



CHAPTER 20

Reproductive Years



INTRODUCTION

This chapter will assist health care providers in supporting women and girls to stop or reduce the use of tobacco. The chapter discusses specific approaches with:

- Women and girls of reproductive age (aged 10–45+)
- Pregnant and postpartum women (aged 18–45+)
- Pregnant and postpartum adolescents (aged 10–17)

The prevalence and impact of tobacco use and exposure to second hand smoke for these three groups of women are described. Several principles of treatment and support are introduced and tailored approaches considered. Recommendations for behavioural support and pharmacotherapy for each subpopulation are identified.

The information included in this chapter is guided by evidence-informed approaches, such as discussed by Greaves and colleagues in *Expecting to Quit: A Best-Practices Review of Smoking Cessation Interventions for Pregnant and Postpartum Girls and Women*.¹

PREVALENCE OF TOBACCO USE BY GIRLS AND WOMEN

Prevalence for women and girls of reproductive age

According to the Canadian Tobacco, Alcohol and Drugs Survey (CTADS), 12.7% of Canadians aged 25 years and older currently smoked in 2015, a lower rate than in 2011 (17%), and in 2001 (21%).² In this age group, a higher percentage of men than women currently smoked (15.3% of men compared with 10.2% of women)². Men in this age group consumed an average of 15.7 cigarettes per day, a higher number than for women (11.9).²

Overall, tobacco use among women and adolescent girls is declining in Canada². However, it is still a significant health risk to many groups of women and girls.

In Alberta, 12.6% of women aged 25 and older currently smoked in 2015, compared to 18.7% of men in the same age group.²

Smoking among young women and men aged 15 to 19 had a prevalence of 9.7%.² This is a small decrease from the 10.7% reported in 2013, and the lowest rate of current smoking recorded for this age group since Health Canada first reported smoking prevalence, and it is lower than the rate reported in 2001 (22%).² Daily smoking in this age group was 4.3%, while 5.4% of youth reported smoking occasionally, and the average number of cigarettes consumed per day was 11.6. A higher percentage of male than female youth reported currently smoking (11% and 8.2%, respectively).²

In Alberta, 11.2% of females aged 15–24 currently smoked in 2015, compared to 17.9% of males in the same age group.²

The prevalence of smoking among pregnant girls under 20 years of age in Alberta is much higher than among the overall female population, ranging from 35.2% in the South Zone to 48.3% in the Central Zone in 2014.³ Tobacco use is a very important adolescent health issue, often beginning in adolescence and extending into adulthood. Hence, when adolescent pregnancies occur, smoking is often an important risk factor.

The prevalence of smokeless tobacco use is lower than the prevalence of other tobacco use. It is also much lower among women and adolescent girls compared to men and adolescent boys. Based on 2015 CTADS data, the prevalence of smokeless tobacco use within the past 30 days was 0.4% for Canadians aged 15 years and older, and 0.9% for youth aged 15–19 and 1.9% for young adults aged 20–24.² The 2015 rate of smokeless tobacco use within the past 30 days among all males 15 years and older was 0.8%; due to high sampling variability the rate for females is not provided.² In the 2012–2013 Youth Smoking Survey, 1.4% of Canadian youth in grades 6–9 reported ever trying smokeless tobacco.⁴ These statistics are not differentiated by sex.

While not available by province, national CTADS 2015 data indicate that 16.1% of males and 10.5% of females aged 15 and older have ever tried an e-cigarette.² Among youth aged 15–19 years, 32.4% of males and 18.6% of females have ever tried an e-cigarette.² Among young adults aged 20–24, 37.6% of males and 23.1% of females have ever tried an e-cigarette.²

In 2010, Alberta sales of smokeless tobacco comprised 39% of overall national sales.⁵ The prevalence of smokeless tobacco use is significantly higher for Alberta males aged 15–19 but remains relatively low for females in this age group. In the 2012–2013 Youth Smoking Survey, 2% of Alberta youth in grades 6–9 reported ever trying smokeless tobacco.⁴ Statistics that differentiate by sex are not available. In the 2012–2013 Youth Smoking Survey, 8% of males and 6% of females in grades 6–12 in Alberta reported ever using “other tobacco products” (including smokeless tobacco, water pipe, pipe, cigarillos, little cigars, cigars, bidis or blunt wraps).⁶ In 2013, prevalence of use of cigars/ cigarillos in past 30 days in Alberta was 4.6%. There is no differentiation by sex available, and the prevalence estimates for chewing tobacco/pinch/snuff, pipe, and waterpipe use in the past 30 days were not reportable by province.⁷ A study with high school students in Alberta and Ontario found that 35% of those who smoked in the past month also reported using e-cigarettes.⁸ Despite these low prevalence rates, it is important to screen using language that is inclusive of all types of tobacco use including smokeless and tobacco-like products.

Prevalence for pregnant women and new mothers

The rate of smoking during pregnancy has declined in Canada, from 17.7% in 2001 to 4.8% among Canadian women aged 25–44 during pregnancy in 2012.⁹ Data from Alberta indicate a similar trend, dropping from 24.8% in 1999 to 11.8% in 2014.¹⁰ But within Alberta, there is a wide variation in prevalence among Alberta Health Services zones, ranging from a high of 19.7% in the Central Zone to a low of 7.4% in the Calgary Zone. These differences highlight the need for tailoring and equity oriented responses.

Tobacco use during pregnancy is declining in Alberta.¹⁰ However, it is still one of the leading causes of serious health problems for pregnant women and girls.

It is important to note that these statistics are based on self-reported tobacco use, not biochemical indicators. Because of the stigma associated with tobacco use, especially particularly during pregnancy, it is likely that many women do not report their tobacco use, meaning the prevalence could be actually higher than the available data suggest.

Figure 20.1: Maternal Smoking, Alberta, by Zone of Residence, 1999–2014³

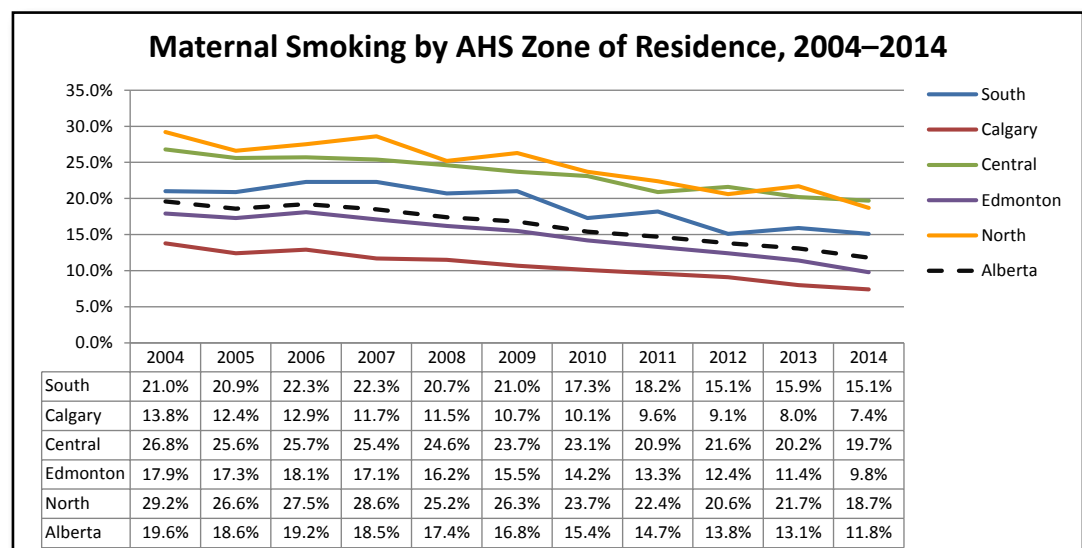


Table 20.1: Smoking and pregnancy, women aged 20-44 years,ⁱ Canada 2012

AGE GROUP (YEARS)	POPULATION ESTIMATE ('000)	SMOKED REGULARLY DURING MOST RECENT PREGNANCY (%)	SPOUSE SMOKED REGULARLY AT HOME DURING RECENT PREGNANCY ⁱⁱ (%)
20-44	1919	6.3	HSV ⁱⁱⁱ
20-24	156	22.8	13.3
25-44	1763	4.8 ^{iv}	HSV ^v

ⁱ Among women aged 20–44 who had been pregnant in the previous 5 years.

ⁱⁱ Among women aged 20–44 who reported that they had a spouse/partner.

ⁱⁱⁱ High sampling variability—although an estimate may be determined from the table, data should be suppressed.

^{iv} Moderate sampling variability, interpret with caution.

^v High sampling variability—although an estimate may be determined from the table, data should be suppressed.

Source: Canadian Tobacco Use Monitoring Survey, February - December 2012

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/canadian-tobacco-use-monitoring-survey-2012-supplementary-tables.html#t7>

While there are few data on the prevalence of smokeless tobacco use among pregnant women, estimates based on women who are not pregnant suggest that the prevalence could be less than 1%.⁹ Despite the relatively low prevalence of smokeless tobacco use compared to smoking it is important to screen women and girls using language that is inclusive of all tobacco and tobacco-'like' products, rather than asking only about smoking cigarettes. Despite declining prevalence, tobacco use during pregnancy continues to be one of the leading causes of health problems for pregnant women and girls.

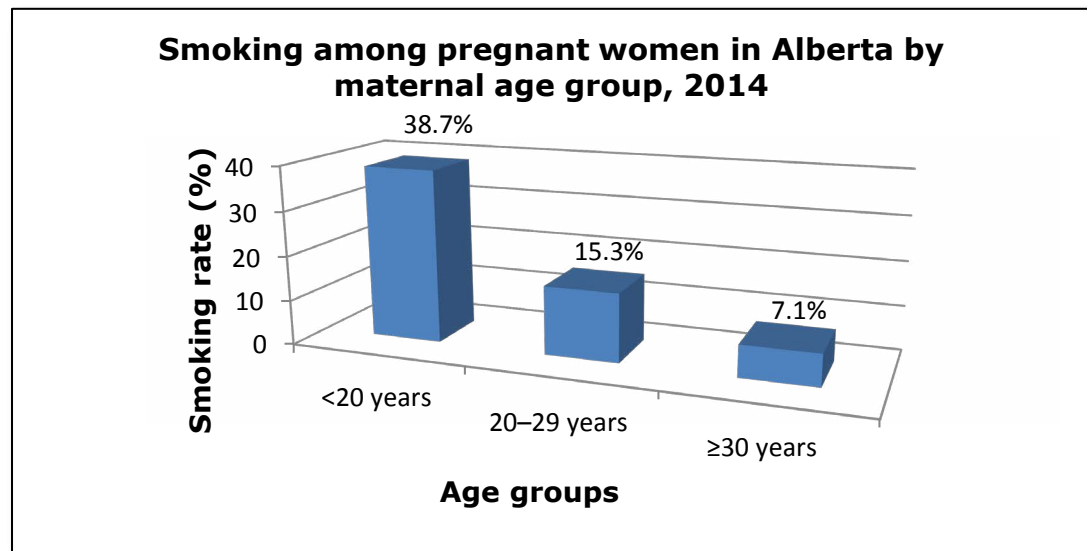
Prevalence for pregnant and postpartum adolescents

Adolescence is a key life stage where the initiation of tobacco use commonly occurs, making tobacco use during pregnancy a serious adolescent health issue. Indeed, pregnant girls and young women have significantly higher rates of smoking than older pregnant women. According to CTUMS data from 2012, new mothers between the ages of 20 and 24 years of age self-reported the highest proportion of smoking during pregnancy: 22.8% in this age group reported smoking daily or occasionally, compared to 6.3% among all pregnant women aged 20-44.⁹

In Alberta, in 2014, 38.7% of women under 20 years of age smoked during pregnancy, compared to only 15.3% age 20–29 years and 7.1% age 30 years and older.¹⁰

The differences between these rates are stark, and highlight that smoking during pregnancy is often a key young women's health issue.

Figure 20.2: Smoking among pregnant women by age group in Alberta, 2014 ¹⁰



The prevalence of smoking among girls and teenagers during pregnancy is higher in Alberta than in Canada as a whole. According to the Alberta Perinatal Health Program, 38.7% of women younger than 20 years of age who gave birth in Alberta in 2014 smoked at some point during their pregnancy.¹⁰ This compares to 11.8% of women of all ages who gave birth in Alberta in the same year. Within Alberta, there is a wide variation in smoking among teenagers during pregnancy between Alberta Health Services zones, ranging from a high of 48.3% in the Central Zone to a low of 35.2% in the South Zone.³

The prevalence of smoking among pregnant girls and teenagers in Alberta is three times that of the overall rate among pregnant women.¹⁰

Health impacts for women and girls of reproductive age

The risks of smoking and tobacco use are greater for women than men, even at lower levels and frequency of smoking. In short, women and girls experience more and different negative impacts from smoking than men and boys, and become dependent at lower levels of use. The full extent of sex-and gender-specific health effects of tobacco use on women is not fully understood because of large gaps in biomedical and social research. However, as reported by Ontario's Program Training and Consultation Centre, smoking is known to cause the following health risks for women.¹¹

Tobacco affects the health of women and girls differently than it affects men and boys.¹¹



- **Cardiovascular disease**

Smoking is a major cause of cardiovascular disease. This refers to diseases of the circulatory system, including the heart and blood vessels, whether the blood vessels are affecting the lungs, the brain, kidneys or other parts of the body. Women who smoke as few as 1–4 cigarettes each day have twice the risk of cardiovascular disease as women who have never smoked.¹¹ Under age 50, women's heart attacks are twice as likely as men's to be fatal.¹² Women's hearts respond better than men's to healthy lifestyle changes so measures to improve overall health including harm reduction should be promoted.¹²

- **Cancers:**

- **Lung Cancer**

Smoking causes about 80% of lung cancer deaths in women and lung cancer is the most commonly diagnosed cancer and the most frequent cause of cancer mortality.¹³ The risk of dying from lung cancer is about 13 times higher among women who smoke cigarettes compared with women who have never smoked.¹¹ Canadian women have the highest rate of lung cancer mortality in the developed world at 47 per 100,000 population.¹¹ This is almost double the average of other Western countries.

- **Breast Cancer**

There is a causal association between active smoking (intentionally inhaling tobacco smoke) and both pre- and postmenopausal breast cancer.^{14,15} There is also a causal relationship between second-hand smoke and breast cancer in younger, primarily pre-menopausal women who have never smoked.¹⁶ There is currently insufficient evidence to make similar conclusions about second-hand smoke exposure and post-menopausal breast cancer.

- **Other cancers**

In addition to lung and breast cancer, women who smoke have increased risks of cancers of the mouth and throat, esophagus, larynx, bladder, pancreas, liver, colon, rectum, cervix and kidneys. Smoking also appears to increase the risk for some types of ovarian tumours.¹¹

- **Pulmonary Disease**

Chronic obstructive pulmonary disease (COPD): Women who smoke have markedly increased risks of developing and dying of COPD, which is a respiratory disease affecting both the airways and alveolar sacs of the lungs. Over time, as the disease advances, breathing difficulties can result in severe disability and death. The risk increases with the number of cigarettes smoked per day.¹¹

- **Asthma**

Smoking is a well-recognized trigger for asthma; it can worsen existing asthma and make asthma attacks more intense. Smoking and second hand smoke are also recognized as a cause of asthma; up to 9.3% of all new asthma cases may be caused by exposure to SHS tobacco smoke in the home environment.¹⁷ But if a girl or young woman has asthma, it doesn't mean they do not smoke, so make sure to ask about smoking.

Tuberculosis

There is a strong association between tobacco smoking and the development and natural history of TB. Evidence suggests that smoking could be considered as an important risk factor for the development of tuberculosis. Not only does active smoking appear to heighten the chances of contracting pulmonary tuberculosis, but people who smoke also seem to be at increased risk for extra-pulmonary tuberculosis.^{18,19} In addition, smoking harms the body's immune system so people who smoke are less able to combat TB infection.¹⁹ Smoking reduces the effectiveness of TB treatment leading to longer periods of infection and/or more severe forms of the disease.¹⁹ These associations are of considerable relevance to public health and disease outcomes for individuals with TB.

- **Influenza**

Influenza is more severe among those who smoke, with a dose-related increase in rate: 30% in non-smokers, 43% in people who smoke lightly, and 54% in people who smoke heavily.²⁰ Work loss occurs in 50.6% of those who smoke compared to 30.1% of non-smokers. Overall, 31.2% (95% CI, 16.5-43.1) of influenza cases are attributed to cigarette smoking.²⁰

- **Osteoporosis**

Smoking causes loss of bone mass in both men and women, leading to higher risk of fracture. In particular, a meta-analysis of data from postmenopausal women demonstrates that smoking increases the risk of hip fracture. The U.S. Surgeon General has estimated the risk of hip fracture to be 55% higher in people who smoke than in those who do not smoke (male and female).¹¹ Heavy smoking has been associated with lower bone development among adolescent girls.¹¹⁸

- **Reproductive health and pregnancy**

Smoking has profound effects on reproductive health and menstrual function. Women who smoke are more likely to experience primary and secondary infertility and delays in conceiving when compared to non-smoking women.²¹

- **Other health issues**

The health effects of tobacco use mentioned above are not exhaustive. Research is ongoing, with causal links to diseases continuing to be discovered, especially in tobacco users who are genetically predisposed.¹¹

Health impacts for pregnant women and new mothers

Tobacco use during pregnancy and postpartum not only affects the health of the woman or girl, but also the health and development of the fetus, infant and child. While the importance of a woman centred approach is paramount as healthy women are vital to producing and rearing healthy children, it is also very important to know the impacts of tobacco use on fetal and child health. The effects of tobacco on pregnant women and on fetal, infant and child health are summarized in Table 20.2.

Table 20.2: Effects of Tobacco Use and Exposure During Pregnancy	
FOR THE PREGNANT WOMAN ^{1, 22}	
<ul style="list-style-type: none">• Increased risk of:<ul style="list-style-type: none">◦ ectopic pregnancy (implantation of the embryo outside the uterine cavity)◦ spontaneous abortion (miscarriage)◦ preterm labour◦ premature rupture of membranes◦ placental problems (previa and abruption)◦ lower production of breast milk	
FOR THE FETUS AND NEWBORN ²³⁻²⁵	
<ul style="list-style-type: none">• Increased risk of<ul style="list-style-type: none">◦ growth restrictions◦ fetal and neonatal mortality◦ congenital malformations◦ low birth weight (on average approximately 200 grams smaller)◦ sudden infant death syndrome (SIDS)	
FOR THE CHILD ²⁶⁻²⁸	
<ul style="list-style-type: none">• Increased risk of:<ul style="list-style-type: none">◦ childhood respiratory illnesses (e.g., asthma, pneumonia, bronchitis)◦ other childhood medical problems (e.g., ear infections)◦ learning problems (e.g., difficulties with reading, mathematics, general ability)◦ behavioural problems◦ attention deficit hyperactivity disorder (ADHD)	

Health impacts for pregnant adolescents

Girls and young women are at an increased risk for the harmful consequences of tobacco use during pregnancy and postpartum. Women under the age of 20 are at higher risk for having preterm and low-birth-weight infants. Pregnant girls under age 15 who use tobacco have twice the risk of intrapartum stillbirth than pregnant women over 15. Adolescent pregnant women also experience higher rates of maternal anemia than older women during pregnancy.²⁹

Exposure to Others' Smoke

While on the decline, exposure to others' smoke is a significant risk factor for young people. In 2014, 9.2% of young Canadian boys and girls aged 12–19 were exposed to second hand smoke at home, comprising 28% of all Canadians exposed to smoke.³⁰

Tobacco smoke is classified into three categories:

- a. First-hand smoke, inhaled by the person smoking
- b. Second-hand smoke, either exhaled by a person who smokes or released from the end of a burning cigarette, joint or a device that combusts, heats or vaporizes tobacco
- c. Third-hand smoke, which refers to the tobacco smoke or vapour residue and gases that are left behind on surfaces such as upholstery, clothing, draperies and carpets, and in vehicles, after a cigarette or other smoking or vaping device has been used.

Exposure to tobacco smoke (or e-cigarette vapour or cannabis smoke) is a significant health concern for women and girls during the reproductive years.^{61, 81}

Exposure to second hand smoke is a known risk for breast cancer, asthma, cardiovascular disease in girls and women, and infants and children.⁶¹

Refer to the following downloadable e-resources called **Tobacco Information Series-Second-Hand and Third-Hand Tobacco Smoke** and the **Tobacco Strategic Briefs-Second-Hand Smoke in Multi-Unit Dwellings**, for more information:
<https://www.albertaquits.ca/helping-others-quit/healthcare-providers/tools-and-resources.php>

INTERVENTION, TREATMENT AND SUPPORT

Principles

There are some key principles underpinning effective responses to girls and women who use, or are exposed to tobacco during pregnancy and postpartum. Understanding these principles ensures that the response you make is respectful, effective and sensitive, and builds confidence and empowerment in women and girls as they deal with tobacco in their lives.

WOMAN CENTRED

Most women in Canada are not pregnant most of the time. A woman-centred approach prioritizes women's health before, during and after pregnancy. This is a conscious move away from the more traditional fetus-centric approach that often overlooks the value of supporting a woman to stop using tobacco for her own sake, outside of her reproductive role. This is a critical shift for reducing relapse in the postpartum, which can approach 90% among women who quit smoking during pregnancy.

The rationale for this approach is that focusing on the woman and her health builds internal motivation for lifelong health. If the mother is healthy, the fetus and child also benefit. Woman-centred approaches build the woman's sense of value, confidence and self-efficacy, supporting her ability to improve her own health and by association, the health of her family.¹

From a fetus-centred perspective, there may be little incentive for a pregnant woman to maintain cessation after her baby is born, and little reason for a mother to quit using tobacco if she feels she is doing everything possible to avoid exposing her children. Focusing on the impact of tobacco use on the fetus may also cause the woman to feel shame and guilt, which diminishes her self-esteem and confidence in her future identity as a "good mother".¹ Hence, it is critical that tobacco use be addressed throughout the reproductive years at all levels of prevention; primary, secondary and tertiary.

Evolving social attitudes and tobacco denormalization have resulted in the stigmatization of tobacco use, especially during pregnancy. Negative public opinion toward tobacco use in general and in particular, toward women who use tobacco while pregnant or caring for young children, is stigmatizing and marginalizing, and often erodes women's self-image and confidence. It can also cause them to hide their tobacco use from their health-care providers, or resist discussing it in a productive way, hence avoiding treatment for tobacco dependence.

When providing tobacco cessation support to women, health-care providers are encouraged to be sensitive to the stigma facing pregnant and postpartum women. It is important to examine your own attitudes, and recognize the ways this can manifest itself in client-caregiver relationships.¹

HARM REDUCING

Despite their best efforts, some women are not ready to quit using tobacco, or feel they cannot quit when a brief tobacco intervention is offered. Quitting may be a low priority for some women for a variety of reasons, including stressful life events like being pregnant or having a new child at home, heavy tobacco use, other substance abuse or mental health issues, vulnerability in an abusive relationship, poverty, homelessness, or other circumstances in their lives. It is important to respect a woman's right to decide what she can and cannot take on, and when.¹

When it is clear that a woman is not ready to consider reducing or quitting tobacco, the emphasis should be on helping her identify any steps she can take in the immediate term to reduce the negative impacts of tobacco use. This could include assistance to reduce her tobacco use, improve her nutrition or reduce the impact of second- and third-hand smoke in her environment. It may also include helping her determine whether nicotine replacement therapy (NRT) would be the best option to help her reduce the harmful impacts of tobacco use.¹

TRAUMA INFORMED

There is a strong correlation between tobacco use, other substance use, and the experience of trauma, including childhood trauma, sexual assault and domestic violence.^{31,32} The prevalence of smoking among women who have experienced trauma is 2–4 times higher than women who have not.¹ Of key importance to health care practitioners is that girls and women who have experienced trauma at any stage of their lives may respond differently to health promotion efforts, especially those that can be interpreted or experienced as confrontational, authoritative or directive.

Trauma-informed approach - Addressing tobacco use in a trauma-informed way means that you are sensitive to these effects of trauma and aware of its impact on tobacco use. Specifically, you are alert to the effects of traumatic histories of girls and women accessing your service, you provide physical and emotional safety, and prevent re-traumatization. You give the woman or girl personal control over deciding how to address her tobacco use, using her own strengths and priorities, and building upon them. Being trauma informed does not depend on individual disclosures, but rather ensures that everyone entering into or working in a setting experiences safety, choice, and develops coping skills. Gentle, non-confrontational approaches that are empowering for clients are taken to changing tobacco use patterns. It also means that using motivational interviewing techniques to build upon women's strengths and goals to make change is an essential part of reducing tobacco use or exposure to tobacco.

Trauma-informed practice (TIP) is a service or system stance that has built trauma awareness into all of its policies, programmes, physical plant, staff training, language and materials. This is a stance taken by entire organizations or systems that applies universal approaches to preventing re-traumatization in any and all service users. It respects the needs of workers as well as clients.

Further information about trauma-informed approaches is available:

When a girl or woman has experiences characterized by abuse or neglect as a child, she is likely to try to make sense of the abuse by adapting her thinking and her beliefs. There are five important areas of belief that are most likely to be disrupted by trauma: safety; trust; esteem; intimacy and connection; and power and control. Examples of trauma-disrupted beliefs can be found on the Women's College Hospital website.

www.womenshealthmatters.ca/health-centres/mental-health/trauma/signs-and-symptoms/

- **Trauma informed Practice (AHS staff Insite link)**
<http://insite.albertahealthservices.ca/amh/tms-amh-trauma-informed-practice.pdf>
- **Trauma informed Practice Guide**
http://bccewh.bc.ca/wp-content/uploads/2012/05/2013_TIP-Guide.pdf
- **The Trauma Toolkit**
http://trauma-informed.ca/wp-content/uploads/2013/10/Trauma-informed_Toolkit.pdf
- **Trauma Matters Guide**
<http://jeantweed.com/resources/>
- **Trauma is a women's health issue**
www.womenshealthmatters.ca/health-centres/mental-health/trauma/

EQUITY INFORMED

Tobacco use, reduction and cessation are strongly influenced by inequity. For example, girls and women who are living on low incomes, experiencing homelessness or who are marginalized or subjected to discrimination are more likely to smoke and less likely to quit during pregnancy and postpartum. In particular, lone mothers can often be living in difficult circumstances where tobacco use is simply comforting and adaptive. To deal with these concerns and issues, it is necessary to apply an equity lens to your practice.

This perspective requires thinking about tailoring your approach to acknowledge these social pressures and to provide appropriate information and harm reduction, culturally appropriate interventions or support with funding pharmacological cessation aids. Taking an equity-informed approach increases your sensitivity to trauma, and the woman's priorities and social context.

“Age, education, income, employment, and social-support networks are the key determinants of socioeconomic status that consistently indicate an inverse relationship with smoking in pregnancy”.¹

Vulnerable groups

Some women and girls are especially vulnerable to tobacco use and addiction, during pregnancy and postpartum including:^{1,2}

- women and girls of low socio-economic status
- women and girls with mental health problems
- women and girls who use other substances
- women and girls who have experienced trauma
- Indigenous women and girls

Health care providers need to be sensitive to the characteristics of subgroups and understand the importance of providing tailored approaches that address issues specific to each subgroup. It is important to recognize that not only are some girls and women more likely to use tobacco but they also experience more challenges with quitting and relapse.¹

Refer to the **Addiction and Mental Health** chapter and **Expecting to Quit** for more information on tobacco treatment for some of these groups. <http://www.expectingtoquit.ca>.

All of these principles matter—woman centred, harm reducing, trauma informed, equity informed—and basing your approach on them will improve your response to women and girls who use tobacco during pregnancy and postpartum.

Key treatment considerations

READINESS TO QUIT

Women are very likely to quit using tobacco when they are pregnant, and all such attempts need to be recognized and supported. Indeed, as described by Chamberlain and colleagues, a higher proportion of women who smoke stop smoking during pregnancy than at other times in their lives.³³ Some women quit on their own before their first prenatal visit, but the barriers to doing so reflect the social determinants of health, level of nicotine addiction, trauma histories, smoking status of their partner and social context.³³ In general, 46% of pregnant women quit during pregnancy,³⁴ but approximately 42% of women relapse postpartum.³⁵

Many women quit smoking before their first prenatal appointment. But relapse rates postpartum are very high (42%).³⁵

“Women who spontaneously quit usually smoke less, are more likely to have stopped smoking before, have a non-smoking partner, have more support and encouragement at home for quitting, are less seriously addicted, and have stronger beliefs about the dangers of smoking.... However less than a third of these women remain abstinent after one year postpartum, supporting qualitative evidence that many women see pregnancy as a temporary period of abstinence for the sake of the baby.”³³

This high rate of quitting during pregnancy, coupled with high relapse rates indicates that many women do see quitting during pregnancy as ‘temporary abstinence’, not as long term or lasting change³³. Greaves and colleagues highlight the need to encourage motivation among pregnant women who smoke to quit for their own sake, not just that of their fetus or baby.¹ However, the majority of smoking interventions for women focus on the period of time that they are pregnant, and aim to build on their motivation to quit for the sake of the fetus or baby.

Women are more likely to quit using tobacco when they are pregnant than when they are not.³³

This focus on fetal health (fetus-centricity) not only diminishes the value of women’s health and treats the woman primarily as a reproductive vessel, but also fails to address a more long-term motivation for becoming and remaining abstinent from tobacco after the baby is born.^{1, 36} It is important to remember that most women are not pregnant most of the time, and discussions about tobacco use are ideally instigated pre-pregnancy. Not doing so is a missed opportunity for health care practitioners, and for women.

QUITTING AND STRESS

A persistent misperception is that quitting tobacco use during pregnancy causes stress to the woman that would harm the fetus more than tobacco use, and therefore pregnant women should not attempt to quit until after the baby is born.³⁷ Nothing could be further from the truth.

While many people believe that tobacco use relaxes them, it actually creates physiological stress symptoms such as elevated heart rate and blood pressure. The perception of stress relief is due to relieving the craving for nicotine.

Practitioners need to encourage tobacco reduction or cessation for all pregnant women.

Women should be encouraged to quit as early in their pregnancy as possible, but the fetus (and the woman) will benefit even if the woman quits late in the pregnancy.³⁸

Quitting during pregnancy is always better for women's and fetal health. Quitting tobacco use during pregnancy is not harmful to the fetus.³⁷

PARTNER AND SOCIAL SUPPORT

A woman's readiness and ability to quit is strongly influenced by her partner's tobacco use and the prevalence of, and exposure to, tobacco use within her immediate social circle. It is also dependent on her perception of the level of support she can expect from her partner and friends. When providing support to women, it is important to discuss the presence of people who smoke in the lives of pregnant women and to determine the dynamics of those relationships. Sometimes such dynamics are helpful, but sometimes they are not, and these realities are a key element in advising women.

The tobacco use patterns of a pregnant woman's partner, family and friends have an influence, and must be considered when assisting her effort to quit.¹

As described by Greaves, women who smoke often use smoking to quell emotions, forge identities, and organize, bind and sometimes disengage from their social relationships.³⁹ Pregnant women have these and other complicating factors overlaid on their use of tobacco, compounded by their views regarding fetal health and whether or not these views coincide with those of their partners and friends.¹ It is worth acknowledging that tobacco use often serves a social function, and quitting or reducing may mean changing social patterns. While it is advisable to pursue information about a partner's tobacco use and to try to intervene, it is crucial to do so in a way that respects the complex social dynamics within couples and between friends. It is critical to acknowledge power, control and abuse issues between partners in a way that ensures women's safety.⁴⁰

Further information and support for women and their partners is available in the handbook *Couples and Smoking: What You Need to Know When You are Pregnant* available from www.facet.ubc.ca.

TOBACCO-LIKE PRODUCTS

There is an increasingly wide range of 'tobacco-like products' such as: e-cigarettes, hookah, shisha, vaping pens, personal vaporizers, tanks and mods, and battery-operated devices that have cartridges with liquid chemicals in them. In some of these devices, the liquid is heated to produce a vapour that the user inhales. With regard to hookah or water pipe use, recent research from Alberta shows that even the use of non-tobacco (also called herbal shisha) products in such a device produces toxic air pollutants including known cancer causing chemicals that are similar to or greater than that found in tobacco products and harmful to one's health.⁴¹

Some pregnant or post-partum women who are struggling to quit tobacco may mistakenly believe these devices are harmless and are a suitable cessation aid alternative to those already regulated by Health Canada (such as Nicotine Replacement Therapy products). However, vapour from e-cigarettes often contains a cocktail of chemicals including known carcinogens. According to the California State Health Officer's Report on E-Cigarettes, inhaled vapour and second-hand vapour has been found to contain at least ten chemicals known to cause cancer, birth defects or other reproductive harm although a set number is hard to determine due to variability in cartridge composition and diversity of products sold.⁴²


Health Canada currently advises Canadians against the purchase or use of electronic vaping products (e-cigarettes) or other tobacco-like vaping products.⁴³ Therefore, Alberta Health Services does not recommend e-cigarettes as an aid to cessation, but recommends only approved and safe cessation/reduction aides available to clients through their prescribing authority. Information on recognized cessation aids is discussed later on pages 20.28–20.31.

AlbertaQuits offers vaping product information as Download Resources on www.albertaquits.ca. Refer to the Tobacco Information Series and Tobacco Strategic Briefs tabs: <https://www.albertaquits.ca/helping-others-quit/healthcare-providers/tools-and-resources/download-resources.php>

Cannabis is the most commonly used illicit drug in Canada, and is much more likely to be used by young people (15–24 years) than by adults (25+ years) according to the Canadian Centre on Substance Abuse.^{94, 95} In 2013, Canadian women reported just over half the cannabis use of Canadian men (10% versus 15%).⁷ Smoking is the most common way to consume cannabis, either as a cigarette, or in a pipe or bong.⁹⁶ American studies report e-cigarette or tobacco use combined with cannabis as highly prevalent; one co-use study reported among young adult cannabis users, 68.6% used it combined with tobacco.^{97, 98}

Cannabis smoke has been shown to contain high concentrations of carcinogens also found in tobacco smoke,^{95, 99} and cannabis users generally take larger puffs and hold their inhalations for longer than tobacco users. This difference in smoking style may increase the carcinogenic properties of cannabis smoke.^{95, 100} Little is known about cannabis use in Canada during pregnancy and postpartum periods. In a study of over 12,000 pregnant women in England, 5% of mothers reported smoking cannabis before and/or during pregnancy; they were younger, of lower parity, better educated and more likely to use alcohol, cigarettes, coffee, tea and hard drugs.¹⁰¹

Prospective changes to current Canadian federal government legislation regarding cannabis to legalize, regulate, and restrict access to cannabis^{95, 102} may lead to an increase in use.^{95, 103} The potential of girls and women revealing they use cannabis is possible and leads to the question of how to address exposure, particularly during pregnancy and postpartum. Research on the effects of cannabis on a fetus are limited, but there is evidence to suggest concern. For example, pregnant women who use cannabis are more likely to be anemic, have low birth weight and require neonatal intensive care for their baby than women who do not use cannabis.^{104, 105} Studies also show a tendency for impaired higher-order cognitive functions like impulse control, visual memory, and attention during childhood development years. Although more research is needed on the effects of cannabis on pregnancy, the American College of Obstetricians and Gynecologists released a medical committee opinion in 2015 to discourage use of cannabis during preconception, pregnancy and lactation.¹⁰⁵



Morning sickness is experienced by most pregnant women and studies have revealed concern that women report using cannabis to treat symptoms of nausea and vomiting.¹⁰⁶ If this occurs, safer, medically approved medication for nausea and vomiting during pregnancy should be encouraged to avoid any potential harms to the mother and fetus.

Further information on Women and Marijuana is available at <http://bccewh.bc.ca/wp-content/uploads/2016/08/Information-Sheet-Women-Marijuana030716.pdf>

Preconception interventions

Almost half of pregnancies are unplanned, making preconception care very important for practitioners and women.⁴⁴ Hence, all women and girls should be screened for tobacco use.⁴⁵ This encourages thinking about smoking and women's health, not just the effects of tobacco on women's reproductive health. Girls or women who are currently using tobacco should be encouraged to quit for their own health, independent of whether they are ever planning to have a child. Those who are planning to have a child or are at risk of becoming pregnant should be provided with targeted support to reduce or stop using tobacco.

Preconception and (interconception) cessation strategies are important at any time in order to reduce harm to the fetus, infant or child from prenatal or postpartum tobacco exposure and include⁴⁶ :

- encouraging each girl, boy, woman, man and couple to have a life plan that includes being tobacco-free
- improving public awareness of the importance of preconception health behaviours and seeking support and services
- providing risk assessment, education and health promotion counselling to women and girls, and boys and men, of reproductive age
- supporting women who use tobacco who are in the interconception care period (between pregnancies) and offering intensive intervention
- offering tobacco education and intervention at all check-ups, especially to those considering conceiving

For women who are in preconception or interconception care periods AHS Healthy Children and Families provides a website at www.readyornotalberta.ca. The interactive website assists women and their partners by answering questions they may have regarding tobacco use in addition to information about many other health topics including; birth control, STIs, folic acid, age and fertility, healthy mind and body, and other substance use.

Men and Preconception

Men matter too, but historically the messages and interventions about tobacco use and quitting at or before conception have been directed at women. Men and new fathers were typically ignored other than in their role in providing a smoke or tobacco free environment. However, expectations of men in developing a healthy fetus and child are changing. Males contribute 50% of the genetic DNA material to a fetus, but little research has been done on the effects of their tobacco use on fertility or the fetus. Indeed, a man's role begins even before conception. Women have been consistently encouraged to be healthy before becoming pregnant, and emerging evidence is showing that men should as well.⁴⁷

Sperm take three months to develop and alcohol, tobacco, other drugs and medications


can affect the quality of the sperm.⁴⁸ Tobacco use can harm male fertility and if a woman conceives, damaged sperm can still fertilize the egg, which could lead to birth defects and miscarriage.^{48,49} Ideally, quitting tobacco and tobacco-like products before trying to have children is best for both women and men.⁴⁷ In addition, the children of fathers who smoke are at increased risk of certain kinds of cancer.⁵⁰ Non-allergic asthma (without hay fever) is significantly more common in children with a father who smoked prior to conception.⁵¹ This risk of asthma is increased if a father smoked before the age of 15 and this risk grows with longer duration of smoking.⁵¹ Men who smoked in mid-childhood (age 12 –15) may also have increased risk of having sons who are obese in adolescence.⁵² Clearly, there is increasing evidence emerging on the role of tobacco on men in conception and fertility, and practitioners, men and boys need this information as well.

Brief interventions

BRIEF TOBACCO INTERVENTION – FOR ALL WOMEN AND GIRLS

The 5A's are considered clinical best practice for the general population, but in tobacco cessation, as in many other fields there is a lack of research on how best to adapt this approach for use with women and girls (or indeed, with men and boys). In addition, women of reproductive age require some tailored information, as well as sex and gender sensitive approaches. While the standard 5A's approach is often still used with women and girls of reproductive age, there are numerous studies that indicate that women face unique barriers to quitting.^{53–55} These include:

- concern about the potential for weight gain
- NRT (especially gum and patches) may not be as effective for women, due to hormonal, physiological and pharmacokinetic differences that exist and become more prevalent in pregnancy
- tobacco withdrawal symptoms and responses to tobacco cessation pharmacotherapy vary by menstrual cycle phase
- greater likelihood of depression
- women experience greater rewarding effects of nicotine and more intense stress produced by withdrawal than men
- the provision of less effective support from men to women than women give to men
- women may be more susceptible to environmental cues (e.g., friends and moods) associated with the tobacco use ritual
- women have more non-pharmacologic cues/motives that reinforce tobacco use (e.g., for socialization)
- some women enjoy the feeling of control associated with tobacco use



The Liberation Guide offers a progressive approach to tobacco reduction or cessation with women, by building on the strengths of the woman, understanding the social context of her tobacco use and using motivational interviewing techniques to generate plans for change. This handbook is a practical guide for practitioners to taking a holistic, gentle approach that is rooted in building choice and motivation for long-term change directed and desired by women. It offers step-by-step instructions, as well as scripts for conversing in a motivational, woman-centred manner to achieve tobacco reduction or cessation. Many of these techniques can also be incorporated into brief interventions with pregnant and postpartum women and work to focus more on women's health as a long term motivator for cessation.

The Liberation Guide offers:

- Practical ideas on how to begin a conversation about quitting smoking
- Strategies for guiding the conversation toward change
- Techniques to support confidence building
- Ways to understand trauma and shame
- Scripts for what to say, pacing and supporting change
- Tools and resources for discussion

(http://bccewh.bc.ca/wp-content/uploads/2012/05/2012_Liberation-HelpingWomenQuitSmoking.pdf)

BRIEF INTERVENTIONS WITH PREGNANT WOMEN AND NEW MOTHERS

Many health-care providers have the opportunity to provide tobacco intervention support to pregnant and postpartum women, including family doctors, obstetricians, midwives, prenatal educators, neonatal intensive care unit and public health nurses, pharmacists and lactation consultants. In all cases, there is an opportunity to screen and assist women, whatever their tobacco use history or context.

There are some approaches to keep in mind as you go about using the 5A's that can benefit your interaction with women and girls of reproductive age, or in pregnancy or postpartum. These include being woman centred, trauma informed and using harm-reduction techniques. In addition, there are some specific ways of approaching the issue of tobacco use that could help. For example, the 5A's for assisting with tobacco cessation can be modified to incorporate these principles and sensitivities. There are many factors for health professionals to consider when implementing the 5A's model for pregnant and postpartum women.

“Research has shown that the use of multiple choice questions as opposed to a simple yes/no question, can increase disclosure among pregnant women by as much as 40 percent”.⁸¹

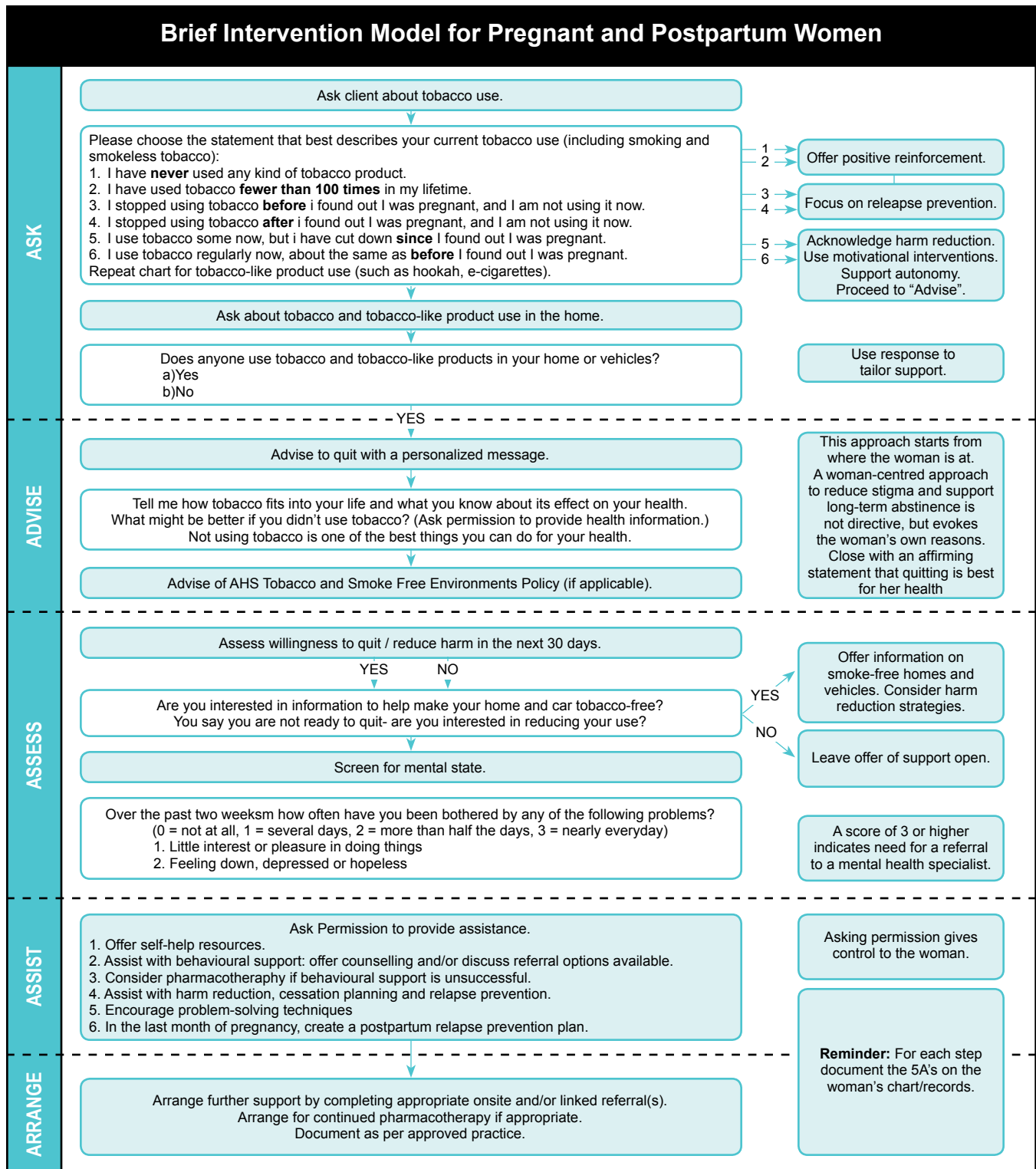
Treating Tobacco Use and Dependence: 2008 Update

Table 20.3: Tailoring the 5A's Approach

ASK	<p>ASK all clients if they have used tobacco or tobacco-like products before or during pregnancy.</p> <p>ASK about patterns of use.</p> <p>ASK about exposure to second- and third-hand smoke or nicotine.</p> <p>ASK in an open and non-judgemental manner,</p> <p>ASK all pregnant and postpartum women at every visit if they use tobacco, are exposed to tobacco smoke, or if they have already quit</p> <p>Asking is best done by focusing on the woman's health, both immediate and long term. Questions can be framed as multiple choice to get the best description of a woman's history and context with tobacco use. Answers need to be documented. For example:</p> <p><i>Please choose the statement that best describes your current tobacco use (including smoking and smokeless tobacco)</i></p> <ul style="list-style-type: none"> • <i>have never used any kind of tobacco product.</i> • <i>stopped using tobacco before I found out I was pregnant, and I am not using it now.</i> • <i>stopped using tobacco after I found out I was pregnant, and I am not using it now.</i> • <i>use tobacco sometimes now, but I have cut down since I found out I was pregnant.</i> • <i>use tobacco regularly now, about the same as before I found out I was pregnant.</i>
ADVISE	<p>ADVISE cautiously and avoid being directive with respect to advice on quitting</p> <p>ADVISE about the benefits of a tobacco-free home and vehicle</p> <p>ADVISE of AHS Tobacco and Smoke Free Environments Policy as appropriate</p>
ASSESS	<p>ASSESS readiness to quit or reduce tobacco use</p> <p>ASSESS interest in cessation support</p> <p>ASSESS interest in making her home and vehicles tobacco-free.</p> <p>ASSESS her mental health</p>
ASSIST	<p>ASSIST the woman or girl who is ready to quit, reduce or prevent relapse with self-support materials and brief information and links to motivational or behavioural counselling</p> <p>ASSIST when appropriate with pharmacotherapy to improve client success in quitting</p> <p>ASSIST the woman or girl who is not ready to quit or reduce by supporting autonomy</p>
ARRANGE	<p>ARRANGE link to ongoing behavioural and social support</p> <p>ARRANGE continued pharmacotherapy, as appropriate</p>

Once these general approaches are implemented, the following chart offers some direction for a brief intervention.

Figure 20.3: *Tobacco Free Futures: Brief Intervention Model for Pregnant and Postpartum Women*^{34,119,210}



Breastfeeding Mothers

New mothers who use tobacco are advised to continue breastfeeding while they attempt to quit. Even though small amounts of nicotine pass through to the breast milk, the benefits of breastfeeding to the newborn outweigh the negative impact of nicotine and other contaminants passing through the breast milk.^{56, 57} Nicotine ingested through breast milk may cause the baby to refuse feedings, be cranky, sleep poorly and spit up.⁵⁸⁻⁶⁰ Breastfeeding women are therefore advised to time their tobacco use to right after the baby nurses, to help the nicotine clear from their milk before the next feeding.^{56, 60} Mothers who smoke are less likely to breastfeed or feed as long as those who don't smoke.¹⁰⁸⁻¹¹³ Several studies suggest nicotine is linked to suppressing prolactin secretion and may contribute to a reduced milk supply.^{60, 107-115} Psychosocial issues such as poor lactation management may also be a factor.¹⁰⁹

New mothers who use tobacco are advised to continue to breastfeed while they attempt to quit.^{56, 57}

The Baby Steps Help Guide is designed to assist health providers in supporting pregnant or postpartum women to reduce and stop use of tobacco and tobacco-like products. All health care and social service providers need to facilitate conversations with women that:

- raise awareness about the potential harms from tobacco and tobacco-like products,
- support understanding about one's relationship to tobacco, and
- identify what help may be needed to stop.

This Help Guide

- Recommends a woman-centred and trauma-informed approach for working with women who use tobacco and tobacco-like products
- Explores readiness taking into account the impact of personal and equity-related circumstances
- Provides information on the effects of tobacco and cannabis exposure on women's and fetal health
- Promotes understanding of the issues and barriers women face when quitting tobacco
- Provides an algorithm for how to offer effective interventions
- Provides eleven discussion topics that you may find helpful to build your knowledge and carry on a conversation or group activity with women who are interested in reducing or stopping tobacco consumption

<https://www.albertaquits.ca/helping-others-quit/healthcare-providers/tools-and-resources/download-resources.php>

BRIEF INTERVENTIONS FOR PREGNANT AND POSTPARTUM ADOLESCENTS

Those at the highest risk of smoking during pregnancy and postpartum are girls and young women under age 24. However, little research has focused on this group to identify the interventions that might work best. For example, while the 5A's are accepted clinical practice for both pregnant women and adolescents, there is a lack of research on how best to adapt the approach for use with pregnant or postpartum teens. In the absence of such targeted recommendations, a combination of the recommended approach for pregnant/postpartum women and the approach for adolescents outlined in the Youth and Family chapter might be considered.

Intensive counselling for women and girls

Nicotine dependence among women is different than in men and women face unique stressors and barriers to quitting. Women have been found to be less likely to quit successfully than men and require more interventions to successfully quit than men do.⁶² They also require targeted approaches to prevent smoking initiation. Both sex and gender matter so there is a need for treatment approaches that are sensitive to the unique nature of women's neurological and psychosocial responses to tobacco use.⁶³

Despite the need for targeted interventions for women, there is still a lack of research available on best practice interventions specific to women. While there is considerable research on generic interventions for adults and for pregnant women comparatively little research has been done on interventions for most women—those who are not pregnant. Greaves and colleagues highlight the need for woman-centred approaches that go beyond a woman's capacity for reproduction.^{1,36}

Because the approach to cessation during pregnancy historically seems motivated primarily by a desire to lessen the deleterious effects of smoking on fetal health, it has framed the interventions on fetal health outcomes and confined them largely to the period of pregnancy. As a result, pre-pregnancy and post-pregnancy tobacco cessation interventions, which would focus primarily on women's health, have garnered proportionately less attention and emphasis.¹

However, research points to the increased importance of intensive cessation support, in general, for women over men. Intensive interventions may be better able to address the unique psychosocial issues women face while attempting to quit using tobacco, such as concerns over weight gain and a greater sensitivity to environmental and social cues.⁶⁴ Women are also significantly more likely than men to list social factors, such as support from peers or family members, as the reason for quitting, indicating that there may be additional utility for women in intensive supports that include social support elements.⁶⁵ Implementing high-intensity interventions in conjunction with pharmacological treatments significantly improves long-term cessation results in women, and is of much greater importance in determining outcomes for women than for men.^{66,67} There is a similar lack of research on intensive interventions for teenage girls who are not pregnant, although it is equally likely that they would benefit from a targeted approach.

Women quit more successfully when they access a combination of behavioural cessation support and pharmacotherapy than when they access either support on its own.^{66, 67}

For more information on youth in general, see the discussion on intensive cessation support in the Youth and Family chapter. Refer to AlbertaQuits.ca for current AlbertaQuits Learning Series- Intensive Tobacco Cessation training.

INTENSIVE CESSATION SUPPORT FOR PREGNANT AND POSTPARTUM WOMEN AND GIRLS

Several reviews have been conducted to determine which types of interventions are most effective in assisting pregnant and postpartum women to stop smoking.^{1, 33} In these reviews, multi-component interventions have been identified as most effective for pregnant and postpartum women. There are several examples of interventions that involve multiple components, but disentangling the effectiveness of specific components is often very difficult. Indeed, it is currently difficult to assess which components are most effective in a multi component intervention. Several reviews have itemized some of the common promising components, such as *Expecting to Quit* in addition to identifying the lack of research on components that might work for girls and young women, those who also drink alcohol while pregnant, and those with previous trauma. Nonetheless, in *Expecting to Quit* (2011) the components summarized in Table 20.4 commonly appear among the strong studies that demonstrate general effectiveness in helping pregnant women quit using tobacco.¹

Table 20.4: Summary of Key Promising Tobacco Intervention Components

Brief intervention and intensive counselling are interventions that provide motivation to quit, support to increase problem solving and coping skills, and may incorporate trans-theoretical models of change. This includes interventions such as motivational interviewing, cognitive behaviour therapy, psychotherapy, relaxation, problem solving facilitation and other strategies.

Health education interventions are those where women are provided with information about the risks of tobacco use and advice to quit, but are not given further tailored support or advice about how to make this change. They include interventions where the woman was provided with automated support such as self-help manuals or automated text messaging, but no personal interaction. Self-help manuals often take the form of a take-home, patient-focused guide to quitting, usually incorporating some skill building, tips on reduction and cessation, and advice.

Feedback interventions are those where the woman is provided with information about the fetal health status or measurement of by-products of tobacco smoking. This includes interventions such as ultrasound monitoring and carbon monoxide or urine cotinine measurements, with results fed back to the mother.

Incentive-based interventions include those interventions where women receive a financial incentive (e.g., gift vouchers contingent on their smoking cessation).

Social support (peer and/or partner) includes those interventions where the intervention explicitly included support from a peer (including self-nominated peers, peers trained by project staff or support from health-care professionals) or partners, as a strategy to promote tobacco cessation.

Personal follow-up refers to communication with the client aimed at sustaining the impact of other intervention components and offering encouragement, often through the postpartum period.

Other follow up include additional forms of follow-up support such as paper-based communications used to assess the effect of the intervention.



Table 20.4 (continued)

<p>Nicotine Replacement Therapy includes pharmacological supports, often used in interventions to complement other approaches.</p>
<p>Quit Guides includes the use of patient-focused guides to quitting, usually including skill building exercises, tips on reduction and cessation, and advice.</p>
<p>Groups refers to the use of support groups or group counselling to deliver or sustain the intervention.</p>

Many of these components and approaches have been adopted in Canada. For example, the Canadian Action Network for the Advancement, Dissemination and Adoption of Practice-informed Tobacco Treatment (CAN-ADAPTT) is a practice-based research network facilitating research and knowledge exchange among practitioners, researchers and policy makers in the area of tobacco cessation. CAN-ADAPTT’s Guideline for Smoking Cessation is intended to guide practice and is not a comprehensive overview of tobacco cessation management.²² Table 20.5 outlines the summary statements that have been developed to guide tobacco treatment for pregnant and breastfeeding women.

Table 20.5: CAN-ADAPTT Guidelines for Pregnant and Breastfeeding Women

ADVISE	<ul style="list-style-type: none"> Tobacco cessation should be encouraged for all pregnant, breastfeeding and postpartum women. GRADE: 1A
	<ul style="list-style-type: none"> A smoke-free home environment should be encouraged for pregnant and breastfeeding women to avoid exposure to second-hand smoke. GRADE: 1B
ASSIST	<ul style="list-style-type: none"> During pregnancy and breastfeeding, counselling is recommended as first line treatment for tobacco cessation. GRADE: 1A
	<ul style="list-style-type: none"> If counselling is found ineffective, intermittent dosing nicotine replacement therapies (e.g., lozenges, gum) are preferred over continuous dosing of the patch after a risk-benefit analysis. GRADE: 1C
	<ul style="list-style-type: none"> Partners, friends and family members should also be offered tobacco cessation interventions. GRADE: 2B

Grades of evidence are based on the strength of the recommendation (1=strong, 2=weak,) and the quality of the evidence (A=high, B=moderate, C=low)

For more information on the CAN-ADAPTT Guidelines, visit: www.can-adaptt.net.

Relapse prevention

Many women quit using tobacco while they are pregnant but a high percentage will resume tobacco use within a year of giving birth. According to the 2009 *Canadian Maternity Experiences Survey*, 47% of women who had quit smoking by the third trimester had resumed smoking daily or occasionally in the postpartum period.⁶⁸ However, reported rates of relapse vary greatly, and according to Greaves et al may be as high as 70–90% by one year postpartum.¹ This has health implications for both women and their families.⁶⁸ It also has implications for practitioners.

As many as 25% of women may resume smoking before delivery, 50% within four months and 70-90% by one year postpartum.¹

As described by many researchers, including Pregnets at the Centre for Addiction and Mental Health, predictors of relapse include high nicotine dependence, postpartum depression, friends or family who smoke, low education, low income, youth, lack of social support and lack of prenatal care.⁵⁷ Relapse rates tend to be lower among women who breastfeed, although breastfeeding can often only delay relapse rather than helping avoid it altogether. During pregnancy, many women quit more for the benefit of the fetus or baby than for themselves. This means they may be less motivated to quit for good and do not typically develop long-term strategies to remain tobacco free.


For the women who have quit spontaneously, support and feedback is essential. This means that practitioners need to ask about spontaneous quitting, and consistently maintain support for staying quit as the pregnancy progresses. Effective relapse prevention strategies focus on the woman's health as the motivation for continued abstinence. Any time during pregnancy is an opportune time to initiate discussions about the risks of postpartum relapse and build strategies to prevent it.

Cluster feeding is common in the early months, especially in the evenings, and may tempt mothers to use tobacco again.^{116,117} Support mothers to create a relapse prevention plan to manage their stress and cravings.

Continuity of care is another key component of ensuring that clients are adequately supported after quitting. Motivation to quit is a dynamic factor that changes throughout any period of cessation. Providing consistent tobacco cessation support into the postpartum period should be ensured.^{1,33} This could include follow-up phone calls, targeted support groups or home visits. This also requires coordination across the continuum of care from providers who have adequate training and knowledge to support women at risk of relapse.

INTENSIVE CESSATION SUPPORT FOR PREGNANT ADOLESCENTS

There is a real need to expand our knowledge on responding to girls and young women who are pregnant and use tobacco. Not only has this age group been overlooked in research and practice, but they are also the group most likely to be using tobacco while pregnant. Indeed, in some ways, the lingering problem of smoking during pregnancy in Alberta and Canada is a youth issue. Given the paucity of knowledge and this dire need, the authors of *Expecting to Quit* (2011) reviewed a number of interventions for young women and girls and confirmed that there is an urgent need to expand the current scope and duration of tobacco interventions to include pregnancy and postpartum. They also argued for general support (including preconception and interconception care) to promote girls' and young women's health independent of reproduction and substance use.



Addressing the broader determinants of health is the foundation for advancing the health of whole populations but the social determinants are particularly important when addressing the needs of girls and young women who use tobacco while pregnant. Such expanded interventions need to be multi-faceted and holistic. They should link to other issues such as harms associated with issues such as alcohol and other substance use, childhood abuse and dating violence, smoking and other substance use by partners and household members, issues with body image, overall self-esteem and depression.

Successful interventions to help pregnant and postpartum girls and young women quit using tobacco include multiple components such as motivational interviewing, optional NRT and prevention, education, counselling, peer modelling and support or cognitive behavioural therapy. Promising practices in the prevention of substance use overall and the promotion of girls' empowerment that are grounded in social theory and emphasize building and enhancing self-efficacy will be important to such integrated approaches. Given this, the authors of *Expecting to Quit* recommend the following approaches for addressing the needs of pregnant adolescents and young women who use tobacco .¹

Tailoring approaches are well justified to integrate education and support for reducing and quitting tobacco use, in more settings, over time (beyond pregnancy and immediate postpartum) and linked to a range of connected health and social experiences.

A harm-reduction approach is particularly important when working with younger people who are at a time in their development when experimentation and risk taking are normal (and approaches that focus only on cessation may be discounted entirely). Starting where adolescent girls and young women are at, building on what is important to them, listening for their interests and readiness (which may fluctuate widely), and assisting in non-judgmental ways that connect their tobacco use to coping with dating violence and other harms are all relevant to a harm-reduction stance with pregnant girls and young women.

Partner's social support is vital in the adolescent context where partners' substance use plays a significant role in girls' and young women's tobacco use, and where the orientation to peers and partners is high. Although acceptance of gender-specific approaches is still slow to gain momentum, it is essential to develop supports that address the different influences on, and health impacts of, smoking for young women and men, and factor in the high rate of violence against girls.

The integration of social issues needs to be the central focus of an approach with adolescent girls and young women. Dating violence, co-existing heavy substance use, positive body image, self-harm, depression, school connectedness, support during key life transitions, poverty and accessing resources, child abuse, positive gender identity development, self-worth, understanding sexuality, support for making informed choices, finding purpose and cultural identity—the social issues that could be explored and integrated are extensive.

Pharmacological supports

PHARMACOLOGICAL INTERVENTIONS FOR WOMEN

Research on pharmacological cessation interventions for women of reproductive age also suffers from a lack of sex-differentiated studies and best practice recommendations. Indeed, most research and interventions address the general adult population without detailing how to tailor treatment to achieve better outcomes specifically for women. However, it is evident that there is considerable research revealing decreased long-term efficacy of pharmacological interventions (when given in isolation) for women when compared to men. In addition, there are sex-variable outcomes based on the type of drug and concurrent interventions used.

Nicotine replacement therapy (NRT)

Cessation trials using NRT have consistently reported lower long-term quit rates for women versus men.^{67, 69} The reasons for the difference are not well understood, but studies indicate that it may be attributed more to non-nicotine factors (e.g., the sensory effects of smoke inhalation, conditioned responses to smoke stimuli and secondary social reinforcement of smoking behaviours) than to the effects of the nicotine itself, given that women have demonstrated a reduced neural sensitivity to the effects of nicotine.⁷⁰

Pharmacotherapy options for women of reproductive age include NRT, bupropion and varenicline. These options are effective for women, but may not be as effective as they are for men.^{67, 69}

Bupropion and varenicline

Cessation trials using bupropion show similar results to NRT trials, with women attaining lower overall cessation rates after being treated with the drug when compared to men.^{71, 72} Trials of varenicline demonstrated significantly higher likelihood of participants quitting compared to bupropion SR. Cessation rates of varenicline are significant compared to a matching oral placebo, however, show no difference between sexes.⁷² Varenicline and bupropion are effective pharmacological options subject to the general clinical guidelines and contraindications applicable to the woman.

Discussion

Despite the evidence that pharmacotherapy treatments are less effective for women than men, they still increase women's chances of quitting and can be used to assist women of reproductive age with smoking cessation. Considerable research still points to NRT significantly increasing cessation outcomes for women in general.^{67, 73} Additionally, while there are poorer outcomes for women than men with bupropion women are still twice as likely to quit using bupropion than with a placebo, indicating that the pharmacological effect, if not the outcome, might be similar across males and females.⁷¹

Providing behavioural supports concurrently with pharmacological support significantly improves outcomes for women.^{66, 67, 74}

Research has consistently demonstrated that the availability of behavioural supports provided concurrently with the chosen pharmacological intervention increases outcomes significantly for women, potentially due to a better ability to address the non-nicotine factors influencing addiction.^{66, 67, 74} But there is also some evidence that women may not be advised about pharmacological cessation supports as often as men.⁷⁵ Despite differential outcomes, and irrespective of which treatment is recommended (whether on its own, or in addition to others), it is important to ensure that pharmacological treatments are offered to women in instances where clinical guidelines indicate they are warranted.

Further information may be found at **MotherRisk—Treating the Mother and Protecting the Unborn: A website under the auspices of the Sick Kids Hospital in Toronto, Ontario. The site includes drug interaction information, including pregnancy and breastfeeding-related advice on a variety of issues. www.mothersrisk.org**

PHARMACOLOGICAL INTERVENTIONS FOR PREGNANT WOMEN

Numerous studies have been conducted to determine the safety and efficacy of pharmacological treatments for pregnant and postpartum women, but this research is inconclusive regarding safety. Pregnant women seem to metabolize and clear nicotine from the body faster than non-pregnant women, making quitting more difficult.⁷⁶ The physiological adaptations in pregnancy that accelerate nicotine metabolism may also cause more negative feelings of so-called “nicotine hunger” and unpleasant symptoms associated with nicotine withdrawal.^{77, 78} As a result, some pregnant women who use nicotine replacement therapy find they need a higher dosage to help them manage withdrawal symptoms.

One key issue is that the pharmacological treatments commonly used with the general population are not as effective with pregnant women due in part to the fact that nicotine replacement therapy (NRT) is metabolized faster during pregnancy, requiring higher doses.^{33, 79} In the absence of strong evidence to support the use of NRT medication to assist pregnant and postpartum women in tobacco cessation, intensive support (e.g., multiple counselling sessions, motivational interviewing, cognitive behavioural therapy) is recommended as first line treatment.^{22, 80, 81}

Nicotine replacement therapy

If counselling is ineffective NRT can be considered as a second line option, despite a lack of consistency among clinical guidelines due to limited evidence on the effectiveness and safety of NRT during pregnancy. The point at which counselling can be determined ineffective is subject to the professional opinion of the provider and the circumstances, social context and motivation of the woman. This must be assessed on an individual basis in consultation with a prescribing authority such as a physician, pharmacist or nurse practitioner.

Some evidence from randomized controlled trials indicates that NRT may be effective in pregnancy for decreasing tobacco use and improving pregnancy outcomes.²² However, when NRT is prescribed it is less effective for pregnant women due to the pharmacokinetic and physiological changes that occur during pregnancy, necessitating higher doses.⁸⁰

In terms of overall safety, the benefits of NRT seem to outweigh potential risks. While nicotine exposure through NRT likely has adverse effects on the fetus during pregnancy, tobacco use exposes the fetus to many additional toxic chemicals.⁸¹ NRT typically provides less nicotine than tobacco smoke.⁸² However, available data cannot support or exclude an association between first trimester NRT use and an increased risk of congenital defects.²² Pending further evidence NRT should only be offered during pregnancy when counselling has failed and after an informed discussion with the patient regarding the risks and benefits of using tobacco and/or NRT. When NRT is recommended to a pregnant woman, low-dose, intermittent delivery NRTs (e.g., lozenges, gum, buccal inhalers, and mouth spray) is preferred over continuous dosing of the patch.^{22, 83, 84} If the patch is used, the woman should consider removing it at night. NRT should be discontinued if the woman continues to use tobacco at the same rate, and alternative treatment should be considered.⁸⁵ As with all medications prescribed during pregnancy close monitoring is required throughout the woman's use of NRT.

NRT should be offered during pregnancy when counselling has failed, and after an informed discussion with the patient regarding the risks and benefits of using tobacco and NRT.^{22, 83, 84}

Nicotine passes freely through breast milk. Factors affecting the amount of nicotine ingested by the infant include the concentration of nicotine in the maternal blood (affected by tobacco product consumption), frequency of breastfeeding, and the time between tobacco use and breastfeeding.

The importance of continuing to breastfeed, regardless of tobacco use status or NRT use should be stressed as the benefits of breastfeeding to mother and child likely outweigh the risks associated with nicotine exposure through tobacco use or NRT.¹ In the interests of caution, breastfeeding women, like pregnant women, should use intermittent rather than continuous dosage NRT formulations, at the lowest recommended dosage. If using tobacco, a harm reduction technique for women is to reduce their infants' nicotine exposure from breast milk by timing their tobacco use to just after the baby nurses. This will allow most of the nicotine to clear the breast milk before the next feeding.


New mothers should be encouraged to breastfeed, even if they are using tobacco.¹

Bupropion and varenicline

There is limited evidence regarding the safety and effectiveness of both bupropion and varenicline for tobacco use cessation during pregnancy and while breastfeeding. Two major reviews of the clinical evidence of pharmacological use with this population reflect this limited evidence. Coleman and colleagues found that there are insufficient studies investigating the fetal impacts of either bupropion or varenicline use in pregnancy to draw any conclusions about the safety of using either.⁸⁰ Greaves and colleagues refer to evidence from one controlled but non-randomized study⁸⁶ that found that bupropion is more effective than a placebo for pregnant women who smoke, but that there may be an increased risk for spontaneous abortion among women treated with bupropion during pregnancy.

Leading clinical practice guidelines offer conflicting recommendations regarding the use of bupropion and varenicline with pregnant and breastfeeding women, with several Canadian recommendations diverging from others countries.

- CAN-ADAPTT's smoking cessation guidelines state that there is no evidence of harm related to the use of bupropion during pregnancy, and it may therefore be considered an alternative to NRT for a sub-population of pregnant women who smoke. It also states that more research is needed on the effectiveness and safety of both bupropion and varenicline as a tobacco cessation aid for pregnant and breastfeeding women.²²
- The Society of Obstetricians and Gynecologists of Canada states that further research is needed on the safety and efficacy of bupropion and varenicline before they can be recommended for routine use in pregnancy.⁸⁵
- Motherisk states that bupropion use during pregnancy does not appear to be associated with increased risk of major congenital malformations, but there are no adequate studies on rates of spontaneous abortion among pregnant women taking bupropion for smoking cessation. With respect to varenicline, Motherisk states that due to limited regarding its use during pregnancy, it is only advisable to use as a tobacco cessation aid during pregnancy when the benefits of treatment substantially outweigh any undue risk (e.g., in individuals who smoke heavily with failed quit attempts or who have not responded to other tobacco cessation aids).⁸⁷
- U.S. guidelines state that neither bupropion nor varenicline have been shown to be effective for treating tobacco dependence in pregnant women who smoke, nor have either of these been evaluated in breastfeeding patients. It does not comment on its safety or provide a recommendation for its use with this population group, but identifies this as an area requiring more research.⁸¹

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- Australian guidelines state that neither bupropion nor varenicline have been shown to be effective or safe for smoking cessation treatment in pregnant and breastfeeding women who smoke, and does not recommend their use with these populations.⁸⁴
 - U.K. guidelines state that neither bupropion nor varenicline should be offered to pregnant or breastfeeding women.⁸⁸
 - New Zealand guidelines state that there is insufficient evidence to recommend the use of bupropion or varenicline by pregnant women.⁸⁹

Based on available evidence, these guidelines recommend that bupropion and varenicline should be avoided, or considered with pregnant and breastfeeding women only after behavioural interventions and NRT have failed. Prior to initiating treatment, inform women that current research does not conclusively demonstrate the efficacy and safety of either of these medications in pregnancy and lactation, and discuss the risks and benefits of using them versus using tobacco.

PHARMACOLOGICAL INTERVENTIONS FOR ADOLESCENTS

Similarly, there is a lack of research on pharmacological cessation treatments specifically for pregnant adolescents. Furthermore, similar to the research that has been done on pregnant women, that done on adolescents is also inconclusive. Consequently, pharmacological treatment for pregnant and postpartum women, counselling (e.g., intensive cessation support) is also recommended as first line treatment for pregnant and postpartum teenage girls. In the absence of conclusive evidence as to the safety and effectiveness of specific medications (e.g., NRT, bupropion, varenicline) the recommendations for pregnant and postpartum women, should be followed for pregnant adolescents as well. The risks and benefits of all treatment options must be discussed with the girl or young woman and her caregivers prior to initiation.

Please refer to the discussion on pharmacological support for adolescents in the Youth and Family chapter.

SUMMARY

A preconception care approach is recommended for all women and girls over 10 years old. Such an approach generates discussion and planning between practitioners and girls and women about their own health, the benefits of staying tobacco-free, and the benefits of cessation, as a focal point for and precursor to discussing reproductive planning. This approach is woman centred and encourages the valuing of women's health for its own sake. When girls or women are ready to plan pregnancies, the groundwork has been laid for tobacco prevention, reduction and cessation. A useful adjunct to this is to include boys and men in separate discussions about their contribution to women's, fetal and infant health when opportunities arise. While Canada does not have national preconception care guidelines, there are advantages for practitioners in adopting this approach.

There are several important reasons for adopting preconception care such as:⁹⁰

1. Putting women's long term health at the centre
2. Focusing on reproductive planning over the life course
3. Focusing on risk reduction for preterm birth and low weight infants
4. Reduce rates of unwanted and unplanned pregnancies

In addition, the four principles of woman centredness, trauma informed, harm reduction and equity should be integrated into all sessions, clinical visits, counselling and materials. These principles ensure that the psychosocial context is held paramount and that the practitioner is recognizing the links, meaning and context of tobacco use. In practice, this means that women's health is held as a critically important focal point and advice is given with the long-term health of the girl or woman in mind. It means that tobacco reduction is supported if cessation is not achievable or desired by the woman or girl and that other harm reducing supports such as nutrition and supplement advice, stress reduction and relationship counselling are provided. And trauma informed practice means that all services and encounters are provided in a context of safety, security and without blame or shame. Finally, the equity principle asks the practitioner to think of various vulnerabilities and social determinants of health that contribute to tobacco use, prevent cessation, or preclude treatment, and to take actions to mitigate those.

Principles

1. Woman centred
2. Harm reducing
3. Trauma informed
4. Equity informed

Once a preconception care framework and these principles are in place and activated, that the following recommendations can be followed:

Table 20.6: Summary Recommendations for Supporting Women and Girls of Reproductive Age to Stop Using Tobacco

- Offer preconception care and general advice for girls and women of reproductive age regarding the health benefits of staying or becoming smoke free or of reducing tobacco use.
- Adhere to the principles of woman-centred, harm-reducing, trauma-informed care, using a gender and equity lens as you support women and girls to reduce or stop using tobacco.
- To support women who are not pregnant or breastfeeding to stop using tobacco, use the standard 5A's as per the guidelines outlined in the Brief Intervention chapter.
- To support adolescent girls who are not pregnant or breastfeeding to stop using tobacco, use the 5A's for adolescents as per the guidelines outlined in the Youth and Family chapter.
- Provide women who are not pregnant or breastfeeding with pharmacotherapy support as per the guidelines outlined in the Pharmacotherapy chapter.
- Provide adolescent girls who are not pregnant or breastfeeding with pharmacotherapy support as per the guidelines outlined in the Youth and Family chapter.
- Offer behavioural support alongside pharmacotherapy to both women and adolescent girls of reproductive age as outlined in the Intensive Cessation Counselling chapter.

For girls and women who are pregnant or postpartum and using tobacco, the following recommendations are made:

Table 20.7: Summary Recommendations for Tailoring Support for Pregnant and Postpartum Women to Stop Using Tobacco

- Use the Tailored 5A's
- Motivational interviewing techniques are recommended to build on the strengths of the woman to reduce or quit tobacco use and to build a plan.
- Behavioural cessation support (e.g., multiple counselling sessions, motivational interviewing, cognitive behavioural therapy) is recommended as first line treatment before pharmacotherapy at all points during pregnancy.
- NRT should only be offered during pregnancy when counselling has failed and after an informed discussion with the patient regarding the risks and benefits of using tobacco and NRT. Low-dose, intermittent-delivery NRTs (e.g., lozenges, gum, buccal inhalers or mouth spray) are preferred over continuous dosing of the patch.
- New mothers should be encouraged to breastfeed, even if they are using tobacco or NRT.
- Bupropion and varenicline should only be considered with pregnant and breastfeeding women after behavioural interventions and NRT have failed. Prior to initiating either treatment, advise women that current research does not conclusively demonstrate the efficacy and safety of either of these medications in pregnancy and lactation, and discuss the risks and benefits of using them versus using tobacco.

Finally, the following recommendations are suggested for girls who are pregnant or postpartum.

Table 20.7: Summary Recommendations for Tailoring Support for Pregnant and Postpartum Women to Stop Using Tobacco

- To support pregnant adolescents while they stop using tobacco, use a combination of the 5A's for women (Figure 20.1) and the 5A's for adolescents outlined in the Youth and Family chapter.
- Pregnant and postpartum adolescents should receive pharmacological support following the recommendations outlined for pregnant and postpartum women earlier in this chapter. The risks and benefits of all treatment options must be discussed with the patient and their caregivers prior to initiation.

Additional external resources for health care providers who support women and girls are listed on AlbertaQuits.ca at: <https://www.albertaquits.ca/helping-others-quit/healthcare-providers/tools-and-resources/external-resources#working-with-women>

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