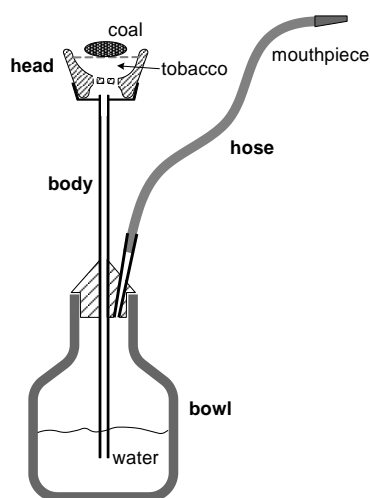


**What are hookahs and shisha?**

A typical hookah (or waterpipe) is made of 4 components: a head, body, water bowl and one or more hoses. Shisha, the mixture being smoked, is heated with charcoal in the head of the hookah and the smoke passes through the base to the water bowl and is smoked through the hoses. Hookahs have been used by indigenous peoples of Africa and Asia and have been popular among Middle Eastern men for centuries. Traditionally, shisha is a tobacco-based mixture that has been soaked in honey or molasses. However, due to poor labelling and claims of being “herbal” or “non-tobacco”, and establishments preparing their own shisha mixtures, it is difficult to determine the ingredients and tobacco/nicotine content of shisha in today’s Canadian marketplace.



Shisha is available in many flavours such as apple, chocolate, mango, and tutti frutti. Some flavours, such as bubble gum and cotton candy, appear to be targeted particularly at young people.

**Health effects of hookah smoking**

There are many misconceptions surrounding hookah smoking. Many users feel it is less harmful than cigarette smoking because the smoke passes through water. Smoking tobacco (or any other organic material) through water does not filter out cancer-causing chemicals. Hookah smoke can damage the lungs and heart as much as cigarette smoke.<sup>1,2</sup> A study comparing pulmonary function and respiratory symptoms in waterpipe and cigarette smokers showed the effects of water pipe smoking on lung function values were similar to the effects observed in deep inhalation cigarette smokers.<sup>3</sup>

One recent Canadian study measured the air quality and biological measures in both indoor and outdoor waterpipe cafes in Toronto.<sup>4</sup> The study concluded that on average, harmful particulate matter (PM<sub>2.5</sub>)<sup>5</sup> and ambient carbon monoxide (CO) were 69 (PM<sub>2.5</sub>) – 89 times (ambient CO) higher in indoor waterpipe cafes than in outdoor spaces with no nearby

<sup>1</sup> Eissenberg T, Shihadeh A. Waterpipe tobacco and cigarette smoking: direct comparison of toxicant exposure. *American Journal of Preventive Medicine* 2009; 37:518e23.  
<sup>2</sup> Maziak W, Rastam S, Ibrahim I, et al. CO exposure, puff topography, and subjective effects in waterpipe tobacco smokers. *Nicotine Tobacco Research* 2009; 11:806e11.  
<sup>3</sup> Boskabady MH, et al. Comparison of pulmonary function and respiratory symptoms in water pipe and cigarette smokers. *Respirology*, 17: 950–956. doi: 10.1111/j.1440-1843.2012.02194.  
<sup>4</sup> Zhang B, et al. ‘Enter at your own risk’: a multimethod study of air quality and biological measures in Canadian waterpipe cafes. *Tobacco Control*, Published Online First: 25 October 2013, doi: 10.1136/tobaccocontrol-2013-051180  
<sup>5</sup> PM<sub>2.5</sub> is fine particulate matter found in second-hand smoke.

**Founding Agencies**  
 Canadian Cancer Society  
 Ontario Division  
 Heart and Stroke  
 Foundation of Ontario  
 Non-Smokers’  
 Rights Association  
 Ontario Medical Association

**Supporting Agencies**  
 Association of Local  
 Public Health Agencies  
 Cancer Care Ontario  
 Ontario Association of  
 Children’s Aid Societies  
 Ontario Association of  
 Naturopathic Doctors  
 Ontario Federation of Home  
 and School Associations  
 Ontario Physical and Health  
 Education Association  
 Ontario Public Health  
 Association  
 Physicians for a  
 Smoke-Free Canada  
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smoking. While outdoor waterpipe cafes showed less harmful particulate levels, they were still 'poor' based on the Ontario Ministry of Environment Air Quality Index.

Another misconception is that 'herbal' shisha is less harmful than tobacco-based shisha. According to a recent study of Alberta waterpipe lounges, 'herbal' shisha products tested contained toxic trace metals and PAH levels equivalent to, or in excess of, that found in cigarettes.<sup>6</sup> Mainstream and sidestream smoke emissions of 'herbal' shisha contained carcinogens equivalent to, or in excess of, those of tobacco products. The content of the air in these lounges also demonstrated that PM<sub>2.5</sub> levels and CO content were significantly higher in waterpipe establishments compared to a casino where cigarette smoking was permitted.

Other research analyzing emissions from combustion of non-tobacco-based products shows these emissions are cardiac-toxic, and that at least some of the same toxic ingredients produced by the combustion of tobacco are also produced by the combustion of non-tobacco herbal substances found in shisha.<sup>7,8</sup> Health Canada has also recommended against the use of herbal products (namely cigarettes) due to the danger posed by the inhalation of smoke of any kind.<sup>9</sup>

A typical hookah smoking session can last approximately one hour, as opposed to the 5-10 minutes it takes to smoke a cigarette. According to one study using a smoking machine, one typical waterpipe session exposed the user to 100-200 times the volume of smoke inhaled from a single cigarette.<sup>10</sup> While this is likely a maximum amount, the prolonged period of inhalation from a typical waterpipe session exposes the user to a larger amount of smoke than that from multiple cigarettes.

One study measured PM<sub>2.5</sub> concentrations in Virginia waterpipe cafes and found the air quality to be worse than non-smoking rooms of restaurants which permitted cigarette smoking.<sup>11</sup> Another study of Oregon hookah lounges showed air quality measurements ranged from "unhealthy" to "hazardous" according to US Environmental Protection Agency Standards.<sup>12</sup> Preliminary indoor air quality (IAQ) testing in two hookah establishments in Toronto has revealed very high carbon monoxide (CO) readings. The first café tested, which claimed that only "herbal" shisha was being served, had an indoor CO reading 20 times higher than outdoor ambient CO. The second café had a reading 56 times higher. The tobacco enforcement officer present during the testing commented that both cafés were not filled even close to capacity.<sup>13</sup>

In addition, the use of charcoal to heat the shisha (regardless of the tobacco/nicotine content) produces toxic emissions including harmful carcinogens in itself. Some charcoal products used are treated with an ignition agent to make them easier to light. Research on the toxicity of hookah charcoal shows large contents of two specific causative agents – CO and polyaromatic hydrocarbons (PAHs) – of which the latter are known cancer-causing agents. The study, which compared the burning of shisha using charcoal versus an electrical heating element, found that approximately 90% of the CO and 75-92% of the PAH compounds measured in the smoke actually originated in the charcoal.<sup>14</sup> A later study

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<sup>6</sup> Hammal F, Chappell A, Wild TC, et al. *Tobacco Control* Published Online First: 15 October 2013, doi:10.1136/tobaccocontrol-2013-051169

<sup>7</sup> Cobb CO, et al. Acute toxicant exposure and cardiac autonomic dysfunction from smoking a single narghile waterpipe with tobacco and with a "healthy" tobacco-free alternative. *Toxicology Letters* 2012 Oct 8. pii: S0378-4274(12)01331-8. doi: 10.1016/j.toxlet.2012.09.026. [Epub ahead of print]

<sup>8</sup> Shihadeh A, et al. Does switching to a tobacco-free waterpipe product reduce toxicant intake? A crossover study comparing CO, NO, PAH, volatile aldehydes, "tar" and nicotine yields. *Food and Chemical Toxicology*. 2012 May; 50(5):1494-8. Epub 2012 Mar 1.

<sup>9</sup> Health Canada. Herbal cigarettes fact sheet: <http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/res/news-nouvelles/herb-eng.php>

<sup>10</sup> World Health Organization. WHO Advisory Note: "Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators," WHO 2005.

<sup>11</sup> Cobb CO, Vansickel AR, Blank MD, et al. Indoor air quality in Virginia waterpipe cafés. *Tobacco Control* 2012; 21: . doi:10.1136/tobaccocontrol-2011-050350

<sup>12</sup> Fiala SC, et al. Measuring indoor air quality of hookah lounges. *American Journal of Public Health* 2012 Nov;102(11):2043-5.doi: 10.2105/AJPH.2012.300751. Epub 2012 Sep 20.

<sup>13</sup> "Waterpipe Smoking in Canada: New Trend, Old Tradition". Non-Smokers' Rights Association, February 2012.

<sup>14</sup> Monzer, B et al. Charcoal emissions as a source of CO and carcinogenic PAH in mainstream narghile waterpipe smoke. *Food and Chemical Toxicology* 2008; 46:2991-2995.

reported that because charcoal production involves pyrolysis (extreme heat), PAH residues in raw charcoal can account for more than half of the total PAH emitted in hookah smoke.<sup>15</sup>

Non-smokers and employees who frequent or work in hookah bars are also at risk from exposure to second-hand smoke. Sidestream smoke from a single waterpipe session contains approximately 4 times the cancer-causing polyaromatic hydrocarbons, 4 times the volatile aldehydes, and 30 times the CO of a single cigarette.<sup>16</sup>

In addition to the above-mentioned health effects, hookah smoking also poses another important public health risk. The act of hookah smoking has traditionally been a social activity and remains so today. Because of this social aspect, the sharing of a single (or several) hookah pipes can put users at risk for other infectious diseases such as meningitis, tuberculosis, hepatitis and influenza. The sharing of mouthpieces and the heated, moist smoke may enhance the opportunity for such diseases to spread.<sup>17</sup>

### **Hookah smoking and youth**

As a recent Letter to the Editor in the journal *Addiction* notes, “Waterpipe smoking shows signs of becoming a new epidemic, especially among adolescents and young adults.”<sup>18,19,20,21,22</sup>

The availability of candy- and fruit-flavoured shisha makes it more tempting for young people and can become yet another inducement to smoking that appeal to a younger audience. Due to its high sugar content, flavoured shisha smoke can be very aromatic. The passing of smoke through water and the lower combustion temperature also makes hookah smoke both cooler and moister than regular cigarette smoke. This makes the appeal of hookah smoking similar to the sweeter, candy- and fruit-flavoured tobacco products being marketed by the tobacco industry to young adults and youth, who appear to be more attracted to these flavours and easier inhalation, than adults.<sup>23</sup>

Data from the 2010/2011 Youth Smoking Survey (YSS) showed that 6.2% of Canadian students grades 6-12 have ever tried using a waterpipe, and 2.5% reported using a waterpipe in the last 30 days. Ontario YSS data reported that 5% of Ontario students have ever tried using a waterpipe. Survey data from the 2011 Canadian Tobacco Use Monitoring Survey (CTUMS), reported that 11.2% of Ontario youth aged 15-19 had ever tried using a waterpipe, and 22.9% of young adults aged 20-24 had ever tried using a waterpipe. Similarly, a Montreal study of young adults aged 18-24 showed that 23% reported smoking a waterpipe in the previous year.<sup>24</sup>

Ease of access makes hookah smoking more appealing to young people. The use of hookahs in public places is not regulated under the *Smoke-Free Ontario Act*, and hookah establishments offer an alternative to young people who may not be old enough to buy tobacco products or have access to bars and nightclubs. At a recent provincial meeting in

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<sup>15</sup> Sepetdjian, E, Saliba, N & Shihadeh, A. Carcinogenic PAH in waterpipe charcoal products. *Food and Chemical Toxicology*, 2010, doi:10.1016/j.fct.2010.08.033.

<sup>16</sup> Daher N, Saleh R, Jaroudi, E, Sheheiti H, et al. Comparison of carcinogen, carbon emissions from narghile waterpipe and cigarette smoking: Sidestream smoke measurements second-hand smoke emission factors. *Atmospheric Environment* 2010; 44: 8-14.

<sup>17</sup> Maziak W, Ward KS, Afifi Soweir RA, Eissenberg T. Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic, *Tobacco Control* 2004; 13: 327-333.

<sup>18</sup> Maziak W, et al. Tobacco in the Arab world: old and new epidemics amidst policy paralysis. *Health Policy Plan* 2013: doi: 10.1093/heapol/czt055 [E-pub ahead of print]

<sup>19</sup> Khalil J, et al. Women and waterpipe tobacco smoking in the eastern Mediterranean region: allure or offensiveness. *Women Health* 2013;53:100-16.

<sup>20</sup> Ward KD, et al. Characteristics of U.S. waterpipe users: a preliminary report. *Nicotine Tobacco Research* 2007;9:1339-46.

<sup>21</sup> Cobb CO, et al. A multiyear survey of waterpipe and cigarette smoking on a US university campus. *Journal of American College Health* 2012;60:521-7.

<sup>22</sup> Akl EA, et al. The prevalence of waterpipe tobacco smoking among the general and specific populations: a systematic review. *BMC Public Health* 2011;11:244.

<sup>23</sup> American Lung Association, “Tobacco Policy Trend Alert: From Joe Camel To Kauai Kolada—The Marketing Of Candy-Flavored Cigarettes” Updated May 2006.

<sup>24</sup> Dugas, E et al. Water-pipe smoking among North American youths. *Pediatrics* 2010; 125:1184-1189.

Ontario, tobacco enforcement officers noted that the average age of customers frequenting hookah cafes is 15 years. A group of young people can easily split the cost of renting a hookah pipe, typically priced from \$12 to \$15 per session, which makes for an inexpensive way to spend time with friends. The verification of identification by proprietors to confirm that the patrons are of legal age to be sold tobacco is unlikely – even more so when “herbal” shisha is served.<sup>13</sup>

### **Regulation of hookah use**

Hookah smoking is not regulated under the current *Smoke-Free Ontario Act*. The *Act* specifically prohibits the “smoking or holding of lighted tobacco” in any enclosed public place or enclosed workplace. Hookah regulation under the *Act* is problematic for at least two reasons. First, many hookah proprietors claim that their shisha is “herbal” and is heated, not lit, so the *SFOA* does not apply to them. Second, some establishments also create their own “blend” of shisha. This hampers enforcement efforts as it is difficult for inspectors to prove the shisha contains tobacco. To address this, the Minister of Health and Long-Term Care will give inspectors the authority to take samples from waterpipes and test for tobacco content if Bill 131 is passed.

Some municipalities have addressed the issue by passing bylaws prohibiting the use of hookahs in indoor public places under Section 10 of the *Municipal Act*. Peterborough, Barrie, Bradford West Gwillimbury, and Orillia have passed such bylaws and other municipalities such as Toronto are considering doing the same.

At the First International Conference on Waterpipe Tobacco Research in Dubai in October 2013, over 100 leading scientists, policy makers, academics and public health advocates from 18 countries across five continents convened to review evidence and recommend policies to stop the global spread of waterpipe tobacco smoking. The following findings and recommendations were issued on October 23, 2013:

1. Waterpipe smoking has become a global epidemic, especially among youth.
2. As with cigarettes, waterpipe smoking is harmful and addictive.
3. Secondhand waterpipe smoke is harmful to everyone exposed, especially children and other vulnerable individuals.
4. Education, mass media, and other approaches should be harnessed immediately to communicate the dangers of waterpipe smoking; especially to deglamorize and correct misperceptions about the water filtration process.
5. Policies to stop the global spread of waterpipe tobacco smoking are urgent public health priorities; especially support and evaluation of programs that prevent youth initiation and encourage smoking cessation.
6. Urgent policy priorities include a ban on flavoured waterpipe products and specific inclusion of waterpipe smoking in clean indoor air regulations.
7. Other important policy priorities include more effective warning labels, increasing taxes, restricting access to youth, and eliminating waterpipe tobacco product advertising and marketing.<sup>25</sup>

Another issue of concern is the mislabelling of shisha products. As shisha is primarily a tobacco product, it should be regulated under both provincial and federal excise legislation. However, since virtually all shisha is imported, it is often declared as a food product at the border or is not labelled as containing tobacco and therefore avoids taxation.<sup>26</sup> These products also do not fall under the federal *Tobacco Act* with respect to package and labelling and are sold without graphic warnings or nicotine content. This lack of warnings and misleading labelling may also lead consumers to think they are smoking a non-tobacco or “safer” product. In one example, a chemical analysis by the Royal Canadian Mounted

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<sup>25</sup> Waterpipe Conference Declaration. First International Conference on Waterpipe Tobacco Smoking: Building Evidence for Intervention and Policy, Abu Dhabi, United Arab Emirates. October 21-23, 2013.

<sup>26</sup> Royal Canadian Mounted Police, London. Customs and Excise. Presentation given at the Ontario Forum on Waterpipe Use, Toronto, 19 October, 2011.

Police (RCMP) of the brand “Massoul” shisha revealed that the product contained tobacco, contrary to its labelling.<sup>27</sup> This poses both a consumer safety issue as well as a tax evasion problem.

### **A Word About the “Cultural Practise” Issue**

During discussions of how to address the many health issues raised by the use of waterpipes and shisha, the point is sometimes made that the practise cannot be banned because it is rooted in various Middle Eastern cultural communities. This assertion is specious and lacks a foundation in evidence:

- There is a growing body of scientific evidence, described above, that 1) any type of emissions from waterpipes – whether tobacco-based or not – are dangerous both to users and to those exposed to them second-hand, and that 2) contrary to those who allege this practise to be a cultural norm of Middle Eastern communities in Ontario and elsewhere, the evidence increasingly demonstrates that it is younger people, most of non-Middle Eastern origin, who are using hookah/shisha. This is true not only in this province but in other jurisdictions;<sup>17-21, 23-24</sup>
- Public health standards and practises in Ontario - formulated and delivered by agencies of government like the MOHLTC and Boards of Health - are set according to scientific and medical evidence. The SFOS in particular has long had a tradition of evidence-based best practises as the foundation of its interventions. While there may be allowances made for how a given public health program is delivered to a specific community, that does not, and should not, mean that a medically and scientifically justified intervention is set aside because of alleged “cultural” norms: rather, the delivery of the intervention should go ahead tailored to the needs of the community in question;
- In the 1990s and early 2000s, the hospitality industry and many members of the subset of bar employees and patrons frequently insisted that smoking and drinking in bars were inseparable and part of the “bar culture”, and that banning smoking in bars would mean economic and social disaster for the sector. Yet dozens of municipalities and, ultimately, the Ontario government, concluded that based on medical evidence alone, indoor exposure to second-hand smoke (whatever the venue) had to stop. Today, smoke-free bars and other hospitality venues are the norm across Ontario and indeed all of Canada;
- More and more jurisdictions outside North America – including Lebanon, Turkey and a number of Middle Eastern cities - have already banned or severely restricted waterpipe use, or are considering doing so. Were waterpipe smoking actually rooted in Middle Eastern culture, such actions would be unthinkable – yet they are happening today. Here is a partial list of restrictions in the region:
  - Jordan (2008): As of the end of 2014, licenses of all coffee shops that serve shisha will be revoked;
  - Syria (2010): First Middle Eastern country to ban indoor smoking (including hookahs) in restaurants/cafes, except in designated smoking areas;
  - Lebanon (2012): indoor smoking ban (including hookah) in restaurants/cafes;
  - Dubai (2012): Cafes located in residential areas or near schools and mosques will not be given a license or will not have their licenses renewed;
  - Saudi Arabia (2012): Smoking (including shisha) is banned in all enclosed places, including coffee shops, restaurants, shopping malls and crowded areas;
  - Turkey (2013): Smoking (including hookahs) not permitted in cafes, bars or restaurants.

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<sup>27</sup> Royal Canadian Mounted Police. *RCMP seize large quantity of shisha tobacco*. 23 April 2010. <http://www.rcmp-grc.gc.ca/on/news-nouvelles/2010/10-04-23-london-eng.htm>.

**The Solution**

If passed, Bill 131 will amend the *Smoke-Free Ontario Act (SFOA)* to ban all flavoured tobacco products and strengthen enforcement to allow for testing of tobacco in waterpipes in indoor public places. However, in order to effectively address the hookah issue, **we recommend that all indoor use of waterpipes - whatever the material heated/combusted in them - be banned, and that necessary amendments be made to the *Smoke-Free Ontario Act* to give effect to this ban.**