

# TOBACCO, VAPING & CANNABIS INFORMATION SERIES



## Smoking, Vaping & the Reproductive Years

### Introduction

There is substantial evidence to show women's use and exposure to tobacco and vaping products while trying to conceive, during pregnancy and while breastfeeding pose harmful health consequences for all involved.<sup>1,2,3,4,5</sup> It is often too late to address this health risk with women who are planning to start a family as almost half of all pregnancies are unplanned.<sup>6</sup>

It is most effective for health providers to offer tobacco cessation advice to girls and women early and often, at any stage of their reproductive life, regardless of their age or their desire to plan pregnancy or not. This will better prepare and support women's health for the long term and will indirectly benefit other family members as well.

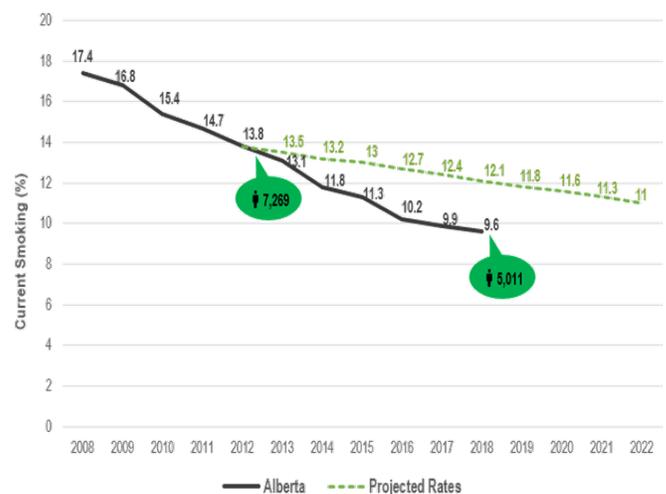
### Prevalence

Creating *Tobacco-Free Futures – Alberta's Strategy to Prevent and Reduce Tobacco Use*

2012-2022 proposed the target to reduce maternal smoking from 17% in 2008 to 11% in 2022.<sup>7</sup> Figure 1 shows data from *the Antepartum Risk Assessment on the Provincial Delivery Record*, provided by the Alberta Perinatal Health Program.

Considerable progress in reducing tobacco use in Alberta's maternal population has been achieved in recent years. In 2018, the Alberta maternal smoking rate reached a new low of 9.6%.<sup>8</sup>

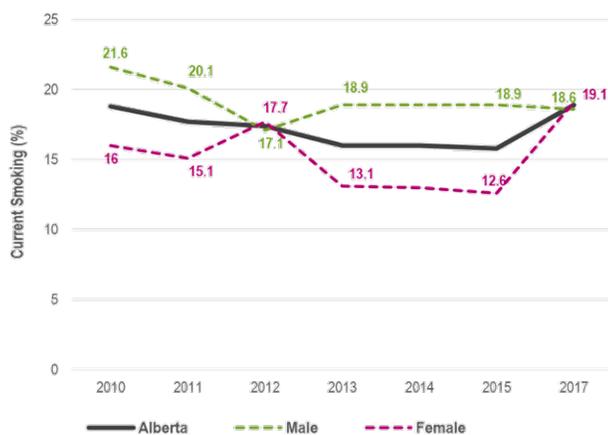
Figure 1. Maternal Smoking and Projected Rates, Alberta, 2008 – 2018.<sup>9</sup>



Smoking rates for pregnant women have steadily declined although within the health zones, rates have fluctuated in both the magnitude and direction of the observed annual changes. However, Calgary zone has consistently exhibited the lowest rates of maternal smoking, while North and Central zone alternate for the highest rates of use in this population. In 2018, the maternal smoking rates in health zones of residence were: South 11.5%, Calgary 5.5%, Central 17.0%, Edmonton 8.2%, and North 16.0%.<sup>10</sup>

The Canadian Tobacco, Alcohol and Drugs Survey (CTADS) results show 19.1% of Alberta women aged 15 and older currently smoked in 2017, compared to 18.6% of Alberta men in the same age group. After many years of much lower tobacco use rates among women, the most recent CTADS is noticeably higher.<sup>11</sup>

Figure 2. Tobacco Smoking Prevalence, Ages 15 and over by Sex, Alberta 2010 – 2017<sup>12</sup>



\*Includes daily and non-daily smokers

The legalization of nicotine vaping and cannabis products in recent years may be playing an important role in changing social acceptability and popularity of recreational drug use. As a comparative, 2017 national

data revealed a rise in use of electronic cigarettes and cannabis: 12% of females (18.8% of males) had tried electronic cigarettes and 11.1% of females (18.7% of males) had used cannabis in the past year.<sup>13</sup>

## Health Impacts on Women

The risks of tobacco product use are greater for women than men, even at lower levels and frequency. 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.<sup>14</sup> The use of tobacco and nicotine vaping products pose harm to women trying to conceive, and to pregnant and breastfeeding women.<sup>15,16,17</sup> Nicotine is an addictive chemical in commercial tobacco products that is toxic to the fetus and impairs fetal brain and lung development.<sup>18,19,20</sup> As well, cannabis products contain Delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD) which are not considered safe for use when couples are trying to conceive, during pregnancy and breastfeeding.<sup>21,22,23</sup>

## Second and Third-Hand Exposure

Second-hand exposure to tobacco smoke and aerosol are a significant health concern for women and girls during the reproductive years. Second-hand tobacco smoke has known health risks for women including lung cancer, heart disease and acute respiratory effects.<sup>24</sup> Exposure among children causes bronchitis, pneumonia and increased risk of ear infections, while infants exposed to second-hand smoke are more likely to die from sudden infant death syndrome (SIDS).<sup>25</sup> In addition, research has shown that second-hand cannabis smoke is just as toxic as second-hand tobacco smoke.<sup>26</sup>

Third-hand smoke and aerosol refers to the sticky chemical residue and gases that are left behind on surfaces, in homes and in vehicles after tobacco products are used and the air has long appeared to clear. It can stay in the environment for years. Children are most at risk of the dangers of second- and third-hand smoke in the home. This is because they touch and play on surfaces where third-hand smoke is found (e.g., carpets, tile floors, furniture). Children's lungs are still developing, and they breathe at a quicker rate and take in more air for the size of their body compared to an adult.<sup>27,28</sup>

A systematic review investigating the health effects of passive exposure to e-cigarette aerosol reported that, people may be exposed to a variety of harmful chemicals, including formaldehyde, heavy metals, and polycyclic aromatic hydrocarbons (PAHs) that can cause cancer and other health problems.<sup>29,30</sup> Until more is known about the short and long-term effects of e-cigarette use, it is safest to avoid use and exposure to these products when trying to conceive, and when pregnant or breastfeeding.<sup>31,32</sup>

Encourage smoke and vape aerosol-free homes and vehicles for optimum health of all family members including pets. Encourage all family members who use any form of tobacco, cannabis and e-cigarette products, smoked or aerosol, to use them outdoors and to wear a designated outdoor coat to be a barrier to toxic chemicals that cling to clothing long after use. Encourage caregivers or parents to wash off their hands, faces and other exposed skin after using tobacco, cannabis or e-cigarette products especially before holding and cuddling infants and children. Encourage them to lock up and keep out of sight tobacco and cannabis products to avoid risk of

accidental poisoning. Dispose of products carefully to ensure pets and children can't access it.

## 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.<sup>33</sup>

### For Pregnant Women<sup>34,35</sup>

Increased risk of: ectopic pregnancy (implantation of the embryo outside the uterine cavity), spontaneous abortion (miscarriage), preterm labour, premature rupture of membranes, placental problems (previa and abruption), and lower production of breast milk.

Women and girls under age 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.<sup>36</sup>

### For the Fetus and Newborn<sup>37,38,39</sup>

Increased risk of: 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<sup>40,41,42</sup>

Increased risk of: 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, and attention deficit hyperactivity disorder (ADHD).

## Preconception Interventions

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.

While Canada does not have national preconception care guidelines, there are advantages for practitioners in adopting preconception care such as:<sup>43</sup>

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

Almost half of pregnancies are unplanned, making preconception care very important for practitioners and women.<sup>44</sup> Hence, all women and girls should be screened for tobacco use.<sup>45</sup> This encourages thinking about smoking and women's health, not just the effects of tobacco on women's reproductive health. Anyone who is currently using tobacco products 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 (between pregnancies) cessation strategies are important at any time in order to reduce harm to everyone including the fetus, infant or child from prenatal or postpartum tobacco exposure. Cessation strategies recommended include:<sup>46</sup>

- Encouraging each girl, boy, woman, man and couple to have a life plan that includes being tobacco and cannabis-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 and offering intensive intervention
- Offering tobacco and cannabis education and intervention at all check-ups, especially to those considering conceiving a child

## Men and Preconception

Historically the messages and interventions about tobacco use and quitting at or before conception have been directed at women. Boys, men and new fathers were typically ignored other than in their role in providing a smoke or vape 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.<sup>47</sup>

Sperm take three months to develop and alcohol, tobacco, other drugs and medications can affect the quality of the sperm.<sup>48</sup> 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.<sup>49,50</sup> Ideally, quitting commercial tobacco and nicotine products before trying to have children is best for both women and men.<sup>51</sup> In addition, the children of fathers who

smoke are at increased risk of certain kinds of cancer.<sup>52</sup>

Non-allergic asthma (without hay fever) is significantly more common in children with a father who smoked prior to conception. This risk of asthma is increased if a father smoked before the age of 15 and this risk grows the longer the duration of smoking.<sup>53</sup> Men who smoked in mid-childhood (age 12 –15) may also have increased risk of having sons who are obese in adolescence.<sup>54</sup> Clearly, there is evidence emerging on the impact of men's tobacco use on conception and fertility, so it is important for practitioners to include them in the conversation as well.

*For more information on Smoking, Vaping and the Reproductive Years:*

[MyHealth.Alberta.ca](https://myhealth.alberta.ca)

[Baby Steps Help Guide](#)

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