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Monitoring the Ontario Tobacco Strategy

SMOKING CESSATION IN ONTARIO 1998/1999

CURRENT TRENDS, INTERVENTIONS AND INITIATIVES

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Nicole de Guia, MHSc[1] and Linda Levesque, BScPhm, MSc (Candidate)[2]
William Pickett, PhD[2,3]
Roberta Ferrence, PhD[1,4]
Paul McDonald, PhD[1,5]

[1] Ontario Tobacco Research Unit, Centre for Health Promotion, University of Toronto
[2] Department of Community Health and Epidemiology, Queen's University
[3] Department of Emergency Medicine, Queen's University
[4] Centre for Addiction and Mental Health
[5] Department of Health Studies and Gerontology, University of Waterloo

Ontario Tobacco Research Unit

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EXECUTIVE SUMMARY

Introduction

Smoking is a leading cause of death and disability in Ontario today. It causes about 25 life-threatening diseases, including heart disease, stroke, lung cancer and respiratory disease. However, smokers who quit can significantly reduce their risk of developing these diseases. Many of these benefits happen immediately, while others take longer. Helping smokers quit also has significant fiscal and social benefits. This report presents current trends related to quitting in Ontario, up-to-date evidence on quitting interventions, and a listing of smoking cessation programs and resources available in Ontario. Our recommendations call on government, communities, health professionals, workplaces and families to effectively deal with smoking at a population level.

Smokers in Ontario *can*, and *do*, quit smoking…but more should be thinking about it and doing it

Although quitting smoking can be difficult, the good news is that half of Ontarians who have ever smoked and are still alive have already quit smoking (Fig. 3). Regrettably, nearly half of all remaining smokers aren't even thinking of quitting (Fig. 8). Only one third of current smokers in Ontario make a serious attempt to quit each year (Table 5).

Help is available to smokers in Ontario who want to quit…but help is hard to find without a systematic referral system

A significant number of government and non-government agencies offer programs to assist smokers to quit smoking (see Chapter 4 for a comprehensive list of resources and services with contact information). However, there are gaps in knowledge related to access, uptake, effectiveness, and cost-efficiency of these programs that make it difficult for smokers to get the help they need. There is no systematic referral system available in the province.

We need to let smokers know what works and how to get it

Businesses are well aware of the importance of marketing their services and products to the appropriate audience. However, the health community does not do the same for smoking cessation resources. Studies indicate that marketing campaigns can dramatically improve the utilization of cessation interventions, particularly if messages are worded and communicated differently for specific populations. Ontario should have a systematic and segmented marketing campaign to better inform smokers of the benefits of quitting and how to get assistance.

We should not ignore the positive impact of strong tobacco control policies on smoking cessation

Four in ten former smokers cite the cost of tobacco as one reason why they quit (Fig. 7). Six in ten current smokers cite others' smoking as one reason why they started smoking again after quitting (Fig. 9). Smoking prevalence is higher in environments where smokers are regularly exposed to others' smoking (Fig. 10). Public policies, such as smoking bans in public places and workplaces, as well as increases in tobacco taxes, may contribute significantly to smokers' chances of remaining smoke-free.

We can address each of the reasons given by smokers for their relapse

The most common reasons for relapse reported by current smokers are strong urges to smoke, others smoking around them, and stress (Fig. 9). Other reasons are drinking alcohol, lack of social support, irritability (a symptom of withdrawal), and weight gain. We are able to address each of these reasons. Properly designed behavioural interventions can help smokers to cope with urges to smoke, stress, and weight gain. Pharmacotherapies known to be effective, such as nicotine replacement therapy

and bupropion, can help smokers control their withdrawal symptoms. Public policies and greater public awareness, together with local mutual aid groups can provide the environmental and social support that smokers need and deserve.

Determining the best way to assist smokers to quit is not an easy task

Recommending ways to quit involves more than just implementing the effective strategies in Chapter 3. There are some important caveats. The cost-efficiency of each intervention should be considered. Smokers do not have an equal probability of success: some are more likely to succeed in some programs than others. Further, the body of knowledge on smoking cessation is sparse for some populations. For example, we are unaware of *any* single smoking cessation intervention that has been rigorously proven effective with young smokers. Lastly, we should broaden our definitions of success. Currently, measures of success are limited to dichotomous outcomes (success vs. failure) that do not capture other changes, such as an increase in learning or self-efficacy, that may eventually lead to behaviour change. Success could also be defined as a substantial reduction in smoking. A reduction in the number of cigarettes smoked in the population as a whole would lead to a net reduction in excess risk of smoking-related morbidity or mortality attributable to a given treatment. Program providers, policy analysts, consumers, health care professionals and others need to exercise caution when attempting to select the "best practices."

Recommendations

Helping smokers improve their chances of quitting and staying quit will require commitment, careful planning, co-ordination, and considerable effort on the part of government, communities, health care providers, workplaces, and families.

We offer the following recommendations to effectively deal with smoking at a population level:

1. Begin immediately to develop a comprehensive population-based smoking cessation strategy for the province of Ontario and incorporate it as part of the Ontario Tobacco Strategy.

2. Fund and implement services, policies, media campaigns and other interventions through the strategy that maximally reduce the expected smoking-related burden on health among current smokers.

3. Develop and implement the cessation strategy in co-operation with major stakeholders concerned with tobacco cessation, including the Ontario Ministry of Health and Long Term Care, voluntary agencies, independent health practitioners, business, and researchers.

4. To ensure continuity and coordination, the Ministry of Health and Long Term Care should play an active role in formulating policy and providing services though the Health Promotion Branch, the Public Health Branch, local health departments, etc.

5. Base the strategy on the latest scientific, clinical, and economic evidence and subject it to continuous evaluation. Interventions should include, at a minimum:

    - Training physicians, nurse practitioners, pharmacists, dentists and other health professionals to provide brief interventions for smoking cessation in accordance with the latest practice guidelines;

    - A province wide toll-free telephone helpline that smokers, health professionals and others can call to receive information on available cessation services, request suitable self-help materials, and receive either pro-active or reactive advice/support;

    - A request that the federal government require tobacco manufacturers to print the toll-free cessation helpline number

on every tobacco package distributed in Ontario;

- An extensive media campaign to inform smokers of the benefits of quitting as well as how to seek assistance to quit;
- Cessation support groups in every major community in Ontario;
- A network of clinics where smokers who meet certain criteria can receive free one-on-one or group counselling from a qualified professional counsellor;
- Specialized cessation interventions in every hospital and cancer treatment centre in the province;
- Financial support to help low-income individuals purchase a limited supply of approved pharmacological smoking cessation aids;
- Training and materials for workplaces willing to sponsor a cessation program.

Three key regulatory interventions could also substantially impact cessation and relapse:

- A substantial increase in tobacco taxes to ensure prices are at least as high as those of surrounding provinces and states;
- A province-wide ban on smoking in all indoor workplaces and public places;
- A request that the Federal Government strictly regulate the amount of nicotine in tobacco products.

6. Provide support and infrastructure to (1) identify and disseminate best practices in tobacco cessation, (2) develop and evaluate new or promising evidence-based interventions, and (3) stimulate research for smoking cessation.
7. Continuously monitor/evaluate each component of the strategy, as well as its overall impact.
8. Based on the work of the United States Centers for Disease Control and Prevention as well as the experience of other jurisdictions, provide annual funding through the Ontario Ministry of Health (exclusive of physician billings to OHIP) to implement the cessation strategy in the amount of:
    - $4 per smoker to advise smokers about the benefits of quitting, promote the availability of smoking cessation services, establish a telephone helpline, and provide written and internet-based self-help materials;
    - $2 per smoker to train health care professionals, provide them with resources and encourage them to provide brief counselling as appropriate;
    - $6 per smoker to establish a comprehensive network of support groups, support worksites, and cessation clinics across the province;
    - $2 per smoker to supplement the cost of pharmacological treatments for low-income smokers and the provision of pharmacological treatments through clinics.
    - $0.50 per smoker to support policy development and administration of the cessation strategy;
    - $ 1.50 per smoker to support the identification of best practices for tobacco cessation, monitor progress towards the cessation strategy's objectives, and stimulate basic and applied research to improve the effectiveness, efficiency, accessibility and acceptability of smoking cessation interventions.

It is noteworthy that the total cost of financing these recommendations is $32 million per year. This is less than 7 per cent of the annual revenue generated by provincial tobacco taxes.

The good news is that people want to quit and many already have. Effective interventions do exist. We simply need a comprehensive and co-ordinated approach to deal with this complex and urgent problem.

CHAPTER 1. INTRODUCTION

Smoking is a leading cause of death and disability in Ontario today (Chief Medical Officer of Health, 1996). It has been shown to cause about 25 life-threatening diseases, including heart disease, stroke, lung cancer and respiratory disease (USDHHS, 1989). However, smokers who quit can significantly reduce their risk of developing these diseases (USDHHS, 1990). Smokers who quit before their early thirties avoid almost all of the excess risk of premature death from smoking (USDHHS, 1990). Quitting smoking prolongs life even among smokers over age 60 (USDHHS, 1990).

Some of the health benefits of quitting begin almost immediately. For example, the chances of having a heart attack begin to decrease after just one day of abstinence (USDHHS, 1990). After one year of remaining smoke-free, the excess risk of having a heart attack is cut in half, relative to those who continue to smoke (USDHHS, 1990). After 15 years of abstinence, the risk of heart disease is the same as that of someone who has never smoked (USDHHS, 1990). These are highly compelling reasons to quit smoking.

Helping smokers quit also has societal benefits. Smoking cessation interventions are among the most cost-effective medical treatments (Tengs, Adams, Pliskin et al., 1995). Studies indicate that it can cost as little as $260 for each life year saved (Buck, 1997). In contrast, drugs that treat high cholesterol cost more than $30,000 per life year saved (Tengs, Adams, Pliskin et al., 1995). Quitting smoking can improve workplace productivity as well as reduce insurance and maintenance costs. Whenever someone quits smoking, many people benefit. In sum, the potential for relieving future suffering by helping smokers quit is enormous.

The purposes of this report are to: present current trends in quitting smoking in Ontario using recent survey data (Chapter 2); provide up-to-date scientific evidence on the efficacy of various quitting interventions (Chapter 3); and provide a listing of smoking cessation programs and resources available in Ontario (Chapter 4). Chapter 5 presents conclusions and recommendations that call on government, communities, health professionals, workplaces and families to effectively deal with smoking at a population level.

CHAPTER 2. CURRENT TRENDS IN QUITTING SMOKING

This chapter presents current trends in quitting smoking in Ontario using a variety of indicators based on recent survey data. Since the data shown are descriptive, cause-and-effect relationships cannot be inferred. Most of the data are based on surveys of Ontario adults (age 18+), although some data on Ontario youth are also presented.

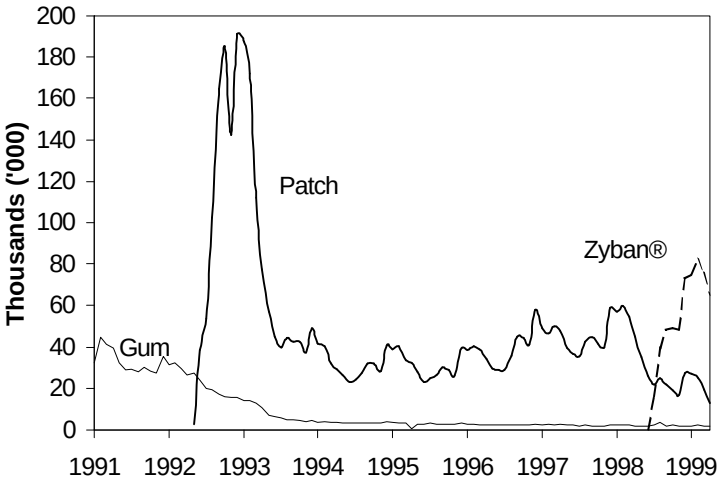
Methods

Indicators for this chapter were chosen on the basis of their relevance, importance, and the availability and recency of survey data. Definitions of the indicators used and a brief discussion of their limitations are presented in Appendix A, as are descriptions of the data sources.

2.1 Prescriptions and Sales of Nicotine Gum, Nicotine Patch, and Bupropion Hydrochloride

- Nicotine gum, the nicotine patch, and bupropion hydrochloride [Zyban®] are the only government-approved stop-smoking medications in Canada.
- The dramatic peaks in prescriptions for the patch in 1993 and Zyban® in 1999 are due to typical high demand when a new product is introduced into the marketplace.
- These prescription trends are difficult to interpret because Health Canada recommended switching all NRT products to non-prescription (2mg gum in 1993, 4mg gum in 1997, and the patch in 1998). Ontario was the last province to make the switch in April 1999.

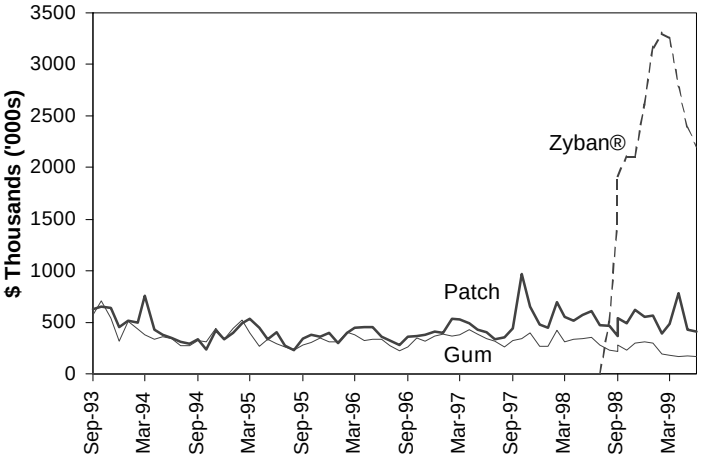
Fig. 1: Monthly Prescriptions for Nicotine Patch, Gum and Bupropion Hydrochloride [Zyban®], Canada 1991-1999



Source: IMS Databases

- Sales of the nicotine patch across Canada show a slight increase from 1993-1999, but nicotine gum sales have declined.
- Sales of the nicotine patch and gum combined across Canada have fluctuated between $500,000 and $1M per month from 1993-1999.
- As with the patch, there was a peak in monthly sales of Zyban® ($4M in February 1999) following its introduction in 1998. Until sales of Zyban® stabilize, trends cannot be established.

Fig. 2: Monthly Sales of Zyban®, Nicotine Gum and Nicotine Patch, Canada 1993-1999



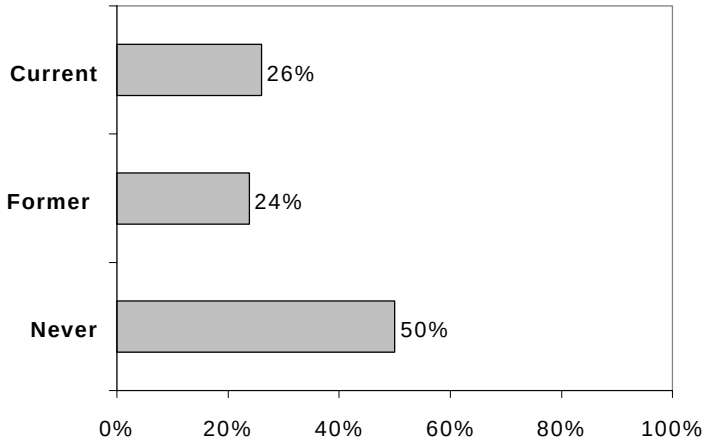
Source: IMS Databases

2.2 Behaviours and Attitudes of Smokers Who Have Quit

2.2.1 Smoking Status (% Former Smokers)

- Based on 1998 data, about one-quarter (24%) of Ontario adults are former smokers. About the same proportion (26%) are current smokers.
- Therefore, half of the Ontario adult population are ever smokers (ever smoker = current + former). This indicator is used to calculate the quit ratio (see Section 2.2.3).
- There has been no significant change in the percent of former smokers or ever smokers since 1996.

Fig. 3: Smoking Status (% Former Smokers)
Age 18+, Ontario 1998



Source: Ontario Drug Monitor 1998, CAMH

Table 1: Smoking Status by Sex and Age, Age 18+, Ontario 1998

	Current Smoker % *(95% CI)*	Former Smoker % *(95% CI)*	Never Smoker % *(95% CI)*
TOTAL (N=2509)	**25.9** ***(24.0-27.9)***	**23.8** ***(22.0-25.7)***	**50.3** ***(48.1-52.6)***
Sex* **			
Females (n=1421)	23.8 *(21.4-26.3)*	21.2 *(18.9-23.6)*	55.0 *(52.1-57.9)*
Males (n=1088)	28.2 *(25.2-31.4)*	26.6 *(23.9-29.6)*	45.2 *(41.8-48.5)*
Age* **			
18-34 (n=707)	33.1 *(29.3-37.2)*	11.6 *(9.2-14.5)*	55.3 *(51.1-59.4)*
35-54 (n=1072)	26.7 *(23.9-29.7)*	24.8 *(22.0-27.8)*	48.5 *(45.1-51.9)*
55+ (n=649)	16.8 *(13.7-20.3)*	37.6 *(33.5-41.8)*	45.7 *(41.4-50.1)*

Notes: ***p<.001 for Pearson's Chi-Square Test

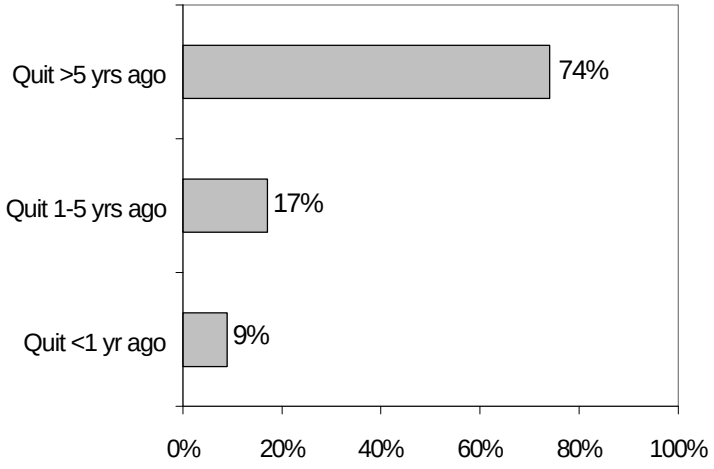
Source: Ontario Drug Monitor 1998, CAMH

- Table 1 shows smoking status analyzed by sex and age.
- Significantly more males than females are former smokers (27% vs 21%) and ever smokers (55% vs 45%).
- Quitting smoking increases with age. Only 12% of persons aged 18-34 are former smokers, compared to 38% of those aged 55+. Note, however, that more persons in the age 55+ group are ever smokers compared to those in the age 18-34 group (54% vs 45%). Of course, older smokers have had more opportunity to quit and become a former smoker compared to those in the younger age groups.

2.2.2 Former Smokers by Time of Quitting

- Almost three-quarters (74%) of former smokers quit >5 years ago. Only 9% quit in the past year.
- Since 1996, there have been no significant changes in these quit rates.

Fig. 4: Former Smokers by Time of Quitting, Age 18+, Ontario 1998



Source: Ontario Drug Monitor 1998, CAMH

Table 2: Former Smokers by Time of Quitting, by Sex and Age, Age 18+, Ontario 1998

	Quit <1 Year Ago % *(95% CI)*	Quit 1-5 Years Ago % *(95% CI)*	Quit >5 Years Ago % *(95% CI)*
TOTAL (N=638)	**8.9** ***(6.7-11.8)***	**17.1** ***(14.0-20.8)***	**74.0** ***(69.9-77.6)***
Sex			
Females (n=319)	7.6 *(5.0-11.4)*	19.6 *(15.1-25.0)*	72.8 *(67.0-77.9)*
Males (n=319)	10.1 *(6.8-14.6)*	15.0 *(10.9-20.2)*	75.0 *(69.0-80.1)*
Age* **			
18-34 (n=93)	28.6 *(19.1-40.3)*	42.6 *(31.3-54.7)*	28.9 *(19.8-40.0)*
35-54 (n=269)	6.6 *(4.0-10.6)*	15.9 *(11.6-21.3)*	77.6 *(71.6-82.6)*
55+ (n=255)	2.6 *(1.2-5.7)*	9.1 *(5.9-13.8)*	88.3 *(83.3-92.0)*

Notes: ***p<.001 for Pearson's Chi-Square Test

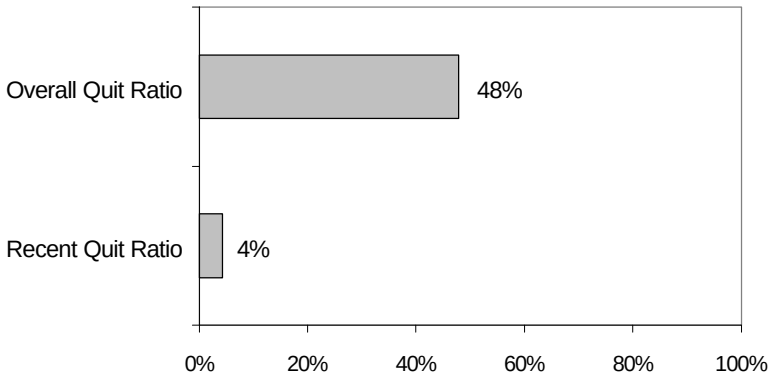
Source: Ontario Drug Monitor 1998, CAMH

- Table 2 shows former smokers by time of quitting analyzed by sex and age.
- Former smokers by time of quitting did not differ by sex.
- There were significant differences by age. Most former smokers in the youngest age group quit <5 years ago, whereas most former smokers in the older age groups quit >5 years ago. Younger smokers were more likely to have quit in the past year.

2.2.3 Overall and Recent Quit Ratios

- The overall quit ratio is the ratio of former to ever smokers. The recent quit ratio is defined here as the ratio of former smokers who quit <1 year ago to ever smokers.
- The overall quit ratio for 1998 is 48%; that is, almost half of ever smokers have quit.
- The recent quit ratio is 4%; that is, only 4% of ever smokers quit smoking within the past year.
- There has been no significant change in the overall and recent quit ratios since 1996.

Fig. 5: Overall and Recent Quit Ratios, Age 18+, Ontario 1998



Overall quit ratio=ratio of former to ever smokers
Recent quit ratio=ratio of former smokers who quit <1 year ago to ever smokers
Ever smokers=current + former smokers
Source: Ontario Drug Monitor 1998, CAMH

Table 3: Overall and Recent Quit Ratios, Age 18+, Ontario 1998

	Overall Quit Ratio (Former/Ever) % *(95% CI)*	Recent Quit Ratio (Former Who Quit <1 Yr Ago/Ever) % *(95% CI)*
TOTAL (N=1318)	**47.9** ***(44.8-51.0)***	**4.3** ***(3.2-5.7)***
Sex		
Females (n=694)	47.1 *(42.9-51.3)*	3.6 (*2.4-5.4)*
Males (n=624)	48.6 *(44.1-53.0)*	4.9 *(3.3-7.2)*
Age	*******	*******
18-34 (n=330)	26.0 *(21.0-31.7)*	7.4 *(4.8-11.3)*
35-54 (n=585)	48.2 *(43.6-52.7)*	3.2 *(1.9-5.2)*
55+ (n=367)	69.2 *(63.5-74.3)*	1.8 *(0.8-4.0)*

Notes: ***p<.001 for Pearson's Chi-Square Test

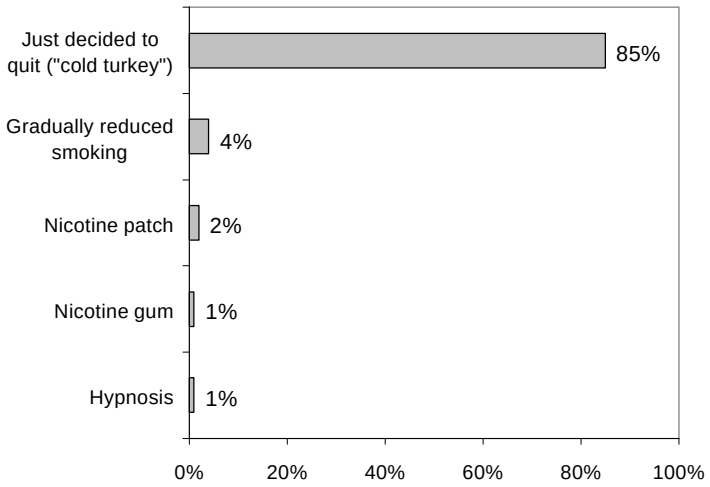
Source: Ontario Drug Monitor 1998, CAMH

- Table 3 shows overall and recent quit ratios, analyzed by sex and age.
- Overall quit ratios differed significantly by age, but not by sex. Quit ratios were higher among persons in the older age groups compared to those in the younger age groups.
- Recent quit ratios also differed significantly by age and not by sex. Trends for recent quit ratios, however, were opposite to those of overall quit ratios. Those in the youngest age group were more likely to be recent quitters.
- Overall quit ratios were further analyzed by various socio-economic variables. Some significant differences became apparent, but these largely occurred on variables highly correlated to age. The quit ratio was significantly lower among never married compared to ever married persons. It was lowest among part-time workers and students, higher among full-time workers, and highest among those not currently employed. The overall quit ratio did not significantly differ by highest education level or household income.

2.2.4 Former Smokers' Method of Quitting

- In 1996, most former smokers in Ontario (85%) reported quitting "cold turkey" (decided to quit and just did it). No other single method was reported by more than 5% of former smokers.
- Former smokers who did not report quitting "cold turkey" did not differ by age or sex.
- The vast majority of former smokers also reported quitting "cold turkey" in 1983 and 1991 (Pederson et al., 1996).
- In 1996, 12% of former smokers reported *ever* using the nicotine gum, and 4% reported *ever* using the nicotine patch.

Fig. 6: Former Smokers' Method of Quitting, Age 18+, Ontario 1996

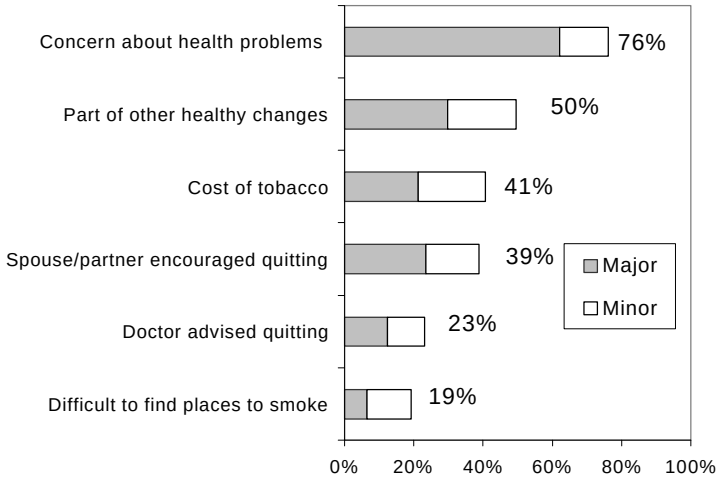


Source: Ashley et al., 1997; Qualitative and Quantitative Study 1996, Ontario Tobacco Research Unit

2.2.5 Former Smokers' Reasons for Quitting

- In 1996, former smokers in Ontario were asked whether each of several possible reasons was a major or minor reason why they quit smoking.
- Health was one of the primary reasons (either major or minor) for quitting among former smokers.
- A substantial proportion of former smokers were also responsive to the cost of tobacco and encouragement from a spouse/partner.
- These findings are similar to those found in a previous survey in 1991 (Pederson et al., 1996).

Fig. 7: Former Smokers' Reasons for Quitting, Age 18+, Ontario 1996



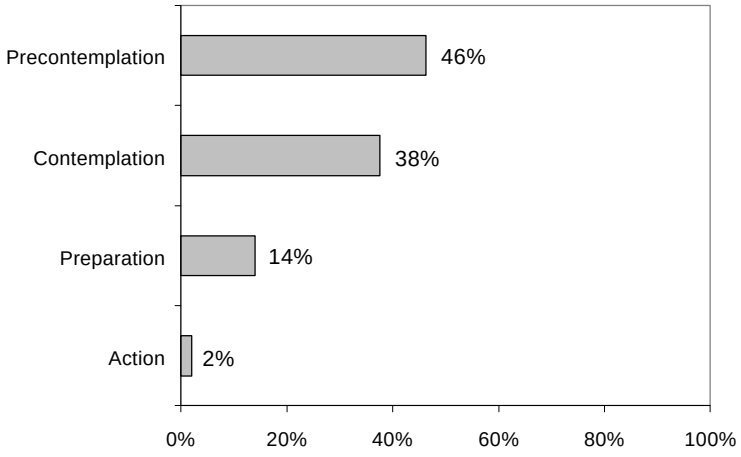
Source: Qualitative and Quantitative Study 1996, Ontario Tobacco Research Unit

2.3 Quitting Plans and Activities Among Current Smokers

2.3.1 Current Smokers by Stage of Change

- Current smokers may go through stages of change in the process of stopping smoking (see Appendix A) (Prochaska et al., 1993).
- Almost half (46%) of current smokers do not intend to quit smoking in the forseeable future (next 6 months), almost 40% are seriously thinking of quitting in the next 6 months, and 14% intend to quit within the next month.
- Since 1996, there have been no significant changes in the proportions of current smokers in each stage of change.

Fig. 8: Current Smokers by Stage of Change, Age 18+, Ontario 1998



Source: Ontario Drug Monitor 1998, CAMH

Table 4: Classification of Current Smokers by Stage of Change, by Sex and Age, Age 18+, Ontario 1998

	Precontemplation % *(95% CI)*	Contemplation % *(95% CI)*	Preparation % *(95% CI)*	Action % *(95% CI)*
TOTAL (N=680)	**46.3** ***(42.0-50.7)***	**37.6** ***(33.4-42.0)***	**14.0** ***(11.2-17.5)***	**2.0** ***(1.1-3.6)***
Sex				
Females (n=375)	48.8 *(43.1-54.6)*	35.9 *(30.6-41.7)*	13.4 *(10.0-17.8)*	1.8 *(0.8-4.3)*
Males (n=305)	44.0 *(37.7-50.5)*	39.2 *(32.9-45.8)*	14.6 *(10.4-20.2)*	2.2 *(1.0-4.8)*
Age				
18-34 (n=237)	43.2 *(36.2-50.5)*	36.8 *(29.9-44.3)*	16.5 *(11.5-23.1)*	3.5 *(1.7-7.3)*
35-54 (n=316)	48.7 *(42.4-55.0)*	36.4 *(30.5-42.8)*	14.0 *(10.3-18.8)*	0.8 *(0.3-2.6)*
55+ (n=112)	48.1 *(37.5-58.8)*	40.7† *(30.5-51.7)*	9.7 *(4.7-19.0)*	1.6 *(0.4-5.5)*

Source: Ontario Drug Monitor 1998, CAMH

- Table 4 shows the current smokers by stage of change, analyzed by sex and age.
- The proportions of current smokers in each of these stages of change did not differ by sex or age.

2.3.2 Current Smokers Who Made at Least One Attempt to Quit in Past 12 Months

- Table 5 shows the percent of current smokers who made a serious attempt to quit smoking in the past 12 months by sex and age.
- Only one-third of current smokers (35%) made at least one attempt to quit. These smokers made 3 quit attempts, on average, over the past 12 months.
- The presence of a quit attempt did not differ significantly by sex, age, marital status, highest educational level, household income, or employment status.
- Since 1996, there has been no significant change in the proportion of current smokers who made one or more quit attempts in the past 12 months.

Table 5: Quit Attempt Made in Past 12 Months, by Sex and Age, Current Smokers, Age 18+, Ontario 1998

	% Who Made a Quit Attempt	*(95% CI)*
TOTAL (N=656)	**34.7**	***(30.5-39.2)***
Sex		
Females (n=292)	35.3	*(29.9-41.2)*
Males (n=364)	34.2	*(28.0-41.0)*
Age		
18-34 (n=227)	39.7	*(32.4-47.4)*
35-54 (n=309)	32.4	*(26.7-38.7)*
55+ (n=106)	31.7	*(22.2-43.1)*

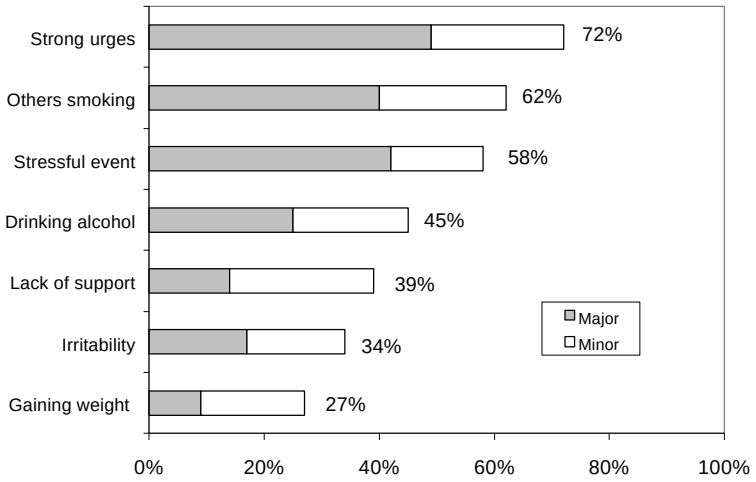
Source: Ontario Drug Monitor 1998, CAMH

2.4 Challenges to Quitting

2.4.1 Current Smokers' Reasons for Relapse

- In 1996, current smokers were asked whether each of several possible reasons was a major or minor reason why they started to smoke again after their last quit attempt.
- Strong urges (cravings) to smoke were the most frequently cited reason, reported by almost three-quarters of current smokers who had a relapse experience.
- About 60% reported they started smoking again because of a stressful event, or because people around them were smoking.
- Almost half said that alcohol was a factor in their relapse.

Fig. 9: Current Smokers' Reasons for Relapse, Age 18+, Ontario 1996



Source: Qualitative and Quantitative Study 1996, Ontario Tobacco Research Unit

2.4.2 Daily Smokers by Heaviness of Smoking Index

- Table 6 shows daily smokers analyzed by Heaviness of Smoking Index (HSI), which ranges in value from 0-6. HSI is a marker for the level of dependence among daily smokers. Daily smokers comprise 81% of all current smokers.
- Over half (56%) of daily smokers are moderately or highly dependent (HSI scores >2). The 12% who are highly dependent (HSI >4) are "hard-core" smokers, a typically hard-to-reach population for cessation efforts. Higher dependence may indicate more difficulty in quitting.
- Male daily smokers appear to be more dependent that female daily smokers. Over 60% of male daily smokers are moderately or highly dependent, compared to half of female daily smokers.
- Older daily smokers appear to be more dependent than younger daily smokers. A strong majority of smokers in the 35-54 and 55+ age groups (61% and 73%, respectively) are moderately or highly dependent according to this index, compared to less than half (46%) of those aged 18-34.

Table 6: Heaviness of Smoking Index, Daily Smokers, Age 18+, Ontario 1997/1998 (pooled)

	0-2 % *(95% CI)*	3-4 % *(95% CI)*	5-6 % *(95% CI)*
TOTAL (N=1202)	**43.6** ***(40.4-46.9)***	**44.0** ***(40.7-47.3)***	**12.4** ***(10.5-14.6)***
Sex* **			
Females (n=619)	50.9 *(46.4-55.4)*	40.3 *(35.9-44.7)*	8.9 *(6.8-11.4)*
Males (n=583)	37.2 *(32.7-42.0)*	47.3 *(42.6-52.1)*	15.5 *(12.6-19.0)*
Age* **			
18-34 (n=424)	35.8 *(48.2-59.2)*	38.1 *(32.9-43.5)*	8.2 *(5.6-11.8)*
35-54 (n=570)	39.1 *(34.5-43.8)*	46.5 *(41.8-51.2)*	14.4 *(11.7-17.7)*
55+ (n=185)	27.3 *(20.8-34.9)*	53.8 *(45.5-61.8)*	19.0 *(13.5-26.0)*

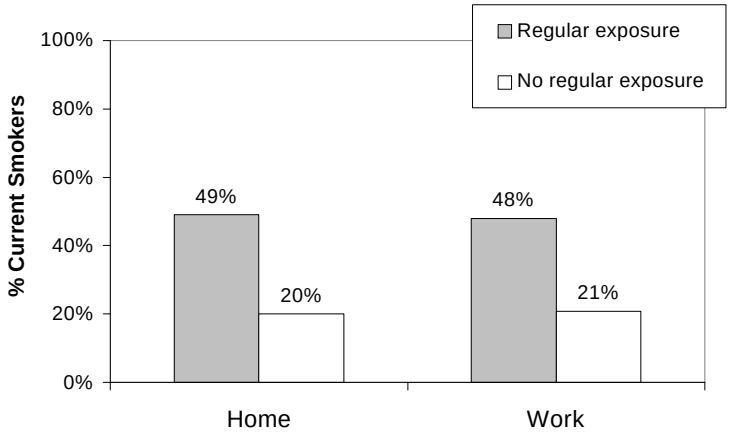
Notes: ***p<.001 for Pearson's Chi-Square Test

Source: Ontario Drug Monitor 1997/1998 (pooled), CAMH

2.4.3 Exposure to Others' Smoking at Home and at Work

- The rate of current smoking is significantly higher among individuals who report regular exposure to others' smoking at home or work compared to those who report non-regular or no exposure in these sites (49% vs 20%, and 48% vs 21%, respectively).
- Current smokers have reported others' smoking as one of their top reasons for relapse.

Fig. 10: Current Smoking by Regular Exposure to Others' Smoking, by Site, Age 18+, Ontario 1998



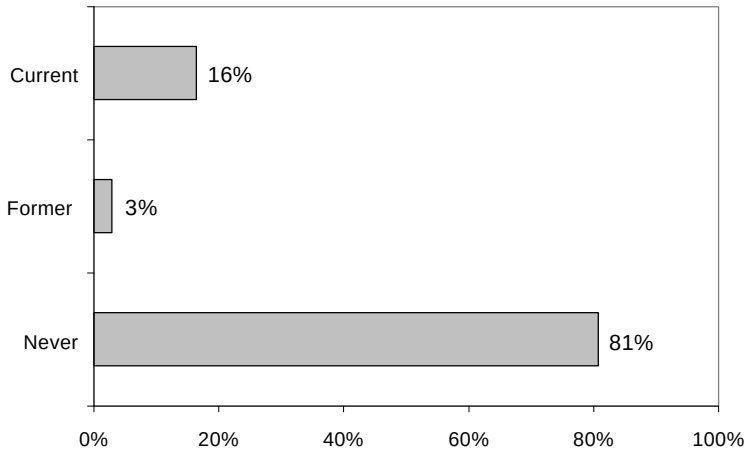
Source: Ontario Drug Monitor 1998, CAMH

2.5 Quitting Among Youth

2.5.1 Smoking Status (% Former Smokers)

- Among Ontario youth, 3% are considered former smokers, 16% current smokers, and 81% never smokers.
- The proportion of former smokers in each grade is less than 6%.
- Estimating the percent of youth who have quit is a very challenging task because standard definitions of youth smoking have not been established. Estimates presented are based on definitions for adult smoking and are very conservative (see Appendix A for more detail).

Fig. 11: Smoking Status, Grades 7-13 Students, Ontario 1999



Source: Ontario Student Drug Use Survey 1999, CAMH

2.5.2 Quit Attempts

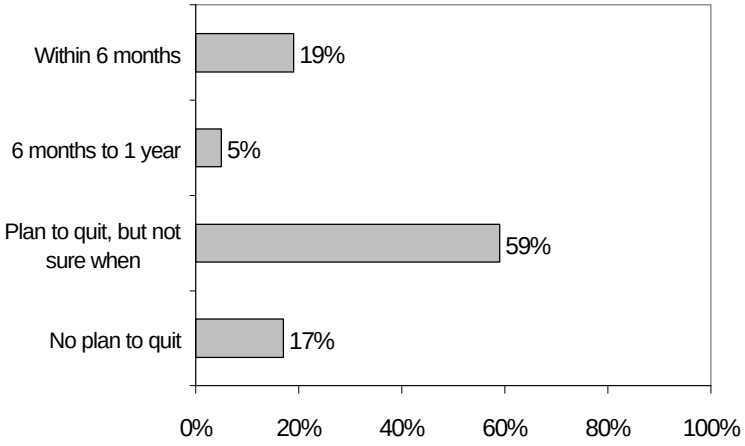
- In Ontario, 68% of youth smokers tried to quit smoking in the past 12 months. This finding did not differ by sex or age group.
- When an attempt was made, the mean number of quit attempts was 3.2. This did not differ by sex or age group.
- 63% said they could not stay off cigarettes for more than one week during the last time they tried to quit.

Source: Ontario Student Drug Use Survey 1999, CAMH

2.5.3 Plans to Quit

- Based on data from Southwestern Ontario, 19% of young smokers said they planned to quit within the next 6 months; an additional 5% in 6 months to one year; 59% had not decided when they would quit, and 17% had no plans at all to quit.
- Just over 10% of smokers plan to quit within the next 30 days.
- Findings are very similar, even when a smoker is defined more loosely (e.g., >1 cigarette in the past year).

Fig. 12: Youth Smokers' Plans to Quit, Grades 9-13, Southwestern Ontario 1999



Source: Health Behaviour Research Group, University of Waterloo (WSPP4)

CHAPTER 3. ASSESSMENT OF METHODS OF CESSATION

It is estimated that just over 6 million Canadians, or 25% of the population over the age of 15, smoke (Health Canada, 2000). Although the majority of them smoke daily, survey data show that 46% of smokers want to quit smoking in the next 6 months (Health Canada, 1995). Similar findings were presented in Chapter 2, where a slight majority (54%) of smokers in Ontario report thinking of quitting smoking or actively trying to quit (Section 2.3.1). It is therefore important to identify the method of cessation that may best help smokers quit.

This chapter provides current scientific evidence on the efficacy of various cessation methods. The main findings are summarized in Section 3.1. The evidence presented in this chapter can contribute to determining the best method of quitting for smokers. A discussion of the caveats in interpreting this chapter is presented in Chapter 5.

Methods

The information presented has been abstracted primarily from the Cochrane Database of Systematic Reviews published by the Cochrane Collaboration (see Appendix B for more detail on this data source) using the search term "smoking cessation." In some cases, additional literature is also presented, based on a search using MEDLINE (1995-1998). The Cochrane Database has been used as the primary source of information because it uses a rigorous and systematic process for reviewing the literature, including independent data extraction, strict inclusion and exclusion criteria for study selection, and an attempt to include unpublished studies. In addition, the information is kept current through regular updates and amendments.

Results are presented primarily in the form of pooled odds ratios (OR) which represent the odds of quitting for one intervention compared to another, calculated on the basis of several studies. When available from the literature, the corresponding quit rates are also provided. Definitions of important terms used in this chapter are listed in Appendix B.

3.1 Summary of the Evidence

Group programs and individual counselling are highly effective in achieving sustained abstinence for those willing to participate in such programs. Both of these approaches appear, by indirect comparison, to be more effective than untailored self-help programs. There is insufficient evidence to determine whether group programs are more effective than individual counselling at the level of the individual smoker. However, given the very low uptake rates for group programs, the overall impact of this intervention on the smoking population is small. Methods to increase participation in such programs need to be developed, evaluated and implemented in order to increase the efficiency of group programs as public health interventions.

In selected patients (especially those with established disease), brief advice provided by a physician plus one follow-up visit can increase the odds of quitting. Increasing the number of follow-up visits or the intensity of the advice also positively impacts upon long-term cessation.

Of the pharmacological agents available for smoking cessation, nicotine replacement therapy (NRT) has been the most extensively studied. There is strong evidence that all forms of NRT are significantly more effective than placebo or no nicotine replacement at achieving long-term abstinence. NRT consistently increases the rates of successful cessation by a factor of 1.72, on average (quit rate of 16.5% versus 10.2% for placebo). Although this strategy is effective regardless of the intensity or duration of additional support provided, it is recommended that some form of brief advice be provided, similar to that provided in randomized controlled trials. No one form of NRT has been shown to be superior to the others; however, the 2mg strength gum (as compared to 4mg) may be insufficient for highly addicted smokers.

NRT's excellent safety profile has led to recent discussions in research and clinical circles in Canada regarding broadening its therapeutic potential (Ontario Medical Association, 1999; Reid et al., 1999). Areas of discussion include the use of NRT by pregnant women, by youth, or as part of a harm reduction approach.

Bupropion SR is an antidepressant that, on the basis of two published trials, appears to be at least as effective as transdermal nicotine. One of these studies reported higher rates of sustained abstinence with bupropion than with transdermal nicotine. Additional studies are needed in order to determine if bupropion is consistently more effective than the nicotine patch; currently, the weight of the evidence favours NRT, as NRT has been more extensively studied. Patients demonstrating a readiness to quit should routinely be offered NRT. The choice of a dosage form should be based largely on the smoker's preference. Tolerability and cost should also be considered. Bupropion SR is a reasonable alternative to the use of NRT, although there is a need for further study in a range of populations to substantiate this finding.

Clonidine and mecamylamine are two other pharmacological agents that hold promise but require further study. Strategies that should currently not be recommended as treatment for cessation, because of insufficient evidence of an effect, include the use of antidepressants (other than bupropion), lobeline, acupuncture and hypnotherapy.

3.2 Behavioural Interventions

3.2.1 Group Programs

Intervention

Group behaviour therapy is defined as smoking cessation programs in which groups of smokers learn behavioural techniques for quitting and benefit from the (mutual) support of other group participants. Such programs usually include (a) setting a specific quit date, (b) learning to control the conditioned responses that result in smoking, (c) making plans for coping with urges to smoke following cessation, and (d) providing follow-up contact and social support for quitting and continued abstinence. Group programs can vary considerably in their content and/or intensity, the setting in which they are offered, and whether or not pharmacotherapeutic interventions are offered. For example, group programs studied in the literature ranged from 3 to 16 sessions delivered over a 2- to 52-week period. Program duration varied from 4.5 to 18 hours (total), and a number of different behavioural strategies were applied in these programs.

Types of Studies

- Only the results of randomized controlled trials were considered.
- Trials included had a minimum of 2 group meetings; smoking status was determined at least 6 months after the start of the program.
- Nineteen trials directly comparing a group program with another cessation method, or a control group, met the inclusion criteria of the systematic review.
- The most common reasons for excluding a study were lack of an appropriate control group, inadequate length of follow-up, incomplete or invalidated data on abstinence, and the use of group therapy as an adjunct to another cessation intervention.
- The majority of study participants were community volunteers. The remainder were recruited from primary care settings and employee work sites.

Outcome Measurement

- Rates of self-reported abstinence assessed at 6 months or more from the start of treatment.
- Biochemical validation of smoking status was used in the majority of studies.
- Results presented are based on rates of either sustained or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were assumed to be continuing smokers.

Summary of Evidence

- Group programs are more effective than minimal- or no-contact interventions (OR 1.91, 95% CI 1.20-3.04).
- Group programs using behaviour counselling are consistently more effective than self-help programs using either the same or different cessation materials (OR 2.10, 95% CI 1.64-2.70).
- Individual counselling appears to be at least as effective as group therapy with a non-significant trend favouring individual treatment (OR 0.83, 95% CI 0.69-1.35).
- There is no evidence that the effectiveness of group programs is affected by the extent of

interaction between participants (N = 3 studies).

- There is an insufficient number of studies to permit the identification of components of group therapy that might contribute most to the increased quit rates associated with this intervention.
- Uptake rates for such programs are generally low and appear to be somewhat dependent on the method of recruitment and randomization.

Implications for Practice

There is reasonable evidence that group therapy is an effective intervention for increasing the odds of quitting among those willing to attend such programs. Unfortunately, rates of uptake for group programs are generally low. From a public health perspective, group programs, although effective, may have limited ability to reach a large number of smokers.

Key Reference

Stead LF, Lancaster T. Group behaviour therapy programmes for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.2.2 Individual Counselling

Intervention

Individual behavioural counselling is defined as face-to-face encounters delivered by a smoking cessation counsellor. "Counselling" is defined primarily by the amount of contact time between the smoker and counsellor, rather than by the use of any specific behavioural approach. For the purposes of the results presented in this section, individual behavioural counselling was limited to that involving more than ten minutes of face-to-face contact, with or without the provision of self-help materials. These interventions typically include a review of smoking history, an individual's motivation to quit, and assistance with the resolution of high-risk situations. Additional materials such as pamphlets, video or audiotapes can also be provided.

The information presented in this section excludes counselling provided by physicians (discussed in Section 3.2.4).

Outcome Measurement

- Rates of self-reported abstinence assessed at 6 months or more after the start of treatment.
- Biochemical validation of smoking status was carried out in most studies examined. Only three studies based their results solely on self-reported abstinence.
- Results presented are based on rates of either sustained or two-point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.

Types of Studies

- Only the results of randomized and quasi-randomized controlled trials were considered.
- Trials included had at least one treatment arm consisting of face-to-face encounters with a counsellor.
- Eleven trials met the above inclusion criteria. Five of these used only a single session; however, most included telephone follow-up as well.
- The majority of study participants were hospitalized patients or outpatients.

Summary of Evidence

- There is good evidence that individual counselling is more effective than control (i.e. no counselling/usual care or minimal contact) in achieving long-term abstinence (OR 1.55, 95% CI 1.27-1.90).
- There is no evidence of a difference in effect between individual counselling and group therapy (OR 1.33, 95% CI 0.83-2.13) although there is a trend in favour of individual counselling.
- There is currently no evidence that more intensive counselling is more effective than brief counselling (OR 1.17, 95% CI 0.59-2.34), although the wide confidence interval does not exclude the possibility that this relationship exists.

Implications for Practice

Structured individual counselling should be offered to smokers who are motivated to quit. This intervention does not need to be intensive. Because of this, individual counselling may be an efficient method for assisting smokers quit.

Key Reference

Lancaster T, Stead LF. Individual behavioural counselling for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.2.3 Self-Help Programs

Intervention

A self-help intervention is defined as any structured manual or program aimed at an individual smoker trying to quit without intensive contact with a health professional, counsellor or support group. Self-help interventions usually take the form of printed materials but may also include video or audiotapes, computer programs and telephone hotlines. The goal of self-help programs is to utilize some of the benefits of intensive behavioural counselling without the need to attend treatment sessions.

Outcome Measurement

- Rates of self-reported abstinence assessed at 6 months or more from the start of treatment.
- Biochemical validation of smoking status was used in only 17 of 45 studies identified.
- Results presented are based on rates of either sustained or two-point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size. However, over half of the studies used point prevalence abstinence as the primary outcome measure.
- Subjects lost to follow-up were assumed to be continuing smokers.

Types of Studies

- Only the results of randomized controlled trials were considered.
- Forty-one trials met the inclusion criteria of the systematic review.
- The most common reason for excluding a study was inadequate length of follow-up. Other reasons included intervention with significant contact or intervention that did not meet the review definition.

Summary of Evidence

- When compared to a no-intervention control, the effectiveness of self-help programs was modest although it achieved statistical significance (OR 1.29, 95% CI 1.02-1.63).
- There is no significant effect of self-help materials when given with brief face-to-face contact (OR 1.19, 95% CI 0.96-1.49).
- The addition of telephone follow-up counselling to the delivery of self-help programs appears to significantly increase the odds of quitting (OR 1.62, 95% CI 1.33-1.97).
- There is no evidence of a significant effect when self-help materials are targeted at broadly-defined populations of smokers such as women with young children or older smokers (OR 1.17, 95% CI 0.73-1.88).
- Self-help materials that are personalized to the needs of individual smokers (targeted or tailored) are more effective than standard self-help materials (OR 1.51, 95% CI 1.13-2.02).

Implications for Practice

Because of their ease of distribution, self-help materials have the potential to reach a large proportion of the smoking population. This type of intervention works best when tailored to the individual characteristics and needs of the smoker, and if supplemented by telephone follow-up.

Key Reference

Lancaster T, Stead LF. Self-help interventions for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.2.4 Physician Advice/Counselling

Intervention

Physician advice is defined as brief advice provided by a medical practitioner. What constitutes "advice" varies considerably among available studies; it usually includes verbal instruction with a "stop smoking" message, but does not necessarily include information on the adverse health effects of smoking. This verbal advice is most commonly supplemented by printed stop-smoking materials or a recommendation to use nicotine replacement therapy. Although the most common setting for this intervention is primary care, other settings include hospital wards, outpatient clinics, and clinics in industry settings.

Physician advice is categorized as "minimal" if it is provided (with or without leaflet) during a single consultation lasting 20 minutes or less plus one follow-up visit; it is "intensive" if it involves a greater time commitment at the initial consultation, the use of additional materials (other than a leaflet), or more than one follow-up visit.

Outcome Measurement

- Rates of self-reported abstinence assessed at 6 months or more.
- Only 36% of studies validated smoking status using biochemical analysis.
- Results presented are based on rates of either sustained or point-prevalence abstinence.
- When both cessation rates were presented, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were assumed to be continuing smokers.

Types of Studies

- Only the results of randomized controlled trials were considered.
- Thirty-one trials met the inclusion criteria of the systematic review.
- The most common reasons for excluding a study were advice provided by a health care professional other than a physician, inadequate length of follow-up, and inappropriate application of randomization process.

Summary of Evidence

- Brief advice (as part of a minimal intervention) results in a small but significant increase in the odds of quitting compared with no advice or usual care (OR 1.69, 95% CI 1.45-1.98).
- Intensive advice results in a small but significant increase in the odds of quitting when compared to minimal advice (OR 1.44, 95% CI 1.23-1.68) but is associated with a stronger impact when compared to no advice/control (OR 2.13, 95% CI 1.77-2.56).
- The use of follow-up visits (compared to a control intervention) is associated with a higher success rate than no follow-up visits (compared to a control intervention) (OR 2.54, 95% CI 2.02-3.19 versus OR 1.66, 95% CI 1.41-1.95).
- The effectiveness of physician advice appears to be greater for patients with established disease compared with smokers in general.

Implications for Practice

There appears to be reasonable evidence supporting the use of physician advice. Physicians should provide at least minimal cessation advice to all of their patients who smoke. In order for this intervention to make a significant public health impact, physicians will need to develop methods of systematically identifying their smoking patients (such as "flagging" the patient's medical record) and offer these patients cessation advice as a matter of routine care. Patients demonstrating a readiness to quit and smoking at least 10-15 cigarettes per day should also be offered nicotine replacement therapy or bupropion, and follow-up visits.

Key Reference

Silagy C, Ketteridge S. Physician advice for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.2.5 Summary

Table 7: Effectiveness of Group Programs, Individual Counselling, Self-Help Programs and Physician Advice

Comparison	# Studies	OR_{pooled} (95% CI)	Quit Rates †
Group Behaviour Therapy Programs versus:			
No intervention or minimal contact	5	1.91 (1.20-3.04)	16% vs 7.8%
Self-help programs (combined)	13	2.10 (1.64-2.70)	9.2% vs 4.9%
• using same materials	10	2.44 (1.78-3.36)	10% vs 5.2%
• using different materials	3	1.64 (1.09-2.47)	7.8% vs 4.6%
• excluding problem studies	n/a	1.74 (1.24-2.43)	n/a
Individual counselling	2	0.83 (0.54-1.26)	19% vs 22.9%
Individual Behavioural Counselling versus:			
Minimal contact / usual care	10	1.55 (1.27-1.90)	14.4% vs 10.2%
Group therapy	1	1.33 (0.83-2.13)	31.5% vs 25.7%
Low intensity ‡ *versus* High intensity § counselling	2	1.17 (0.59-2.34)	11.5% vs 10.6%
Self-Help Programs versus:			
No contact (either group)	7	1.29 (1.02-1.63)	4.8% vs 3.5%
With brief contact (both groups)	5	1.19 (0.96-1.49)	10.6% vs 8.4%
With telephone counselling	6	1.62 (1.33-1.97)	10.5% vs 7.8%
Population targeted	2	1.17 (0.73-1.88)	8.5% vs 8.1%
Tailored *versus* Untailored	6	1.51 (1.13-2.02)	5.8% vs 4.3%
Physician Advice			
Brief advice *versus* No advice	16	1.69 (1.45-1.98)	5.8% vs 4.1%
Intensive advice *versus* No advice	5	2.13 (1.77-2.56)	14.3% vs 7.2%
Intensive *versus* Minimal advice	13	1.44 (1.23-1.68)	11.8% vs 8.5%
One physician visit *versus* control	15	1.66 (1.41-1.95)	5.6% vs 4.0%
>1 visit *versus* control	4	2.54 (2.02-3.19)	13.0% vs 6.3%

† Quit Rates – proportion of smokers exposed to an "active" intervention (i.e. group programs, individual counselling, self-help program and physician advice) abstinent at 6 months or more, compared to the proportion of smokers in the "control" group (placebo or active control) abstinent at 6 months or more.

‡ One session of more than 10 minutes of face-to-face contact with a cessation counsellor.

§ More than one session of face-to-face contact with a cessation counsellor.

3.2.6 Mass Media Campaigns

Intervention

Mass media campaigns are interventions delivered through television, radio, newspapers, bill boards, posters, leaflets or booklets that are intended to reach large numbers of people. They are not dependent on person-to-person contact. Based on social learning theory, these interventions are designed to influence the smoking behaviour (both initiation and/or cessation) of young people and adults by presenting people who are positive role models and who also advocate against smoking.

Outcome Measurement

- Rates of self-reported abstinence (with or without biochemical validation).
- Smokers and non-smokers were classified based on daily, weekly, or monthly frequency of smoking, or lifetime consumption. Where possible, the strictest definition of smoking status was used.

Types of Studies

- Because of methodological difficulties associated with evaluating the effectiveness of mass media campaigns, controlled and uncontrolled studies as well as randomized and non-randomized studies were considered. These were limited to those studies where both baseline *and* post intervention measurements of smoking status were reported. Information on the long-term impact of these types of interventions is lacking.
- Six trials met the inclusion criteria of the systematic review.

Summary of Evidence

- Although based on weak evidence, mass media campaigns have the potential to reduce smoking rates in adults. The best results were observed in studies that combined community resources and activities with mass media campaigns, or campaigns that were more intense in terms of reach, frequency and duration.

Implications for Practice

Large-scale campaigns are appropriate for improving awareness, knowledge, and motivation for quitting. In view of the large number of smokers who can be easily and efficiently reached through mass media campaigns, long-term follow-up studies using current methodological standards are warranted.

Key References

Snowden AJ, Arblaster L, Fullerton D. Mass media interventions for preventing smoking among young people (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Flay BR. Mass media and smoking cessation: a critical review. *American Journal of Public Health* 1987; 77: 153-60.

3.2.7 Aversion Therapy

Aversion therapy most commonly refers to "rapid smoking." This strategy typically consists of having a smoker take a puff every 6 or 10 seconds for 3 minutes, or until (s)he consumes 3 cigarettes or feels unable to continue. After a period of rest this procedure is repeated 2 or 3 times. These rapid smoking sessions are repeated 3 to10 times over a period of 1 to 4 weeks. Subjects are usually asked not to smoke between sessions. Other methods of aversion therapy studied include rapid puffing, excessive smoking, focused smoking, and smoke holding. The aim of aversion therapy is to have the smoker associate the pleasurable stimulus of smoking with some unpleasant stimulus in the hope of extinguishing the urge to smoke.

Outcome Measurement

- Rates of self-reported abstinence assessed at 6 months or more of follow-up.
- Biochemical validation of smoking status was not used in the majority of studies.
- Results presented are based on rates of either sustained or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were assumed to be continuing smokers.

Types of Studies

- Only the results of randomized controlled trials were considered. However, most of these studies had significant methodological shortcomings (i.e. biochemical validation of smoking status was not done or was incomplete, the outcome assessor was not blinded to treatment allocations, there were different therapists assigned to different treatment regimens, information was lacking on continuous abstinence, or a very small sample size was involved).
- Most of these shortcomings bias the results in favour of the treatment's efficacy (i.e., they are likely to lead to spurious positive results).
- Twenty-four trials met the inclusion criteria of the systematic review. Ten included rapid smoking and then used other aversion methods.
- The most common reasons for excluding a study were lack of data on cessation rates, inadequate length of follow-up, lack of an appropriate comparison group, or lack of random allocation.
- Most aversive treatment studies are over 20 years old and are of poor methodological quality.

Summary of Evidence

- For trials of "rapid smoking" (N=10) the pooled odds ratio is 2.08 (95% CI 1.39-3.12).
- Considering only the results of methodologically sound studies (i.e. those using an objective measure of subjects' smoking status), a non-significant trend in favour of rapid smoking was demonstrated.
- The effectiveness of other aversive methods (e.g. rapid puffing, excessive smoking, focused smoking, and smoke holding) did not differ significantly from control strategies (OR 1.19, 95% CI 0.77-1.73). Ten studies investigated these aversive methods.

Implications for Practice

There is currently insufficient evidence, or evidence of insufficient quality to recommend the use of aversive smoking as an effective cessation strategy.

Key References

Hajek P, Stead LF. Aversive smoking for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.3 Pharmacological Interventions

3.3.1 Nicotine Replacement Therapy

Intervention

Nicotine replacement therapy (NRT) is the most widely studied pharmacotherapeutic intervention for smoking cessation. NRT products contain nicotine and can be administered by cutaneous (transdermal patch), oral (chewing gum), intranasal (nicotine spray), and inhalational (nicotine inhaler) routes. The aim of NRT is to partially replace nicotine from cigarettes. This may reduce the incidence and intensity of withdrawal symptoms induced by nicotine abstinence during the first few weeks of smoking cessation.

The cost to a patient for an 8- to 12-week treatment of transdermal nicotine is approximately $218.00-$327.00 CDN (comparable to bupropion SR). For the 4mg nicotine gum the cost is approximately $259.00-$389.00 depending on the actual number of pieces per day, and approximately $160.00-$240.00 for the 2mg gum. Nicotine patches and gum are available without a prescription in Canada. Intranasal and inhalation nicotine products are not yet available in Canada.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 6 months or more of follow-up.
- Biochemical validation of smoking status was used in most studies.
- Results presented are based on rates of either sustained or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were analyzed as continuing smokers.

Types of Studies

- Only the results of randomized controlled trials were considered.
- Determination of smoke-free status varied considerably across studies; however, most used some form of validation of self-reported smoking status. Measurement of carbon monoxide (CO) in expired air was the most common method of validation. The cut-off level of CO used to define abstinence varied from less than 4 ppm to 11 ppm.
- 92 trials met the inclusion criteria of the systematic review: 49 trials of nicotine gum, 32 of transdermal nicotine patch, 4 of intranasal nicotine spray, 4 of inhaled nicotine and 3 comparing two forms of nicotine therapy with one form alone.
- The most common reasons for excluding a study were lack of long-term follow-up, lack of randomization, and withdrawal symptoms used as a measure of outcome rather than cessation.

Summary of Evidence

- All forms of NRT are significantly more effective than placebo or no NRT at achieving long-term abstinence (OR 1.72, 95% CI 1.60-1.84).
- The use of NRT consistently increases rates of successful cessation at 12 months by a factor of 1.5-2.0 fold in heavier smokers (i.e. at least 10-15 cigarettes per day).
- The effectiveness of NRT appears to be independent of the intensity of additional support or counselling provided to the smoker. However, since all trials of NRT reported to date have included at least some form of brief advice (additional support or counselling) to the smoker, this level of support represents the minimum standard that should be provided in

order to ensure effectiveness similar to that reported in the literature.

- The long-term effectiveness of NRT is independent of the setting in which this therapy is offered (eg. cessation clinics, primary-care office or community volunteers) with an OR of 1.61 (95% CI 1.49-1.79) for the gum and 1.80 (95% CI 1.61-2.00) for the patch.
- There is no evidence for a significant difference in the relative effectiveness of the four types of NRT.
- There is currently no strong evidence that using a combination of NRT therapies is more effective one NRT therapy alone (OR 1.50, 95% CI 0.86-2.62).
- NRT appears to be safe for smokers with cardiovascular disease. These patients do not experience more cardiac events than those who do not use NRT.
- Many smokers will need multiple attempts to quit using a variety of strategies before being successful; NRT is effective even in those with multiple previous uses.
- In smokers with high levels of nicotine dependence (Fagerström score of 6 or greater), the 4mg gum is significantly more effective than the 2mg gum (OR 2.67, 95% CI 1.69-4.22).
- The use of nicotine gum at low doses (2mg) may require more intensive counselling in order to achieve expected cessation rates.
- The use of nicotine transdermal patch for up to eight weeks (OR 1.77, 95% CI 1.48-2.11) appears to be as effective as longer treatment courses (OR 1.82, 95% CI 1.59-2.09); there is no difference in effectiveness whether the dose is withdrawn abruptly or tapered (weaned) (OR 0.93, 95% CI 0.46-1.88).
- Wearing the patch only during waking hours (16 hours per day) (OR 1.77, 95% CI 1.48-2.11) is at least as effective as wearing it for 24 hours per day (OR 1.82, 95% CI 1.59-2.09).

Implications for Practice

Nicotine replacement therapy should be routinely offered to heavier smokers (i.e., at least 10-15 cigarettes per day) who are motivated to quit. This cessation intervention should be supplemented by brief counselling. The choice of the dosage form should primarily be based on smoker preference given that patient beliefs are strongly associated with the efficacy of the therapy. Tolerability and cost should also be discussed with the potential user.

Key References

Silagy C, Mant D, Fowler G, Lancaster T. Nicotine replacement therapy for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Cepeda-Benito A. Meta analytical review of the efficacy of nicotine chewing gum in smoking treatment programs. *Journal of Consulting and Clinical Psychology* 1993; 61(5): 822-30.

Ling Tang J, Law N, Wald N. How effective is nicotine replacement therapy in helping people stop smoking? *British Medical Journal* 1994; 308(6920): 21-6.

Fiore MC, Smith SS, Jorenby DE, Baker TB. The effectiveness of the nicotine patch for smoking cessation: a meta-analysis. *Journal of the American Medical Association* 1994; 271(24): 1940-7.

Gourlay S. The pros and cons of transdermal nicotine therapy. *Medical Journal of Australia* 1994; 160(3): 152-9.

Po AW. Transdermal nicotine in smoking cessation: a meta-analysis. *European Journal of Clinical Pharmacology* 1993; 45(6): 519-28.

Greenland S, Satterfield MH, Lanes SF. A meta-analysis to assess the incidence of adverse effects associated with the transdermal nicotine patch. *Drug Safety* 1998; 18(4): 297-308.

Hughes JR, Goldstein MG, Huart RD, Shiffman S. Recent advances in the pharmacotherapy of smoking. *Journal of the American Medical Association* 1999; 281(1): 72-6.

3.3.2 Summary

Table 8: Effectiveness of Nicotine Replacement Therapy (NRT)

Comparison	# Studies	OR $_{pooled}$ (95% CI)	Quit Rates †
Overall Effect of NRT			
Any NRT *vs* control	86	1.72 (1.60-1.84)	16.5% vs 10.2%
NRT with low intensity support	32	1.73 (1.55-1.93)	13.4% vs 7.8%
NRT with high intensity support	42	1.67 (1.52-1.84)	20.4% vs 13.6%
Effect of Clinical/Recruitment Setting			
Gum (various practice settings)	47	1.64 (1.49-1.79)	19.4% vs 11.6%
Patch (various practice settings)	30	1.80 (1.61-2.00)	13.5% vs 7.7%
Various Dosage Forms			
Nicotine gum *vs* control	46	1.63 (1.48-1.78)	19.4% vs 11.5%
Nicotine patch *vs* control	30	1.77 (1.58-1.97)	13.7% vs 8.0%
Intranasal spray *vs* control	4	2.27 (1.61-3.20)	23.9% vs 11.8%
Nicotine inhaler *vs* control	4	2.08 (1.43-3.04)	17.1% vs 9.1%
Sublingual tablet *vs* control	2	1.73 (1.07-2.80)	20.2% vs 12.7%
NRT Combination Therapy			
Patch + gum *vs* gum alone	1	1.50 (0.86-2.62)	24% vs 17.3%
Patch + gum *vs* patch alone	1	1.52 (0.81-2.84)	18.1% vs 12.7%
Effect of 4mg vs 2mg Gum			
Overall effect (any level of dependency)	5	1.98 (1.30-3.00)	34.0% vs 20.2%
Highly dependent smokers	3	2.67 (1.69-4.22)	35.3% vs 16.5%
Low dependent smokers	2	0.42 (0.15-1.17)	27.8% vs 46.4%

Table 8: Effectiveness of Nicotine Replacement Therapy — cont'd

Treatment Duration & Weaning	# Studies	OR $_{pooled}$ (95% CI)	Quit Rates †
Treatment <8 weeks *vs* control	10	2.30 (1.81-2.92)	13.1% vs 6.4%
Treatment >8 weeks *vs* control	19	1.73 (1.50-1.99)	13.7% vs 8.3%
Abrupt withdrawal *vs* weaning	1	0.93 (0.46-1.88)	50% vs 51.8%
16 hour patch *vs* control	8	1.77 (1.48-2.11)	13.8% vs 7.8%
24 hour patch *vs* control	23	1.82 (1.59-2.09)	13.8% vs 8.0%

† Quit Rates – proportion of smokers exposed to an "active" intervention (i.e. group programs, individual counselling, self-help program and physician advice) abstinent at 6 months or more, compared to the proportion of smokers in the "control" group (placebo or active control) abstinent at 6 months or more.

3.3.3 Bupropion

Intervention

Bupropion SR (sustained release formulation) is an atypical antidepressant now approved for use by Health Canada as an aid in smoking cessation. Bupropion's exact mechanism of action has not been fully elucidated. Its beneficial effects in smoking cessation are thought to be related to its effect on two neurotransmitters: bupropion inhibits the neuronal reuptake of norepinephrine and dopamine, thereby potentiating the effects of these two neurotransmitters in the central nervous system. Dopamine is believed to play a role in the rewarding/pleasure effects of addictive substances. Increased levels of norepinephrine are thought to decrease withdrawal symptoms.

The cost to a patient for an 8- to 12-week treatment of bupropion SR is approximately $216.00-$324.00 CDN.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 6 months or more.
- Biochemical validation of smoking status was used in all studies.
- Results presented here are based on rates of sustained abstinence only.
- Subjects lost to follow-up were assumed to be continuing smokers.

Type of Studies

- Only the results of randomized controlled trials were considered.
- Studies published to date have not yet been subjected to a systematic review or meta-analysis.
- Three randomized controlled trials were identified, one of which was excluded because of inadequate follow-up (at 4 weeks only) (Ferry, 1994).
- Study participants were highly motivated, highly nicotine-dependent smokers (mean Fagerström score of 7.3) who were recruited from community settings.

Summary of Evidence

- Bupropion SR, when combined with intensive behavioural support (i.e. self-help materials, regularly scheduled low-intensity [15 minutes or less] counselling and telephone follow-up), appears to be more effective than placebo in achieving long-term abstinence. Sustained abstinence rates for bupropion (150mg, twice daily) are much higher compared to placebo at 6 months (12.2% *vs.* 5.6%) and 12 months (18.4% *vs.* 5.6%) (Hurt et al., 1997; Jorenby et al., 1999).
- At the end of 6 weeks of treatment, bupropion (150mg, twice daily) is associated with a significantly lower weight gain than placebo (1.5kg versus 2.9kg, $p \leq 0.05$) (Hurt et al., 1997). This difference disappears by six months. In the Jorenby et al. study (1999), however, the use of bupropion SR had no positive impact on weight change at any point following the 7-week treatment.
- Bupropion SR, when combined with regularly-scheduled low-intensity counselling and telephone follow-up, is associated with a significantly higher rate of sustained abstinence than nicotine patch combined with similar support (18.4% *vs.* 9.8%, $p < 0.001$).
- Cessation rates are higher for bupropion SR combined with nicotine patch compared to bupropion alone; however, the difference is not statistically significant (22.4 *vs.* 18.4%, $p = 0.61$).
- A significantly greater proportion of smokers using bupropion SR discontinue treatment as a result of adverse effects compared to those

using transdermal nicotine (8.8% *vs.* 6.6%, p = 0.04).

Implications for Practice

Bupropion SR is a promising new agent for promoting long-term smoking cessation. When combined with brief counselling and telephone follow-up, it appears that bupropion is at least as effective as nicotine replacement. Therefore, this agent may be an effective alternative to nicotine replacement therapy. Additional studies are required in order to determine whether bupropion is consistently more effective than nicotine replacement therapy, and whether the abstinence rates reported in clinical trials will be sustained when bupropion is used in routine clinical practice.

Key References

Ferry LH, Burchette RJ. Efficacy of bupropion for smoking cessation in non-depressed smokers. *Journal of Addictive Diseases* 1994; 13: 249.

Hurt RD, Sachs DPL, Glover ED, et al. A comparison of sustained-release bupropion and placebo for smoking cessation. *New England Journal of Medicine* 1997; 337(17): 1195-1202.

Jorenby DE, Scott JL, Mitchell AN, et al. A controlled trial of sustained-release bupropion, a nicotine patch, or both for smoking cessation. *New England Journal of Medicine* 1999; 340: 685-91.

Hughes JR, Stead LF, Lancaster TR. Anxiolytics and antidepressants in smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.3.4 Anxiolytics & Antidepressants (Excluding Bupropion)

Intervention

Anxiolytics and antidepressants are believed to help smokers quit in part by reducing symptoms of anxiety and depression that often accompany nicotine withdrawal. As more information becomes available on the neurochemistry of nicotine addiction, the exact mechanism of these two groups of drugs may become clearer.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 6 months or more from the start of treatment; however, how smoke-free status by determined was not always clear.
- Biochemical validation of smoking status was used inconsistently across trials.
- Results presented are based on rates of sustained or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were assumed to be continuing smokers.

Type of Studies

- Only the results of randomized controlled trials were considered. With the exception of studies on bupropion SR (see Section 3.3.3), none of these studies compared anxiolytics and antidepressants to nicotine replacement therapy.
- The most common reasons for excluding a study were inadequate length of follow-up (< 6 months) or the use of smoking duration rather than cessation as the outcome measure.

Summary of Evidence

- Based on a small number of published trials, there is no evidence of long-term effectiveness for the following agents: meprobamate (3 studies) , diazepam (1 study), beta-blockers (2 studies), buspirone (3 studies), and moclobemide (1 study).
- There is evidence of a small effect for the following antidepressants: fluoxetine (1 study) had a cessation rate of 30% versus 20% for placebo (OR 1.72, 95% CI 1.28-2.32) and nortriptyline (2 studies) had a cessation rate of 18.8% versus 7.3% for placebo (OR 2.83, 95% CI 1.59-5.03).
- Evidence from short-term trials (≤ 3 months) revealed that imipramine, ondansetron, doxepine, and tryptophan were ineffective.

Implications for Practice

With the exception of bupropion, there is insufficient evidence to recommend the use of antidepressants as first-line therapy for smoking cessation. However, agents such as fluoxetine and nortriptyline may have a role in the treatment of smokers who have been unsuccessful with other methods of quitting smoking.

Key Reference

Hughes JR, Stead LF, Lancaster TR. Anxiolytics and antidepressants in smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.3.5 Clonidine

Intervention

Clonidine, first marketed as an antihypertensive agent, is an α_2-adrenergic receptor agonist in the central nervous system that causes inhibition of sympathetic nervous centres. The discovery that presynaptic α_2-adrenergic stimulation caused an attenuation of noradrenergic activity, which in turn reduced withdrawal symptoms in individuals dependent on alcohol and opiates, led to the investigation of this agent as an adjunct to smoking cessation.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 12 weeks or more following the end of treatment. Given that treatment is often 3-4 weeks in length, this definition of long-term cessation differs from those used in other Cochrane reviews.
- Biochemical validation of smoking status was used in 4 of the 6 studies that met the inclusion criteria for this review.
- Results presented are based on rates of either sustained abstinence or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- It is important to note that definitions of smoking cessation used in the various studies were inconsistent and it is not clear if sustained or point-prevalence abstinence was the outcome measure.
- Most of the methodological shortcomings bias the results in favour of the treatment's efficacy.
- Subjects lost to follow-up were analyzed as continuing smokers.

Types of Studies

- Only the results of randomized controlled trials were considered.
- Most studies included some form of behavioural therapy/counselling for participants.
- 6 trials met the inclusion criteria of the systematic review: 3 for oral clonidine and 3 for transdermal clonidine.
- The most common reasons for exclusion of a study were short follow-up (usually $\leq$ 10 weeks) and efficacy assessed in terms of withdrawal symptoms rather than cessation.
- Study participants were volunteers recruited from community settings and outpatient clinics. Participants were heavy smokers in 4 of the 6 trials.

Summary of Evidence

- There is evidence from a small number of weak trials that clonidine is more effective than placebo in promoting smoking cessation (OR 1.89, 95% CI 1.30-2.74). This effect size corresponds to quit rates of 24.9% for clonidine and 14.4% for placebo.
- Use of clonidine is associated with a high incidence of dose-related, centrally-mediated adverse effects including dry mouth, sedation, postural hypotension and dizziness.

Implications for Practice

Clonidine should not be considered first-line treatment for smoking cessation. Its sedative properties, however, may make it a reasonable option among smokers experiencing extreme agitation and anxiety unrelieved by nicotine replacement therapy. The usefulness of clonidine may now be superceded by the availability of bupropion SR as an alternative to nicotine replacement therapy.

Key Reference

Gourlay SG, Stead LF, Benowitz NL. Clonidine for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.3.6 Lobeline

Intervention

Lobeline is an alkaloid derived from the leaves of an Indian tobacco plant called *Lobelia inflata*. It is available in Canada as an over-the-counter product for use on a self-help basis (Butt Out! For Life®, Paradise Promotions Ltd.). Lobeline is a partial nicotine agonist, which means that it stimulates the response of nicotine in the body because it has a partial biochemical affinity for nicotinic receptors.

Outcome Measurement

- The outcome measure reported was often an effect on smoking behaviour (e.g., as reduction in number of cigarettes smoked), rather than complete abstinence.
- The effect on smoking behaviour was often assessed after several days rather than weeks. In addition, it was not always clear if sustained abstinence was required.

Types of Studies

- Most studies published to date either:
  - did not meet current methodological standards (no placebo or other control group, lack of randomization or randomization process not specified), or
  - did not use cessation as an endpoint, or
  - did not follow up subjects beyond the end of treatment.
- No studies with at least 6 months of follow-up were identified.

Summary of Evidence

- There is currently no evidence that lobeline has any beneficial effect on long-term cessation rates.
- The results of short-term controlled trials indicate that lobeline has no beneficial effect on smoking cessation.

Implications for Practice

Based on the evidence available to date, lobeline should not be recommended as a treatment for smoking cessation.

Key Reference

Stead LF, Hughes JR. Lobeline for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.3.7 Other Pharmacological Agents (Silver Acetate and Mecamylamine)

Intervention

Silver acetate and mecamylamine are two other pharmacological agents that have been evaluated as smoking cessation aids. At the present time, neither agent is available in Canada.

- The use of silver acetate (gum, lozenge or spray) is a cessation strategy based on the principle of aversion. When this chemical combines with the smoker's saliva it creates an unpleasant, metallic taste in the mouth. The results of two randomized, placebo-controlled trials demontrated that the odds of quitting at 6 months follow-up was 1.05 (95% CI 0.63-1.73), a non-significant effect. It is possible that this was due to lack of compliance, as the treatment induces an unpleasant stimulus.

- Mecamylamine is a centrally-acting nicotine antagonist that is available for oral use in the US (Inversine®). This agent is believed to block the rewarding effects of nicotine, thereby reducing urges to smoke. Preliminary results from two small randomized trials are very encouraging. Based on sustained abstinence rates at 12 months, mecamylamine combined with transdermal nicotine resulted in significantly higher rates of abstinence than transdermal nicotine and placebo capsules (37.5% versus 4.2%, $p = 0.004$) in one study and higher but non-significant results in another. Larger studies are needed to confirm these results.

Key References

Lancaster T, Stead L. Silver acetate for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Lancaster T, Stead L. Mecamylamine (a nicotine antagonist) for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

3.4 Other Interventions

3.4.1 Acupuncture

Intervention

Acupuncture is defined as any treatment involving needle puncture of areas of the body considered acupuncture points (e.g., specific points on the ear or face). Treatment sessions usually last approximately 20 minutes. The specific acupuncture technique varies greatly from study to study. Regardless of the technique used, acupuncture is believed to reduce withdrawal symptoms associated with smoking cessation.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 6 months or more. Only 5 of 18 trials included in this review measured outcomes at 12 months.
- Biochemical validation of self-reported smoking status was carried out in 1 of 16 trials.
- Results presented are based on rates of either sustained or point-prevalence abstinence.
- When both cessation rates were reported, only sustained rates were used to calculate the effect size.
- Subjects lost to follow-up were assumed to be continuing smokers.

Type of Studies

- Only the results of randomized controlled trials were considered.
- The studies varied considerably in methodology as well as in the acupuncture technique used.
- Details of the randomization process were not provided by any of the studies included in this review.
- Eighteen publications were identified for this intervention.
- The most common reason for excluding a study was a lack of random allocation.

Summary of Evidence

- Acupuncture is not superior to "sham acupuncture" (placebo acupuncture) at any point in time (N = 6 studies). The odds of quitting after 6 months are 1.38 (95% CI 0.90-2.11) and after 12 months, 1.02 (95% CI 0.72-1.43) . The odds ratio at 12 months corresponds to quit rates of 13.9% for the intervention group and 13.7% for the control.
- Acupuncture is not superior to "no treatment" at 6 months (N = 2 studies) (OR 0.99, 95% CI 0.30-3.24). This odds ratio corresponds to quit rates of 10.5% for the intervention group and 10.7% for the control.
- Findings were independent of the technique used (i.e., auricular *vs.* non-auricular acupuncture).
- Possible sources of bias (e.g., a compromised randomization process, lack of validation of smoking status) are expected to bias the results in favour of the treatment.

Implications for Practice

There is no clear evidence that acupuncture is any more effective than placebo or no treatment as a smoking cessation intervention.

Key References

White AR, Rampes H. Acupuncture for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Ashenden R, Silagy CA, Lodge M, Fowler G. A meta-analysis of the effectiveness of acupuncture in smoking cessation. *Drug and Alcohol Review* 1997; 16: 33-40.

3.4.2 Hypnotherapy

Intervention

Hypnosis is a condition of artificially-induced sleep or a trance-resembling sleep. Hypnosis is considered hypnotherapy when used in the treatment of disease.

The exact mechanism by which hypnotherapy may exert its beneficial effects is not clear. As an adjunct to smoking cessation, hypnotherapy may act on underlying impulses and weaken the desire to smoke, or it may strengthen the will to stop. This is accomplished by first modifying the subject's perceptions of smoking via deep concentration and secondly, by training the subject in self-hypnosis.

Outcome Measurement

- Rates of self-reported abstinence were assessed at 6 months or more from the start of treatment.
- For the most part, smoking status was not biochemically validated at the 6-month assessment.

Type of Studies

- Only the results of randomized controlled trials were considered (N=9).
- Available studies varied greatly with regard to type of hypnotic induction used, the number of sessions provided (ranged from 1 to 9), and the total duration of treatment (from 30 minutes to 7 hours). Consequently, it was not possible to combine the data and perform meta-analyses.
- The most common reasons for study exclusion were inadequate length of follow-up and lack of random allocation.
- To date, most of the studies reported in the literature are either case reports or uncontrolled trials of poor quality.

Summary of Evidence

- The positive results associated with the use of hypnotherapy in uncontrolled trials have not been substantiated by randomized controlled trials.
- In some controlled trials, hypnotherapy appears to be superior. These results should be interpreted with caution given that most of these trials were small and the confidence intervals surrounding the risk estimates were large.
- The results of trials comparing hypnotherapy to a "waiting list" control group, a "no treatment" control, or an "attention/advice" control were inconsistent; some demonstrated increased abstinence rates and others demonstrated the reverse.
- In the case of hypnotherapy versus psychological treatment or rapid/focused smoking, the pooled odds ratio was close to 1.0, with an extremely wide confidence interval.

Implications for Practice

There is insufficient evidence to recommend hypnotherapy as a specific treatment for smoking cessation.

Key Reference

Abbot NC, Stead LF, White AR, Barnes J, Ernst E. Hypnotherapy for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

CHAPTER 4. CESSATION PROGRAMS AND RESOURCES

This chapter provides a systematic overview of the 1998/1999 cessation-related activities of the Ontario Tobacco Strategy (OTS) partners and others. It has been compiled to bring together in one document information on current cessation activities across the province, and to act as a resource guide for health care providers. Many of these activities were undertaken in collaboration with other groups and agencies; this may result in some repetition in these tables. In addition, some programs may not be offered on an ongoing basis. This section is not intended to be all-inclusive.

Methods

The information that follows was compiled from the results of the 1997/1998 and 1998/1999 surveys conducted by the Ontario Tobacco Research Unit for its annual Monitoring Reports, supplemented by a review of agency websites and a telephone survey of all public health units in Ontario. Information presented on the activities of relevant pharmaceutical companies was obtained from the product manager of each drug currently approved for use as a smoking cessation aid by Health Canada. Information on other organizations/programs was obtained through web searches. Although every attempt has been made to ensure that the information in this report is up-to-date, some recent changes may not be reflected.

One notable recent development is the commitment of an additional $10 million by the Ontario Ministry of Health and Long-Term Care for anti-smoking initiatives as part of the enhanced OTS. A substantial portion of this funding will help support smoking cessation initiatives including a telephone hotline for those trying to quit, a pilot cessation program, and a quit contest, accompanied by a province-wide television and print media campaign. These initiatives will be underway in early 2000.

Please note that the listing of a program, resource, or activity is not an endorsement of its quality, nor of its effectiveness.

4.1 Ontario Tobacco Strategy Resource Centres

4.1.1 Program Training and Consultation Centre (PTCC)

The Program Training and Consultation Centre (PTCC) is a resource centre of the Ontario Tobacco Strategy (OTS) and is funded by the Health Promotion Branch, Ontario Ministry of Health. The Centre's mandate is to provide training and consultation services to help Ontario communities implement effective, community-based tobacco reduction strategies. The PTCC devotes approximately 55% of its OTS efforts to activities related to smoking cessation. Such efforts are primarily directed at educating staff and volunteers of local public health departments, local councils on smoking and health, community health centres, and voluntary organizations. The resources and services available from the PTCC have been developed for the following priority groups: women, pregnant women, youth and francophones.

The PTCC provides a number of services. Those specifically related to smoking cessation are listed below. In November 1998, PTCC began the OTS Resource Dissemination Service. This includes dissemination of printed resources from the COMMIT program, which completed its mandate in September 1998. See Section 4.2.4 for more details.

Information Resources/Training Materials

Resource	Target Population	Description
Website (www.ptcc.on.ca)	Health promotion professionals and general public	Includes specific information on cessation resources and services, upcoming events and links to related sites. Site available in English and French.
Building partnerships to promote *Guide Your Patients to a Smoke-Free Future*	Health promotion professionals and health units	Print resource.
Minimal Contact Interventions for Smoking Cessation	Health practitioners and volunteers	Information package.
Smoking Cessation in Pregnancy	Health practitioners and volunteers	Information package.
School-based Smoking Intervention	Health practitioners and volunteers	Information package.
Understanding and using the *Stages of Change*	Health promotion professionals and general public	Training and consultation information package. Also available in French.
One Step at a Time for Teens	Youth	A three-step stop-smoking program for teens.

Direct Services		
Planning and Delivering Smoking Cessation Interventions in the Clinic and the Community: Achieving Optimal Results	Public health professionals, hospitals, community health centres, universities, voluntary agencies, general public, and pharmaceutical industry	A 2-day training workshop offering an overview of the Transtheoretical model and motivational enhancement theory applications.
Off- and on-site consultations	Health promotion professionals and health promotion agencies	Provision of individual and group consultation services including information, advice, resource materials, and referrals via telephone, mail, etc. Work is done with individual communities to create a customized plan of action aimed at tobacco use reduction.
Smoking Cessation Strategies in Pregnancy	Health practitioners and volunteers who work with pregnant women and their partners.	A 2-day workshop to prepare participants to plan and implement strategies to help pregnant women quit.
Stop Smoking: A Program for Women	Women	A 2-day workshop that uses a holistic approach and focuses on women as individuals, not only on their smoking behaviour.
Minimal Contact Interventions for Smoking Cessation	Community and workplace health professionals	A 2-day workshop that focuses on short interventions that impact on population prevalence of smoking.
Youth Smoking Cessation Strategies	Individuals from the health promotion community and school community representatives	A 1-day workshop that examines the complex challenge of reaching youth with smoking cessation messages and strategies.
For More Information		
Website:		www.ptcc.on.ca
Mailing Address:		PTCC (Ottawa office) 495 Richmond Rd. Ottawa, ON K2A 4A4
Toll-Free Tel. No.:		1-800-363-7822

4.1.2 Council for a Tobacco Free Ontario (CTFO)

The Council for a Tobacco-Free Ontario (CTFO) is a volunteer-based, not-for-profit organization whose goal is to eliminate tobacco use in Ontario. CTFO is also a resource centre of the Ontario Tobacco Strategy. This organization's efforts are predominantly aimed at supporting the OTS objectives of protection and prevention. Approximately 15% of CTFO's OTS efforts are devoted to cessation. Such efforts are primarily directed at youth, the general population, tobacco control groups, and, to a lesser extent, pregnant women. The CTFO achieves its goals by providing support and assisting local councils on health and smoking.

The CTFO provides a number of services to support the OTS objectives. Those specifically related to smoking cessation are listed below.

Information Resources

Resource	Target Population	Description
Website (www.opc.on.ca/ctfo)	Health professionals and general public	Includes information on resources available and links to related sites.
A Guide for High-Risk Pregnant Women	Health professionals	A cessation provider's guide and fact sheets based on an "ask, advise, assist" model for pregnant women.
How Not To Smoke	General public	A self-help video and guide for the general public, distributed via local councils and health units.
Direct Services		
National Non-Smoking Week	Local councils on smoking and health	Facilitates the development of activities in communities by setting a campaign strategy, providing resource and promotional kits.
CTFO Annual Conference	Health agencies	Many topics are presented, including cessation.
For More Information		
Website:		www.opc.on.ca/ctfo
Email:		ctfo@web.net
Mailing Address:		60 St. Clair Avenue East, Suite 604 Toronto, Ontario M4T 1N5
Toll-Free Tel. No.:		1-800-316-CTFO (Ontario only)

4.1.3 National Clearinghouse on Tobacco and Health (NCTH)

The National Clearinghouse on Tobacco and Health (NCTH) is a program of the Canadian Centre for Tobacco Control (CCTC) and is funded by federal, provincial and territorial governments. NCTH identifies, collects, organizes, and disseminates information on a broad range of tobacco- and health-related topics available in Canada. To this end, the NCTH provides a valuable link between the scientific, medical and health communities, the media, and the general public. This program is a leading resource centre on tobacco- and health-related issues. The resources and services provided by this program support all three OTS objectives equally (i.e., protection, prevention and cessation). The NCTH works toward a tobacco-free Canada by providing readily accessible services to health intermediaries. The general public and tobacco control groups are the major intended beneficiaries of this centre's activities.

Information resources and services available are extensive and are provided through the program's website or through information officers. Resources related to cessation are numerous and only the key ones are listed below. Those interested in this topic are encouraged to visit the NCTH website. Note that all materials are available in both English and French.

Information Resources

Resource	Target Population	Description
Answers to frequently-asked questions (FAQ) : "What keeps smokers smoking?" "How can I quit?" "Do nicotine patches work?" "How much difference does quitting make?"	General public	Answers to frequently-asked questions can be downloaded from the NCTH website. These materials are also available free of charge to physicians and other health care professionals who have been trained in the *Guide Your Patients to a Smoke-Free Future* program.
Fact Sheets: *Adolescents: Smoking and Quitting. How the Physician Can Help* *Nicotine Replacement Therapy*	General public	Fact sheets can be downloaded from the NCTH website. These materials are also available free of charge to physicians and other health care professionals who have completed the *Guide Your Patients to a Smoke-Free Future* training program.
Booklet: *Your Guide to a Smoke-Free Future*	General public	An extensive booklet written for smokers which can be downloaded from the NCTH website.

For More Information

Website:	www.cctc.ca/ncth
Email:	Info-services@cctc.ca
Mailing Address:	170 Laurier Avenue West, Suite 1000 Ottawa, Ontario K1P 5V5
Toll-Free Tel. No.:	1-800-267-5234

4.1.4 Smoking and Health Action Foundation (SHAF)

The Smoking and Health Action Foundation (SHAF) is a non-profit group which plays a primary supportive role in the Ontario Tobacco Strategy (OTS). SHAF carries out research and public education activities that contribute to the development of healthy public policies both at a provincial and national level. Such policies impact on the quality of health in Ontario. SHAF has also been designated as an information resource centre on tobacco policy issues. This group is very active in the areas of smoking prevention and protection from environmental tobacco smoke. In addition, SHAF devotes approximately 5% of its OTS efforts to activities related to smoking cessation. SHAF's efforts are primarily aimed at other tobacco control researchers, policy-makers, health agencies, community educators, municipal governments, the media, and the general public.

For More Information

Website:	www.nsra-adnf.ca
Email:	lfry@nsra-adnf.ca
Mailing Address:	720 Spadina Avenue Suite 221 Toronto, Ontario M5S 2T9
Tel. No.:	(416) 928-2900

4.2 Community Programs

4.2.1 The Canadian Cancer Society — Ontario Division

The Canadian Cancer Society (CCS) is a national, community-based organization of volunteers whose mission is the eradication of cancer and enhancement of the quality of life of people living with cancer. These goals are achieved through research, education, patient services, and advocacy for healthy public policy. The CCS-Ontario division devotes approximately 25% of its OTS efforts to activities related to smoking cessation. Such efforts are primarily directed at the general public.

The CCS-Ontario division provides a number of services for the general public. Those specifically related to smoking cessation are listed below.

Resource	Target Population	Description
Information Resources		
Website (www.ontario.cancer.ca)	Adult smokers, general public	Listing of smoking cessation programs offered throughout Ontario.
Pamphlets/Booklets: *How to Quit Smoking* *If You Want to Help a Smoker Quit Smoking* *For Smokers Who Want to Quit…One Step at a Time* *Stages of Change* materials	General public	Self-help information pamphlets for smokers who want to quit. Could also be used as an audience handout with any cessation program. Available in English and French.
Direct Services		
Toll-free quit line	General public	Toll-free telephone line for smokers who want to quit (pilot project).
National Non-Smoking Week promotional activities	General public	Media campaign including newspaper articles, newsletter inserts, radio and print interviews launched in several communities to promote the National Non-Smoking Week.
For More Information		
Website:		www.ontario.cancer.ca
Mailing Address:		1639 Yonge Street Toronto, Ontario M4T 2W6
Tel. No.:		(416) 488-5400

4.2.2 The Ontario Lung Association

The Lung Association is a national, not-for-profit, community-based organization whose mission is the improvement of respiratory health. This is accomplished by providing community services and programs, and by supporting medical research. The Lung Association has 35 community offices in Ontario. The Lung Association devotes approximately 30% of its OTS efforts to smoking cessation. Such activities are primarily directed at youth aged 9-12 and 12-19. Other important beneficiaries include blue-collar workers, less-well-educated individuals, and the general population.

The Lung Association provides a number of services in Ontario communities. Those specifically related to smoking cessation are listed below.

Information Resources *

Resource	Target Population	Description
Pamphlets:		
Stop Smoking — Stay Trim	General public	A pamphlet about how to stop smoking without gaining weight; includes information about nutrition and exercise.
Booklets:		
Get on Track – Quit Smoking Guide	General public	A self-help manual, accompanied by telephone hotline support.
Help a Friend Stop Smoking	General public	A 12-page guide.
Direct Services		
Countdown Group Cessation Program	General public	Group seminar setting currently offered in selected areas of the province.
Get On Track smoking cessation program	General public	Telephone support service accompanied by mailed guide on cessation. For individual smokers who want to quit by themselves.
For More Information		
Website:		www.on.lung.ca
Mailing Address:		573 King St. East Suite 201 Toronto, Ontario M5A 4L3
Toll-Free Tel. No.:		1-800-972-2636

* Printed materials available from community offices

4.2.3 Centre for Addiction and Mental Health

The Centre for Addiction and Mental Health (CAMH) is the result of a 1998 merger of the Addiction Research Foundation (ARF), the Clarke Institute of Psychiatry, the Donwood Institute and the Queen Street Mental Health Centre. This agency devotes approximately 30% of its OTS efforts to supporting smoking cessation. Its major intended beneficiaries include the general public and youth ages 12-19.

CAMH provides a number of tobacco-related services. Those specifically related to smoking cessation are listed below.

Information Resources

Resource	Target Population	Description
Smoking: Why Quit and Ways to Do It	General public	Taped messages available in both French and English via a toll-free information line (1-800-INFO-ARF)
Direct Services		
Smoking Clinic (ARF site)	Adult smokers	Individual counselling-based program using stages-of-change model, harm reduction philosophy and pharmacotherapeutic interventions.
Smoking Program (Donwood site)	Adults including Drug & Alcohol clients, Donwood staff, general public and professionals	Individual counselling-based program using stages-of-change model, harm reduction philosophy, and NRT. Similar approach to program at ARF site.
Nicotine Dependency Program	Staff and clients	Education- and counselling-based program using stages-of-change model and harm reduction philosophy. Similar approach to program at ARF site.
Addressing Tobacco in Addiction Treatment Services	Addiction or mental health workers	A one-day training session to assist addiction or mental health workers who want to incorporate cessation strategies into their existing treatment protocols.
For More Information		
Website:		www.camh.net
Mailing Address:		33 Russell St. Toronto, Ontario M5S 2S1
Toll-Free Tel. No.:		1-800-INFO-ARF (463-6273)

4.2.4 COMMIT to a Healthier Brant (completed in September 1998)

COMMIT to a Healthier Brant was selected as a demonstration site for the Ontario Tobacco Strategy (OTS). This site project was funded by the Health Promotion Branch of the Ministry of Health. The mandate of COMMIT was to work with community groups and individuals to identify their OTS-related needs and to design innovative interventions to reduce tobacco use in Brant County. This mandate was completed in September 1998. COMMIT devoted 70% of its OTS efforts to smoking cessation. Such activities were primarily directed at youth ages 12-19, adults, blue-collar workers, and less-educated individuals in Brant County.

COMMIT offered a number of direct services related to cessation. These included telephone and in-person counselling for adults and youth, as well as consultations with businesses to support and encourage initiatives to provide financial and social support to help employees quit (particularly in smoke-free environments). COMMIT also held seminars and workshops to help clients prepare for quitting smoking, and provided consultation and dissemination services to other communities.

COMMIT had a number of printed resources, and some of these are currently distributed through the OTS Resource Dissemination Service of PTCC (see Section 4.1.1). These include the COMMIT planning guides, a 12-step guide providing practical information and tips about the quitting process, a cessation support group framework, and *Tobacco-Free Times*, a newsletter about tobacco-related activities across the province.

4.2.5 The Heart and Stroke Foundation of Ontario

The Heart and Stroke Foundation of Ontario (HSFO) is a community-based volunteer organization whose mission is to reduce the risk of premature death and disability from heart disease and stroke. Most of HSFO's OTS efforts are devoted to protecting the public from ETS (through involvement in community-based initiatives to create smoke-free public places) and prevention, rather than smoking cessation per se. HSFO has an inventory of 18 tobacco-related fact sheets and pamphlets, a number of which are available in French. The major intended beneficiaries of this agency's activities are the general public and families with children aged 6-12.

For More Information

Website:	www.hsf.on.ca
Email:	mlewis@hsf.on.ca
Mailing Address:	1920 Yonge Street 4th Floor Toronto, Ontario M4S 3E2
Toll-Free Tel. No.:	1-888-473-4636 (1-888-HSF-INFO)

4.2.6 The Ontario Medical Association

The Ontario Medical Association (OMA) is a voluntary membership organization representing Ontario's approximately 24,000 physicians. It is officially recognized as representing the economic and professional interests of the province's doctors. The OMA devotes much of its OTS efforts to the Clinical Tobacco Intervention Project (CTI). CTI was created to enhance the quality and frequency of smoking cessation interventions. It is defined as the consistent effort in a medical setting to identify all patients who smoke, advise and assist them to quit, follow up on a continuing basis and offer repeated advice to youth to prevent the initiation of smoking.

Information Resources

Resource	Target Population	Description
CTI materials	Physicians	A kit of information to be distributed to those requesting information
Talk About Smoking	Physicians	Training video for CTI project
Rethinking Stop-Smoking Medications: Myths and Facts	Physicians, government, and general public	OMA position paper released in June 1999 that called for greater access to nicotine replacement therapies by groups such as pregnant women, youth, and persons with cardiac disease. Available on OMA website.

Direct Services

CTI project training	Medical office staff	On-site training

For More Information

Website:	www.oma.org
Email:	dolores_santos@oma.org
Mailing Address:	525 University Avenue Suite 300 Toronto, ON M5G 2K7
Telephone No.:	(416) 340-2861

4.2.7 Summary

Table 9: Proportion of OTS Efforts Devoted to Smoking Cessation, as Reported by Agencies

	1997/1998	1998/1999
Resource Centres		
CTFO	5%	15%
NCTH	33%	36%
PTCC	45%	55%
SHAF	5%	5%
Community Programs		
CCCS – Ont.	25%	25%
Ontario Lung Assoc.	30%	30%
CAMH (ARF site)	20%	30%
HSFO	0%	0%

- When asked to indicate the proportion of their OTS efforts directed at each of the three OTS objectives, only one agency, the PTCC, reports that cessation is its main priority.
- Compared to 1997/1998, the CTFO, PTCC and CAMH appear to have shifted more of their efforts towards smoking cessation.
- It should be noted that activities directed at any one OTS objective also has a positive impact on the others.
- The above estimates are approximate proportions, as estimated by the agencies.

4.3 Public Health Units

4.3.1 Programs & Resources

Contact Information	Group Programs	Self-Help Resources	Other Resources
Algoma (District of)			
6th Floor, Civic Centre 99 Foster Drive Sault Ste. Marie ON P6A 5X6 (705) 759-5287 Contact: Rhea Gordon	*Smoke-Free & Healthier Me* for adults (6 weekly evening sessions)	*Stopping When You Are Ready* for pregnant women *How to Quit Smoking Successfully* from the Habitrol Support Program	
Brant County			
194 Terrace Hill Street Brantford ON N3R 1G7 (519) 753-7377 Contact: Dianna Renn		*How Not to Smoke* video and booklet made available to libraries, drop-in centres and women's groups (aimed at those with more difficult access) Self-Help Referral Service using the *COMMIT Planning Guide*, *Get On Track* and *One Step at a Time* (for teens) together with some telephone follow-up (under development)	*Thinking About Quitting?* a directory of community cessation resources Smoking cessation display for use in workplaces, hospitals, etc. Individual counselling and printed materials available to participants of prenatal classes (especially teens)
Bruce-Grey-Owen-Sound			
920 First Ave. West Owen Sound ON N4K 4K5 (519) 376-9420 Contact: Marie Barkley		*One Step at a Time* for adults Printed material for teens Printed material for pregnant women	
Durham Region			
Whitby Mall, Suite 210 Lang Tower, West Bldg. 1615 Dundas St. East Whitby ON L1N 2L1 (905) 723-8521 Conctact: Joanne Bradley	*Quit Smoking Program* continuous group support for women (offered jointly with other community agencies)	*Open Your Door to a Smoke-Free Home* (including the involvement of schools)	

Contact Information	Group Programs	Self-Help Resources	Other Resources
Eastern Ontario			
1000 Pitt Street, Cornwall ON K6J 5T1 (613) 933-1375 Contact: Julie Dyke	Cessation Group Program offered to the general public on an "as needed" basis (6 meetings over 4 weeks)	*Read This If You Are a Man/Woman Who Wants to Stop Smoking* (English and French) *Guide Your Patients to a Smoke-Free Future* promoted to physicians *One Step at a Time* for teens (currently translating into French) *Stopping When You Are Ready* a guide for pregnant women (English and French) *Zyban Plus* program for users of this prescription product	*Health Line/Appel Santé* (1-800-267-0852) cessation support available in English and French Individual counselling provided in schools on an "as needed" basis Directory of community resources and programs
Elgin-St.Thomas			
99 Edward St., St. Thomas ON N5P 1Y8 (519) 631-9564 Contact: Jackie Vanwyslick		Printed materials and videos available upon request	
Haldimand-Norfolk Regional			
365 West St., Box 247 Simcoe ON N3Y 4L1 (519) 426-6170 Contact: Brian Carlson or Heather King	*COMMIT Program* currently being offered (making modifications based on particular needs of the community)	Printed materials available upon request (based on materials from the *COMMIT* program) but encourage the group process	
Haliburton, Kawartha, Pine Ridge District			
200 Rose Glen Rd., PO Box 90 Port Hope ON L1A 3V9 (905) 885-9100 ext. 275 Contact: Cheryl Baker	*Smoke-Free Living* for adults *Stop Smoking Program* for pregnant women (based on CAPU program) *Let's Cut It Out* a 2-session program designed to assist teens in preparing to quit (presented in high schools)	Brant County *COMMIT* guide available upon request (adults) Printed guides for participants of prenatal classes Printed guides for teens	*Calling It Quits* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
Halton Region			
1151 Bronte Rd., Oakville ON L6M 3L1 (905) 825-6000 Contact: Jamie Lamothe	Currently developing cessation clinics based on McMaster University's *Smoke Stop Program*	*Stopping When You Are Ready* self-help material for pregnant women. Also supported by telephone counselling	*Thinking of Quitting?* recruitment pamphlet to be mailed to clients of social services (under development)
Hamilton-Wentworth Regional			
25 Main St. West Hamilton ON L8N 3P6 (905) 546-3573 Contact: Lynn Martin	Provide support and resources to a cessation support group Currently investigating the feasibility of providing cessation group programs	*Read This — If You Are a Man/Woman Who Wants to Quit* *Get On Track — Quit Smoking Guide* available on a cost-recovery basis	*PH Tobacco Hotline* (905) 540-5566 for access to cessation resources *So You're Getting Ready to Quit* community directory of available cessation resources and programs
Hastings & Prince Edward Counties			
179 North Parks St., Belleville ON K8P 4P1 (613) 966-5500 ext. 301 Contact: Joan Black		*One Step at a Time* program for adults with tobacco talk line *Stopping When You Are Ready* for participants of prenatal classes *One Step At A Time* program for teens (planned jointly with school system)	
Huron County			
Highway #4, RR# 5, Clinton ON N0M 1L0 (519) 482-3416 ext. 254 Contact: Linda Stobo		*One Step at a Time* self-help program available for both adults and teens	*Smoker's Help Line* to request printed materials and individual counselling
Kent-Chatham			
435 Grand Ave. West, P.O. Box 1136 Chatham ON N7M 5L8 (519) 352-7270 Contact: Michelle Bogaert	*Stop Smoking Program* for women with more difficult access to cessation support (under development)	*How Not to Smoke* video and workbook for women available on a loan basis *Breakfree Allstar* self-help programs for teens available in schools *No Ifs Ands or Butts* booklet for teens *Health in Perspective — HIP* a program for female teens	*Stop Smoking* telephone help line *Thinking About Quitting* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
Kingston, Frontenac, Lennox & Addington			
211 Portsmouth Ave., Kingston ON (613) 549-1232 Contact: Robert Goodfellow	*Smoke-Free for Good* support group for adults who have quit (available in Kingston only)	*One Step at a Time* for adults (male and female version) *Read This — If You Are a Man/Woman Who Wants to Quit* for adults *Stopping When You Are Ready* for pregnant women *One Step at a Time: A Stop Smoking Program for Teens* *Quit for Life* for teens *No Ifs Ands or Butts* offered during the school year based on available resources	*Tobacco Information Line* (613) 531-8946 *Smoke-Free Dining Guide* list of smoke-free restaurants in the region *Support, Programs and Resources for Smokers in Kingston, Frontenac, Lennox & Addington* community directory of available resources and programs
Lambton			
160 Exmouth St., Point Edward Sarnia ON N7T 7Z6 (519) 383-8331 ext. 301 Contact: Marie Chaves	Smoking cessation course for adults (10 evening sessions over 5 weeks) Support group for adults at various stages of the quitting process Program for youth under development	Printed materials available upon request	
Leeds, Grenville & Lanark District			
458 Laurier Blvd., Brockville ON K6V 7A3 (613) 345-5685 ext. 2202 Contact: Brent Dalgleish	*Smoke-Free Living* 6-8 week program available on demand *Quit Smoking Support Group* informal group sessions (weekly) — currently offered in Brockville *Ulster Cancer Foundation Program* for teens adapted from that developed in Ireland	*Read This — If You Are a Man/Woman Who Wants to Quit* for adults *COMMIT* guides for adults *How to Talk About Smoking with High Risk Pregnant Smokers* *Quit Smoking Program for Pregnant Women* (from US) *No Ifs Ands or Butts* booklet for teens	Individual counselling available in person and by telephone *Health Action* line (1-800-660-5853) provides referrals for cessation support

Contact Information	Group Programs	Self-Help Resources	Other Resources
Middlesex-London			
50 King St., London ON N6A 5L7 (519) 663-5317 ext. 2246 Contact: Kaylene McKinnon	*Stop Smoking for Women* 6-week program for adult women *Cut It Back or Cut It Out* smoking cessation workshop for high schools	Requests are referred directly to local agencies and programs *No Ifs, Ands or Butts*, offered to participants of the high school workshops	*STOP* telephone help line (519-663-7867) offering taped messages Smoking Awareness display days aimed at Grades 7 to 13 Individual counselling by a PHN available on demand to high schools *So You Want to Quit Smoking* community directory of available resources and programs
Muskoka-Parry Sound			
10 Pine St., Bracebridge ON P1L 1N3 (705) 645-4471 ext. 220 Contact: Brenda Marshall	Group support and facilitation available on demand High School Program – presentations on cessation	*Smoke-Free Victory* a self-help program including mailed printed materials and telephone follow-up for 3 months	Individual counselling for motivated quitters identified by the High School Program is available by appointment
Niagara Region			
573 Glenridge Ave., St. Catherines ON L2T 4C2 (905) 688-3762 ext. 345 Contact: Sharon Lawler	*Niagara Clinical Tobacco Intervention Program* training program for health care professionals Provide support and training for providers of cessation programs in their region Some support available on demand for worksite programs	*Your Guide to a Smoke-Free Future* for adults *Get On Track* for adults, available on a cost-recovery basis *How Not to Smoke* video and booklet for women, available to health care professionals, counsellors and visiting nurses *Stopping When You Are Ready* for pregnant women *One Step at a Time* for teens	*Prenatal Quit Smoking* (ext. 237) and *Info Tabac* (ext. 393) telephone support lines Tobacco Awareness Days and individual counselling by a PHN available in high schools *Quitting in Niagara* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
North Bay & District			
681 Commercial St., North Bay ON P1B 4E7 (705) 474-1400 Contact: Marlynne Ferguson	Refer clients to programs available in their community *So You Don't Want To Quit* seminar to motivate youth and teens in the pre-contemplation stage	*COMMIT* guides for adults *One Step at a Time* for men and for women (have produced a video for step 1) *Stopping When You Are Ready* for pregnant women *How To Make $1000 by Doing Nothing* audio tape and booklet for young women *Quit for Life* kit aimed primarily at school group programs Cessation kit containing general information and various fact sheets	*Community Info Services* general intake line for referral to cessation resources and programs Provide training and resources to physicians and other health professsionals *Quit Smoking Program Guide* community directory of available cessation resources and programs
Northwestern			
21 Wolsley St., Kenora ON P9N 3W7 (807) 468-3147 ext. 251 Contact: Lynda Dzikowski		*COMMIT* guides for adults *One Step at a Time* for men and for women	Healthy lifestyle telephone info line to include cessation info (under development)
Ottawa-Carleton			
495 Richmond Rd., Ottawa ON K2A 4A4 (613) 722-2328 Contact: Katharine Robertson-Palmer	*ACESS* group program (8-10 weeks) targeting those facing most significant barriers to quitting (includes accessibility support such as babysitting, transportation) *Kick Butt for 2* for pregnant teens and young single parents (includes accessibility support as above) Provide support and sponsorship to various community-based programs	*Tobacco Info Line* printed materials, individual counselling and client referral to existing programs and services *Smoking Stages of Change* a workplace cessation program that uses a computer program and includes individual counselling	*Tobacco Information Line* (613-724-4256) *Relapse Prevention Drop-in Support Groups* *Call It Quits* community directory of available cessation resources and programs Directory of smoke-free restaurants Client referral to the *Heart Check Smoking Cessation Program* (hospital-based)

Contact Information	Group Programs	Self-Help Resources	Other Resources
Oxford County			
410 Buller St., Woodstock ON N4S 4N2 (519) 539-9800 ext. 205 Contact: Carol Bossenberry	Cessation program for women (based on the OPHA guide)	*One Step at a Time* booklet for pregnant women *Read This — If You Are a Man/Woman Who Wants to Quit* booklet for adults *How Not To Smoke* booklet and video available on loan basis (targetted at women with difficult access to cessation resources) Some printed materials and individual counselling available for teens (focus of future expansion)	
Peel Regional			
199 County Court Blvd., Brampton ON L6W 4P3 (905) 791-7800 Contact: Patty Good (adults) Kerrie Duncan (youth)	*Smoke Busters* a drop-in support group that is professionally facilitated Tobacco Use Reduction Program for youth under development	*COMMIT* guides for adults *Read This — If You Are a Man/Woman Who Wants to Quit* for adults *Stopping When You Are Ready* for pregnant women *One Step at a Time* for teens	Health Line Peel (905-791-7800 ext. 7401) including cessation support Cessation support available in schools from PHN on demand
Perth District			
653 West Gore St., Stratford ON N5A 1L4 (519) 271-7600 Contact: Wendy Cressman-Zehr	Group program currently under development	*No Ifs Ands or Butts* for teens available to schools upon request Various printed materials available upon request	Individual counselling available via the *Health Line* and in person (Health Connections drop-in service and *Healthy Babies Clinic*) Community directory of available cessation resources and programs
Peterborough County-City			
10 Hospital Dr., Peterborough ON K9J 8M1 (705) 743-1000 Contact: Christine Post		Various printed materials available upon request	Brief telephone counselling and follow-up available on demand *Quit Kit* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
Porcupine			
169 Pine St. South P.O. Bag 2012 Timmins ON P4N 8B7 (705) 267-1181 Contact: Linda Collins	Smoking cessation program offered 3 times yearly; each includes 5-7 weekly evening sessions On-site workplace cessation programs available on demand	*Read This — If You Are a Man/Woman Who Wants to Quit Smoking* for adults *Butt Out* video for adults *How to Make $1000 by Doing Nothing* booklet and video by Ontario Ministry of Health *Guide Your Patients to a Smoke-Free Future* booklet available for physician use	Individual counselling available for adults (telephone or drop-in) Individual counselling and follow-up available for teens at location of choice
Renfrew County & District			
7 International Dr., Pembroke ON K8A 6W5 (613) 432-8608 Contact: Theresa Mann	Smoking cessation program, 4-6 weekly sessions Workplace cessation program available on demand	*Your Guide to a Smoke-Free Future* booklet for adults *Get On Track – Quit Smoking Guide* booklet for adults Cessation-related information "fact sheets" produced by the Health Unit	*Smoking…Want to Quit?* community directory of available cessation resources and programs Referrals for cessation support available from the *Health Info Line* (1-800-267-1097 ext. 666) Individual counselling and follow-up available by telephone or in person
Simcoe County & District			
15 Sperling Dr., Barrie NO L4M 6K9 (705) 721-7330 Contact: Vito Chiefari		*One Step At A Time* booklets for adults *One Step At A Time* booklets for teens *Get On Track – Quit Smoking Guide* for adults *Stopping When You Are Ready* for pregnant women Other fact sheets and printed materials also available	Cessation support and referrals available through the *Health Connection* telephone support line

Contact Information	Group Programs	Self-Help Resources	Other Resources
Sudbury & District			
1300 Paris St., Sudbury ON P3E 3A3 (705) 522-9200 Contact: Shelley Westhaver	*Smokers and Quitters* a 6-week cessation program *Smokers and Quitters* facilitated support group	*One Step at a Time* booklets for adults *COMMIT* cessation guide for adults *Stopping When You Are Ready* booklet for pregnant women *Quit 4 Life* booklet for teens *Guide Your Patients to a Smoke-Free Future* guide for use by health professionals	Telephone support and referrals available via the *Community Health Line* Individual counselling available by telephone Workplace cessation support available on demand
Thunder Bay District			
999 Balmoral St., Thunder Bay ON P7B 6E7 (807) 625-5900 Contact: Simon Hoad	*Blow Off Smoke* information session to provide overview of cessation process, cessation kits and group sharing. A similar program is also available for health care professionals *Quit Smoking for Women* sessions geared to those facing barriers to accessing cessation support (under development) *Quitters Club* lunchtime school meetings (under development)	*Read This — If You Are a Man/Woman Who Wants to Quit Smoking* booklet for adults (also available in French) *Smoking and Your Body — COMMIT* cessation guide for adults *Get On Track – Quit Smoking Guide* for adults *Stopping When You Are Ready* four versions are available (for men, women, teens and pregnant women) *Guide Your Patients to a Smoke-Free Future* for adults, women and adolescents *How Not to Smoke* a video- and workbook-based program for women who want to quit smoking Various other printed materials are also available	Telephone support, individual counselling and referrals available via the *Tobacco Resource Action Centre* (625-5982) Support and resource materials available for workplace cessation programs *Quit Smoking Resources Package* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
Timiskaming			
221 Whitewood Ave., P.O. Box 1240 New Liskeard ON P0J 1P0 (705) 647-4305 Contact: Claire Gaudet		*One Step at a Time* version for men, women and teens *Futurs ex-fumeurs! Ceci s'adresse à vous* version for men and for women *Votre guide vers un avenir sans tabac* for teens *New Start In Life/Nouveau départ – nouvelle vie* for pregnant women (English and French versions available)	Individual counselling available by telephone and in person Telephone support and referrals available via *Heart Health* telephone line (1-877-684-3278) *Break Free – A Guide to Smoking Cessation Programs Available in Timiskaming District* community directory
Toronto			
Toronto Public Health — East Region 850 Coxwell Ave., East York ON M4C 5R1 (416) 397-4795 Contact: Eden Rockett **Toronto Public Health — Central Office** 5100 Yonge St., 2nd Floor, North York ON M2N 5V7 (416) 395-0277 Contact: Sarah Farrell **Toronto Public Health — South Region** Crossways Office 2340 Dundas St. W., Toronto ON M6P 4A9 (416) 392-0983 Contact: Peggy Bayley	Clients are referred to the many programs offered by community groups and agencies *Quit Smoking Program* informal support group (weekly meetings)	Printed materials available upon request *One Step at a Time* version for men, for women and for teens *How to Stop Smoking – A Program for Women* video and booklet	*Breakfree Place* Hassle-free counseling with public health nurses on it part time; group support, pamphlets available *Heart Health Network Program* A free 8-week support program for those using the pharmacy at Sunnybrook Medical Centre who are on NRT or Zyban Individual counselling via the *Quit Smoking Program* (weekly evening appointments provided by RN and MD, for adults and teens) *Quit Smoking* telephone support line (397-4785) A resource directory of cessation support available in the community
Waterloo Region			
P.O. Box 1633 Waterloo ON N2J 4V3 (519) 883-2000 Contact: Gretchen Sangster	Provide support and resources to local groups and programs such as *Smokers Anonymous* and *Kick Butt for 2* (pregnant teens)	*Stopping When You Are Ready* version for pregnant women *One Step at a Time* version for teens Other printed materials available on demand and also refer to local office of the Canadian Cancer Society	Self-help materials available from the *Tobacco Info Line* (519-883-2279) *So You Want to Quit Smoking* community directory of available cessation resources and programs

Contact Information	Group Programs	Self-Help Resources	Other Resources
Wellington-Dufferin-Guelph			
205 Queen St., East Fergus ON N1M 1T2 (519) 843-2460 Contact: Linda Maki	Smoking cessation group program under development Group sessions in conjunction with Lung Association and Heart Health Program	*COMMIT* guides to smoking cessation for adults *How to Help a Friend Stop Smoking* *Stopping When You Are Ready* for pregnant women *Get On Track – Quit Smoking Guide* for men in prenatal program *Quit 4 Life* for teens (available from school PHNs)	Regularly scheduled clinic hours supported by PHN available in high school Community directory of available cessation resources and programs available
Windsor-Essex County			
1005 Ouellette Ave., Windsor ON N9A 4J8 (519) 258-2146 Contact: Sophie Rosa		*One Step at a Time* gender-specific versions for adults. Teen version available in schools *I Smoke So What* series of three booklets for teens	*Tobacco Hotline* (1-519-258-2146 ext. 276) *Community Resources for Smoking Cessation* community directory
York Regional			
17250 Yonge St., Box 147 Newmarket ON L3Y 6Z1 (905) 895-4511 Contact: Helen Tunney		Stop smoking resources pamplet describing community resources and methods of quitting	Phone counselling Self-help literature and video (Ontario Lung Association) on loan for individuals and workplaces *COMMIT* guide modified on website Cessation in workplaces workshop

4.3.2 Summary

Similar to those of other agencies and community programs, the cessation activities of the Health Units across Ontario are under constant change. Consequently, actual programs and resources offered at any one time vary in response to community needs and available resources.

Table 10: Cessation Programs and Activities as Reported by Health Units, 1998/1999

Programs & Resources	Currently Offering	Under Development
Self-help materials	97%	-
Group Programs	63%	-
• *formal programs*	40%	8%
• *informal support groups*	24%	-
Telephone Help Line	53%	-
• *dedicated tobacco info line*	29%	-
• *via general health line*	24%	-
Community Directory	53%	-
Individual Counselling	42%	-
• *in person*	16%	-
• *by telephone*	21%	-
• *in schools*	5%	-
School Programs	13%	3%

4.4 Pharmaceutical Industry

4.4.1 Aventis Pharma Inc. (formerly Hoeschst Marion Roussel Canada Inc.) (Nicorette® nicotine gum and Nicoderm® nicotine patch)

This company offers, free of charge, the following resources:

- Smoking cessation self-help pamphlets (*Nicoderm 10 Weeks to Freedom, Nicorette and Me*) available to the general public upon individual request. These may be obtained from the customer service desk at 1-800-265-7927.
- Medical information available to health professionals upon individual request.

4.4.2 Glaxo-Wellcome Inc. (Zyban®)

This company offers, free of charge to users of Zyban®, the following resources:

- A support program (Zyban*plus*) which includes *Make This Another Smoke-Free Day!* self-help brochure, a telephone help-line with 24-hour access to confidential support and helpful tips provided by Registered Nurses (1-800-489-8424), mailings of self-help materials for a period of 3 months, telephone follow-up during the first month (with the participant's approval) and a directory of local resources for those enrolled in this program. To enroll, users of Zyban® must call the toll-free number listed above.

4.4.3 Johnson & Johnson • Merk Consumer Pharmaceuticals (Nicotrol® nicotine patch)

This company offers, free of charge to users of Nicotrol ® (nicotine patch), the *Stop Smoking Now!* support program available in both English and French. This smoking cessation program, developed by health professionals from the University of Ottawa Heart Institute, includes:

- Free telephone counselling provided by nurses trained in addiction counselling (1-888-730-INFO). Registrants receive four support calls over the 10-week cessation program.
- The *Stop Smoking Now!* self-help booklet.
- A series of information bulletins on various cessation-related topics such as handling urges and cravings, weight control, managing stress, getting help to quit, and handling lapses and relapse.

4.4.4 Novartis Consumer Health Canada Inc. (Habitrol® nicotine patch)

This company offers, free of charge to the general public, the *Habitrol Stop Smoking System* available in both French and English. This program includes:

- A public website (www.habitrol.com) that provides an interactive stage-based self-help program designed to help smokers through the quitting process. This site provides behavioural support and information on preparation, action and coping plans.

- A toll-free support line (1-888-227-5777) staffed by health professionals trained in smoking cessation. This service can help smokers develop a personalized cessation plan and teaches them how to break their smoking habit. It is available Monday to Friday, 8 a.m. to 10 p.m.

- *Helping Your Patients Quit Smoking* – a guide for pharmacists designed as a practical resource to help them provide assistance to their clients. Produced in partnership with the Canadian Pharmacists Association (CPhA).

- *Helping Your Patients To Quit Smoking* – a resource guide for physicians.

- Patient-directed self-help booklets – *How to Quit Smoking Successfully* and *If You Are a Woman Who Wants to Quit Smoking.*

4.5 Other Organizations/Programs

Program (Organization)	Services Provided	City	Phone
Addiction Services of Eastern Ontario (Ontario Substance Abuse Bureau)	Group support therapy	Cornwall	1-800-272-1937
AWARE (AWARE)	Resource materials and group mutual aid	Kingston	613-545-0117
Asthmax Plus – Smoking Cessation Counselling (Asthmax Plus)	Individual counselling	St. Catharines	905-687-8999
Breathe Free – Smoking Cessation (Seventh Day Adventists)	Group program	Oshawa Cornwall	905-433-0011, 905-571-1022 613-937-3593
Commit to Quit – Stop Smoking for Women	Cessation counselling, group facilitation, consultation	Peterborough	705-745-5200
Heart Check Smoking Cessation Program (University of Ottawa Heart Institute)	Individual counselling	Ottawa	613-761-4753
Homewood – Quit Care (Homewood Behavioural Health Corp)	Resource materials, individual counselling, telephone and group support	Guelph	519-824-6104
McMaster Smoke-Stop Clinics	McMaster University	Hamilton	905-573-4823
Nicotine Anonymous	Services offered vary according to location	Cornwall Guelph North Bay Toronto	613-937-3593 519-822-6653 705-497-7568 416-487-8988
Patch Plus (Homewood Health Services)	Group cessation program combined with nicotine replacement therapy	Guelph	519-824-5405
Quit Care	Resource materials, individual counselling, telephone and group support	Toronto	416-488-3429
The Quit Clinic	Resource materials, individual counselling, telephone and group support	North York	416-784-5511
Smoke-Free for Women	Eight week cessation program	Toronto	416-465-1323
Smokers Anonymous	Group support meetings	Kitchener	519-578-6681

Program (Organization)	Services Provided	City	Phone
Smokers Treatment Centre Program	Resource materials, group discussion and support	Ottawa	613-738-4178
Smoking Cessation Clinic	Individual counselling and resource materials	Niagara Falls	905-356-2568
Smoking Cessation Support (St. Patrick's Church)	Group support	Sudbury	705-522-3900
Smoking Cessation for Men	Resource materials, individual counselling, telephone and group support	Peterborough	705-743-4183
Y-Smoke – Smoking Cessation (YMCA of Greater Toronto)	Group cessation program	Toronto	416-975-9622 extension 5354

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

Quitting smoking can be very difficult because of a host of social, biological, psychological and environmental factors. The good news is that smokers can, and do, quit.

As shown in Chapter 2 of this report, half of Ontarians who have ever smoked and are still alive have already quit smoking (Fig. 3). Regrettably, nearly half of all remaining smokers aren't even thinking of quitting (Fig. 8). Only one third of current smokers in Ontario make a serious attempt to quit each year (Table 5).

It doesn't have to be this way. As reported in Chapter 3, a wide variety of treatments can significantly improve a smoker's chance of quitting, from relatively simple, inexpensive self-help booklets, to brief counselling by health professionals, group programs and pharmacological treatments. Unfortunately, only a small percentage of smokers appear to use these resources.

As detailed in Chapter 4, a significant number of government and non-government agencies offer programs to help smokers quit. However, access to quality services varies considerably across the province. For example, relatively few areas of the province are reasonably close to group support programs or dedicated cessation clinics staffed by qualified counselors. Interventions designed to meet the special needs of youth, pregnant women, aboriginals, francophones, and other populations are not readily available. Moreover, the effectiveness and cost-efficiency of many services are largely unknown. While many providers should be applauded for ensuring the quality of the service they provide, the lack of program standards means that some may offer ineffective or inferior treatment.

This report demonstrates the conspicuous absence of information about the marketing of cessation services. We need to let smokers know what works and how to get it. Research suggests that marketing campaigns are effective when combined with other interventions to prevent tobacco use (Perry, Kelder, Murray & Klepp, 1992). Business people know that marketing is the engine of success; certainly tobacco companies recognize this. People cannot use products or services they do not know about. Moreover, they are reluctant to use products or services they are unfamiliar with. Studies indicate that marketing can dramatically improve the utilization of cessation interventions, provided that campaigns are of sufficient intensity and duration and that messages focus on the merits of cessation, what types of assistance are available and how to access them (McCabe, 1998; Pierce, Anderson, Romanno, et al., 1992; Watt, 1999) . One recent Canadian study also found that the segmentation of messages according to audience characteristics and selection of channels used to send messages have a profound impact on participation rates (McDonald, 1999, 1998). It would be foolish, therefore, to expect cessation programs and services to succeed in the absence of companion marketing campaigns. Yet, sadly, this appears to be the case in Ontario at present.

Most attention in the field of smoking cessation has focused on the provision of behavioural and pharmacological treatments or services. However, an individual's motivation and ability to quit smoking is also highly influenced by social and economic factors. For example, one California study reported that the chances of quitting improved by approximately 80 per cent among smokers who worked in smoke-free settings, relative to smokers exposed to indoor smokers (Pierce, Evans, Farkas et al., 1995). In Ontario, 6 in 10 current smokers cite others' smoking as one reason why they started smoking again after quitting (Fig. 9). Smoking prevalence is higher in environments where smokers are regularly exposed to others' smoking (Fig. 10). More than 4 in 10 former smokers indicate that the price of tobacco products played a role in their decision to quit (Fig. 7). This evidence suggests that public policies such as smoking bans and tobacco tax increases can not only increase smokers' motivations to try to quit — they may also

contribute significantly to their chances of remaining tobacco-free.

Some Words of Caution

This report provides information to help individuals, program providers, policy makers, and others better understand the nature and determinants of smoking cessation in Ontario. However, we caution readers who may want to use this information to make decisions about the "best" way to help smokers quit. Such decisions are deceivingly complex. For example, the current scarcity of resources in health care means that programs and services must be efficient as well as effective.

Decision-makers perusing Chapter 3 might tend to recommend implementation of the most effective cessation strategies. However, the most effective treatments may not always be the most cost-efficient.

Suppose that a treatment that helps 20 per cent of participants costs $200 per person to deliver. A second treatment helps only 5 per cent of participants to quit smoking but costs $10 per participant. Which program should providers offer? The answer depends on a number of factors. If you are trying to increase the odds that any given participant quits smoking, and if resources are unlimited, then the first program is clearly superior. However, if you have a fixed budget, and your goal is to help as many smokers as possible, then the second program is superior. This is because the first program costs $1,000 for each successful quitter, while the second program costs only $200 for each successful quitter. Therefore, you can help 5 times as many smokers to quit smoking with the available resources by using the less effective (but more cost-efficient) program.

Selecting an appropriate program becomes even more complicated when you consider that not all smokers have an equal probability of success in a given program (Abrams, Orleans, Niaura et al, 1996). Some types of smokers are more likely to succeed in certain types of programs. Therefore, the most efficient overall strategy may be to provide different types of services for different types of smokers. Unfortunately, researchers are only beginning to understand which characteristics are important in predicting success in various types of programs. Once this information becomes available, it will enable program providers to become even more effective and efficient.

It is also important to consider how the "success" of smoking cessation interventions is assessed. Various programs or strategies use different methods, questions, follow-up periods, exclusion criteria, and populations of study, to evaluate success (Velicer, Prochaska, Rossi & Snow, 1992). This is evident in Chapter 3. Pharmacological treatments have generally been tested on moderate to heavy smokers. It is unclear whether their benefits extend to light smokers (i.e., persons who smoke less than 15 cigarettes per day). Treatments that have proven to be highly successful with adults have failed when used with adolescents (Hurt, Croghan, Beede et al, 2000). Indeed, at the writing of this report, we are unaware of any single smoking cessation intervention that has been rigorously proven to be effective with young smokers.

Our measures of effectiveness are also relatively crude. The most common method is to determine the percentage of people who have quit smoking at some period of time (usually 6 or 12 months) after completing an intervention. Those who are smoking at the follow-up period are considered to be, for analytical purposes, program failures.

However, behaviour change is a cumulative process. We learn from our mistakes. The knowledge gained through using a program may play some crucial role in a future quit attempt. Without the experience gained through "failure," a subsequent quit attempt may not succeed. Therefore, it is presumptuous to conclude that a given intervention "caused" success or failure independent of any previous interventions or experiences. Quite simply, we need better methods for evaluating the efficacy of smoking cessation programs. In the interim, we need to exercise caution in how we select "best practices."

Another problem with our current methods is that we tend to measure outcomes in a dichotomous fashion. A program that reduces a smoker's consumption from 30 to 2 cigarettes per day may be considered a "failure." In reality, the risk associated with tobacco use is related to consumption (Jimenez-Ruiz et al., 1998). Therefore, such a reduction in amount smoked would dramatically reduce that individual's risk of illness. Indeed, the health benefits of going from 1 to 0 cigarettes (which by most standards would be regarded as a success) is small by comparison. Ideally, our metric of interest should be the net reduction in the excess risk of smoking-related morbidity or mortality attributable to a given treatment. However, such a standard does not yet exist.

What is the Bottom Line?

Over the next 50 years, 80 percent of the burden on health caused by smoking will fall on individuals who smoke today (Anderson, 1999). Hence, while tobacco prevention and protection initiatives remain important, it is imperative that we improve efforts to help current smokers quit smoking. However, we must not lay the responsibility entirely at the feet of individual smokers. Smoking is also a concern for their families, friends, employers, and communities, who depend on them. As discussed above, the ability of smokers to quit also depends on the kind of support we provide for them.

Significant reductions in the burden of tobacco use will not be achieved until we implement a combination of programs, policies and media campaigns that: (a) encourage more smokers to make a serious quit attempt; (b) provide smokers with greater access to proven cessation treatments; (c) encourage more smokers to enroll in effective smoking cessation programs; (d) better match smokers to effective, efficient, and acceptable treatments; (e) provide more support to smokers trying to remain smoke-free; and, (f) encourage smokers who relapse to continue trying to quit.

Individual smokers can improve their chances of successfully quitting through commitment, careful planning, and effort. Likewise, it will require commitment, careful planning, coordination, and considerable effort on the part of government, communities, health care providers, workplaces, and families to help us effectively deal with smoking at a population level.

Recommendations

Given the grave consequences associated with smoking and the benefits of quitting smoking at both an individual and population level, we offer the following recommendations:

1. Begin immediately to develop a comprehensive population-based smoking cessation strategy for the province of Ontario, and incorporate it as part of the Ontario Tobacco Strategy.

2. Fund and implement services, policies, media campaigns and other interventions through the strategy that maximally reduces the expected smoking-related burden on health among current smokers.

3. Develop and implement the cessation strategy in co-operation with the major stakeholders concerned with tobacco cessation, including the Ontario Ministry of Health and Long Term Care, voluntary agencies (e.g., the Canadian Cancer Society, the Ontario Lung Association, etc.), independent health practitioners, businesses, and researchers.

4. To ensure continuity and coordination, the Ministry of Health and Long Term Care should play an active role in formulating policy and providing services though the Health Promotion Branch, the Public Health Branch, local health departments, etc.

5. Base the strategy on the latest scientific, clinical, and economic evidence and subject it to continuous evaluation. Interventions should include, at a minimum:

- Training physicians, nurse practitioners, pharmacists, dentists, and other health professionals to provide brief interventions for smoking cessation in accordance with the latest practice guidelines;
- A province-wide toll-free telephone helpline that smokers, health professionals and others can call to receive information on available cessation services, request suitable self-help materials, and receive either proactive or reactive advice/support;
- A request that the federal government require tobacco manufacturers to print the toll-free cessation helpline number on every tobacco package distributed in Ontario;
- An extensive media campaign to help make smokers aware of the benefits of quitting and how to get assistance to quit;
- Cessation support groups in every major community in Ontario;
- A network of clinics where smokers who meet certain criteria can receive free one-on-one or group counselling from a qualified professional counsellor;
- Specialized cessation interventions in every hospital and cancer treatment centre in the province;
- Financial support to help low-income individuals purchase a limited supply of approved pharmacological smoking cessation aids;
- Training and materials for workplaces willing to sponsor a cessation program.

Three key regulatory interventions could also substantially impact cessation and relapse:

- A substantial increase in tobacco taxes to ensure prices are at least as high as those of surrounding provinces and states;
- A province-wide ban on smoking in all indoor workplaces and public places;
- A request that the federal government strictly regulate the amount of nicotine in tobacco products.

6. Provide support and infrastructure to (1) identify and disseminate best practices in tobacco cessation, (2) develop and evaluate new or promising evidence-based interventions, and (3) stimulate research for smoking cessation.

7. Continuously monitor/evaluate each component of the strategy, as well as its overall impact.

8. Based on the work of the United States Centers for Disease Control and Prevention (USDHHS, 1999), as well as the experience of other jurisdictions, provide annual funding through the Ontario Ministry of Health (exclusive of physician billings to OHIP) to implement the cessation strategy in the amount of:

   - $4 per smoker to advise smokers about the benefits of quitting, promote the availability of smoking cessation services, establish a telephone helpline, and provide written and internet-based self-help materials;
   - $2 per smoker to train health care professionals, provide them with resources and encourage them to provide brief counselling as appropriate;
   - $6 per smoker to establish a comprehensive network of support groups, support worksites, and cessation clinics across the province;
   - $2 per smoker to supplement the cost of pharmacological treatments for low-income smokers and the provision of pharmacological treatments through clinics.
   - $0.50 per smoker to support policy development and administration of the cessation strategy;
   - $1.50 per smoker to support the identification of best practices for tobacco

cessation, monitor progress towards the cessation strategy's objectives, and stimulate basic and applied research to improve the effectiveness, efficiency, accessibility and acceptability of smoking cessation interventions.

It is noteworthy that the total cost of financing these recommendations is $32 million per year. This is less than 7 per cent of the annual revenue generated by provincial tobacco taxes.

The good news is that people want to quit and many already have. Effective interventions do exist. We simply need a comprehensive and co-ordinated approach to deal with this complex and urgent problem.

REFERENCES

Abbot NC, Stead LF, White AR, Barnes J, Ernst E. Hypnotherapy for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Abrams DB, Orlean CT, Niaura RS, Goldstein MG, Prochaska JO, Velicer W. Integrating individual and public health perspectives for treatment of tobacco dependence under managed health care: A combined stepped-care and matching model. *Annals of Behavioral Medicine* 1996; 18: 290-304.

Adlaf E, Ivis, F, Paglia, A, Ialomiteanu, A. *Ontario Drug Monitor 1998: Technical Guide*. (CAMH Research Document Series No. 3). Toronto, ON: Centre for Addiction and Mental Health, 1999a.

Adlaf EM, Paglia A, Ivis FJ. *Drug Use Among Ontario Students, 1977-1999: Findings from OSDUS* (CAMH Research Document No. 5). Toronto, ON: Centre for Addiction and Mental Health, 1999b.

Anderson P. Public policy and smoking cessation. Paper presented at: Second European Conference of the Society for Research on Nicotine and Tobacco; 1999; London, UK.

Ashenden R, Silagy CA, Lodge M, Fowler G. A meta-analysis of the effectiveness of acupuncture in smoking cessation. *Drug and Alcohol Review* 1997; 16: 33-40.

Ashley MJ, Cohen J, Bull S, Poland B, Gao J, Stockton L, Pederson L, Ferrence R. *Smoking in Ontario: Analysis of Data from the "Q&Q" Study*. A report prepared for Health Canada and the Ontario Ministry of Health. Toronto, ON: Ontario Tobacco Research Unit, 1997.

Bondy SJ, Cohen JE, Rehm, JT. *Past Trends in Tobacco Use and Some Thoughts on Future Trends (*Working Paper Series No. 44). Toronto, ON: Ontario Tobacco Research Unit, March 1999.

Buck D. The cost-effectiveness of smoking cessation interventions: What do we know? *International Journal of Health Education* 1997; 35: 44-52.

Cepeda-Benito A. Meta analytical review of the efficacy of nicotine chewing gum in smoking treatment programs. *Journal of Consulting and Clinical Psychology* 1993; 61(5): 822-30.

Chief Medical Officer of Health. *Tobacco: Sounding the Alarm.* Toronto, ON: Ontario Ministry of Health, 1996.

Ferry LH, Burchette RJ. Efficacy of bupropion for smoking cessation in non-depressed smokers. *Journal of Addictive Diseases* 1994; 13: 249.

Fiore MC, Smith SS, Jorenby DE, Baker TB. The effectiveness of the nicotine patch for smoking cessation: a meta-analysis. *Journal of the American Medical Association* 1994; 271(24): 1940-7.

Flay BR. Mass media and smoking cessation: a critical review. *American Journal of Public Health* 1987; 77: 153-60.

Gourlay S. The pros and cons of transdermal nicotine therapy. *Medical Journal of Australia* 1994; 160(3): 152-9.

Gourlay SG, Stead LF, Benowitz NL. Clonidine for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Greenland S, Satterfield MH, Lanes SF. A meta-analysis to assess the incidence of adverse effects associated with the transdermal nicotine patch. *Drug Safety* 1998; 18(4): 297-308.

Hajek P, Stead LF. Aversive smoking for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Health Canada. *Canadian Tobacco Use Monitoring Survey. Wave 1 (February-June 1999). Summary of Results.* Health Canada Fact Sheet; January 2000.

Health Canada. *Survey on smoking in Canada*, Health Canada Report; February 1995.

Heatherton TF, Kozlowski LT, Frecker RC, Rickert WS, Robinson J. Measuring the heaviness of smoking using self-reported time to the first cigarette of the day and number of cigarettes smoked per day. *British Journal of Addiction* 1989; 84:791-800.

Hughes JR, Goldstein MG, Huart RD, Shiffman S. Recent advances in the pharmacotherapy of smoking. *Journal of the American Medical Association* 1999; 281(1): 72-6.

Hughes JR, Stead LF, Lancaster TR. Anxiolytics and antidepressants in smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Hurt RC, Croghan GA, Beede SD, Wolter S, Croghan IT, Patten CA. Nicotine patch therapy in 101 adolescent smokers. *Archives of Pediatric and Adolescent Medicine 2000*; 154: 31-37.

Hurt RD, Sachs DPL, Glover ED, et al. A comparison of sustained-release bupropion and placebo for smoking cessation. *New England Journal of Medicine* 1997; 337(17): 1195-1202.

Jimenez-Ruiz C, Kunze M, Fagerstorm K-O. Nicotine replacement: a new approach to reducing tobacco-related harm. *European Respiratory Journal* 1998; 11(2): 473-479.

Jorenby DE, Scott JL, Mitchell AN, et al. A controlled trial of sustained-release bupropion, a nicotine patch, or both for smoking cessation. *New England Journal of Medicine* 1999; 340: 685-91.

Lancaster T, Stead L. Mecamylamine (a nicotine antagonist) for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Lancaster T, Stead L. Silver acetate for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Lancaster T, Stead LF. Individual behavioural counselling for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Lancaster T, Stead LF. Self-help interventions for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Ling Tang J, Law N, Wald N. How effective is nicotine replacement therapy in helping people stop smoking? *British Medical Journal* 1994; 308(6920): 21-6.

McCabe P. *Making the Phone Ring: Promoting a Quitline.* San Diego, CA: Workshop Sponsored by the California Department of Health Services and the American Cancer Society, August, 1998.

McDonald PW. Population-based recruitment for quit-smoking programs: An analytic review of communication variables. *Preventive Medicine* 1999; 28: 545-557.

McDonald PW. *A Comparison of Methods for Marketing Population-Based Quit Smoking Programs.* Toronto, ON: Ontario Tobacco Research Unit Working Paper Series 39, 1998.

Mills C, Stephens T, Wilkins K. Summary report of the workshop on data for monitoring tobacco use. *Chronic Diseases in Canada* Summer 1994;15(3):105-10.

Ontario Medical Association. Committee on Drugs and Pharmacotherapy. *Rethinking Stop-Smoking Medications: Myths and Facts*. Toronto (ON): Ontario Medical Association; June 1999.

Pederson LL, Bull SB, Ashley MJ, MacDonald JK. Quitting smoking: why, how, and what might help. *Tobacco Control* 1996;5:209-14.

Perry CL, Kelder SH, Murry DM, Klepp KI. Community wide smoking prevention: Long term outcomes of the Minnesota Heart Health Program and the Class of 1989 Study. *American Journal of Public Health* 1992; 82: 1210-1216.

Pierce JP, Evans N, Farkas AJ, Cavin SW, Berry C, Kramer M et al. *Tobacco Use in California. An Evaluation of the Tobacco Control Program, 1989-1993*. San Diego: Cancer Prevention and Control Program, University of California, 1995.

Pierce, JP, Anderson, DM, Romanno, RM, Meissner, HI, Odenkirchen JC. Promoting smoking cessation in the United States: Effects of public service announcements on the Cancer Information Service telephone line. *Journal of the National Cancer Institute* 1992; 84: 677-683.

Po AW. Transdermal nicotine in smoking cessation: a meta-analysis. *European Journal of Clinical Pharmacology* 1993; 45(6): 519-28.

Prochaska JO, DiClemente CC, Velicer WF, Rossi JS. Standardized, individualized, interactive, and personalized self-help programs for smoking cessation. *Health Psychology* 1993;12(5):399-405.

Prochaska JO, Goldstein MG. Process of smoking cessation: implications for clinicians. *Clinics in Chest Medicine* December 1991;2(4):727-35.

Reid R, Coyle D, Papadakis S, Boucher K. *Nicotine Replacement Therapies in Smoking Cessation*. Canadian Council on Tobacco Control. Ottawa (ON): Council on Tobacco Control; 1999.

Silagy C, Ketteridge S. Physician advice for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Silagy C, Mant D, Fowler G, Lancaster T. Nicotine replacement therapy for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Snowden AJ, Arblaster L, Fullerton D. Mass media interventions for preventing smoking among young people (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Stead LF, Hughes JR. Lobeline for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Stead LF, Lancaster T. Group behaviour therapy programmes for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

Tengs TO, Adams ME, Pliskin JS, Safran DG, Siegel JE, Weisteain MC, Gramham JD. Five hundred life-saving interventions and their cost effectiveness. *Risk Analysis* 1995; 15: 369-390.

U.S. Department of Health and Human Services [USDHHS]. *Program and Funding Guidelines for Comprehensive Tobacco Control Programs.* Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1999.

U.S. Department of Health and Human Services. *The Health Benefits of Smoking Cessation: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1990.

U.S. Department of Health and Human Services. *Reducing the Health Consequences of Smoking: 25 Years of Progress: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health, 1989.

Velicer WF, Prochaska JO, Rossi JS, Snow MG. Assessing outcome in smoking cessation studies. *Psychological Bulletin* 1992; 111: 23-41.

Watt J. How quitlines have made clients aware of their service. Paper presented at: International Quitlines Conference; October, 1999; London ,UK.

White AR, Rampes H. Acupuncture for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 1999. Oxford: Update Software.

APPENDICES

APPENDIX A: ADDENDUM TO CHAPTER 2

ANALYTICAL APPROACH

Estimation of Smoking Behaviours

Sample surveys are designed to provide an estimate of the Atrue@ value of a particular characteristic in the population, such as the percentage of Ontario adults who report using cigarettes. All adults in the province are not surveyed, however, so the Atrue@ population percentage is unknown and instead is estimated from the sample. Some sampling error will be associated with this estimate. Confidence intervals provide a range within which the true population percentage may lie, with a given probability. In this report, 95% confidence intervals are used. This means there is a 95% chance that the given confidence interval will contain the true value of the quantity being estimated.

Tests of Significance

Formal tests of statistical significance have not always been performed. One should therefore interpret trends that arise from comparisons with caution.

Tests for a significant difference in the proportions across the years were assessed by comparing confidence intervals. For example, if individual 95% confidence intervals do not overlap for two independent years, then the corresponding significance level (p-value) for testing the equality of the two proportions would be less than 0.05. In other words, if the *lower* limit of an estimate for one year does not overlap the *upper* limit of an estimate for the following year, the estimates can be interpreted as being significantly different from a statistical perspective using this somewhat conservative test Whether these differences are significant from a *practical* standpoint is for the reader to judge.

DATA SOURCES

IMS Databases

To obtain data on dollar sales of pharmaceutical products, IMS hired "field agents" who took copies of invoices of the drugstores and hospitals on the IMS panel on a monthly basis. The IMS panel was designed to be representative of Canada. The drugstore sample was stratified by size and region and the hospital sample was stratified by type and bed size. This methodology tracks the actual sales of pharmaceutical products sold indirectly through wholesalers and chain warehouses, and directly from the manufacturers to pharmacies, hospitals, dispensing physicians, government accounts and other purchasing outlets in Canada.

The data used to project the number of prescriptions was collected electronically from a sample of retail pharmacies. The pharmacies were stratified by province, type and size and the number was projected a sample projection factor.

***Ontario Drug Monitor* 1996-1998, Centre for Addiction and Mental Health [CAMH] (Adlaf et al., 1999a)**

In 1996, CAMH replaced the Ontario Adult Drug Opinion Survey series of surveys with the Ontario Drug Monitor (ODM). The ODM is an aggregation of independent monthly surveys conducted by the Institute for Social Research at York University. In 1998, 12 independent monthly surveys were conducted (January - December). A final sample of 2,509 respondents participated, representing an effective response rate of 69%.

A two-stage probability design is used. Each month, a sampling frame is obtained of all active area codes and exchanges in Ontario. Within each regional stratum, a random sample of telephone numbers is chosen with equal probability of selection. Within selected households, one respondent aged 18 or older, who may complete the interview in English or French, is selected according to which household member has the most recent birthday.

***Qualitative & Quantitative Study*, Ontario Tobacco Research Unit, 1996 (Ashley et al., 1997)**

Smoking, Smoking Cessation, Tobacco Control and Programming: A Qualitative and Quantitative Study ("The Q & Q Study") was conducted in the spring and early summer of 1996 by the Ontario Tobacco Research Unit, Centre for Health Promotion, University of Toronto. It is a population-based survey of Ontario residents, 18 years of age and older, conducted using random-digit dialing and a computer-assisted telephone interview. A qualitative component involved focus groups and in-depth interviews with a subsample of survey respondents from the Metropolitan Toronto area. The survey objectives were to describe the current situation in Ontario with respect to knowledge of health effects of active and passive smoking, attitudes toward restrictions on smoking, reasons for quitting and relapse, smokers' attitudes and behaviours concerning light and mild cigarettes, reasons for smoking, and public perspectives on tobacco control legislation.

The quantitative component used a two stage probability selection process to select survey respondents. In the first stage, households were selected by randomly selecting telephone numbers; in the second stage, respondents were randomly selected from all eligible adults in the household, using the most recent birthday selection method.

The survey was completed at the Institute for Social Research, York University, between April 23rd and June 25th 1996, yielding a total of 1,764 telephone interviews and a response rate of 68%.

***Ontario Student Drug Use Survey 1999*, CAMH (Adlaf et al., 1999b)**

The *Ontario Student Drug Use Survey* has been conducted every two years since 1977 by CAMH (Adlaf et al., 1999b). It is the longest

ongoing study of adolescent drug use in Canada. The survey monitors the use of alcohol, tobacco and other drugs among Ontario students. The target population is composed of all students enrolled in the public or Catholic regular school systems. It excludes those enrolled in private schools, special education classes, those institutionalized for correctional or health reasons, those on Indian reserves and Canadian Forces bases, and those in the far northern regions of Ontario (about 7% of Ontario students).

The 1999 OSDUS employed a two-stage (school first, then class clusters) sample design stratified by region. All students in grades 7 though 13 (OAC) were surveyed. Furthermore, schools, rather than school boards, were the primary sampling unit. In addition, students in Northern Ontario were oversampled.

The sampling frame was based on the Ontario Ministry of Education and Training's 1999 MIDENT file, which provided the information on student enrollment figures.

Students from 38 school boards participated in the 1999 survey. In total, data from 111 schools, consisting of 285 classes, comprised the final sample. The overall participation rate of students was 77%, which corresponds to an unweighted sample of 4,894 students (766 in grade 7; 798 in grade 8; 905 in grade 9; 638 in grade 10; 750 in grade 11; 590 in grade 12; and 447 in grade 13). The final sample of 4,894 students represents approximately 923,000 Ontario students in grades 7 through 13 (Adlaf et al., 1999b).

Waterloo Smoking Prevention Projects — Study 4 (WSPP4) 1996 - 2001,
Health Behaviour Research Group, University of Waterloo

The Health Behaviour Research Group (formerly the Waterloo Smoking Projects) at the University of Waterloo has completed four randomized trials of the effectiveness of social influences smoking prevention curricula in elementary schools. The WSPP4 Study was undertaken with funding from the Heart and Stroke Foundation, beginning in 1996. Twenty-four secondary schools in three school boards in Southern Ontario were randomized (in pairs) to either a technical assistance condition or a control (usual practice) condition. Whole school surveys in the fall of 1996 were used for the purposes of matching schools for randomization and for planning activities. Fall surveys are conducted in the intervention schools each year in those schools that wish to use the information as a planning tool. Evaluation surveys, again of the whole school, were conducted in the spring of 1997, 1998 and 1999, and will be repeated annually to the end of the five year study. Unlike previous WSPP studies, there is no longitudinal tracking of students; while responses from individual schools can be monitored across time, it is not possible to link responses from different time points to individual students.

DEFINITIONS OF INDICATORS

2.2.1 Smoking Status (% Former Smokers)

The three smoking status categories, based on the ODM, are defined as follows:

current smoker:	100 cigarettes in lifetime and smoked in past month
former smoker:	100 cigarettes in lifetime and did not smoke in past month
never smoker:	<100 cigarettes in lifetime

These definitions were largely based on recommendations following a consensus workshop sponsored by Health Canada (Mills et al., 1994).

The percent of former smokers in the population is an indicator that was used in the US Surgeon General's report on the Health Benefits of Smoking Cessation (USDHHS, 1990) and can be used to track quitting activity over time. The main limitation of this indicator is that it does not differentiate between individuals who have recently quit (and are at the highest risk of relapse) from those who have been abstinent for

a number of years (and are at the lowest risk of relapse) (USDHHS, 1990).

2.2.2 Former Smokers by Time of Quitting

Former smokers, as defined in 2.2.1, were analyzed according to their time of quitting. The categories of interest were <1 yrs ago, 1-5 years ago, and >5 years ago. The cut-off of 1 year was chosen in order to obtain a sense of recent quitting activity. The cut-off of 5 years was chosen because this is the way responses were categorized in the survey instrument (ODM).

The percent of former smokers who quit <1 year ago can be used to track changes in quitting activity over time. A limitation of this indicator is that it cannot take into account the differing rates of smoking over time. For instance, a decrease in the proportion of former smokers may be the result of increasing smoking rates and stable quitting rates, and not necessarily a reduction in quitting activity (Bondy et al., 1999).

2.2.3 Overall and Recent Quit Ratios

Overall Quit Ratio

The overall quit ratio is defined as the ratio of former smokers to ever smokers (current + former smokers) (USDHHS, 1990); therefore, it is the proportion of ever smokers who have quit. The quit ratio aims to quantify the magnitude of quitting in the population, and has been cited as a measure that is to quitting behaviour what smoking prevalence is to smoking behaviour (USDHHS, 1989).

Like other indicators, the quit ratio has limitations. It does not reflect the magnitude of current smoking (USDHHS, 1989). A declining quit ratio may reflect a stable cessation rate with an increase in current smokers, not a decline in quitting activity (Bondy et al., 1999). Thus, the quit ratio can reflect changes in smoking behaviours other than cessation. It also does not differentiate between current smokers who have never tried to stop and current smokers who have quit for long time but relapsed shortly before the survey (USDHHS, 1989). The overall quit ratio does not distinguish between those who have recently quit smoking (and have high rates of relapse) from those who have remained abstinent for a number of years. It is likely that long-time quitters will be over-represented, and that more recent quitters will be under-represented using this indicator.

Recent Quit Ratio

The recent quit ratio is defined in this report as the ratio of former smokers who quit <1 year ago to ever smokers. Therefore it is the proportion of ever smokers who quit more than 1 year ago. One year was chosen as a cut-off because continuous abstinence for 1 year is typically used as an outcome measure in smoking cessation trials. An alternative cut-off would be 6 months, as up to 80% of smokers relapse prior to 6 months after quitting (USDHHS, 1990).

The recent quit ratio is a better measure than the overall quit ratio for measuring quitting activity over time, as it separates recent quitters from long-time quitters. Like the overall quit ratio, however, it can reflect changes in smoking behaviours other than cessation.

2.2.4 Former Smokers' Methods of Quitting

In the 1996 Qualitative and Quantitative Study, former smokers were asked how they quit smoking. The most common responses are reported. This indicator may assist in identifying predominant ways with which people have successfully quit. Such information may be useful for program planning purposes.

A limitation of this indicator is that the respondents are *all* former smokers, which are over-represented by long-term quitters (Section 2.2.2). Thus, the reported methods of quitting may not be indicative of recent trends in the ways smokers have quit.

2.2.5 Former Smokers' Reasons for Quitting

In the 1996 Qualitative and Quantitative Study, former smokers were asked whether each of several reasons was a major reason, a minor

reason, or not a reason why they quit smoking. The top reasons (major and minor combined) are presented. This indicator may assist in identifying strategies that would encourage quitting at a population level and may be helpful for program planning purposes.

The limitation of this indicator is that these reports do not necessarily reflect recent trends, as the respondents are *all* former smokers, who for the most part, quit more than 5 years ago (Section 2.2.2). Therefore, these smokers may have quit under different tobacco policy environments.

2.3.1 Current Smokers by Stage of Change

Current smokers may be classified under four stages of change, as part of the process toward quitting (Prochaska et al., 1993). The stages are defined as follows, as adapted for the ODM:

Precontemplation: individuals who are not seriously thinking of quitting in the next 6 months
Contemplation: individuals are seriously thinking about quitting in the next 6 months
Preparation: individuals intend to quit in the next month and seriously tried to quit in the past year
Action: individuals quit smoking in the past 6 months

The main limitation of this indicator is that trends over time may be difficult to interpret, as individuals do not necessarily progress through these stages in a linear fashion. Most people change in a cyclical pattern. Relapse is highly likely, and individuals who quit successfully have typically gone through the cycle about 3 or 4 times (Prochaska and Goldstein, 1991).

2.3.2 Current Smokers Who Made At Least One Attempt to Quit in Past 12 Months

In the 1998 ODM, current smokers were asked whether they had made a *serious* attempt to quit in the past 12 months. The proportion of smokers who made *at least one* attempt to quit is reported in this section.

This measure provides some insight into the relapse process (reversion to smoking after a period of abstinence), and into the magnitude of intentions to quit among current smokers in the population. The 12-month time frame is an arbitrary endpoint, and is a way to standardize the time period in question to capture only recent quit attempts. A limitation of this indicator is that respondents may interpret the meaning of a serious quit attempt in different ways. The interviewer reads out the standard definition ("a serious attempt would mean you quit smoking for at least 24 hours") only when prompted.

2.4.1 Current Smokers' Reasons for Relapse

In the 1996 Qualitative and Quantitative Study, current smokers were asked whether each of several possible reasons was a major or minor reason why they started to smoke again after their last quit attempt. The top reasons (major and minor combined) are presented. This indicator may be helpful in identifying strategies that would reduce rates of relapse among current smokers.

2.4.2 Daily Smokers by Heaviness of Smoking Index

The Heaviness of Smoking Index (HSI) is based on points given for the time of first cigarette after waking (TAC) and number of cigarettes per day (CPD) (Heatherton et al., 1989).

TAC is scored:

<=5 minutes	-	3 points
6-30 minutes	-	2 points
31-60 minutes	-	1 point
>60 minutes	-	0 points

CPD is scored:

1-10	-	0 points
11-20	-	1 point
21-30	-	2 points
>=31	-	3 points

Low scores (0-2) indicate low dependence on nicotine while scores ranging from 5-6 indicate high dependence. This indicator may be helpful in characterizing the smoking population

according to their level of dependence to assist with smoking cessation program planning. Higher dependence can lead to more difficulty in quitting and staying quit, as strong urges are one of the most commonly reported reason for relapse (see Section 2.4.1).

HSI is to be used as a guideline, as it is very difficult to assess nicotine dependence. HSI is part of one larger measure of nicotine dependence, the Fagerstrom Test for Nicotine Dependence (Heatherton et al., 1989).

2.4.3 Exposure to Others' Smoking at Home and at Work

Exposure to Others' Smoking While at Home

In the 1998 ODM, survey respondents were asked how many people (other than themselves) smoke cigarettes, cigars or pipes inside their home every day or almost every day. Responses are presented for current smokers only. Smokers were considered to be regularly exposed if one or more individuals (other than themselves) smoked inside their home every day or almost every day. Otherwise, smokers were considered to have no regular exposure.

This indicator aims to quantify the extent to which smokers are exposed to other people's smoking in the home environment. This indicator is important because current smokers report others' smoking as one of their top reasons for starting to smoke again after quitting (Section 2.4.1).

Exposure to Others' Smoking While at Work

In the 1998 ODM, survey respondents were asked how many days in the past week they were exposed to other people's tobacco smoke while at work. Exposure was defined as at least 5 minutes in an area where someone was smoking. Responses are presented for current smokers only. "Regular exposure" was defined as 5 or more days of exposure, whereas all other responses were considered "non-regular exposure".

This indicator attempts to quantify the extent to which smokers are exposed to other's smoke in the work environment. This indicator is important because current smokers report others' smoking as one of their top reasons for starting to smoke again after quitting (Section 2.4.1).

2.5.1 Smoking Status (Youth)

In this section, youth smokers who participated in the 1999 OSDUS were classified under the following smoking status definitions:

current smoker:	100 cigarettes in lifetime and *some* in past month
former smoker:	100 cigarettes in lifetime and *none* in past month
never smoker:	<100 cigarettes in lifetime

The limitation of this indicator is that it utilizes a very conservative definition of smoking status. These definitions are based on adult smoking and are derived from a consensus workshop sponsored by Health Canada (Mills et al., 1994). Less stringent estimates of youth smokers and youth quitters produce higher estimates and therefore may include experimental smokers. For example, estimates of quitters among grades 9-13 students in Southwestern Ontario varied from 2% to 17%, depending on the definition of *quitter* (Unpublished data, Waterloo Smoking Prevention Projects, 1999). The most conservative estimate (2%) was based on the strictest definition of quitter (100 cigarettes in lifetime and none in the past month), which limits quitters to youth who have established some pattern of smoking prior to quitting. The highest estimate (17%), on the other hand, uses the WSPP definition of quitter, defined as an individual who answers "yes" to "Have you ever tried cigarette smoking (even just one puff)?, "yes" to "Have you ever smoked again since the first time you tried a cigarette", and responds "No, I have quit" to "Do you usually smoke every week?". Following from this definition, this estimate may include youth who tried smoking only a couple of times and then "quit."

2.5.2 Quit Attempts

In the 1999 OSDUS, youth were asked whether they tried to quit smoking in the last 12 months. The proportion who responded "yes" is reported. Responses are presented for current smokers only, as defined in Section 2.5.1. This indicator aims to quantify the magnitude of quitting activity or quitting intentions among youth.

The limitation of this indicator is that the youth must determine what is considered a quit attempt, and their interpretations of what is a quit attempt may vary.

2.5.3 Plans to Quit

In the WSPP4 Study, youth were asked if they plan to quit smoking cigarettes. Responses are reported for current smokers only, as defined in Section 2.5.1. This indicator aims to quantify the magnitude of quitting intentions among youth.

APPENDIX B: ADDENDUM TO CHAPTER 3

DATA SOURCE

Cochrane Database of Systematic Reviews[1]

The Cochrane Collaboration is an international organization that aims to help people make well-informed decisions about healthcare by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of healthcare interventions. It is a not-for-profit organization, established as a company, limited by guarantee, and registered as a charity in the UK. The Cochrane Library is the main output of the Collaboration. It is updated quarterly and distributed on an annual subscription basis on disk, CD-ROM and via the Internet. It includes several different databases, and the Cochrane Database of Systematic Reviews is one of them.

The Cochrane Database of Systematic Reviews contains protocols and reviews prepared and maintained by Collaborative Review Groups. It also includes a Comments and Criticisms System to enable users to help improve the quality of Cochrane Reviews. This database is a rapidly growing collection of regularly updated, systematic reviews of the effects of health care, maintained by contributors to the Cochrane Collaboration. Cochrane reviews evaluate mainly randomized controlled trials, considering them the "gold-standard." Evidence is included or excluded on the basis of explicit quality criteria to minimize bias. Data are often combined statistically, with meta-analysis, to increase the power of the findings of numerous studies each too small to produce reliable results individually.

DEFINITIONS OF TERMS

Odds ratio (OR): The odds ratio is the ratio of two odds. In this context, it is the odds of quitting for one intervention compared to those of another. For instance, if the odds ratio is 2 for

[1] Website http://hiru.mcmaster.ca/cochrane/

a particular smoking cessation intervention, this means that the odds of quitting (success) is twice as great among the intervention group than the placebo group.

Point-prevalence abstinence: This is one outcome measure of success in smoking cessation trials. It is the percent of subjects who are smoke-free at a certain time point in the study (e.g., the end of the study).

Quit rate: This is the proportion of subjects who are considered smoke-free. Determination of smoke-free status may be accomplished by point-prevalence abstinence, sustained abstinence, or other methods.

Self-reported abstinence: This is a method by which abstinence is assessed. Subjects report whether they are or have been smoke-free. This may or may not be accompanied by biochemical validation, which tests for the presence of biochemical markers of smoking (e.g., the presence of cotinine, a metabolic byproduct of nicotine, in the saliva).

Sustained abstinence: This is one outcome measure of success in smoking cessation trials. Researchers are interested in whether the subject is smoke-free for a specified duration during the study.

Two-point-prevalence abstinence: This is one outcome measure of success in smoking cessation trials. This is the percent of subjects who are smoke-free at two specific time points in the study.