholders to contact the City with feedback and/or support for the proposal. Workplaces and businesses received appropriate educational material including 'No-smoking' signs Monitored ongoing public support for smoke-free public places and workplaces;	Social marketing, participatory planning, community mobilization	The City of Ottawa Public Health, the Ottawa-Carleton Council on Smoking and Health (OCCSH), *Regional Heart Beat* (the local heart health network) and the *Regional Cancer Care Ontario Prevention Network.*	Communities at large; workplaces	Formative, process and impact evaluations were conducted.

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Promotion campaign to support implementation of the smoke-free bylaw in Waterloo Region	General population and intermediaries	Prior to implementation, the focus was on education about the health effects of second-hand-smoke, the bylaw requirements, and how individuals could promote the bylaw. After implementation: the focus was redirected towards encouraging non-smokers to show their support by frequenting smoke-free public places. It also addressed how bylaw supporters could voice their displeasure with non-compliance Components: Mobilization of the school community and health community 1. Smoke free ads contest for high school and postsecondary students 2. Smoke–free ads judging & show for the contest submissions 3. Fax and phone messages with action activities sent to	Community Development Participatory Planning Models Community Mobilization	The Council for a Tobacco-Free Waterloo Region (CTFWR), It was implemented in consultation with the Ontario Campaign for Action on Tobacco and the Ontario Media Network at Cancer Care Ontario, and received additional funding and support from Action on Heart Health.	Schools, Homes Health care settings, Community at large, General population	Process and impact

		contacts at the Lung Association, Heart and Stroke Foundation, and the CCS. Education & promotion ads & materials 1. Bus ads 2. Billboard ads 3. Newspaper ads (promotional) 4. Postcard (1) (educational) 5. Newspaper ad (promotion/advocacy) 6. Postcard (2) (promotion and education) 7. Newspaper ad (education and promotion) 8. Newspaper ad (promotion/advocacy) 9. IT TV ads (promotion) 10. Washroom ads (Universities and Colleges) 11. Coasters, napkins, and tattoos for bars and clubs (education concerning compliance) 12. Magazine and TV ads promoting a smoke-free Region				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Bylaws and signage to encourage smoke-free playground and parks in Simcoe County	Youth, general public	A communication campaign to promote the by-law as well as reinforce a smoke-free lifestyle and protection from ETS in support of implementation. Components of the campaign included: Media coverage • Public health staff took part in media requested interviews and participated in local radio and television talk shows Playground Safety Contest • Playground safety contest sheet (also promoting the smoking by-law) to all students in kindergarten to grade 2 • The contest was also advertised in the newspaper. Distribution of: • Information leaflets: • 'No-Smoking' signs to be posted in nine parks, the outdoor pool and skate board park;	Participatory planning	Simcoe County District Health Unit, and implemented with assistance from their Youth Advisory Committee, the Ontario Provincial Police, Ambulance workers, Backyard Products (local playground equipment manufacturer), Collingwood General and Marine Hospital, Parks, Recreation & Culture Department, Trails Committee, Collingwood Town Council, and school board members	Schools Homes Community at large	Process and impact evaluations were conducted.

		'Recommended No-Smoking' signs and decals were posted in town soccer fields and on trails • Balls imprinted with the 'Play Smoke-Free and Win' logo to local preschools, elementary schools and sports teams. • 'Play smoke-free and win' flags (also imprinted with the Town of Collingwood and Health Unit's logos). Flags were also developed for the Town of Collingwood and town arena.				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Education and Enforcement Strategy to support the Peterborough smoke-free spaces bylaw	General population	1. By-law implementation and enforcement; a) By-law amendment; b) Media campaign to inform residents of the changes to the bylaw; c) By-law enforcement activities; d) Media campaign to local residents to reinforce the need for healthy workplaces; to visitors to the City of Peterborough to make them aware of the bylaw, and position it as a positive attraction to the City; 2. Educational campaign for residents of rural municipalities a) Adapt existing second-hand smoke pamphlet and newspaper drop-in ads for rural target group; b) Deliver educational messages through mail to rural households,	Participatory planning Community mobilization	Peterborough City-County Public Health Unit, in collaboration with the Coalition for a Tobacco-Free Peterborough, Kawartha Lakes Tourism, City of Peterborough Offices and Council, Peterborough Police, local hospitality industry, and *Hearts Alive Peterborough.*	Workplaces, communities at large	Process, impact and outcome evaluations were conducted and demonstrated significant policy changes, increase in awareness and shifts in attitudes and behaviours

		community newspapers, and local community events;				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Clearing the Air in Workplaces: a resource binder	Intermediaries	Description of methods used to create a workplace resource binder Create a binder or a resource kit on workplace smoking policy development. 1. Identify core-elements needed to develop, implement and promote smoke-free workplaces via: a. Research; Scan of Ontario workplaces and health unit initiatives; b. Advice from the advisors and key informants; 2. Develop recommendations for the effective dissemination of this binder; 3. Develop recommendations for continued work; 4. Write final report; Resources developed: Resource binder: Clearing the Air in Workplaces: A Guidebook for Developing	Participatory planning models	The Program Training and Consultation Centre, in consultation with project advisors from: The Campbell Soup Company; Tobacco Program, Region of Peel; and the Tobacco Program, Regional Municipality of Niagara. Focus testing was done with key informants from the Perth District Health Unit, FAG Bearings, and the Stratford Festival Theatre.	Workplaces	Formative, process and impact

		Effective Tobacco Control Policies. An accompanying PowerPoint or overhead presentation that can be adapted to include local workplace facts or smoking rate statistics, and used to promote the reasons for and the steps to be taken to implement effective tobacco control policies in the workplace.				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Enhancing Tobacco Control Policies in Northwest Indian Tribes	Federally-funded Indian tribes located in Washington and Oregon. The program is administered in a community setting.	Two American-Indian staff members of the Northwest Portland Area Indian Health Board delivered the intervention. Tribal representatives were invited to one of four regional workshops that included an overview of the project, a presentation on the health risks of smoking and environmental tobacco smoke, and an introduction to the Tribal Tobacco Policy Workbook The regional meetings were followed by a visit to each tribe, where project staff typically worked with members of the tribal health committee or people designated by the tribal council chair. A tobacco policy resolution approved by the tribal council was the goal for each tribe	Not stated	The Northwest Portland Area Indian Health Board, in collaboration with investigators at two research settings, initiated the project. Researchers developed and evaluated a culturally appropriate tobacco consultation process for the 39 federally recognized tribes in Washington and Oregon.	Community	A quasi-experimental study design: half the tribes received the consultation immediately and the other half served as a "wait-list" control group. The consultation was then provided to the control group or wait-list tribes and the same positive results were observed. The consultation intervention led to significant changes in restricting smoking at tribal council meetings, in tribal work settings, and in private offices.

Enforcement of smoke-free polices

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Education and Enforcement Strategy to support the Peterborough smoke-free spaces bylaw	General population	1. By-law implementation and enforcement; e) By-law amendment; f) Media campaign to inform residents of the changes to the bylaw; g) By-law enforcement activities; h) Media campaign to local residents to reinforce the need for healthy workplaces; to visitors to the City of Peterborough to make them aware of the bylaw, and position it as a positive attraction to the City; 2. Educational campaign for residents of rural municipalities c) Adapt existing second-hand smoke pamphlet and newspaper drop-in ads for rural target group; d) Deliver educational	Participatory planning Community mobilization	Peterborough City-County Public Health Unit, in collaboration with the Coalition for a Tobacco-Free Peterborough, Kawartha Lakes Tourism, City of Peterborough Offices and Council, Peterborough Police, local hospitality industry, and *Hearts Alive Peterborough.*	Workplaces, communities at large	Process, impact and outcome evaluations were conducted and demonstrated significant policy changes, increase in awareness and shifts in attitudes and behaviours

		messages through mail to rural households, community newspapers, and local community events;				

Cessation best/better practice initiatives

Quit and win contests and helplines

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Quit Smoking Contest	Ontario smokers	January 1-May 31 2000: Part of comprehensive 6 month campaign Smokers made a pledge in exchange entry into a draw for a prize when smoke-free status was assessed Strong media element and local community involvement 2001: Second contest, but had a workplace component	Stages of change theory, social marketing and participatory planning	The Council for a Tobacco Free Ontario, the tobacco free councils in Simcoe County and Peterborough, local councils and the Ontario Tobacco-Free network, the Industrial Accident and Prevention Association, Glaxo Smith Kline and volunteers from more than 7,000 organizations affiliated with health units, tobacco–free councils and heart health coalitions throughout Ontario.	Community	Process, outcome and impact evaluations

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Quit & Win Buffalo	Smokers of cigarettes, cigars and/or pipes who were over 18 years old.	Contest challenges smokers to be abstinent for a specific period of 30 days in order to be eligible for prizes. Contest promoted one and a half months before competition (flyers and posters distributed at major area employers, hospitals and physician offices) Registration begins three weeks after the start of flyer Two weeks prior to the start of the contest, local pharmacies distribute flyers with customer purchases. Approximately two weeks prior to the start of the contest, the daily newspaper promotes the contest. Finalists are randomly chosen and confirmed to be abstinent biochemically and through individuals indicated on the ballot by the contestant (the ballot also contains a pledge not to smoke). The first selected and verified has the choice of any of the prizes; the next has the choice of the remaining prizes, and so on.	Not stated	Not stated	Communities at large	During the study intervention (contest), 97% of contestants attempted cessation, and 51% remained abstinent for the entire 30 day period. Eight month follow-up showed that 32% of contestants were still abstinent from smoking (Cummings et al., 1990).

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
California Smokers' Helpline	Smokers over the age of 18 who call the Helpline.	CSH is three months in length. Service in a second language should be available. A smoker calls the Helpline. If he/she is ready to quit and receive counselling, a self-help package is sent and the participant is instructed to call back on the package's arrival. The CSH uses a previously tested, structured protocol. The following contacts are proactive (counsellor initiated): The first counselling session (50 minutes in length) focuses on the participant's quitting history, self-efficacy, motivation, his/her existing social support, and the planning in advance of a quit date (QD). After the QD, up to six sessions are held (20 minutes in length, each). These emphasize relapse prevention by reviewing and revising the participant's quit-smoking plan and promoting the adoption of a non-smoker self-image.	Social learning theory	Not stated	Communities at large The Helpline's counselors should have at least a bachelor's degree and receive 60 hours of training.	Twelve-month abstinence rates for the study intervention and control groups were 9.1% and 6.9%, Counseling approximately doubles the rates of abstinence. (Zhu et al., 2002; 1996)

Exercise intervention

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Commit to Quit	Adult female smokers (aged 35-49)	12 sessions of group-based cognitive behavioural therapy combined with a tailored exercise program. Session content included self-monitoring, stimulus control, coping with cravings, stress management and other traditional cessation topics. Sessions on healthy eating, weight and mood management and balancing family and work were also included. Exercise sessions occurred three times a week and consisted of a 5-minute warm-up, 30-40 minutes of cardiovascular activity and a 5-minute cool-down.	Not stated	Not stated	United States	An experimental evaluation found that vigorous exercise combined with cognitive-behaviour therapy facilitated short- and longer-term smoking cessation in participants. Vigorous exercise also improved exercise capacity and delayed weight gain following smoking cessation.

Workplace interventions

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Workplace tobacco cessation interventions: Incentives vs. No incentives	Blue collar workers with a mean age of approximately 42.5 years. Participants included slightly more men that women. Seventy three percent were Caucasian, 46% had some college education and more than half had an annual income of over $25,000.	This intervention is 12 months in length. Some employees are trained as group facilitators. Participants receive a self-help smoking cessation package Groups (five to seven) are organised according to their working proximity and are led by employee group facilitators that provide smoking cessation support. Monthly, counsellor-initiated telephone sessions are offered to employees (to develop a personalized smoking cessation plan, promote maintenance and prevent relapse; self-control and confidence building is emphasized) Maintenance sessions are also held that cover stress management, fitness, nutrition and weight control. **5 month cash incentive contest** Participants pay a $50 initiation fee to be eligible for earning $15 per month for complete abstinence from smoking during this phase.	Stages of change model Social learning theory	Not stated	Workplace	After six months, the study's "incentive" competition group had an abstinence rate of 41%, compared with 23% in the "no-incentive group"; however, at 12 months the quit rates for both groups were statistically indistinguishable (37% incentive vs. 30% no-incentive). Both methods are recommended for use by the authors (koffman et al., 1998).

		First month: $5 can be earned if the participant smoked less than 80 cigarettes The employees are divided into 13 teams and individual earnings are tallied to represent a team's total earnings. If any participant failed to abstain during a month, the $15 is to be added to the grand prize with a sum contributed by the employer. Each month, per capita winnings for each team are posted on a "smoking barometer" chart that is placed in the lobby of each building. At the end of the five months, the winning team receives 50% of the grand prize, and the second and third place teams receive the rest.				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Workplace tobacco cessation interventions: Quit Smoking Program	Adults with a mean age of 37 years. The study's sample was employed by a university with 22% being of administration/faculty, 30% clerical/maintenance, 30% being of professional non-faculty (including residents and nurses), and 18% technical/skilled crafts. The research study was conducted in Alabama.	**Self-help:** American Lung Association manual, *Freedom from smoking in 20 days*. (a structured, daily plan to cessation including behavioural contracts, self-monitoring, stress management, etc. On the smoker's quit date (Day 17 after the initial visit), he/she is provided with a maintenance manual, *A lifetime freedom from smoking*. This manual encourages continued cessation, and emphasizes self-control techniques and the development of new behavioural and thought patterns consistent with being a non-smoker. **Skill training + Enhancement of social support:** Three behavioural approaches: •Learning/improving cessation skills • Enhancing commitment to cessation through a quit-smoking contract and defined activities • Increasing social support by developing a Quit Smoking Buddy and education	Not stated	NA	Workplaces	Six week follow-up of the study participants showed a biochemically-confirmed quit-rate (BCR) in the intervention group of approximately 27%, compared with approx. 8%, 12% and 20% in the other groups. One year BCR for the intervention group was approx. 19%, versus approx. 6%, 5% and 10% in the other groups (Windsor et al., 1988).

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Workplace tobacco cessation interventions: Tools for Health	Unionized construction laborers. Approximately 95% of participants were male. T4H targets high-risk workers who change job sites frequently, and thus may have limited access to worksite health promotion efforts.	**Mailed tailored feedback report:** • mailed after baseline assessment • Individually tailored based on the participant's stage of change **One-on-one motivational interviewing counselling sessions delivered by telephone with a health advisor** • Each participant receive up to four telephone calls within the three month period • Two extra sessions are offered to smokers who need additional time **Written educational materials, targeted to specific needs and work experiences of the group (not individually tailored)** • Participants receive at least 12 tip sheets on tobacco cessation, healthy eating and the nature of their work This intervention is approximately 3 months in length. Those who implement the intervention receive ongoing training (details not provided).	Stages of change Social cognitive theory	NA	Workplaces	Nineteen percent of T4H participants quit smoking post-intervention, compared with 8% in the control group (statistically significant difference). T4H participants also significantly increased their fruit and vegetable consumption by 1.5 servings per day, compared to a slight decrease in daily servings in the control group (Sorenson et al., 2007).

Health care interventions

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Health care facility-based tobacco cessation intervention: CHEST Confrontation, History, Education, Strategies and Treatment	Patients over 16 who smoke (62% over 31 years old)	1) Initial appointment: At a regularly scheduled visit, smokers are treated for their present complaints and then receive a three to five minute counselling session that includes the following: The patient's smoking history, previous quit attempts and his/her degree of motivation The effects of smoking on health (patient also receives a pamphlet on the topic) A review of strategies for smoking cessation: (cold turkey, self-monitoring, nicotine replacement therapy, etc.) Confrontation about the patient's smoking habits and a strong urge that he/she must quit smoking 2) Follow-up: The patient attends specifically scheduled appointments one, three and six months after the initial visit to review progress, solve problems	Not stated	Not stated	Physician office	An experimental study design 6 and 14 months after entry into study, 23% of intervention subjects quit smoking compared to 12% of controls (received initial visit) (Wilson et al., 1982)

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Physician counselling smokers program	Primary care physicians and adult self-identified smoker who were American Indian, Asian, Black, Hispanic and White.	**Medical Practice Resource File** which contains: materials for nurses, physicians, pre-contemplators and contemplators, action materials, office support materials, and newsletters. **Masters-level Office Practice Consultants**: make four to five physician-centred visits to the practice to encourage the adoption of cessation counseling and familiarize staff with the resource file. Counseling training sessions ranged from minutes to 2-3 hour.	National Cancer Institute's 4-A Counseling model; "academic detailing," a form of educational outreach featuring personal educational visits to clinicians in their own practice setting; Transtheoretical Model of Change, applied to both patients' smoking behavior and physician counseling practices.	Not stated	Health care setting	A quasi-experimental design in five Rhode Island counties At 24 months, the quit rate among smokers in the intervention counties was 25% compared to 20% in the control counties. Smokers who were advised to quit by a physician in the intervention group were more likely to quit than those smokers advised to quit by a physician in the control group (Goldstein et al., 2003)

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Health care facility-based tobacco cessation intervention: NRT, advice & education, cognitive behavioural therapy	Adults (34-49), who smoked at least one pack of cigarettes per day	Three components: **Advice & Education**: Four sessions (15-20 minutes in length) are conducted by the nurse practicioner at weeks one, three, six and nine of the intervention. During the first session, participants view videos about using nicotine patches and quitting smoking. **Nicotine Replacement Therapy (NRT)**: During each education session (excluding week nine), the NP provides participants with a supply of nicotine patches. NRT is to be completed within eight weeks. a) The dosing schedule is as follows: b) 21 mg/day for the first four weeks c) 14 mg/day for the next two weeks d) 7 mg/day for the final two weeks. **Cognitive-Behavioural Treatment (CBT):** 12 weekly sessions by a master's-level or greater therapist. Can extend to 15 weeks if needed.	Slightly modified version of individual cognitive behaviour therapy, relapse prevention counselling manual for smoking cessation	Not stated	Health care setting	Experimental design: At week 9 (one week after NRT conclusion), 45.1% of the study intervention participants had a biochemically-confirmed smoking abstinence rate. At week 26, a rate of 36.8% was reported. Final biochemically-confirmed abstinence rate was 34.7%, reported at 52 weeks.

Youth cessation programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Quit for Life	Males and females aged 12-18 who smoke and want to quit	Quit4Life website Quit4Life handbook Facilitators guide (so teachers, nurses, health professionals etc… can run QFL as a group program)	Social cognitive theory, using cognitive behavioural techniques to promote individual behaviour change	Health Canada in 2005 and pilot tested and evaluated in 2004 in partnership with Mission, British Columbia (Fraser House Society); Winnipeg, Manitoba (Manitoba Lung Association); Garden Village, Ontario (Nipissing First Nations Health Centre); Fredericton, New Brunswick (Canadian Research Institute for Social Policy, UNB); and New Glasgow, Nova Scotia (Pictou County Women's Centre).	Schools and communities and large	Process and outcome evaluations and a 20 page lessons learned report

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
The Smoking Zine: Using the Internet for Smoking Prevention and cessation with Youth	Youth aged 12 to 19 Health practitioners can also use as part of prevention or clinical program or a stand-alone self-directed intervention Education practitioners can use the to fulfill curriculum requirements	Key features of the website: *Billboard* Five steps to complete: Step 1 Makin' cents (consciousness raising) Step 2 It's your life (assessment of smoking status) Step 3 To change or not to change (reading or stages of change) Step 4 It's your decision (decision balance) Step 5 What now? (next steps) *Quizzes* *Speak out* (discussion forum)	Stages of change theory; Social learning theory; Health belief model; Theory of reasoned action	The *TeenNet Research Program* based at the University of Toronto, in consultation with volunteers from their Youth Working Group, Toronto Public Health (Tobacco Team) and the YMCA Youth Substance Abuse Program, Toronto.	Schools, homes, health care, community at large	Process, formative and outcome

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Not on Tobacco (NOT)	Youth ages 14 to 19 who are daily smokers. Participants have included American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or other Pacific Islander, White and Race/ethnicity unspecified	Ten hour-long weekly sessions and four booster sessions, delivered to males and females separately by same gender, trained facilitators. No more than 10 to 12 participants are recommended per group. Major program goals are to help participants e. Quit smoking, f. Reduce the number of cigarettes smoked by youth who are unable to quit, g. Increase healthy lifestyle behaviors (e.g., physical activity and nutrition), h. Improve life skills such as stress management, decision-making, coping, and interpersonal skills. NOT emphasizes experiential learning. The program uses role playing and rehearsal, journaling, and relaxation techniques. Also provides ways for community advocacy and volunteerism.	Social cognitive theory and incorporates training in self-management and stimulus control, social skills and social influence, stress management, relapse prevention, and techniques to manage nicotine withdrawal, weight management, and family and peer pressure.	Program created by the American Lung Association (program has been implemented in Manitoba since 2003)	Schools and other community settings (in rural and/or frontier, school, suburban and urban settings) Facilitated by teachers, school nurses, counselors, and other staff and volunteers specially trained by the American Lung Association.	A review of end-of-program quit rates from 6 controlled and 10 field-based evaluations involving approximately 6,130 youth from 5 states and 489 schools showed consistent, significant positive smoking behaviour change across evaluations. Results from controlled evaluations revealed an aggregate quit rate of 15% and 19%, respectively. The field-based evaluations revealed an aggregate quit rate of 27% and 31%, respectively.

						NOT youth were two times more likely to quit than comparison youth (OR = 1.94; p = .002; 95% CI 1.267-2.966).

Young adult cessation programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Leave the pack behind	Young adults on college and university campuses in Ontario	Outreach programming use to make students aware of services available on campus Brief tobacco interventions provided for campus clinicians so they can deliver cessation services tailored to the student population Services provided in different forms: Smoke/quit print form and e-version, access to clinic, access to counselling centres, social support through trained peer educators NRT (if donated) Multi-campus website Leave the pack behind resource binders for: campus clinics, health promoter, student team Continual evaluation into all aspects of programming	Stages of change theory Social support Community development Participatory planning Community mobilization	The Regional Niagara Public Health Department and Brock University. As of January 2003 this initiative involves colleges, universities and health units Campus supports: Student Health Services (including campus physicians, nurses and counsellors), faculty, Student Affairs administration, university presidents, student governments and dons, residence administration, and employee assistance programs. Other partners Program Training and Consultation Centre (PTCC) and the Ontario Medical Association / Clinical Tobacco Intervention Project (for staff training), The Canadian Cancer Society's (CCS) Smokers' Helpline, GlaxoWellcome	College and university campuses	Formative, process, outcome and impact

				Pharmaceutical Company and Aventis Pharma Pharmaceutical Company (for dissemination of smoking resources), and local public health departments.		

Pregnant women cessation programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Maternal smoking and infant birth weight trial (MSIB)	Pregnant smokers, no more than 18 weeks gestation. Participants were a mean age of 24.9, 40.8% African-American, 59.2% Caucasian 32% having some college education.	1. Individual counselling (at least one 45 minute face-to-face tailored counselling at her home) 2. Phone contact (on quit day and several days thereafter) 3. Group counselling (encouraged if woman has not made progress in 1 month) 4. Mailings (articles of interest i.e., SHS in homes) 5. Monetary rewards ($10 and $20 gift certificates given to women having abstained for 2 weeks and on completion of intervention; *Pregnancy Outcome Lottery* for woman who have not smoked in two weeks; held once per month; prize worth $30)	Not stated	Not stated	Primary care and home setting	Experimental study design; at eighth month gestation, 43% of the study intervention women quit smoking, compared to 20% of controls. Birth weight was higher by 92 grams in the intervention group (Hebel et al., 1985; Nowicki et al., 1984)

Mental health and addictive disorders cessation programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Smoking cessation for women, Francophones and other marginalized groups	Special populations	1) Delivering smoking cessation and relapse prevention and ETZ awareness and training programs to key organization 2) Provide cessation course at several locations to meet the needs of women, youth fracophones and other marginalized groups 3) Increase awareness about tobacco use in 5 multicultural communities 4) Provide brief interventions for targeted ethnic communities in community health centres	Stages of change theory Community development Participatory Planning	The City of Ottawa Public Health, in collaboration with the *Ottawa-Carleton Council on Smoking and Health* (OCCSH), *Regional Heart Beat* (the local heart health network) and the *Regional Cancer Care Ontario Prevention Network*. The OCCSH members include the Canadian Cancer Society, Carleton Unit; Centre for Addiction and Mental Health; the Lung Association; Ottawa-Carleton Health Department; The University of Ottawa Heart Institute; Heart and Stoke Foundation of Ontario; and Cancer Care Ontario – Eastern Region. Community partners also included Multicultural Health, Addiction Services, school guidance and youth recreation workers, Boys and Girls Clubs, and English as a Second Language Social Services.	Workplaces and communities at large	Process and outcome

Aboriginal cessation programs

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
American Indian Not on Tobacco (AI NOT)	American Indians, 14 to 19 years old in school in North Carolina	Similar to NOT (above) but developed in consultation with American Indian community Contains significant cultural component and increased emphasis on on group identity and cohesion rather; use of graphics with cultural themes in handouts on cessation and other media; increased focus on the impact of a teenager's smoking on family and community; promotion of youth advocacy and leadership; and inclusion of activity options that involve family members. Presented to youths by 8 trained facilitators (half American Indian) at schools. At control schools, interested students were offered a brief 15-minute intervention where students received scripted quit-smoking advice and the CDC brochure "I Quit" (CDC) Both intervention and control school students underwent a battery of baseline and 3-month	Participatory planning Social cognitive theory and incorporates training in self-management and stimulus control, social skills and social influence, stress management, relapse prevention, and techniques to manage nicotine withdrawal, weight management, and family and peer pressure.	American Lung Association and American Indian youth smokers and nonsmokers, American Indian facilitators already trained in N-O-T, and Community Advisory Board members, including tribal leaders, parents, clergy, and school personnel. Their input was obtained from focus groups, interviews, surveys, and informal discussions, including testimonials and storytelling	Schools	There was a lower than desired numbers of participants (54 AI-N-O-T intervention students in 3 schools, and 20 brief intervention students in 2 schools) a high attrition rate, and significance of rates of cessation could not be found. 6 males from the AI N-O-T group quit smoking and 1 male from the brief intervention group quit. Though no females quit smoking, several reduced the amount they smoked, and AI N-O-T students reduced their smoking by more than did those

		follow-up paper and pencil tests.				who had the brief intervention. The program cannot be generalized to other American Indian communities, except in its participatory process.

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Wabano Centre for Aboriginal Health: Sacred Smoke	Primary care physicians and adult self-identified smoker who were American Indian, Asian, Black, Hispanic and White.	An eight-week, eight-module program (one 2hr session ever week) that involves facilitated group education and counseling programs (6-8 individuals per group) **Curriculum:** Based on Aboriginal teachings and incorporate the Seven Grandfather Teachings on: bravery, honesty, respect, humility, love, wisdom and truth **Recruitment** • Promoted through flyers and posters internally and externally with community partners • E-mail notifications to other organizations • Internal cross-referrals from other programs • Word of mouth referrals from previous/existing clients to the program **Clients Support** • Offer childcare • Provide transportation to and from • Provide food • Offer program in the evenings – flexible scheduling • Access to pharmacotherapies	Social determinants of health; program integration model	The Wabano Centre for Aboriginal Health is an urban, non-profit, community-based healthcare centre that provides programs and services for First Nations, Inuit and Métis in Ottawa. Established in 1998, it provides primary health-care services as well as a wide array of illness prevention, health promotion, education, and outreach activities in a culturally sensitive manner. The Center has a caseload of 6,000 annually. Program was Adapted from the Accessible Chances for Everyone to Stop Smoking Program (ACCESS) in Ottawa by Ottawa Public Health	Community health care setting	**Qualitative:** Positive changes in participants' knowledge, attitudes and behaviours were important outcomes in community mobilization and awareness in regards to tobacco cessation. The availability of a program resource that is built on traditional knowledge and traditional teachings was considered a real benefit. Project staff confirmed that the cultural component that uses a holistic approach to learning and personal action

		(NRT) **Resources** • Program manual comprised of a facilitator's guide, teaching objectives, presentation materials, handouts and work sheets • Knowledgeable and skilled Aboriginal personnel • Cessation counseling skills • Social determinants of health • Requires financial and administrative supports				was a significant element in the pilot project's success. **Absolute smoking rates:** Only 10% had quit smoking by the end of the pilot (Wabano used a harm reduction model in which tobacco use reduction and the seeking of other supports for their overall health were considered successes) Of the 20 individuals who participated in the Sacred Smoke program five have significantly reduced the amount smoked;; Eight have plans to quit; Two have quit smoking; and; Ten were

						referred to other supports or services including medical specialists, general practitioners, addictions services and counseling or parenting programs.

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Anishnawbe Mushkiki – Sema Kenjigewin Aboriginal Tobacco Misuse Program	Young adults, youth and women	Length • 12 weeks • One session per week at two hours each session • Recommending that the program be condensed to an 8 week format Format • Facilitated group counseling program adapted from the Health Canada's Quit4Life Program and the Medicine Bag Help for Smokers Program developed by Nechi Institute • Medicine Wheel approach • Implemented as part of the Menodawin Healthy Eating Active Living (HEAL) program • Providing a comprehensive and holistic approach in a positive and supportive learning environment – promotion of self-efficacy and autonomy • Sessions were informal and participants could work at their own speed • Sessions conducted in a circle, rather than a classroom setting, elders came in to speak, food was offered, and there was lots of laughter which is the hallmark of a comfortable	Program integration	Anishnawbe Mushkiki is an Aboriginal community health centre located in Thunder Bay that is "dedicated to improving the health of Aboriginal people by means of a holistic approach combining western, traditional, and alternative medicine." The centre provides primary care, health promotion, mental health services and traditional medicine services to all Aboriginal people in Thunder Bay.	Community health centre	Participants completed a pre and post-program survey post-program survey during the 12th week to gather baseline data. Data from these surveys show the following about the three participants who completed the program: All would recommend the program to a friend. All found the program to be informative and supportive. The participants would have liked additional speakers for health issues.

		environment conducive to learning in Aboriginal communities Client Support • Access to safe and reliable childcare transportation to and from the program • Referral to other support services and • Accessibility to pharmacotherapies if desired • Use of small-scale incentives for participants such as: stress balls Resources • Access to positive role-models • Facilitator was Aboriginal and a previous smoker • Involvement of Elder's • Access to guest speakers • A full-time cessation counselor to deliver • Incorporation of interactive learning tools Curriculum • Participants met for two hours per week to discuss a range of topics including: • Traditional versus commercial tobacco • Health effects of smoking • Reasons why people smoke • Challenges of quitting				The participants would have liked to be provided with smoking cessation aids (i.e., NRT). Since the program ended, all participants have successfully quit smoking (this includes a three month follow-up with participants). The curriculum developer and program facilitator are currently in the process of completing an evaluation of the entire program.

		• Dealing with stress and anxiety • Dealing with withdrawal • Support systems • Preparing to quit – action plans • Staying smoke-free – dealing with sabotage and relapse				

Other special populations

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Smoking cessation and the GLBT community initiative: Stop dragging your butt facilitator's program guide	Gay, lesbian, bisexual and transsexual smokers	A binder and CD-ROM describing in six parts how to run a group program to help individuals from the GLBT community quit or reduce their tobacco use; session outlines and handouts for each of eight group sessions. Information includes **Part 1** – The Basics - with the rationale for running a program specifically for the GLBT community, background to the pilot project, choosing a facilitator, and **Part 2** – Specific Issues for Gay and Bisexual Men **Part 3** – Specific Issues for Lesbian and Bisexual **Part 4** – Specific Issues for People Who Have HIV/AIDS – f **Part 5** Resources – **Part 6** – How to Use this Resource- Each session runs for about 90 minutes and contains a check-in and review, education about a specific topic area, motivation and	Stages of change and social learning theory	The Program Training and Consultation Centre, in consultation with the Ottawa Gay Men's Wellness Initiative and Centretown Community Health centre, with financial support from Health Canada. Materials are available in both French and English. Contributors also included: • ACESS Community Coalition (Accessible Chances for Everyone to Stop Smoking) • AIDS Committee of Ottawa • Ottawa Public Health • Pink Triangle Services •Immunodeficiency Clinic – Ottawa General Hospital	Communities at large	Formative, process, impact and outcome

		exchange, evaluation and next steps. Facilitators are encouraged to modify and adapt the sessions based upon their clients needs, and handouts are to be downloaded and copied from the CD rom. There is an intake and final questionnaire in two parts for all participants to complete				

Intervention	Target Groups	Program Components	Theories	Partnerships	Context	Evaluation
Smoking Cessation for Lower Literacy Clients in Peterborough	Special population (women and low literacy clients)	Goal: To create an environment conducive to reducing tobacco use in Peterborough County by supporting the successful implementation of a new smoke-free bylaw in the City of Peterborough and increasing access to smoking cessation programs, particularly for women and low literacy adults. 1. Media promotion of the smoking cessation groups in Peterborough County and City; 2. Delivery of cessation groups; 3. Development of additional support materials; 4. Identification, focus testing and dissemination of low literacy level smoking cessation resources;	Stages of change theory	Peterborough City-County Public Health Unit, in collaboration with the YMCA, YWCA, Neighbourhood Action (a local neighbourhood association), Sir Sandford Fleming College, Millbrook Medical Centre, Norwood United Church, Trent Valley Literacy Association, Craaytech, Heart's Alive and Women's Health Care, Peterborough Youth Services, and local media.	Community at large	Formative, process, impact and outcome evaluations

Appendix C

Prevention best/better practice initiatives ratings

No.	Name	Location	Source	Rating
1	The Smoking Zine: Using the Internet for Smoking Prevention with Youth	Ontario	PTCC	Recommended: 1/5
2	Not to Kids! A media campaign to reduce sale and supply of tobacco to kids	Ontario	PTCC	Recommended: 1/5
3	Retail Sales Compliance Training Video "19 and Prove it" and Tobacco Control Act training course	Ontario	PTCC	Recommended: 1/5
4	Developing student action committees in Simcoe County Schools	Ontario	PTCC	Promising:3/5
5	Lungs are for life (LAFL): grade 3 lesson plans and resources Helping students say NO to tobacco and other harmful substances	Ontario	PTCC	Promising: 5/7
6	Lugs are for Life: grades 4-8 revised modules Helping students say NO to tobacco and other harmful substances	Ontario	PTCC	Promising: 5/5

7	Lungs are for Life: grade 9 Helping students say NO to tobacco and other harmful substances	Ontario	PTCC	Promising: 5/7
8	Lungs are for Life: grade 10 lesson plans and resources Helping students say NO to tobacco and other harmful substances	Ontario	PTCC	Promising: 5/7
9	Lungs are for Life: community involvement and teacher-advisor program Helping students say NO to tobacco and other harmful substances	Ontario	PTCC	Promising: 5/7
10	Encouraging teachers to implement smoking prevention (LAFL) in the classroom in a Northern community	Ontario	PTCC	Promising: 5/5
11	Engaging youth via a youth mass media campaign and a youth advisory committee	Ontario	PTCC	Promising: 3/5
12	The power of many: tobacco action guide for this generation	Ontario	PTCC	Promising:5/5

13	The Youth Tobacco Vortal Project	Ontario	PTCC	Promising: 3/7
14	York Region Chinese anti-tobacco education campaign	Ontario	PTCC	Promising: 5/5
15	The youth tobacco vortal project	Ontario	PTCC	Promising: 3/7
16	Preventing substance abuse among Aboriginal Youth	United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective
17	Keep it Clean (KIC)	Ontario	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective
18	Midwestern Prevention Project (drug prevention)	Kansas City, United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective
19	Strengthening Families	Ontario	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective

20	Truth Campaign	United States	Canadian Cancer Society Manitoba Division: Evidence-informed interventions: effective tobacco use prevention interventions for youth	Effective

Protection

	Intervention	Location	Source	Rating
1	Media campaign to build support for a smoke-free bylaw in Ottawa	Ontario	PTCC	Recommended: 1/5
2	Breathing Space: community Partners for smoke-free homes	Ontario	PTCC	Recommended: 1/5
3	Smoke-free homes and asthma pilot sites: media campaigns	Ontario	PTCC	Promising: 5/7
4	Promotion campaign to support implementation of the smoke-free bylaw in Waterloo Region	Ontario	PTCC	Promising: 3/5
5	Bylaws and signage to encourage smoke-free playground and parks and smoker parts in	Ontario	PTCC	Promising: 3/5

	Simcoe County			
6	Education and enforcement strategy to support the Peterborough smoke-free spaces bylaw	Ontario	PTCC	Promising: 3/5
7	Clearing the Air in Workplaces: a resource binder	Ontario	PTCC	Promising: 5/7
8	Enhancing tobacco control policies in Northwest Indian Tribes	Washington and Oregon, United States	Canadian Best Practices Portal for Health Promotion and Chronic Disease Prevention	Quasi-experimental study design: 3.0 Dissemination capability 5.0 Cultural Appropriateness 4.0 Research Integrity 3.0 Intervention Impact

Cessation

No.	Intervention	Location	Source	Rating
1	Leave the pack behind	Ontario	PTCC	Recommended
2	Quit for Life	Canada	PTCC	Promising: 5/7
3	Quit Smoking Contest	Ontario	PTCC	Promising: 5/7
4	Smoking cessation and the GLBT community initiative: Stop dragging your butt facilitator's program guide	Ontario	PTCC	Promising: 5/7
5	Smoking Cessation for Lower Literacy Clients in Peterborough	Ontario	PTCC	Promising: 3/5
6	Smoking cessation for women, Francophones and other marginalized groups	Ontario	PTCC	Promising: 3/5

7	Health care facility-based tobacco cessation intervention: CHEST Confrontation, History, Education, Strategies and Treatment	Ontario	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Not rated
8	Health care facility-based tobacco cessation intervention: NRT, advice & education, cognitive behavioural therapy	Not described	Canadian Cancer Society Manitoba Division Knowledge Exchange Network: Effective Health care facility-based tobacco cessation interventions for adults	Experimental study design: Effective
9	Maternal smoking and infant birth weight trial (MSIB)	United States (large metropolitan area)	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective
10	Physician's counselling smokers program	Providence, Bristol, Kent, Newport and Washington counties in Rhode Island, United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Dissemination Capability: 3.5 Research Integrity: 4.5 Intervention Impact: 4.5
11	Quit & Win (Buffalo)	Buffalo, United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Effective

12	California Smokers' Helpline	California, United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Quasi-experimental study design: Effective
13	Not on Tobacco (NOT)	United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Quasi experimental study design: Smoking cessation 3.6 Smoking reduction: 3.5 Cost-effectiveness: 3.5 Readiness for dissemination: 2.2
14	American Indian Not on Tobacco Program (AI NOT)	West Virginia, United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Quasi-experimental study design: Not rated
15	Workplace tobacco cessation interventions: Incentives vs. No incentives	United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Quasi experimental study design: Effective
16	Workplace tobacco cessation interventions: Quit Smoking Program	United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Effective

17	Workplace tobacco cessation interventions: Tools for Health	United States	Canadian Cancer Society Manitoba Division Knowledge Exchange Network: Effective Health care facility-based tobacco cessation interventions for adults	Experimental study design: Effective
18	Exercise intervention: Commit to Quit	United States	Canadian Best Practice Portal for Health Promotion and Chronic Disease Prevention	Experimental study design: Research integrity: 4.5 Intervention impact for tobacco: 3.0 Intervention impact for physical activity: 3.5 Dissemination capability: 4.0
19	Wabano Centre for Aboriginal Health: Sacred Smoke	Ontario	Case study approach: lessons learned in Ontario: Aboriginal Tobacco Cessation (Cancer Care Ontario).	NA
20	Anishnawbe Mushkiki – Sema Kenjigewin Aboriginal Tobacco Misuse Program	Ontario	Case study approach: lessons learned in Ontario: Aboriginal Tobacco Cessation (Cancer Care Ontario)	NA