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## **WATERPIPE SMOKING: A GROWING HEALTH CONCERN**

Waterpipe, also known as hookah, shisha, narghile, goza, or hubble bubble has been used for centuries to smoke tobacco, particularly in North Africa, the eastern Mediterranean and areas of South East Asia.<sup>1</sup> The tobacco, often sweetened and flavoured, is heated by charcoal, and the resulting smoke is cooled by a water-filled chamber before being inhaled through a hose and a mouthpiece.<sup>1</sup>

### **Prevalence of Use**

Waterpipe use is increasing globally.<sup>2</sup> The World Health Organization reports that waterpipe smoking appears to have spread among young people in the US, Brazil, and European countries since the 1990s.<sup>1</sup> Reported prevalence of waterpipe use in the last thirty days has ranged from 6% -34% among Middle Eastern adolescents and 5% - 17% among young people in the US.<sup>2</sup> Although the prevalence of waterpipe use has not been monitored on a regular basis in Canada, some recent data provide an indication of level of use.

According to the 2006 Canadian Tobacco Use Monitoring Survey (CTUMS),<sup>3</sup> 4% of Canadians aged 15 years and older reported ever trying a waterpipe, and 1% reported waterpipe use in the last month. Many of those who reported ever using waterpipes thought that waterpipe smoking was not as risky as cigarette smoking:

- 29% thought that smoking tobacco in a waterpipe was less harmful than smoking cigarettes
- 34% thought smoking a waterpipe reduced the level of tar you inhale compared to smoking cigarettes
- 24% thought that smoking tobacco in a waterpipe reduced the risk to health compared to smoking cigarettes

In 2006, almost 7% of Canadian youth in grades 7-12 reported ever using waterpipe; less than 3% reported use in the past 30 days.<sup>4</sup>

A study of Montreal youth aged 18 to 24 years shows that 23% of study participants reported waterpipe use in the previous year. Use was higher among participants who reported smoking cigarettes or other tobacco products, drinking alcohol, or binge drinking, smoking marijuana or using other illicit drugs during the same time period.<sup>5</sup>

## **Toxicity**

Smoke from waterpipes contains many of the same toxins found in cigarette smoke including carbon monoxide, nicotine, tar, heavy metals and polycyclic aromatic hydrocarbons. Under machine smoking conditions, a single water pipe session produced 1.7 times more nicotine, 6.5 times more carbon monoxide, and 46 times more tar than smoking a single cigarette.<sup>6</sup>

A recent study measuring carbon monoxide levels in the blood of waterpipe and cigarette smokers after a single smoking session found that carboxyhaemoglobin (COHb) levels increased by more than 400% in waterpipe smokers compared to less than 40% in cigarette smokers.<sup>7</sup>

Daily use of the waterpipe produced a 24-hour urinary cotinine (a metabolite of nicotine) level equivalent to smoking 10 cigarettes a day.<sup>8</sup>

## **Health Risks**

According to the World Health Organization,<sup>1</sup> a typical one-hour session of waterpipe smoking exposes the user to 100 to 200 times the volume of smoke inhaled from a single cigarette. Although scientific data on the adverse health effects of waterpipe smoking are limited, evidence points to serious health risks:

- Waterpipe smoking is associated with a number of poor health outcomes including decreased lung function, lung cancer, respiratory illness, periodontal disease and low birth weight.<sup>6,9</sup>
- Repeated exposure to nicotine during waterpipe use can lead to addiction.<sup>1,2,6</sup>
- Pipe sharing may pose the additional risk of the spread of infectious diseases.<sup>1,6</sup>

Exposure to second hand smoke from waterpipes poses a hazard to nonsmokers too. Sidestream smoke emitted in a single waterpipe session contains approximately 4 times the cancer-causing polyaromatic hydrocarbons, 4 times the volatile aldehydes, and 30 times the carbon monoxide of a single cigarette.<sup>10</sup>

## **Discussion**

Waterpipe smoking is becoming a growing public health concern. The evidence to date suggests that waterpipe smoke is at least as toxic as cigarette smoke. Efforts are needed to dispel any misperceptions about reduced health risks associated with waterpipe use and to address product regulations including the use of flavourings and product labeling, package size, appropriate warnings and the elimination of misleading product descriptors. Systematic monitoring of waterpipe smoking would provide a better understanding of patterns of use and the relationship of waterpipe smoking to the uptake and use of other tobacco products.

## References

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