

BCRCP GUIDELINE: TOBACCO USE IN THE PERINATAL PERIOD

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Inside

Summary	2
Guideline Committee	2
A: Overview: Tobacco Use During the Perinatal Period	3
Adverse Effects of Smoking on the Woman's Health	3
Benefits of Stopping Tobacco Use	3
Prevalence of Smoking During Pregnancy	3
Cultural, Economic and Social Factors Contributing to Smoking in Pregnancy	4
Adverse Effects of Smoking During Pregnancy	4
Smoking and Child Health	4
Smoking and Breastfeeding	5
Postpartum Relapse	5
Tobacco Addiction and Pharmacotherapy	5
Information for Further Reading:	7
Client Focused Resources	7
B: Tobacco Use During the Perinatal Period: Recommendations for Primary Care Providers	8
Introduction	8
The Five "A"'s	8
Stages of Change	8
Clinical Tobacco Intervention	10
Ask	10
Advise	11
Assess	12
Assess the woman's level of tobacco addiction	12
Assess the woman's readiness to quit	12
Assess the woman's knowledge of smoking, pregnancy and health	12
Assist	13
Assist using a collaborative approach	13
Assist by using supportive counselling strategies	13
Assist with pharmacotherapy	13
Assist with related health matters	14
Assist smokers not ready to quit	14
Arrange	15
Preventing Relapse	15
Assess her readiness to stay quit after pregnancy to prevent relapse	15
Warning signals that may precede relapse	15
Summary of Recommendations	16
Appendix A – Counselling Approaches	17
Appendix B – Sample Stop Smoking / Reduction Plan	18
Appendix C – Nicotine Replacement Therapy Guidelines	19



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While every attempt has been made to ensure that the information contained herein is clinically accurate and current, the BCRCP acknowledges that many issues remain controversial, and therefore may be subject to practice interpretation.

Summary

Effective screening and intervention with women prior to pregnancy, during pregnancy and in the postpartum period can support cessation or reduction in women's tobacco use and improvement in the health of women and their infants.

It is recommended that physicians talk about tobacco use with **all women**. ASK women of childbearing age about their smoking status; ADVISE those who smoke how important it is to stop and avoid exposure to second hand smoke; ASSESS those who smoke to determine their level of tobacco addiction and readiness to quit; ASSIST by providing assistance in quitting by offering support, appropriate use of nicotine replacement therapy, referral to cessation support programs, forming a quit and a social support plan; ARRANGE follow-up to match the woman's readiness to quit. All pregnant smokers should be followed.

With **all pregnant women** (and where appropriate, their partners and support systems) it is recommended that physicians provide information on the risks associated with tobacco use in pregnancy, and discuss their level of tobacco addiction (including level of addiction before and after pregnancy) using non-judgmental approaches.

Using non-judgmental, empathetic approaches with **pregnant women who identify they are smokers**, it is recommended that physicians increase awareness of the risks of smoking during pregnancy, encourage and support change and directly support or make referrals to tobacco cessation programs. It is important to support women to improve their health in the many ways known to reduce risk, such as: good nutrition, reducing stress, recognizing and addressing signs of depression, anxiety, or other mental health issues, participating in regular physical activity and abstaining from or reducing alcohol and other drug use.

With **postpartum women** it is recommended that physicians continue to educate and monitor tobacco use to support changes and provide information to recognize and take action on warning signals that may precede relapse. Continue to monitor related health areas that will support the health of women and infants.

It is recommended that physicians monitor and educate regarding **infant health** as it relates to exposure to second hand smoke. Exclusive breastfeeding for the first six months of the infant's life followed by the addition of nutrient-rich foods with continued breastfeeding for up to two years and beyond is also recommended.

British Columbians can log on to a free website or phone a toll-free number to receive expert, individualized services that will help them quit smoking.

- <http://www.quitnow.ca>TM is an Internet-based quit smoking service that is available free-of-charge to all British Columbia residents. It combines effective methods for quitting smoking with a powerful individualized program that is available anytime and anywhere.
- **quitnow by phone** (1-877-455-2233) is a confidential, free-of-charge helpline. It is available 24/7/365 with translation services available in 130 languages. The helpline is staffed by specially trained Registered Nurses who are there to listen and provide support and guidance.

CLICK OR CALL
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THE GUIDELINE COMMITTEE

The BCRCP would like to acknowledge the committee who developed these guidelines. Committee members included: Barbara Selwood, BCRCP, (chair); Dr. Fred Bass, Consultant; Ms. Debbie Brough, Public Health Nurse, Richmond Health Services; Ms. Jami Brown, Tobacco Reduction Coordinator, Fraser Health; Dr. Charmaine Enns, Medical Health Officer; Vancouver Island Health; Dr. Duncan Farquharson, Perinatologist, Medical Director, BC Reproductive Care Program; Dr. Joy Johnson, Professor, School of Nursing, University of British Columbia; Ms. Nancy Poole, Research Consultant, BC Women's Hospital, Research Associate, BC Centre of Excellence for Women's Health; Dr. Shelley Ross, Family Practice Physician; Ms. Eleanor Taylor, Tobacco Control Program, Vancouver Island Health; Ms. Margaret Wilson, Consultant.

We would also like to acknowledge Fred Bass as the primary author for the guidelines.

A: OVERVIEW: TOBACCO USE DURING THE PERINATAL PERIOD

The Guideline for Tobacco Use during the Perinatal Period is based on current evidence as it relates to best practices. It is designed to assist practitioners in their assessment and provision of appropriate care for perinatal clients. This overview provides background information on tobacco use, dependency, pharmacotherapy and how tobacco use affects both maternal and child health.

1. Adverse effects of smoking on women's health
2. Benefits of stopping tobacco use
3. Prevalence of smoking during pregnancy
4. Cultural, economic and social factors contributing to smoking in pregnancy
5. Adverse effects of smoking during pregnancy
6. Smoking and child health
7. Smoking and breastfeeding
8. Postpartum relapse
9. Tobacco addiction and pharmacotherapy

1. ADVERSE EFFECTS OF SMOKING ON THE WOMAN'S HEALTH

Tobacco use is a serious risk factor that directly affects women's health. Tobacco related conditions include:

- Blood vessels and circulation: heart attack, stroke, sudden coronary death
- Lungs: sinusitis, chronic lung disease, emphysema
- Cancer: lung, throat, esophagus, cervix, pancreas, kidney, bladder
- Complications of surgery: failure of wound healing, pneumonia and lung problems
- Whole body: osteoporosis, weakened immune system, addiction to nicotine
- Adverse reproductive health: impaired fertility, ectopic pregnancy, sudden infant death syndrome (SIDS)¹

2. BENEFITS OF STOPPING TOBACCO USE

After stopping tobacco use:

- the risk of heart attack starts to decrease in 48 hours, is reduced by 50% within one year and by 100% in five years
- breathing often becomes easier within days
- wound healing is improved, lessening complications of surgery and hospitalization
- the risk of pelvic inflammatory disease (PID) and infertility is reduced
- the risk of developing cancers is substantially reduced and the risk of lung cancer is reduced by 50% within 10 years¹

3. PREVALENCE OF SMOKING DURING PREGNANCY

In Canada, from 1994 to 2001 the overall smoking rate among women under 50 years of age decreased slightly from 33% in 1994/1995 to 29% in 2000/2001. During the 1994/2001 period, the number of women who reported smoking during pregnancy declined significantly from 26% to 16%.²

In the first half of 2005, results from the Canadian Tobacco Use Monitoring Survey (CTUMS) indicated that 17% of women aged 15 years and older reported smoking daily. British Columbia had the lowest prevalence rate among current smokers across Canada with 14%.³ According to Statistics Canada, women most likely to smoke and be exposed to second hand smoke are younger, single, from low income households, have mental health problems and haven't completed secondary school education.²

In 2000/2001, 49% of women less than 25 years of age reported smoking during pregnancy. Thirty six percent of the women in this age group who did not smoke reported being exposed to smoke while pregnant. Thirteen percent of mothers 30 years of age and older reported smoking during pregnancy while 13% of the women in this group who did not smoke reported being exposed to smoke while pregnant. From Canada-wide data, British Columbia and Ontario had the lowest rates of maternal smoking or those exposed to smoking during pregnancy, while Saskatchewan and the Atlantic provinces had the highest rates. Also, in the period 2000/2001, immigrant women were reported less likely to smoke while pregnant compared to Canadian-born women (2% versus 22%). Although women are more likely to quit smoking before becoming pregnant, quit smoking during pregnancy or smoke fewer cigarettes, smoking continues to be a concern as data shows that many women in all age groups resume smoking following birth.^{2,4}

In British Columbia, *The BC Perinatal Database Registry* data indicates that the prevalence of women who indicated smoking during pregnancy (for singleton pregnancies) to their health care provider decreased from 13.2% in 2000/2001 to 10.9% in 2003/2004.⁵ There continues to be a considerable range in smoking rates during pregnancy in the Health Authorities with the Northern, Interior and Vancouver Island Health Authorities having the highest percentage of women who smoke. Information re tobacco use is collected from clinical documentation on the BCRCP Antenatal Record and/or physician notes based on health care discussions with the woman.

Table 1 shows the self-reported and clinically documented smoking rates in singleton pregnancies for each of the Health Authority's and British Columbia for fiscal years 2000/2001, 2001/2002, 2002/2003 and 2003/2004.



Source: British Columbia Perinatal Database Annual Report 2005, BCRCP

Health Authority Legend:

FHA	Fraser	VCHA	Vancouver Coastal
IHA	Interior	VIHA	Vancouver Island
NHA	Northern	Province	British Columbia Total

4. CULTURAL, ECONOMIC AND SOCIAL FACTORS CONTRIBUTING TO SMOKING IN PREGNANCY

Studies indicate that smoking prevalence during pregnancy is highest among women of low income levels, limited educational attainment, and non-skilled, lower occupational status.^{6,7,8,9} Women are also more likely to have reduced access to smoking cessation programs due to poverty, culture, language, literacy level, travel, child costs and program availability.^{10,11} It is often the case that smoking during pregnancy may be of less concern than other substance use, mental health problems and domestic violence.¹² Education and psychosocial population measures that address the above factors will ultimately decrease the level of smoking during pregnancy.

Studies indicate that women who live with partners who smoke are less likely to stop smoking during pregnancy and are more likely to relapse during the postpartum period.^{13,14} Smoking cessation during pregnancy should be approached within the context of the woman's support systems and not limited to the health profession and woman's relationship.¹⁵

5. ADVERSE EFFECTS OF SMOKING DURING PREGNANCY

Maternal and paternal smoking is a risk factor for adverse outcomes for the fetus, infant, and child. It often contributes to spontaneous abortion, intrauterine growth restriction, preterm birth, placental abruption, stillbirth, and sudden infant death syndrome.^{16,17}

Maternal smoking doubles the risk of delivering a low birth weight infant (<2500 gm), and significantly affects fetal growth and birth weight more than other factors such as the mother's weight, height, number of previous pregnancies and their outcomes, or the gender of the infant.¹⁸ A dose response relationship has been demonstrated with a progressively higher incidence of preterm birth and low birth weight among heavy smokers.¹⁹ Low birth weight infants, in turn, have an exponential increase in mortality rates compared to infants of normal birth weight, a causal effect that may be mediated through reduced fetal growth.²⁰

While a dose response relationship has been demonstrated with a progressively higher incidence of preterm births and low birth weight infants among heavy smokers. Pregnant women who report 'cutting down' on the number of cigarettes they smoke are not decreasing their risk of having a smaller infant.²¹ The adverse effects of smoking on the fetus and newborn can be avoided if pregnant women quit smoking and avoid second hand smoke. Smoking cessation has been shown to reduce the risk of intrauterine growth restriction, with maximal effect prior to 16 weeks gestation.^{22,23} While smoking cessation early in pregnancy is important, quitting in late pregnancy can also produce benefits compared with continued smoking.²⁴

6. SMOKING AND CHILD HEALTH

Maternal and paternal smoking before and during pregnancy and exposure to second hand smoke impacts the health of the fetus, and has consequences for the newborn. Infants of women who smoke during and after pregnancy are three times more likely to die of sudden infant death syndrome (SIDS) than infants whose mothers do not smoke, and the more cigarettes smoked, the greater the risk.^{25,26} Infants of mothers and fathers who smoked only after pregnancy were twice as likely to die of SIDS than those babies not exposed to passive smoking.^{27,28} A mother should not share a bed with her infant if she (or any other person in the bed) is a smoker, or the baby is exposed to second hand smoke.²⁹

Children exposed to passive smoking also have an increased risk of respiratory problems such as breathlessness, phlegm, coughing, and wheezing, croup, bronchitis, pneumonia and asthma, and it increases the severity for those children already suffering asthma.^{30,31}

Research suggests that nicotine exposure in utero effects changes in fetal nicotine receptors and may impact subsequent smoking behaviour. One study showed that 10-year-old children were 5.5 times more likely to experiment with tobacco if their mothers



smoked greater than half a pack of cigarettes during pregnancy, regardless of their current smoking status.³² Studies of identical and fraternal twins have found that a third of smoking prevalence can be attributed to hereditary factors.³³

7. SMOKING AND BREASTFEEDING

The adverse effects of smoking on optimal breastfeeding are well documented. Studies indicate that mothers who smoke are less likely to breastfeed their infants, breastfeed for a shorter period of time, and have reduced milk production by more than 250 ml/day compared to non-smoking women.^{34,35} Infants of mothers who smoke wean earlier, and it has been observed that the more cigarettes smoked, the earlier the weaning occurs.³⁶

It is known that breastfeeding is an important health measure for mother and for baby. Even if the woman does not stop smoking or continues nicotine replacement therapy after giving birth, it is much healthier to breastfeed the baby than not. Health Canada recommends exclusive breastfeeding for six months followed by the addition of nutrient-rich foods with breastfeeding for up to two years and beyond.³⁷

8. POSTPARTUM RELAPSE

Relapse within the first six months following childbirth is as high as 70%.^{38,39} Numerous theories have been proposed to explain the high relapse rates, these include:

- Extrinsic motivation of women to quit smoking during pregnancy (stopping for the baby), but have not fully prepared themselves psychologically to quit¹²
- Having a partner or roommate who smokes which often makes it more difficult for the woman to stop tobacco use
- “Suspending tobacco use”, by having been influenced by health care providers and their support system to ‘quit’ during pregnancy, rather than fully engaging in the “Action” Stage of Change thereby making themselves vulnerable to postpartum relapse
- Supporting intrinsic motivation (stopping smoking for her own benefit) may contribute to sustained cessation

9. TOBACCO ADDICTION AND PHARMACOTHERAPY USE

The efficacy of nicotine replacement therapy (NRT) in pregnant women and the long-term consequences of NRT on the fetus are not known due to the lack of long-term trials; thus, pharmaceutical manufacturers

have not recommended NRT during pregnancy. Physicians vary in the extent to which they recommend NRT during pregnancy.^{40,41}

The absence of randomized trials that examine the long-term consequences for the child of NRT in pregnancy results in the need to use laboratory studies of the effects of nicotine in pregnant laboratory animals as well as the few studies of nicotine treatment in pregnancy in humans. In these studies, nicotine is administered in two ways: one that resembles smoking-delivered nicotine and the other where the direct effect of nicotine alone is assessed. Benowitz has summarized the implications of this research as follows:

A teratogenic effect of nicotine has been shown with high-dose nicotine administration in animals and could contribute to the increased risk of spontaneous abortion in smokers. Growth restriction is seen in fetuses of smokers who continued to smoke beyond week 16 of pregnancy. In animals, nicotine results in lower birth weight, an effect that is most likely related to reduction of placental blood flow....

....Neurotoxicity that results from nicotine exposure could result in impaired behavioral development in young children of smokers and could explain, at least in part, the association between maternal cigarette smoking and greater risk of SIDS [sudden infant death syndrome]....

Based on available data, there is a probable relationship between nicotine and spontaneous abortion, low birth weight, and neonatal neurotoxicity....

While nicotine therapy during pregnancy is potentially harmful or hazardous, it is likely that nicotine therapy is less hazardous than cigarette smoking, which exposes the mother and fetus to both nicotine and a myriad of other toxins. The benefits of successful smoking cessation with the use of nicotine replacement therapies clearly outweigh the risks of nicotine per se. However, it seems prudent not to expose the fetus to more nicotine than it would have been exposed to from cigarette smoking....⁴²

Cigarette smoking is an addictive behaviour in which the person regularly and compulsively delivers a sharp rise in nicotine to the brain. The effectiveness and safety of nicotine replacement therapy has been studied thoroughly in non-pregnant, but not in pregnant patients.⁴² Nicotine has been shown to affect the developing brains of both animal and human fetuses. However, nicotine medication is much less likely to damage the developing fetal brain than is the combination of smoking's high levels of nicotine,



the carbon monoxide in cigarette smoke, the cancer-causing chemicals in cigarette smoke, and the many other toxic substances in cigarette smoke.^{42,43}

In one randomized controlled trial of nicotine replacement delivered by transdermal patches, women in the nicotine treatment group had significantly higher birth weight babies than those in the placebo group (mean difference 186 gm). This indicates that the intrauterine growth restriction caused by smoking is likely attributable to the high levels of nicotine from smoking combined with carbon monoxide and other toxins in cigarette smoke.⁴⁴

Studies also show that newborns whose mothers smoked exhibited muscle tension, excitability, and signs of stress consistent with nicotine withdrawal during their first two days of life.⁴⁵ Studies in non-pregnant smokers have consistently shown that withdrawal symptoms are more numerous and severe after stopping smoking than after stopping nicotine replacement medication.⁴⁶

Effective screening of pregnant women together with appropriate interventions should support smoking cessation or reduction during pregnancy and assist in preventing postpartum relapse. Part B provides guidelines for effective screening and treatment interventions.

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Information For Further Reading

Professional:

Expecting to Quit – A Best Practices Review of Smoking Cessation Interventions for Pregnant and Postpartum Girls and Women

By: Dr. Lorraine Greaves, Dr. Renée Cormier, Karen Devries, Dr. Joan Bottorff Dr. Joy Johnson, Dr. Susan Kirkland & Dr. David Aboussafy.

http://www.hc-sc.gc.ca/hl-vs/alt_formats/hecs-sesc/pdf/tobac-tabac/body-corps/preg-gros/expecting-grossesse_e.pdf

Quit Smoking Telephone Counseling Protocol for Pregnant and Postpartum Women

http://www.hc-sc.gc.ca/hl-vs/pubs/tobac-tabac/protocol/index_e.html

Clinical Tobacco Intervention Recognition Program

This course was developed for licensed healthcare professionals to teach brief clinical tobacco intervention techniques. The program was developed by the Society for Clinical Preventive Health Care (BC Doctor's Stop Smoking Program), and the BC Cancer Agency Cancer Prevention Program.

<http://www.bccancer.bc.ca/HPI/CME/CTIRP/default.htm>

BC Doctor's Stop Smoking Program

Supports physicians throughout BC with materials, consultation and training. Will provide brief assessment of a smoker on referral and report to the individual's physician.

<http://www.clinicalprevention.ca>

BC Health Authorities Tobacco Reduction Programs

All BC Health Authorities have programs, resources, training and services available to support addressing tobacco use during the perinatal period.

<http://www.healthservices.gov.bc.ca/tobacco/index.html>

Smoke Free Families Project

Smoke-Free Families is a US program supported by The Robert Wood Johnson Foundation working to discover the best ways to help pregnant smokers quit, and spread the word about effective, evidence-based treatments.

<http://www.smokefreefamilies.org/>

Client Focused Resources:

British Columbians can either log on to a free website or phone a toll-free number to receive expert, individualized services that will help them quit smoking.



- <http://www.quitnow.ca>™ is an Internet-based quit smoking service that is available free-of-charge to all British Columbia residents. It combines effective methods for quitting smoking with a powerful individualized program that is available anytime and anywhere.
- **quitnow by phone** is a confidential, free-of-charge helpline. It is available 24/7/365 with translation services available in 130 languages. The helpline is staffed by specially trained Registered Nurses who are there to listen and provide support and guidance.

B: TOBACCO USE DURING THE PERINATAL PERIOD: RECOMMENDATIONS FOR CARE PROVIDERS

1. INTRODUCTION

The recommendations for care providers in this guideline are based on clear scientific evidence and on what experts have judged to be best practices. They draw largely from two documents: the *Guidelines for Treating Tobacco Use and Dependence* from the U.S. Public Health Service¹ and the Canadian document, *Expecting to Quit: A Best Practices Review of Smoking Cessation Interventions for Pregnant and Postpartum Girls and Women*.²

Many kinds of health care providers offer care to girls and women before, during, and after pregnancy: family doctors, obstetricians, mid-wives, public health nurses, outreach workers, social workers, psychologists, and many more. Each has a unique range of resources in terms of time, role, skills, professional responsibility, patient expectations, style of care, and relationship to the woman and her support system. When health care providers work collaboratively to help people stop smoking, such teamwork substantially increases the likelihood of smoking cessation.

Smoking puts the health of the pregnant woman and that of her baby at serious risk. It makes stopping smoking an urgent task for the girl or woman and the health professionals who support her. Pregnancy is a time when women are likely to attempt to stop smoking and to avail themselves of help.³

Few smokers understand their addiction. Many know smoking is dangerous. Smoking seems to help them: control anxious feelings, focus attention, and provide themselves a reward. How smoking does this and the implications for getting rid of the addiction are often beyond the smokers' awareness.⁴

Doctors, nurses or other health professionals can offer smokers valuable assistance:

- key information about tobacco addiction and its consequences
- help in forming a plan to quit / reduce the addiction
- encouragement and empathy
- support with problem-solving
- access to medication
- linkage to services for smokers

Smokers are more likely than non-smokers to have other significant health and social issues, i.e., alcohol problems, other addictions, intimate partner violence, depression, other mental health issues, poverty, and

family crises.^{5,6,7} For clinical tobacco intervention to be effective, it must recognize and address such health and social issues.

2. THE FIVE "A'S"

The most comprehensive review of evidence on tobacco use overall that is based on clinical research is the *Guidelines for Treating Tobacco Use and Dependence* from the US Public Health Service. This report identifies five "A's", presented on the next page in Table One, as an overview of the ongoing process of clinical tobacco intervention for girls and women of childbearing age who smoke. The five A'S, are often described as the essence of clinical tobacco intervention—**ASK, ADVISE, ASSESS, ASSIST, and ARRANGE**⁵. By offering consistent care during the preconception, prenatal, and postpartum periods, health professionals can double the odds that the smoker will stop smoking, which is the number one preventable cause of death and disease in Canada.^{8,9}

In implementing the five "A's", it is important to tailor the intervention to the individual woman. The clinician needs to address why promoting smoking cessation is an essential part of health care, especially during pregnancy. The clinician should explain briefly why, as part of care, it is the health professional's job to ask about smoking and to offer the information, encouragement, and help a girl or woman can use to take action on her smoking and health.

In implementing the five "A's", it is also important to review with the woman the specifics of what she is prepared to do. The clinician should establish collaboratively with the patient/client whether and how she plans to modify her smoking, encourage the development of a plan for doing so (see Appendix B) and document the plan in the patient/client's record. Where possible, it is helpful to determine her partner's smoking status and their tobacco interaction patterns (disengaged, conflictual or accommodating)¹⁰.

3. STAGES OF CHANGE

Smokers vary greatly in how ready they are to stop smoking. A widely used model to describe that variation in readiness is Prochaska & DiClemente's "Stages of Change" model, which portrays smokers to be moving through stages of readiness to change, during which practitioners can tailor their support to increase the effectiveness of the intervention. These are summarized in Table Two¹¹. Long-term smoking cessation is a process that can take time. People in all stages of change can be helped, in proactive, yet compassionate ways.

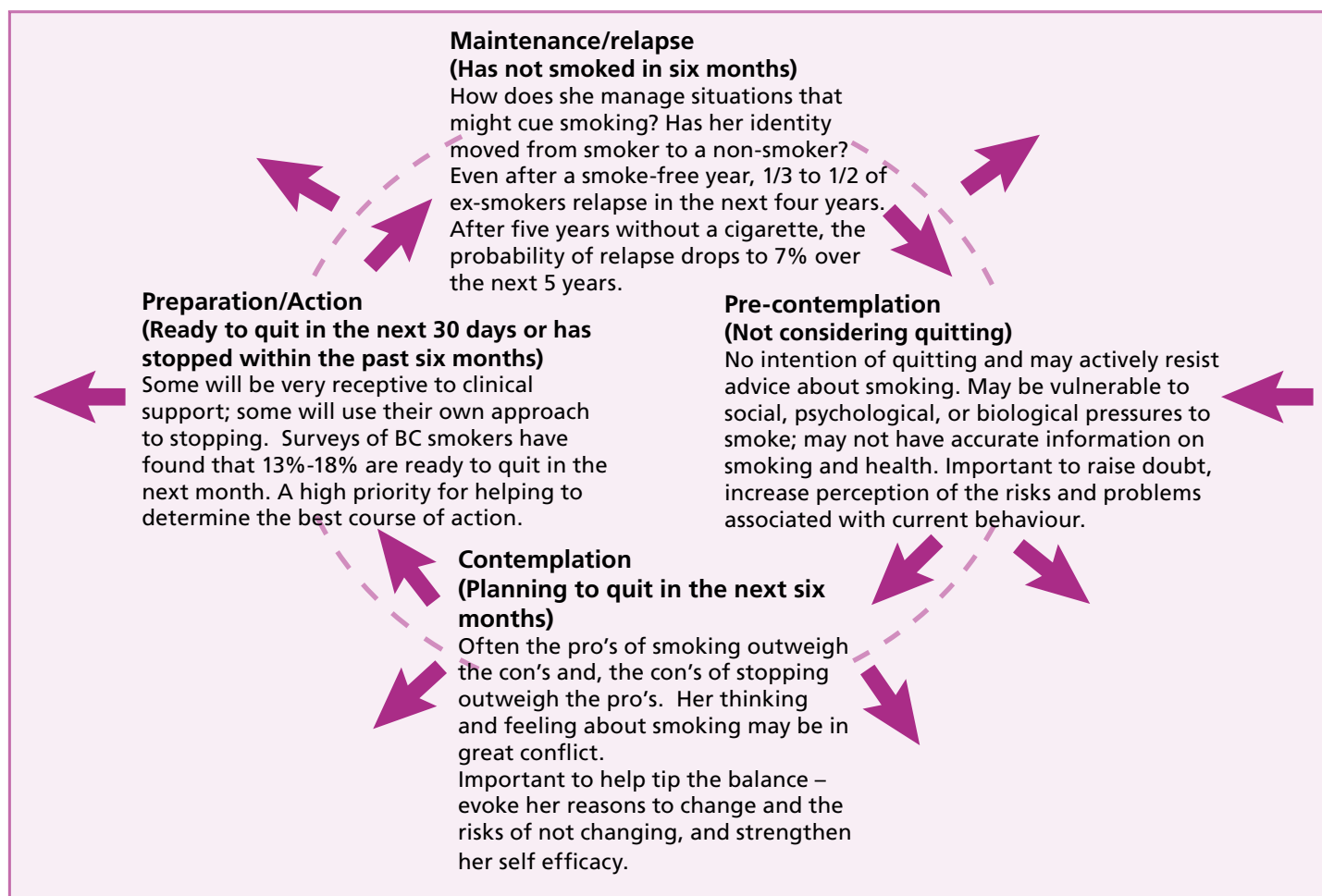


Table One. The Five “A’s”

<p>ASK (about smoking and about her feelings)</p>	<ul style="list-style-type: none"> • Ask every girl and woman of childbearing age about smoking status • Document smoking status on the medical record; and, for those who are pregnant, document it on the antenatal record / use of a smoking-status chart-reminder • Ask how she feels about smoking; its benefits and drawbacks, and the supports she has in her life
<p>ADVISE (clearly, strongly, personally)</p>	<ul style="list-style-type: none"> • Advise every girl and woman of childbearing age who smokes how important it is for her to stop smoking (and/or spit tobacco) and to avoid exposure to second hand smoke • Note that health professionals are available to help her do so
<p>ASSESS (addiction, readiness, knowledge)</p>	<ul style="list-style-type: none"> • Determine her level of tobacco addiction • Determine her readiness to quit • Learn what she knows about smoking, health, and pregnancy
<p>ASSIST (information, motivation, social support, problem-solving, and medication)</p>	<p>Provide assistance in quitting and enhancing readiness to change.</p> <ul style="list-style-type: none"> • Elicit motivation by using brief motivational techniques and the 5R’s: Relevance, Risks, Rewards, Roadblocks and Repetition • Offer support • Encourage appropriate use of nicotine replacement therapy • Offer referral to cessation support programs where needed • When she is ready help her form a quit plan • Help her develop a social support plan
<p>ARRANGE (Follow-up)</p>	<p>Follow-up should match her readiness to quit smoking and all pregnant smokers should be followed.</p>

Source: Adapted from US Dept. of Health and Human Services. US Public Health Service: *Quick Reference Guide for Clinicians-Treating Tobacco Dependence*, 2000 (ISSN-1530-6402).

Table Two – Stages of Change



Sources: Adapted from Prochaska JO, DiClemente CC, et al: In search of how people change; Applications to addictive behaviors. *American Psychologist* 47: 1102-1114, 1992 and NRG Research: Omnibus surveys, Vancouver, BC; 1990-2003.

This model can be a useful clinical aid in that it recognizes that smokers who are not ready to quit have different needs than those who are ready. Various authors have built upon the model to define specific clinical interventions that address these differing stage based needs.^{12,13} *This model does not necessarily describe the actual sequence of how smokers stop smoking.* For example, smokers sometimes jump from pre-contemplation to action when given a strong motivator, like pregnancy itself. However, the motivation prompted by pregnancy may not be enough to sustain cessation post birth in the face of a partner's smoking, the stresses of life with a baby, the absence of ongoing clinical tobacco intervention, and/or the woman's perception of harm vs. the benefit of smoking for herself.¹⁴

The optimal clinical approach to non-pregnant smokers is to consistently offer brief intervention to the many (85%) smokers who are not ready to quit, and full intervention to the few (15%) who are ready.¹⁵ Nevertheless, follow-up of all girls and women who smoke should be proactive and systematic before, during, and after pregnancy, since the health gains from stopping smoking for mother and child will be substantial.¹⁶

4. CLINICAL TOBACCO INTERVENTION

4.1 ASK

Identify and document the smoking status and exposure to second hand smoke of every girl or woman over age 12 on her health record or on the Antenatal Record (BCRCP 1589). The use of a smoking-status chart-reminder is also recommended.

The apprehensions a patient might have about discussing smoking may lessen if she feels that considering tobacco use is an important part of every woman's care, and that her health professional respects her feelings, thoughts, and decisions, whatever they may be. For example, "As a (nurse, midwife, doctor, etc.), it is my job to do everything I can to help keep you healthy and to help you prevent avoidable health problems."



Determine the woman's smoking status



On each visit for pregnant smokers and recent quitters ask about smoking status and update the Antenatal Record.

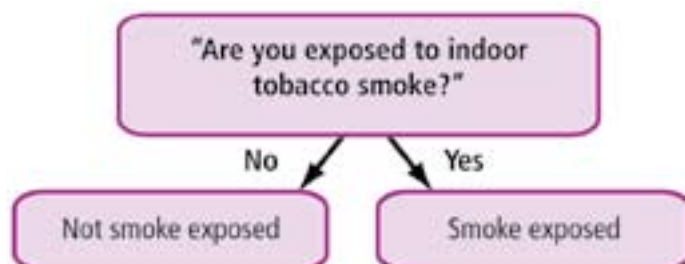
For non-pregnant girls or women, document smoking status or place a smoking-status chart-reminder on the chart.

If time permits, explore the girl or woman's thinking and feelings about smoking by asking open-ended questions, such as:

- "Tell me about your smoking history, and attempts to quit in the past."
- "What do you find to be the 'pros' and 'cons' of smoking?"
- "Can you think of situations that might make it easy or difficult to stop smoking?"

Determine exposure to second hand smoke:

During prenatal and postnatal care and children's health care visits ask the smoking status of the parents and caregivers to identify exposure of pregnant women and children's exposure to second hand smoke.



Request the pregnant woman to ask family, friends and caregivers who smoke to avoid smoking in her presence and around her children.

4.2 ADVISE

On a regular basis, at least once a year and at every prenatal visit, health professionals should offer clear advice to all smokers to stop or reduce smoking.

Brief, consistent, and positive reminders to quit smoking from health care providers, and reinforcement of recent quit attempts significantly increase one-year cessation rates.^{17, 18}

Messages should be clear and strong, personalized and respectful, for example:

- Clear and strong - "Quitting smoking is one of the most important things you can do to protect your health and your baby's health. The staff and I are ready to help you."
- Personalized - "I know you're concerned about your son's cough and the many colds he gets. If you stop smoking, his cough is likely to improve and he'll likely get fewer colds."

Link smoking to the patient's concerns regarding health/illness, social and economic costs, and the impact of second-hand smoke on children and others in the household.

In the Advise phase of clinical tobacco intervention, the health professional, by providing advice to stop smoking, asserts the part of their role that represents the voice of informed and caring expertise in health information. Later, during the Assist phase, when counselling or problem solving, the health professional can take on a different and more nurturing role-that of supportive coach.

Rollnick notes three situations where brief advice is appropriate:

1. the recipient asks for information
2. the practitioner has information that might be helpful to the patient
3. the practitioner feels ethically compelled to provide advice¹⁹

The health professional might then ask one of the following questions:

- "How do you feel about hearing this information?"
- "How do you see yourself using this information?"

4.3 ASSESS

Assess the woman's:

- level of tobacco addiction
- readiness to quit
- knowledge of smoking, health, and pregnancy

4.3.1 Assess the woman's level of tobacco addiction

A smoker's level of tobacco addiction is a major factor in determining how difficult it will be for her to stop smoking.

The Abbreviated Fagerstrom Test for nicotine dependence shown in Table 3 is one of the screens for tobacco addiction. The assessment of tobacco addiction requires more than these two questions. Other indicators of addiction include: how difficult it has been to stop in the past, how much stop-smoking medication is required to control symptoms of withdrawal, and personal and family history of those conditions.

Table 3 – Abbreviated Fagerstrom test for nicotine dependence

A. "How soon after waking do you smoke your first cigarette?"	B. "How many cigarettes do you smoke per day?"								
< 5 minutes = 3 points 5-30 minutes = 2 points 31-60 minutes = 1 point	>30 cigarettes = 3 points 21-30 cigarettes = 2 points 11-20 cigarettes = 1 point								
<table><tr><td>Add A + B</td><td>Interpretation</td></tr><tr><td>5,6</td><td>Heavy dependence</td></tr><tr><td>3,4</td><td>Moderate dependence</td></tr><tr><td>1,2</td><td>Light dependence</td></tr></table>		Add A + B	Interpretation	5,6	Heavy dependence	3,4	Moderate dependence	1,2	Light dependence
Add A + B	Interpretation								
5,6	Heavy dependence								
3,4	Moderate dependence								
1,2	Light dependence								

Source: R Mallin: Smoking cessation: integrating behavioral and drug therapies. *Am Family Phys* 65(no.6):1107 Mar 15 2002 www.aafp.org/afp.

Tobacco addiction is associated with depression, schizophrenia, panic disorder, attention deficit disorder, addiction to other drugs, alcohol dependence, family history of smoking, spousal abuse, poverty, culture, aboriginal status, illiteracy, family crises and other conditions that predispose some people to have more difficulty stopping smoking. Persons who are heavily addicted to tobacco are likely to be in greater need of intensive counselling and intensive pharmacological help than those less addicted, to stop smoking.²⁰

4.3.2 Assess the woman's readiness to quit

Use the woman's responses to this question as a guide to the extent and direction of intervention.

"Which best describes you:²¹

- ☐ someone who is planning to quit smoking in the next 30 days?
- ☐ someone who is planning to quit smoking one to six months from now?
- ☐ someone who is not currently planning to quit smoking?"

Review the woman's **Pro's and Con's....**

.... for continuing smoking

.... for stopping smoking

The woman whose "Pro's for stopping smoking" and "Con's for continuing smoking" outweigh her "Pros for continuing" and "Cons against stopping" is much more likely to stop smoking. Her "Con's related to stopping" and "Pros for Continuing" may provide valuable information on the severity of withdrawal or on vulnerabilities she has that would make it harder for her to stop smoking. It may be helpful for the woman to create a list of the pros and cons, which can support resolution of ambivalence to change, and point to supports for change.²² Refer to Appendix B.

4.3.3 Assess the woman's knowledge of smoking, pregnancy and health

The following are questions to explore what the girl or woman knows. The information in brackets is provided for selective use by the health provider, not for overwhelming the girl or woman with frightening information.

- "Smoking causes a number of health problems for women. What do you know of the possible effects of smoking on your health?"

[Blood vessels & circulation: Heart attack, stroke, sudden death]

[Lungs: sinusitis, chronic lung disease, emphysema]

[Cancer: lung, throat, esophagus, cervix, pancreas, kidney, bladder]

[Complications of surgery: failure of wound-healing, pneumonia and lung problems]

[Whole body: osteoporosis, weakened immune system, addiction to nicotine]

[Complications of pregnancy: ectopic pregnancy, spontaneous abortion, placental bleeding, placental abruption, intrauterine growth restriction, preterm birth, stillbirth]



- “Smoking may cause a number of health problems for the baby’s development. What do you know of the possible effects of smoking on your baby?”

[Decreased oxygen to the brain, low birth weight; sudden infant death syndrome, impaired development of the brain, attention deficit disorder, nicotine withdrawal at birth.]²³

- “What are your concerns about the effects of smoking on your own health and on the baby’s?”

4.4 ASSIST

Assist means:

- Offering brief counseling, encouragement, support with planning, to boost the smoker’s self-efficacy/confidence that they can stop smoking
- Helping the patient set a quit date and plan if she is ready to quit, and working with the smoker’s partner/support system when appropriate
- Recognizing and promoting the appropriate use of NRTs for pregnant women smoking more than 10 cigarettes per day and offering information on how to use it²⁴
- Offer continuing support to any woman of childbearing age who has recently quit smoking^{1,2}
- Using a collaborative process

4.4.1 Assist using a collaborative process

At whatever stage of readiness, there are opportunities for health professionals to work with girls and women towards overcoming addiction or minimizing its effects.

The health professional can enhance collaboration by offering to provide:

- interest and follow-through
- key information
- a supportive, non-critical attitude
- help accessing services

The girl or woman can enhance collaboration through:

- active participation in discussion and planning
- identifying supportive family and friends, and asking for help
- identifying the sources of stress in her life and alternatives for relieving stress
- performing tasks such as reviewing information about smoking and its treatment, monitoring smoking, setting a quit date, taking medication, etc.

4.4.2 Assist by using supportive counselling strategies

Questions that may be used to help the pregnant smoker are:

- “Who around you—family, friends, work-mates will support you quitting smoking? Who won’t? How might you use your supports to the best advantage?”
- “How does your partner at home feel about you stopping smoking?”
- “Can you think of any event or situation that would cause a rough spot in your change plan? What could you do to make sure that you keep on the plan?”
- “If you do have a relapse to smoking, make note of the triggers (feelings and situation at the time). How might you learn from these to stay quit in the future?”
- “No matter how you do on your change plan, please know that you can come back and talk about it at any time.”

Refer to Appendix A for alternative approaches for counseling.

4.4.3 Assist with pharmacotherapy

While nicotine therapy during pregnancy is potentially harmful, it is likely that nicotine therapy is less hazardous than cigarette smoking, which exposes the mother and fetus to both nicotine and many other toxins. The benefits of successful smoking cessation with the use of nicotine replacement therapies clearly outweigh the risks of nicotine per se. However, it seems prudent not to expose the fetus to more nicotine than it would have been exposed to from cigarette smoking.²⁵

This guideline recommends that the decision to offer NRT should be a matter of clinical judgment and should be decided by the girl or woman and her clinician.

The health professional should discuss nicotine replacement therapy and how it can decrease withdrawal symptoms and increase the odds of stopping smoking. It is important to assess the woman’s current smoking behaviour and her understanding of, and interest in, nicotine replacement.

The discussion must also include the risks and benefits of NRT to mother and baby in pregnancy. The discussion might begin with the following questions:

- “What is your understanding of how using the nicotine gum, patch, or inhaler helps smokers to stop smoking during pregnancy?”

- “Are you interested in hearing more about these options?”

Since bupropion (Zyban™) has generally not been used for women who are pregnant or breastfeeding, we recommend focusing on nicotine replacement therapy.²⁶

In the first three months of pregnancy, the clinician should encourage the woman to make an attempt to completely stop smoking using behavioural strategies without nicotine replacement. However, if after the third month of pregnancy the woman is still smoking 10 or more cigarettes per day, the clinician should evaluate with her the pro's and con's of nicotine replacement therapy and use it systematically if patient and clinician conclude that the pro's of using medication outweigh the con's.²⁴

Windsor and colleagues²⁴ have proposed five questions the clinician should know prior to prescribing nicotine replacement during pregnancy and four clinical assessment questions that the physician and woman can use to base the decision regarding use of NRT.

1. Has the patient indicated that she wants to quit?
2. Has the patient received effective counseling procedures and not been able to quit?
3. Has the patient reported smoking 10 or more cigarettes per day?
4. Are there coexisting medical problems that need to be addressed, such as other drug dependence or depression?
5. Is nicotine replacement therapy acceptable to the patient? If so, which method does she prefer?

Clinical assessment questions for basing the decision regarding use of NRT:

1. How much is she smoking now?
2. How much would NRT reduce mother and baby's exposure to carbon monoxide, carcinogens, and the other damaging toxins in cigarette smoke?
3. How does the potential harm to her and the baby from continued smoking compare to the harm to mother and baby from nicotine replacement therapy (NRT)?
4. How likely is she to stop smoking with and without nicotine replacement therapy?

Refer to Appendix C for information on Nicotine Replacement Treatment options and dosages.

4.4.4 Assist with related health matters

It is important that the health care provider recognize that the following are all part of the process of stopping smoking in pregnancy:

- having good nutrition
- support in managing stress
- recognizing and addressing signs of depression, anxiety or other mental health issues
- participating in regular physical activity, reducing or abstaining from alcohol and other drugs

Promote breastfeeding. Even if the woman does not stop smoking or continues nicotine replacement therapy after giving birth, it is much healthier to breastfeed the baby than not. Health Canada recommends exclusive breastfeeding for six months followed by the addition of complementary foods and breastfeeding for two years and beyond.²⁷

A woman's plan to stop or reduce smoking can be written on a form such as the sample in Appendix B or on a sheet of paper.

4.4.5 Assist smokers not ready to quit

Suggest alternatives to smokers not ready to quit, such as:

- Cutting by a third the number smoked and reviewing the situation at next visit
- Keeping a smoking diary – recording (time, place, activity) for each cigarette before it's smoked, to help her identify the triggers for smoking and her feelings at the time of smoking
- Scheduling cigarettes instead of responding to smoking cues or demands
- Working further on the pros and cons of continuing and stopping – identifying alternatives for meeting the benefits that smoking provides, and addressing the barriers to stopping

Regardless of the smoker's readiness to stop, the 5 R's help focus communication that is supportive of long-term cessation.²⁸ Encourage smokers themselves to identify their key issues regarding these items.

The 5 R's:

- **Relevance** – Encourage the smoker to identify why quitting is personally relevant.
- **Risks** – Ask the smoker to identify negative consequences of continued tobacco use in both the short and long term.
- **Rewards** – Ask the smoker to identify the benefits of quitting for her.
- **Roadblocks** – Assist the smoker to identify barriers and impediments to quitting.



- **Repetition** – Reinforce the motivational message at every opportunity and reassure her that repeated quit attempts are not unusual.

4.5 ARRANGE

Arrange appropriate follow-up for all pregnant smokers; that is, those who are:

- not considering quitting
- planning to quit, but not soon
- ready to quit within the next month
- have recently quit and require close follow-up

If the health professional providing care is not the family physician, and when it is appropriate to do so, (with the woman's permission) invite her family doctor or GP to be part of, or kept informed of her smoking cessation effort.

Most smokers quit "on their own", but support and follow-up by the entire health care team increase quit rates significantly. Involvement of nurses, family doctors, community workers and other health workers –the entire health care team–has a substantial impact on the odds of cessation.

Letters/phone calls are often more cost-effective than follow-up visits to the clinic, especially from someone who has formed a relationship with the girl or woman.

During follow-up contact:

- ask about the patient's general welfare
- ask whether any smoking has occurred
 - If not smoking, congratulate and ask how urges are managed.
 - If smoking has occurred, review the circumstances, help support her self efficacy for change and review her plan with her. A lapse can be used as a learning experience. Consider referral for more intensive treatment.
- Assess pharmacotherapy use and whether a renewal of medication is required

5. PREVENTING RELAPSE

5.1 Assess her readiness to stay quit after pregnancy to prevent relapse

Emphasize the importance of remaining smoke free after giving birth, and as her child grows. Many women regard stopping smoking during pregnancy as a temporary absence from their usual identity as a smoker. After 28 weeks gestation, health professionals can use the questions below to assess the girl or woman's readiness to stay quit after the birth. Stotts

and her colleagues developed this simple tool to identify women who are at high risk for postpartum relapse due to quitting during pregnancy.²⁹

1) Which best describes your goal in regard to smoking after pregnancy?

- ☐ to stay off cigarettes
- ☐ to control where and when you smoke
- ☐ to go back to smoking
- ☐ not sure what your goal is

2) How likely are you to smoke in the first six months after the baby is born?

- ☐ extremely likely
- ☐ very likely
- ☐ somewhat likely
- ☐ not very likely
- ☐ not at all likely to smoke

3) Since your first prenatal visit, have you smoked a cigarette, even a puff?

The more the woman indicates that her abstinence from smoking is a temporary concession, done on account of the baby and not for her own best interests, the more the health professional should seek to boost the woman's personal motives for becoming a non-smoker.

5.2 Warning signals that may precede relapse

Encourage her to recognize and take action on the warning signals that may precede relapse, these include:

- Stress or unexpected life circumstance
- Negative mood or depression
- Drinking alcohol or using other drugs
- Prolonged withdrawal (urges, anxiety, trouble concentrating, negative mood)
- Flagging motivation/feeling deprived
- Lack of support for cessation
- Weight gain

Reaffirm that taking on the identity of a non-smoker benefits both the woman and her family. Let her know that she can come and talk at any time about any challenges she may have in remaining a non-smoker.

6. SUMMARY OF RECOMMENDATIONS FOR CARE PROVIDERS IN EDUCATION, SCREENING AND SUPPORT OF WOMEN WITH TOBACCO ADDICTION

1. Systematic clinical tobacco intervention is a major priority for prenatal and postnatal care. Any women of childbearing age who has smoked within the past five years should be offered, at the least, brief clinical tobacco intervention as part of her routine health care.
2. Use the Five A'S to guide efforts to help women to stop or reduce smoking: Ask, Advise, Assess, Assist, and Arrange Follow-up for girls and women who smoke.
3. Clinical tobacco intervention in pre-pregnant, pregnant, and postpartum care should address the woman's feelings about smoking and change, life situation, social issues, support systems and emphasize the benefits of smoking cessation for the woman's health and that of her baby.
4. Nicotine replacement therapy (NRT), should be considered for every woman who smokes more than 10 cigarettes a day and who has not quit smoking by 12 weeks of pregnancy.
5. Support for stopping smoking in pregnancy should be as extensive as possible in terms of time per visit, number of visits, supports offered, availability of nicotine replacement therapy, and of health professionals offering support. Where only brief intervention is available, it should be offered to pregnant smokers at each visit as a standard of care to increase the likelihood of smoking cessation or reduction.
6. Bring to the attention of all pregnant women who smoke community resources and other resources available to help people stop or reduce smoking. Facilitate referrals to these services.

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Appendix A

Counselling Approaches

Rollnick has described three forms of behavioural change intervention: brief advice, behaviour change counselling, and motivational interviewing.¹ Which approach to use depends on the time available, the patient's situation, the health professional's role, and the resources available. Rollnick notes these common characteristics of all three approaches when skilled practitioners use them:

- A non-confrontational style
- A common goal-motivation to change behaviour
- Encouraging the person to take responsibility for decision-making

Rollnick contrasts the three approaches in various dimensions:

Dimension	Brief Advice	Behaviour Change Counselling	Motivational Interviewing
Session time	5-15 minutes	5-30 minutes	30-60 minutes
Setting	Opportunistic	Both	Help-seeking
(Opportunistic refers to person being seen for other reasons than issue being addressed; help seeking implies self-referral for that issue.)			
Goals	Demonstrate respect Provide information Communicate risk Initiate thinking about change in behaviour	Establish rapport Identify client goals Exchange information Build motivation	Build relationship Resolve ambivalence Develop discrepancy Elicit commitment
Style			
relationship	Active expert-passive recipient	Counsellor-active recipient	Leading partner-partner
confrontational	Sometimes	Seldom	Never
empathic	Sometimes	Usually	Always
information	Provided	Exchanged	Exchanged to develop discrepancy

The authors note an extensive skill set required for motivational interviewing, including asking open-ended questions, affirmations, summarizing, asking permission, recipient choice, directive use of reflective listening, eliciting change talk, rolling with the resistance, and helping the client to articulate deeply held values.

Source: Adapted from Rollnick S, et al: Variations on a Theme, Table 18.1 Three Kinds of Behavior Change Interventions, p 274 in Miller WR, Rollnick S: *Motivational Interviewing* 2nd Edition, New York; Guilford Press, 2002

However, the authors also note that

An understandable temptation is to view the more complex method, motivational interviewing, as more skillful. However, the conceptually simpler method, brief advice, can be far from easy to use well...

...Brief advice, done well, can have an artful quality that matches the sophistication of motivational interviewing. Time and resources are often critical considerations. Brief advice can represent effective use of limited resources...¹

The effectiveness of brief advice has been extensively assessed across 17 clinical trials and found to significantly increase the odds of quitting, odds ratio of 1.74, with an absolute difference of 2.5%, which is a small effect for an individual, but substantial in regard to population health. Studies that looked at the effects of more intensive advice and of follow-up visits suggested a small benefit for each.² Motivational interviewing in randomized trials has produced mixed results, with some studies showing negative results.³

The efficacy of behavioural interventions

A Cochrane review of the efficacy of smoking cessation programs of differing intensity and duration in pregnancy found that such programs resulted in a significant reduction in the proportion of women who continued to smoke (RR 0.94; 95%CI 0.93-0.95) as well as in the number of low birth weight babies and preterm births.⁴ Brief interventions such as health provider counseling and office intervention during routine prenatal care have been shown to increase smoking abstinence during pregnancy in women who did not quit on their own.⁵

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Appendix B

Stop Smoking / Reduction Plan

Name: _____

Smoking status: _____

Plan for smoking change:

- ☐ Have just quit and want to stay quit ☐ Will quit in next four weeks and want to stay quit
☐ Will reduce to _____ cigarettes per day ☐ No plans to quit or to cut down
☐ Other _____

Using stop smoking mediation: Name: _____ Amount per day: _____

Diary:

	QUITTING SMOKING	CONTINUING SMOKING
PROS:		
CONS:		

Some things that make it easy or difficult to quit or reduce my smoking are:

Some of the smoking triggers for me are:

Alternatives or activities that I can use to replace my desire to smoke are :

Partner's Plans:

Smoking Status: _____ Non-smoker ☐

If a smoker, plans related to smoking behaviour?

- ☐ Has just quit and wants to stay quit ☐ Plans to quit in next four weeks and wants to stay quit
☐ Will reduce to _____ cigarettes per day ☐ No plans to quit or to cut down
☐ Other _____

Appendix C

Nicotine Replacement Therapy Guideline^{1,2}

Use of Nicotine Gum and the Nicotine Patch

The nicotine gum and patch provide a clean form of nicotine to the body - no carbon monoxide, no tar, no poisonous particles to breathe. Nicotine from the patch or gum gets to the brain in a slower, less addictive manner than from inhaling a cigarette. Nicotine serves as a chemical messenger in the brain and increases the brain chemicals that help smokers concentrate (nor-adrenaline), that help smokers cope with upsetting feelings (dopamine and serotonin) and serve the reward/addiction part of the brain (dopamine).

The gum and patch are much safer than regular smoking and can help heavy smokers not ready to stop completely but ready to cut down the number of cigarettes smoked per day. Decreasing from high numbers of cigarettes to 10-15 per day reduces health risks and the intensity of addiction. Inhaling cigarette smoke gets to the brain within seconds and delivers the "nicotine hit" that makes smoking so addictive. Nicotine from the gum reaches peak blood levels in 20-30 minutes and from the patch in hours, 120 to 360 minutes.

Stop-smoking medication works best if used with a behavioural plan, educational materials, supportive counselling, and long-term follow-up by the family doctor. The goal of treatment-either stopping completely or cutting down--should be identified before medication is begun.

Consider NRT for women who smoke 10 or more cigarettes per day. See the section on pharmacotherapy.

Choosing the right medicine and dosage

Since every smoker is different in terms of their past exposure to smoking (nicotine) and in terms of their genetic make-up, each patient/client should be monitored closely to ensure they are getting enough nicotine to avoid withdrawal and not so much that they become nicotine-intoxicated.

Withdrawal - The key to nicotine replacement is to provide enough nicotine that the smoker is not tormented by nicotine withdrawal, but not so much that she would suffer nicotine toxicity. Adjusting the dosage of nicotine requires paying close attention to the patient over time. The symptoms of nicotine withdrawal include anxiety, irritability, inability to concentrate, strong cravings, and a reduced pulse rate. These symptoms usually mean that more nicotine replacement is needed.

Toxicity - Too much nicotine results in nicotine toxicity, with symptoms of nausea, salivation, cold sweat, paleness, and an increased pulse rate. People who feel these symptoms should stop using the patch and gum immediately. Also, smokers should remove the patch immediately in case of: sudden onset of chest pain, heart attack, sudden irregularity in heart beat, severe high blood pressure, allergic skin reactions, increase in ulcer symptoms or any other worrisome symptom. If any symptoms arise, the physician should be contacted immediately.

Headache, insomnia, and nervousness can appear in both nicotine withdrawal and nicotine toxicity, so these are not helpful in deciding whether the person has too much or too little nicotine.

Nicotine Patch - The nicotine patch sends nicotine through the skin into the blood stream that carries it slowly to the brain. The patches vary in the time they take to reach peak blood level, and also in the amount of nicotine delivered. Each brand of patch comes in different strengths, usually 21 mg, 14 mg, and 7 mg. The choice of patch depends on the individual's level of nicotine addiction and history of reaction to a brand of patch.

A pack-a-day smoker usually starts on the 21 mg patch and starts reducing to the lower level patches only after four or more weeks of not having a single puff of cigarette smoke. In heavily addicted smokers, smoking 30-40 cigarettes a day, some clinicians supplement the patch with the gum, scheduling a piece at regular intervals.

A new patch should be applied to the skin every 24 hours, usually after bathing. The patch's steady, low level of nicotine helps the smoker avoid major nicotine withdrawal. The patch is put on a different area of skin each day. If a severe skin reaction occurs, the patch should be removed and the physician contacted; 1% hydrocortisone cream can help reduce the rash.

Nicotine gum - Nicotine gum sends nicotine through the cheek into the blood stream. The gum can be thought of as a patch that goes inside the mouth for 20-30 minutes. The gum gets several chews and then is 'parked' against the cheek to absorb nicotine. When the nicotine's peppery taste disappears, chewing and parking are repeated.

The recommended dose of gum for a pack-a-day smoker ranges from 10 to 20 pieces a day. The gum works best on a set schedule (e.g. hourly), not just when the smoker has an urge to smoke. Heavily addicted smokers are more likely to quit with the 4 mg strength of gum rather than the 2 mg gum. The smoker should not drink juices, soft drinks or coffee



just before using nicotine gum, since such beverages can make the gum ineffective. Rinsing the mouth with water before using the gum alleviates this problem.

After 8-12 weeks of scheduled gum use, the smoker can schedule one piece fewer every several days. The smoker should not rush to discontinue using the gum. Use of the gum for years is safer than continuing to smoke.

Nicotine inhaler - The inhaler uses nicotine cartridges that fit onto a mouthpiece. The patient inhales through the mouthpiece into the back of the throat, where the nicotine is absorbed. The amount and uptake of nicotine delivered resembles that of the 4 mg gum and is absorbed through the pharynx, not through the lungs.

Although Health Canada has not approved use of the patch/gum during pregnancy, they are a safer alternative for the baby than the mother continuing to smoke. For further information on nicotine replacement products refer to the manufacturer's instructions supplied with the product.

Contraindications to NRT

Absolute clinical contraindications to nicotine replacement therapy include: severe hypertension, severe coronary disease, unstable angina and or symptoms of nicotine toxicity.

The physician should assess persons with active gastric or duodenal ulcer disease, uncontrolled or overactive thyroid and moderate to severe kidney or liver disease as to whether the benefits for nicotine replacement outweigh the risks.

Patients with temporomandibular joint disease should not use nicotine gum.

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