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CRITICAL COMMENTARY

Tailored Intervention for Smoking Reduction and Cessation for Young and Socially Disadvantaged Women During Pregnancy

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ABSTRACT

Rates of smoking during pregnancy remain high in Canada, and cessation rates are low among women who are younger than 24 years and who are socially disadvantaged, that is, have few social and economic resources because of poverty, violence, or mental health issues. On the basis of findings from literature reviews and consultation with policy makers, we developed and operationalized four approaches that can be used by health care providers to tailor interventions for tobacco use in pregnancy. These four approaches are woman centered, trauma informed, harm reducing, and equitable. Public health initiatives that address smoking in young and socially disadvantaged women could be more sharply focused by shifting to such tailored approaches that are grounded in social justice aims, span pre- and postpregnancy periods, and can be used to address women's social contexts and concerns.

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Rates of smoking during pregnancy and the postpartum period have been steadily declining in Canada. Publicly available data suggest that the rate of smoking during pregnancy among women ages 25 to 44 years decreased from 17.7% in 2001 to 4.8% in 2012 (Health Canada, 2013). However, these overall declining trends in smoking during pregnancy have been unevenly experienced. Smoking rates during pregnancy are much greater among young women. Based on 2012 data, 22.8% of Canadian women ages 20 to 24 years reported smoking daily or occasionally during pregnancy (Health Canada, 2013). Among adult women, smoking rates during pregnancy differ based on educational attainment (Gilbert, Bartholomew, Raynault, & Kramer, 2014). For example, between 1992 to 1996 and 2005 to 2008, smoking during pregnancy decreased from 11.5% to 5.2% among very educated women with college or university degrees but decreased only from 42% to 38.6% for women with less than secondary educations (Gilbert et al., 2014). Canadian women who were Indigenous; lived in northern/remote communities; had low incomes; experienced poor health, chronic illness, or mental illness; and were regular alcohol users also reported greater rates of smoking during pregnancy (Cui, Shooshtari, Forget, Clara, & Cheung, 2014).

Electronic nicotine delivery systems (ENDS), including e-cigarettes and other nicotine vaping products, are increasingly common. Although there is a lack of data on the prevalence of use of these systems during pregnancy in Canada, researchers from the United States reported that more than half (53%) of pregnant women who smoked reported ever trying e-cigarettes (Oncken et al., 2016). The safety of ENDS use and efficacy as a smoking cessation tool during pregnancy are unknown (Bowker et al., 2018). In extant guidelines, women are generally advised to avoid ENDS use during pregnancy, except for in the United Kingdom, where clinicians are advised not to discourage pregnant women from using ENDS as a tool for smoking cessation if they are unable to quit (Bowker et al., 2018).

Researchers have long argued that interventions for smoking cessation should be tailored by addressing intersecting social factors associated

with smoking during pregnancy. For example, Graham (1993, p. 80) identified "trajectories of disadvantage" that shape women's vulnerability to smoking during pregnancy, including growing up in poverty, low socioeconomic status, and being a young and/or single mother. More recently, Boucher and Konkle (2016) identified six key factors that affected smoking during pregnancy: socioeconomic status, nicotine dependence, social support, culture, mental health, and health services. Hence, intersectionality may be a useful framework through which to contextualize disparities in tobacco use during pregnancy and to recognize the complex needs of pregnant women who are trying to reduce or quit tobacco use. The use of such a framework calls attention to the multiple social identities that each individual inhabits (e.g., gender, class, age, race/ethnicity) and how these intersect with systems of power and oppression (racism, classism, sexism, etc.) to influence experiences of health (Hankivsky, Cormier, & De Merich, 2009; Ravindran, 2017).

Young women who smoke during pregnancy and the postpartum period are more likely to be single and to lack financial security and support (Borland, Babayan, Irfan, & Schwartz, 2013). Although many women spontaneously quit smoking during pregnancy, evidence suggests that this is less likely among those with lower socioeconomic status, fewer resources, and less social support (Greaves, 2014). This reinforces the need for more complex, tailored, and intensive interventions for smoking reduction and cessation for these women. Even so, reviewers identified a lack of tailored interventions to address the specific needs of young women (Bottorff et al., 2014; Greaves et al., 2011) or vulnerable subpopulations of adult women (Greaves et al., 2011).

Evidence also suggests that these complex social factors are key barriers for health care providers in intervening with pregnant women who smoke. In a synthesis of qualitative research on perceived barriers to the provision of smoking cessation advice, health care providers felt limited in their ability to address social factors, such as poverty, partner and family smoking, and lack of social support, associated with smoking during pregnancy and often believed that in this context, smoking cessation was unlikely to be successful or sustainable (Flemming et al., 2016). It is clear not only that women who smoke during pregnancy require more sensitive treatment on a range of intersecting issues but that health care providers require more comprehensive guidance as well.

Rates of smoking during pregnancy are high among young women and women who experience a relative lack of social and economic resources.

In response to these concerning patterns and trends and the many interactions among social factors, including socioeconomic status, racial/ethnic minority status, partner and social support and smoking during pregnancy, we identified four key approaches that should be integrated in tailored smoking reduction and cessation interventions and programs. Although these four key approaches are intended to better address the needs of women who experience social disadvantages and who are more likely to smoke during pregnancy, use of these approaches could benefit everyone, and they should be integrated in interventions with all pregnant women. We describe these approaches and how they were developed and operationalized in the guidance on tobacco and pregnancy prepared by Alberta Health Services (AHS) for health care providers across the province of Alberta, Canada. In this guidance, AHS addressed all tobacco and tobacco-like products and recommended that interventions with pregnant women be similarly broad and not limited to those who smoke cigarettes (Alberta Health Services, 2017).

Development of the Intervention

In 2014, AHS issued guidance on tobacco and pregnancy as one part of an overarching tobacco strategy that was aimed at health care practitioners across the province (Alberta Health Services, 2014). A chapter in this guidance, "The Reproductive Years," was informed in part by a 2011 systematic review that we, researchers at the Centre of Excellence for Women's Health, conducted on tobacco reduction and cessation interventions during pregnancy (Greaves et al., 2011). In 2017, the AHS engaged us to review and update the chapter on smoking and reproduction in this provincial guidance (Alberta Health Services, 2017).

We reviewed the 2014 AHS guidance (Alberta Health Services, 2014) and performed targeted literature searches to update the supporting evidence. This included academic database

Tailored interventions to address the specific needs of young women and women who are socially disadvantaged are lacking.

searches for current evidence on the topics included in the guidance: patterns and trends of tobacco use during pregnancy and the effectiveness of interventions for pregnant women who smoke. In our research to update the evidence, we found persistent gaps in the literature consistent with those originally identified and described in our 2011 systematic review (Greaves et al., 2011). Specifically, we identified a lack of tailored interventions for young women and women who are socially disadvantaged who smoke during pregnancy. These persistent research and practice gaps were unreflective of the high prevalence rates of tobacco use during pregnancy in these populations. In response, we reflected on and translated the trends and needs of these populations into a simplified schema for practitioners.

In the 2011 review, we identified seven evidence-based ways to enhance best practice approaches to improve tobacco reduction and cessation interventions for women who smoke during pregnancy and the postpartum period: tailoring, providing woman-centered care, reducing stigma, preventing relapse, reducing harm, targeting partner/social support, and integrating social issues (Greaves et al., 2011). In 2017, we worked with clinical advisors and policy makers from the AHS to develop the guidance update. Their understanding of the provincial environment, the social context of subpopulations and regional differences, and the range and receptivity of health care practitioners in Alberta was critical to translate and hone these seven best practices to guide smoking cessation efforts among young and socially disadvantaged women who smoke during pregnancy. The resultant tailored intervention is woman centered, harm reducing, trauma informed, and equitable. Harm-reduction and woman-centered approaches are consistent with the 2014 guidance, and we deemed that a trauma-informed approach was important because of the strong correlation between smoking and the experience of trauma (Holl et al., 2017; Kristman-Valente et al., 2016; Ullman et al., 2013). Trauma-informed approaches to smoking are also important given the perception by women that smoking reduces stress. Finally, an equitable approach incorporated the notions of social context, indigeneity, and health and gender equity.

The four approaches were discussed at length and then integrated into the background of the revised guidance on the prevalence and effects of smoking during pregnancy, the specific guidelines for the treatment of pregnant and breastfeeding women, and the specific revisions of the 5As (ask about smoking, advise to quit smoking, assess readiness to quit, assist to quit, and arrange follow-up) for pregnant women. The 5As are regarded as a gold standard for smoking cessation strategies among the general population and are recommended for use across Alberta by AHS (2014, 2017). In the 2017 AHS guidance, the four approaches are integrated in the 5As for women during pregnancy and the postpartum period, resulting in a simplified, refreshed, and tailored intervention for use by practitioners. The 2017 AHS guidance also includes a help guide that can be used in clinical or group situations.

Characteristics of the Intervention

In the following sections, we describe each of the four approaches in the context of tobacco reduction and cessation during pregnancy and examples of how they were operationalized in the updated AHS guidance (Alberta Health Services, 2017). Because the revised guidance and application of these approaches have not yet been evaluated in Alberta, this information is descriptive, and the effects of the revised guidance on practice or outcomes for pregnant women will be determined after a period of use.

Woman-Centered Approach

A woman-centered approach is focused on the long-term health of the woman. Patients may include individuals who are biologically female but identify as transgender men and other gender-diverse individuals in need of preconception, prenatal, or postpartum services. In practice, woman-centered approaches involve opening a dialog with the woman about tobacco use that begins before and extends beyond pregnancy. The use of inclusive, woman-centered approaches to preconception care has the potential to prevent a narrow focus on fetal health that can cause the woman to be ashamed of her behavior and its effect on the health of the fetus or infant. A narrow focus on the fetus does not allow for consideration of the value of the woman's health, the intersecting social factors linked to

tobacco use, or the role of the partner/father (Greaves, Hemsing, Poole, Bialystok, & O'Leary, 2016). In woman-centered approaches, the focus is on intrinsic motivation, that is, the reduction or cessation of tobacco use for oneself rather than solely for the fetus/infant/child, and use of these approaches may also contribute to reductions in postpartum relapse. Girl-empowerment approaches that build on the strengths of young women to promote health and prevent smoking uptake are age-appropriate examples of woman-centered approaches (Borland et al., 2013).

Harm-Reduction Approach

Harm-reduction approaches include support for a range of outcomes other than cessation, including tobacco reduction and improvements to other aspects of wellness, such as nutrition, stress, relationships, and social support. An example of a harm-reduction approach in clinical practice is to advise a woman who is breastfeeding to reduce the infant's exposure to nicotine by waiting to smoke until immediately after nursing. This allows most of the nicotine to clear the woman's system before the next breastfeeding. During pregnancy, a tobacco-specific harm-reduction approach may be to recommend that the woman reduce the number of cigarettes smoked or limit her exposure to the secondhand smoke of partners, family, and friends. Although the results of tobacco control research suggest that reduced use during pregnancy does not have significant health benefits for the fetus/child, there is evidence that pregnant women view this as a valuable step toward cessation (Graham, Flemming, Fox, Heirs, & Sowden, 2014).

Trauma-Informed Approach

Trauma-informed approaches to tobacco reduction and cessation reflect emerging evidence on the links between trauma, violence, and tobacco use. The prevalence of smoking is great among women who experienced childhood abuse and intimate partner violence (Kristman-Valente et al., 2016) and sexual assault and rape (Amstadter et al., 2009). Approaches that are confrontational, authoritative, or directive can feel unsafe or retraumatizing for women with histories of trauma and should be avoided (Hemsing, Greaves, & Poole, 2015). Use of trauma-informed approaches creates safety, choice, and connection for women who access tobacco reduction and cessation services (Poole, 2013). In a nonjudgmental way, health care providers who use trauma-informed approaches build support and awareness about how smoking is often a coping mechanism and offer alternative strategies for growth, healing, and wellness. This does not mean that trauma is disclosed or treated, but rather that everyone who accesses or provides services experiences safety and choice and develops positive coping skills (Substance Abuse and Mental Health Services Administration, 2014).

Equitable Approach

An equitable approach involves consideration of how the tobacco intervention can address the particular challenges in a woman's life through the provision of culturally appropriate services and financial resources and support. Use of an equitable approach requires acknowledgment of a woman's priorities and social context and recognition of the effects of gendered roles and power relations. In an equitable approach for young women, associated harms and social issues are addressed, including the co-use of other substances, self-esteem and body image, depression, violence, abuse and trauma, peer support, and gender and cultural identity. Ideally, equitable approaches are gender transformative, meaning that they are used to simultaneously address tobacco use and improve gender equity (for example, by challenging harmful gender norms and power imbalances between genders) among women and men before and beyond pregnancy and reproduction (Greaves, 2014).

Application of the Four Approaches

In the revised Alberta guidance on tobacco and pregnancy, we provided examples of how each of the 5As can be tailored to integrate the four approaches (Alberta Health Services, 2017). For example, to apply woman-centered and trauma-informed approaches, a health care provider can set a safe and respectful tone by asking the woman about her knowledge and tobacco cessation needs, requesting permission to provide information, and focusing on topics that are relevant to her. Specifically, the clinician can ask about tobacco use in an open and nonjudgmental manner, focus first on the woman's immediate and long-term health rather than the health of the fetus, and acknowledge and reinforce any efforts the woman has made to reduce harm (e.g., spontaneous quitting, cutting down, reducing exposure to secondhand smoke, etc.). Rather than being directive, the clinician can apply a trauma-informed approach through the provision of a safe and nonjudgmental space

Operationalizing health care to include woman-centered, harm-reducing, trauma-informed, and equitable approaches will improve the reach of interventions to address maternal tobacco use during pregnancy.

to open a dialog about the woman's tobacco use and other health and social priorities she may have.

Instead of focusing narrowly on advice to quit, providers can also suggest harm-reduction strategies for women who may not be ready or able to quit. In assessment of readiness to quit, a provider can value and support the woman's choices and self-determination regarding her tobacco use and acknowledge the pressures and issues that may be hindering her ability to reduce or quit smoking. Providers should be aware of their own attitudes about smoking in pregnancy. They can ask permission to provide assistance and arrange further support to ensure that women have more control in the process of quitting and are fully engaged in collaborative dialogs regarding the resources and support that they find most helpful. Finally, in an equitable approach, providers can discuss the social and economic support that women require to alleviate poverty or violence and then ensure that cessation programs are available, accessible (e.g., with regard to timing, transportation, child care), and affordable (e.g., provide financial assistance or reimbursement if needed) and that other resources are tailored to the appropriate literacy level, social situation, or language needs of the woman (see Table 1).

Discussion

Although further adaptations and testing are needed, these four approaches can be used as a simplified and clear basis for the creation and/or adaptation of a range of smoking reduction and cessation resources for pregnant women. In addition to their integration with the AHS guidance and the 5As, they have been successfully integrated into a range of other resources. In our previous report on the systematic review and better-practices approach to smoking cessation during pregnancy, we offered evidence-based resources for women and practitioners that implicitly reflected these approaches (Greaves et al., 2011). We also co-developed a resource for women in heterosexual relationships to address the complex issues related to gender, including relationship and power dynamics and how these affect tobacco use and cessation efforts during pregnancy and after childbirth (Bottorff, Carey, Poole, Greaves, & Urquhart, 2008). The Registered Nurses Association of Ontario also developed resources to support the use of trauma-informed care when addressing tobacco use with women during pregnancy and after childbirth (Registered Nurses Association of Ontario, n.d.).

However, more comprehensive, tailored, and extended efforts are required to improve research and practice to reflect emerging trends in smoking during pregnancy and the postpartum period. More focused research and tailored interventions and the evaluation of those interventions for young women and young mothers are urgently required. These efforts should address a range of social factors, particularly income (Reitan & Callinan, 2017), peer influence (Bottorff et al., 2014; De Genna, Cornelius, & Donovan, 2009), involvement of young fathers (Bottorff et al., 2014), and mental health and depression (De Genna et al., 2009). For adult women, it is essential that researchers focus on the intersections of culture, indigenous status, race/ethnic minority status, income, and education to better hone their understanding of smoking during pregnancy among women with greater rates of smoking.

There are several key opportunities to further support the integration of the four approaches in the prevention and reduction of tobacco use during pregnancy. First, the approaches should be applied to broadly based models of preconception care. This would create an opportunity to engage early with young women (and young men for whom preconception care regarding fertility, parenting decisions, and contraception is also critical but often unacknowledged) with regard to their overall health, reproductive planning, and the benefits of remaining smoke free, quitting, or reducing tobacco use (Hemsing, Greaves, & Poole, 2017). However, as of December 2017, the Canadian government has released only one brief chapter on preconception care in a maternity care guideline (Public Health Agency of Canada, 2017). It has been a standing criticism of maternal tobacco reduction interventions that they often focus exclusively on the period of pregnancy, not the periods before or after (Greaves, Hemsing, Poole, Bialystok, & O'Leary,

Table 1: Four Approaches That Can Be Used by Health Care Providers to Tailor Interventions for Tobacco Use in Pregnancy

Approach	Definition	How to Operationalize in Practice
Woman-centered approach	• Prioritizes women's health in and of itself before, during, and after pregnancy • Builds women's self-esteem, confidence, and self-efficacy • Supports women's health and social priorities	• Help the woman reduce or quit using tobacco for her own sake rather than for the pregnancy or health of the fetus or infant • Use motivational interviewing techniques to evoke the woman's ideas for change • Focus on the woman's strengths, interests, and needs with regard to reduction/cessation • Ensure that the woman has choice/control in identifying her reduction/cessation needs and desired approach Sample statement: *What do you think might work for you?*
Harm-reduction approach	• Recognizes the importance of providing support to women who are unable or not ready to quit • Offers support to improve wellness and reduce other harms associated with tobacco use	• Ensure the opportunity for women to identify their needs and goals to reduce tobacco-related harms • Support changes to reduce tobacco use and improve health by linking women with a range of support (e.g., nutritional support, housing, counseling) • Discuss opportunities to reduce exposure to second-hand smoke for themselves and others • Discuss NRT or ENDS use as an alternative to smoking Sample statement: *Many women are interested in making healthy lifestyle changes during pregnancy. Do you have any questions about diet, exercise, or substance use?* Sample statement: *How have you managed when your partner smokes in the evenings?*
Trauma-informed approach	• Recognizes the links between trauma and violence and tobacco use • Identifies the needs for physical and emotional safety and for choice and control in decision making • Does not require disclosure of trauma; rather, services are provided for all women in a way that supports safety, empowerment, and strengths and avoids retraumatization	• Avoid confrontational, directive, judgmental approaches • Understand trauma responses and the greater rates of tobacco use among people who have experienced violence and trauma • Avoid retraumatization by prioritizing physical and emotional safety and not requiring disclosure of trauma • Emphasize women's strengths and offer personal choice and control over the intervention approach and goals Sample statement: *Some women are reluctant to talk about their substance use because they're worried about information being recorded or shared with other professionals. Are you interested in learning more about our clinic's confidentiality policy for future visits?*
Equitable approach	• Recognizes how factors such as poverty, racism, social isolation, violence and trauma, gender inequity, and other social inequalities affect vulnerability to	• Consider the woman's income level and help her find financially feasible support • Discuss the financial benefits of quitting and ways to overcome financial barriers • Consider the woman's educational and literacy levels and her preferences for receiving information

(Continued)

Table 1: Continued

Approach	Definition	How to Operationalize in Practice
	tobacco-related health problems and capacity for change	Sample statement: *Lots of women have questions about smoking during pregnancy. What do you already know?* Sample statement: *Can I share with you some information about services that some of my other patients have found helpful? Would you like to have a handout that you can take away so you have some time to think about what might work best for you?* Sample statement: *There are some resources about tobacco use and cessation prepared by and for Indigenous women. Would you like a link to those?*

Note. ENDS = electronic nicotine delivery systems; NRT = nicotine replacement therapy.

2016). Interventions targeted toward the preconception period that are based on the four key approaches and designed to engage young women may offer a promising framework through which to respond to high rates of tobacco use during pregnancy.

Another strategy would be to address the various capacities and interests of providers, offer education and training on the complex social and economic contexts of tobacco use during pregnancy, and show how the four approaches can be included and operationalized in brief interventions. Practitioners often perceive smoking cessation during pregnancy to be a difficult topic to approach, and they may not address this issue because of concerns about harming the patient–provider relationship (Kennedy, 2017). If and when implemented, the 5As are often used inconsistently and incompletely. Evidence suggests that nurses and midwives are more likely to ask and advise about smoking during pregnancy but are less likely to provide referrals and ongoing support (Kennedy, 2017). In addition, there is evidence that health care providers may rely on scripts when intervening with women regarding their smoking (Ebert, Freeman, Fahy, & van der Riet, 2009). Instead of following a predictable script, successfully weaving the four approaches into existing responses requires more nuanced communication skills. However, with further training and professional development, there is potential for these conversations to be framed and experienced more positively by providers and women and to be used to target relevant issues for young women and women who experience social disadvantage and smoke during pregnancy. Changes to the health services system may be needed to support the integration of the four approaches in tailored interventions for tobacco use during pregnancy, including policy initiatives to support clinician training and education and to increase access to a range of comprehensive smoking cessation and reduction services.

The integration of the four approaches into provincial guidance for health care practitioners has yet to be evaluated by the AHS, so the level of uptake by practitioners and the effect of uptake on tobacco reduction during pregnancy in Alberta has yet to be measured. Additionally, the effects of brief advice on smoking cessation during pregnancy are typically small to moderate. Although we anticipate that the application of the four approaches will better address the needs of young women and those who are socially disadvantaged who smoke during pregnancy, it is still unclear whether integration of the four approaches in the 5As will increase the overall effectiveness of smoking reduction and cessation efforts. Finally, time constraints and competing demands during health care visits may limit uptake of the four approaches by health care providers. Further research is required to evaluate the feasibility and effectiveness of tailored intervention during the childbearing years.

Conclusion

Public health initiatives for smoking during pregnancy are in urgent need of a more precise and progressive stance to respond to current trends related to young and socially disadvantaged women who are most vulnerable to tobacco use during pregnancy. These initiatives

should incorporate gender-specific, youth-oriented approaches, approaches to preconception care that engage with women and men, and a social justice approach that addresses the complex social factors that affect tobacco use. Evidence suggests that the integration and operationalization of woman-centered, harm-reducing, trauma-informed, and equitable approaches in these efforts will improve the reach of and response to targeted interventions. Until these more focused and nuanced approaches have been fully developed, implemented, and evaluated, the public health burden caused by maternal tobacco use is likely to persist, including greater postpartum relapse rates and disproportionately negative health outcomes for young women and those who experience social disadvantage.

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