

 **AMERICAN LUNG ASSOCIATION®**  
Tobacco Policy Trend Alert

**AN EMERGING DEADLY TREND: WATERPIPE TOBACCO USE**  
**February 2007**



In the last few years, new popularity for an old form of tobacco use has been gaining ground within this already susceptible group. Waterpipes (also known as hookahs) are the first new tobacco trend of the 21st century.

This Trend Alert looks at the emerging waterpipe tobacco use trend and the widespread misperceptions that exist about its use.

Existing evidence on waterpipe smoking shows that it is at least as harmful as cigarette smoking and has been linked to many of the same diseases caused by cigarette smoking. Access to this "new" form of tobacco use continues to grow, especially in hookah cafes targeting 18-to-24-year olds.

The tobacco control community must educate the public about the potential dangers of the growing waterpipe trend.

# Tobacco Policy Trend Alert

## AN EMERGING DEADLY TREND: WATERPIPE TOBACCO USE

Tobacco use is the single most preventable cause of death in the United States, killing an estimated 438,000 people in this country<sup>1</sup> and almost 5 million worldwide every year.<sup>2</sup> While cigarette smoking is declining overall in the United States, tobacco use remains high among youth and young adults, especially college students. Young adults ages 18 to 24 are more than three times more likely to smoke than people 65 years and older.<sup>3</sup>

In the last few years, new popularity for an old form of tobacco use has been gaining ground within this already susceptible group. Waterpipes (also known as hookahs) are the first new tobacco trend of the 21st century. Originating in the Middle East and spreading throughout Europe and the United States. These small, inexpensive, and socially-used tobacco pipes have become as fashionable as cigars were in the later 1990s, especially among urban youth, young professionals, and college students. Small cafés and clubs that rent the use of hookahs and sell special hookah tobacco are making their mark on the young, hip, urban scene.

Like many tobacco products, use of these pipes is linked to lung cancer and other respiratory and heart diseases. Waterpipe tobacco smokers are exposed to cancer-causing chemicals and hazardous gases such as carbon monoxide. Waterpipe users are also exposed to nicotine, the substance in tobacco that causes addictive behavior. Despite knowing the dangers of waterpipe smoking, one study found that most (more than 90%) beginning waterpipe smokers believe cigarette smoking is more addictive than waterpipe smoking. The same study also found evidence that the use of waterpipes is increasing throughout the world.<sup>4</sup>

This *Trend Alert* looks at the emerging waterpipe tobacco use trend and the widespread misperceptions that exist about its use.

### Background/History

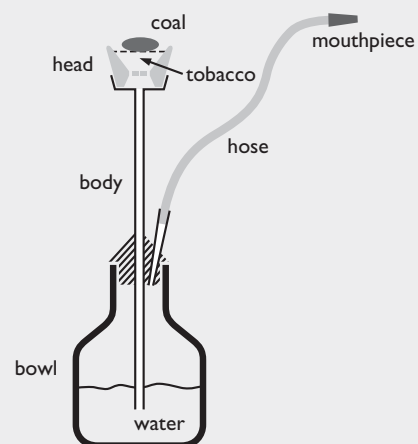
The waterpipe is used to smoke specially made tobacco by indirectly heating the tobacco, usually with burning embers or charcoal. The smoke is filtered through a bowl of water (sometimes mixed with other liquids such as wine) and then drawn through a rubber hose to a mouthpiece. Other common names for waterpipes include hookah, narghile or narghila, shisha or sheesha, and hubbly-bubbly.

Waterpipes generally consist of four main parts:

- The bowl where the tobacco is heated;
- The base filled with water or other liquids;
- The pipe, which connects the bowl to the base; and
- The hose and mouthpiece through which smoke is drawn.

Waterpipe smoking originated in ancient Persia and India. The original “hookah” is believed to have been carved from a coconut shell, with the milk used as a filtering agent.<sup>5</sup> Early waterpipes may have been used to smoke opium or hashish, as evidence of these waterpipes predates the use of tobacco in the Middle East and Asia. After the advent of tobacco in the region, a special prod-

“According to one study, more than 90% of beginning hookah smokers think cigarette smoking is more addictive.”



uct was developed mixing shredded tobacco leaf and honey, molasses or dried fruit. This tobamel/tabamel (combined tobacco and a sweetener) is generally called shisha in the United States. Pre-packaged quantities of shisha are sold in a variety of flavors, including apple, banana, berry, cherry, chocolate, coconut, coffee, cola, grape, kiwi, lemon, licorice, mango, mint, orange, peach, pineapple, rose, strawberry, tutti fruity, vanilla and watermelon. Several Middle Eastern companies manufacture and import the specialized tobacco, including Al Fakher, Al Waha, Nakhla, Romman and Fumari. Most manufacturing companies use distributors based in the United States to sell in the U.S. In addition, several U.S. companies manufacture and distribute their own brands of the special waterpipe tobacco. Sahara Smoke Company's Hookah-Hookah brand is one of the largest and most popular U.S.-based brands.

The use of waterpipes spread through the Middle East and Asia, and were widely used in Turkey during the Ottoman Empire (15th century), Iran, Lebanon, Syria, Jordan, Greece, India, Pakistan, Palestine, Egypt and Saudi Arabia. By the late 19th century, Turkish women of high society used waterpipes as status symbols. Waterpipes can often be seen in art of the era. In the late 20th century, sweeter additives and more flavors were developed in Egypt in an effort to attract female consumers. As people immigrated to Europe from India, Pakistan, Northern Africa and the Middle East, hookahs and hookah cafes began appearing in European cities. Today, hookah bars and cafes are popular in many parts of Britain, France, Spain, Russia, India, Asia and throughout the Middle East and are growing in popularity in the United States.<sup>6</sup>

## State of the Science

Although limited research has been done on the health risks of waterpipe use, the existing evidence indicates that waterpipe smoking carries the same or similar health risks as cigarette smoking. Links have been made to many of the same adverse health effects, including lung, oral and bladder cancer, as well as clogged arteries and heart disease.<sup>7</sup>

An analysis of mainstream smoke from waterpipes found that it contains significant amounts of nicotine, tar and heavy metals.<sup>8</sup> A study of nicotine and cotinine (a chemical marker of nicotine exposure) levels in hookah smokers found high amounts of both chemicals after one session of hookah use. Nicotine and cotinine levels were measured in the participants' blood before and after smoking. The level of nicotine increased up to 250 percent and the cotinine level increased up to 120 percent after just one session of smoking, lasting 40 to 45 minutes.<sup>9</sup>

Waterpipe use may increase exposure to carcinogens because smokers use a waterpipe over a much longer period of time, often 40 to 45 minutes, rather than the 5 to 10 minutes it takes to smoke a cigarette. Due to the longer, more sustained period of inhalation and exposure, a waterpipe smoker may inhale as much smoke as consuming 100 or more cigarettes during a single session.<sup>10</sup> These studies provide compelling initial data which suggest that waterpipe smoke is at least as toxic as cigarette smoke. Existing research into the direct and singular effects of waterpipe smoking is complicated by the fact that many waterpipe users also smoke cigarettes.<sup>11</sup>

Another potential problem is that commonly used heat sources that are applied to burn the tobacco, such as wood cinders or charcoal, are likely to increase the health risks from waterpipe use

**“A study of hookah smokers found that nicotine and cotinine increased up to 250% and 120% respectively after a typical 40 to 45 minute smoking session.”**

because when burned on their own these heat sources release high levels of potentially dangerous chemicals, including carbon monoxide and metals.<sup>12</sup>

Finally, the social aspect of waterpipe smoking may put many users at risk for other infectious diseases, such as tuberculosis and viruses such as hepatitis and herpes. Shared mouthpieces and the heated, moist smoke may enhance the opportunity for such diseases to spread.<sup>13</sup> Also, although limited research has been done in this area, the secondhand smoke from a waterpipe is potentially dangerous because it contains smoke from the tobacco itself as well as the smoke from the heat source used to burn the tobacco.<sup>14</sup>

More investigation is certainly needed to determine the health effects of both long- and short-term waterpipe use, as well as the relative risk of waterpipe use compared to other forms of tobacco use. However, the available research strongly indicates that waterpipe smoking presents many of the same risks as cigarette smoking and is not a safe alternative to smoking cigarettes.

## Perceptions/Awareness/Prevalence

Despite the evidence that waterpipe smoking has health risks at least similar to cigarette smoking, the general perception is exactly the opposite. Waterpipe tobacco smokers generally believe that it is less harmful than cigarette smoking. Most smokers also believe that the water-filtration and extended hose serve as filters for harmful agents.<sup>15</sup>

In addition, because the smell, taste and smoothness of the sweetened tobacco purportedly provide a much less-irritating smoking experience, hookahs are considered more pleasant by many smokers. As a result, they may smoke for longer durations and inhale more deeply. Seasoned smokers may add ice, fruit juice, milk or wine to the water in the pipe to change the taste, texture or effect of the smoke. Most websites and chat boards that cater to hookah users point out the cost savings of using waterpipes rather than smoking cigarettes—another incentive. Yet, many waterpipe users also regularly smoke cigarettes.

Unfortunately, there is little data on U.S. prevalence of waterpipe use available. A recent study of 1671 mostly Arab-American teens, ages 14 to 18, in Michigan found that 27 percent had ever used a waterpipe. This percentage increased from 23 percent of 14 year-olds to 40 percent of 18 year-olds. The same study showed that waterpipe use is also a strong predictor of cigarette smoking. The researchers found that the odds were two times greater that teens who used hookahs would also be cigarette smokers. Even more concerning, they found the odds of a teen experimenting with cigarettes were more than eight times greater if they had “ever smoked” a waterpipe.<sup>16</sup> Most studies related to prevalence are from the Middle East and Asia. If the U.S. trend grows to resemble international patterns, however, the data are disturbing. A study of Israeli youth, ages 12 to 18, found that 41 percent had used a waterpipe and 22 percent smoked at least every weekend.<sup>17</sup>

The rise in waterpipe use in the United States may be a result of marketing for hookah cafés geared toward 18- to-24-year olds. These young adults appear to be the fastest-growing population of hookah users, especially in and around colleges and universities. As hookah popularity

“A study of mostly Arab-American teens in Michigan found the odds of a teen experimenting with cigarettes were more than 8 times greater if they had “ever smoked” a waterpipe.”

and prevalence increase, the fact that many young hookah users also currently smoke cigarettes<sup>18</sup> should be a cause for concern to policymakers, university administrators, and the general public.

## Hookah Bars/Cafes

The discovery and popularity of hookahs and establishments that rent hookah pipes, have grown greatly in the United States in the past ten years.<sup>19</sup> Most U.S.-based distributors of shisha were established within just the last five years.<sup>20</sup> As the Arab and Arab-American population in this country have grown, the availability and use of waterpipes has also become more commonplace.<sup>21</sup> Hookah bars or cafés have sprung up in urban areas and cities and towns near large colleges or universities. Even a few of the states with strong smokefree air laws have been unable to slow the emergence of hookah bars and cafés. California, Illinois, New York, Texas and Virginia currently have the greatest number of these establishments, most of them located in major cities or near universities. However, hookah bars and cafés have appeared in more than two-thirds of the states. Based on U.S. business listings and categorized web-listings, an estimated 200 to 300 of them currently operate in the United States, with more appearing every day.<sup>22</sup>

## Trends/Marketing

Hookah smoking is commonly viewed as a social activity. Often done in groups of people who share one pipe and try different flavors throughout the evening, hookah smoking is seen as a relatively inexpensive way to “get together” and have fun. The expansion of the hookah bar and café industry, especially in inner cities and near universities and colleges where youth and young adults gather, illustrates the growth potential for hookah marketing and use.

Current marketing for hookah pipes and their specialized tobacco packs is fairly limited to specialized shops and online stores. The cafés and bars, on the other hand, are expanding rapidly to reach wider audiences. While online chats, blogs and other user sites are still a big part of the hookah culture in the United States, business owners are branching out. Advertisements in the nation’s 80 alternative, free weekly papers are very common, as are ads in college newspapers and magazines. Again, young urban adults and college students are the targets.

## State Regulation/Legislation/Policies

Thirteen states and the District of Columbia currently prohibit smoking in almost all public places and workplaces, including restaurants and bars, and a number of states are expected to follow suit in the next several years. Unfortunately, smokefree air laws seem to have had the opposite effect on hookah establishments, bolstering them as they are often unaddressed or exempted from many laws. Fortunately, most state laws define smoking in a way that would include the use of hookahs, such as Delaware’s statute addressing “the burning of a lighted cigarette, cigar, pipe or any other matter or substance that contains tobacco.”<sup>23</sup> However, the language in some state laws could actually exempt hookah bars or cafés in one of three ways:

- As a “retail tobacco establishment”. This definition usually includes any business whose main purpose is the “sale of tobacco products, including, but not limited to, cigars, pipe tobacco and smoking accessories.”<sup>24</sup> Some states require these businesses to prove that no more than

“An estimated 200 to 300 hookah bars and cafes currently operate in the United States, in more than two-thirds of the states.”

25 percent of their “total annual revenues [are] generated by the sale of other products.”<sup>25</sup> However, many simply require that the sale of other products be only “incidental”.

- As a “tobacco bar/cigar lounge,” These are often defined as a business that “primarily is engaged in the retail sale of tobacco products for consumption by customers on the premises...”<sup>26</sup> While some states have requirements defining the percentage of tobacco sales revenues versus other product revenues, these statutes vary greatly. In the District of Columbia, Connecticut and New York, at least 10 percent of revenue must be gained through tobacco sales (tobacco/cigar bar); in New Jersey at least 15 percent (cigar bar); and in Rhode Island at least 50 percent (smoking bar).<sup>27</sup> In addition, some states require these businesses to prohibit persons under the age of 18 from entering.
- A few states have a waiver process if compliance would cause undue financial hardship on the business. These are usually highly restricted, must be proven through specific processes and often must be renewed regularly. However, as some hookah bars/cafés sell only minimal, and in some cases no, food or alcohol, they might be able to use this type of exemption to their advantage.

A chart of the states with the strongest smokefree air laws, and whether they have the exemptions listed above is included in this report on p.7.

Exemptions for hookah bars or cafés from state smokefree air laws have been raised during legislative hearings. During a hearing and vote on a bill to prohibit smoking in most public places and workplaces in the District of Columbia, the city council added an amendment exempting “tobacco bars” to the measure. The councilmember supporting the amendment argued that hookah bars/cafés should be exempt because tobacco use is the central focus of their business.<sup>28</sup>

Attempts also have been made in various states to specifically regulate and control the spread of hookah bars/cafés. In California, some hookah lounges have been able to bypass the state smoke-free air law by making employees co-owners, thereby qualifying for exemption as an “establishment with no employees.”<sup>29</sup> While California state law prohibits smoking in most workplaces, it is allowed in retail or wholesale tobacco shops and private smoking lounges. Local communities have begun to pass ordinances to address and eliminate these loopholes.<sup>30</sup>

As the public health community moves forward to protect workers, patrons and citizens from secondhand smoke in public places and workplaces, it will be important to address the hookah bar issue in new laws and regulations and, where possible, amend current laws to address and close loopholes.

## Conclusions

Existing evidence on waterpipe smoking shows that it is at least as harmful as cigarette smoking and has been linked to many of the same diseases caused by cigarette smoking. Access to this “new” form of tobacco use continues to grow, especially in hookah cafes targeting 18-to-24-year olds. Waterpipes can become yet another inducement to smoking that appeal particularly to a younger audience attracted by the reportedly sweeter, smoother smoke. They may have an appeal similar to the sweeter, candy-flavored cigarettes and tobacco products that the tobacco industry has begun to market to young adults and youth who appear to be more attracted to these flavors than adults.<sup>31</sup>

More research is needed into the health effects of waterpipe use, and the patterns and process of beginning to use waterpipes amongst various populations. Since little data exist on prevalence of hookah use in the United States, national surveys on youth and adult tobacco use should consider adding a question on this topic. There also is virtually no research on the risks of secondhand smoke from waterpipe use.

To protect the public from the potential dangers of the growing waterpipe trend, the tobacco control community must work to correct the current misperceptions about the health risks of waterpipe smoking. Advocates also must ensure that new smokefree air laws include hookahs and the places where hookahs are smoked and remove loopholes from existing laws that make hookahs popular and accessible. Health care providers, quitlines and university administrators should also consider offering culturally appropriate cessation products and services to help waterpipe smokers attempt to quit.

STATE	Smokefree Workplaces (other than restaurants or bars)	Smokefree Restaurants (all areas of restaurants)	Smokefree Bars (all areas of bars)	Exceptions for Retail Tobacco Establishments	Exceptions for Tobacco/ Cigar Bar or Lounge	Waivers for Financial Hardship
Arizona	✓ effective 2007	✓ effective 2007	✓ effective 2007	✓		
Arkansas		✓		✓	N/A	
California		✓	✓	✓		
Colorado		✓	✓	✓	✓	
Connecticut		✓	✓		✓	
Delaware	✓	✓	✓			
Florida	✓	✓		✓	N/A	
Hawaii	✓	✓	✓	✓		
Idaho		✓		✓	N/A	
Louisiana	✓	✓		✓	N/A	
Maine		✓	✓	✓		
Massachusetts	✓	✓	✓	✓	✓	
Montana	✓	✓	✓ effective 2009			
Nevada	✓	✓		✓	N/A	
New Jersey	✓	✓	✓	✓	✓	
New York	✓	✓	✓	✓	✓	✓
Ohio	✓	✓	✓	✓		
Rhode Island	✓	✓	✓	✓	✓	
Utah	✓	✓	✓ effective 2009			
Vermont		✓	✓			
Washington	✓	✓	✓			
Washington DC	✓	✓	✓	✓	✓	✓

Chart based on information from <http://slati.lungusa.org> and text from the individual states' laws.

## Notes

- 1 Centers for Disease Control and Prevention (CDC). "Annual Smoking—Attributable Mortality, Years of Potential Life Lost, and Productivity Losses — United States, 1997–2001," *MMWR Morb Mortal Wkly Rep* 2005; 54(25):625–628.
- 2 Mackay J, Eriksen M, Shafey O. "The Tobacco Atlas (2006)." 2nd ed. American Cancer Society, 2006.  
<http://www.tobaccoresearch.net/atlas.htm>
- 3 CDC. Cigarette smoking among adults—United States, 2004. *MMWR Morb Mortal Wkly Rep* 2005;54(44):1121-1124.
- 4 Asfar T, Ward KD, Eissenberg T, Maziak W. "Comparison of patterns of use, beliefs, and attitudes related to waterpipe between beginning and established smokers." *BMC Public Health* 2005 Feb 25;5:19.
- 5 Chaouachi K, "Narghile: A Socio-Anthropological Analysis. Culture, Conviviality, History and Tobaccology of a Popular Use of Tobacco." (Paris X University, 420 pages) excerpts from English translation at (<http://www.sacrednarghile.com>).
- 6 Chaouachi K, "Narghile: A Socio-Anthropological Analysis. Culture, Conviviality, History and Tobaccology of a Popular Use of Tobacco." (Paris X University, 420 pages) excerpts from English translation at (<http://www.sacrednarghile.com>).
- 7 Maziak W, Ward KS, Afifi Soweir, RA, Eissenberg T. "Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic," *Tob Control* 2004; 13: 327-333.
- 8 Shihadeh, A. "Investigation of mainstream smoke aerosol of the argileh water pipe." *Food Chem Toxicol*, 2003 Jan; 41(1):143-52.
- 9 Shafagoj YA, Mohammed FI, Hadidi.KA. "Hubble-bubble (water pipe) smoking: levels of nicotine and cotinine in plasma, saliva and urine," *Int J of Clin Pharmacol Ther* 2002 Jun;40(6): 249-55.
- 10 World Health Organization. WHO Advisory Note: "Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators," WHO 2005.
- 11 Knishkowsky B and Amitai Y. "Water-Pipe (Narghile) Smoking: An Emerging Health Risk Behavior," *Pediatrics* 2005 Jul; 116(1): e113-119.
- 12 World Health Organization. WHO Advisory Note: "Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators," WHO 2005. See also: Shihadeh A. Investigation of Mainstream Smoke Aerosol of the Argileh Water Pipe. *Food Chem Toxicol*, 2003 Jan;41:143-52; Shihadeh A., Saleh R. Polycyclic Aromatic Hydrocarbons, Carbon Monoxide, "Tar," and Nicotine in the Mainstream Smoke Aerosol of Narghile Water Pipe, *Food Chem Toxicol* 2005 May;43(5):655-61.
- 13 Maziak W, Ward KS, Afifi Soweir, RA, Eissenberg T. "Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic," *Tob Control* 2004; 13: 327-333.
- 14 World Health Organization. WHO Advisory Note: "Waterpipe Tobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators," WHO 2005.
- 15 Knishkowsky B and Amitai Y. "Water-Pipe (Narghile) Smoking: An Emerging Health Risk Behavior," *Pediatrics* 2005 Jul; 116(1): e113-119.
- 16 Rice VH, Weglicki LS, Templin T. "Predictors of Arab American Adolescent Tobacco Use." *Merrill Palmer Q* 2006 Apr;52(2):327-342.
- 17 Varsano S, Ganz I, Eldor N, Garenkin M. "Water-pipe tobacco smoking among school children in Israel: frequencies, habits, and attitudes," *Harefuah* 2003 Nov; 142(11) 736-41, 807. Hebrew.
- 18 Asfar T, Ward KD, Eissenberg T, Maziak W. "Comparison of patterns of use, beliefs, and attitudes related to waterpipe between beginning and established smokers." *BMC Public Health* 2005 Feb 25;5:19.
- 19 This assessment is based on a count of the number of articles published in major metropolitan newspapers and opening dates of a sampling of establishments in major U.S. cities as of August 2006.
- 20 Information obtained by a telephone poll of several U.S.-and Canadian-based distributors as to start of business conducted in July 2006.
- 21 O'Malley M. *Hookah Smoke Links Cleveland To Mideast / Arabs breathe life into old customs*. Cleveland (OH) Plain Dealer, September 10, 2000 and Miller, K. *Hookah bar replaces cigar bar as new tobacco-driven hangout*. Knight Ridder News Service. July 15, 2005.
- 22 Information based on lists of bars/cafés in major cities business listings including [www.hoovers.com](http://www.hoovers.com) and the Better Business Bureau at <http://www.bbb.com> and state-by-state list on three different hookah-related community sites as of August 2006.
- 23 Delaware Statutes, Title 16, Ch. 29 §2901 (11). (2002).
- 24 California State Labor Code §6404.5 9 (d)(4)(b) (1994).
- 25 Rhode Island General Laws, Title 23, Chapter 20.10-2 (11) (2004).
- 26 Massachusetts General Laws Chapter 270, §22. (2004).
- 27 Language taken directly from each state's law.
- 28 Weiss, Eric M., *DC Smoking Ban Approved*. Washington Post, January 5, 2006.
- 29 Koch, Wendy, *Hookah trend is puffing along*. USA Today, December 28, 2005.
- 30 American Lung Association of California. "Dublin City Council Bans Hookah Bars," *Breath Matters*, 12/30/05 No. 130. <http://www.californialung.org/ALAC/enews0511.html>
- 31 American Lung Association, "Tobacco Policy Trend Alert: From Joe Camel To Kauai Kolada—The Marketing Of Candy-Flavored Cigarettes" Updated May 2006. <http://www.lungusa.org/atf/cf/{7A8D42C2-FCCA-4604-8ADE-7F5D5E762256}/candyreport.pdf>

Production of this report is supported in part by a grant from the Robert Wood Johnson Foundation in Princeton, New Jersey.

---

Beginning its second century, the American Lung Association works to prevent lung disease and promote lung health. Lung diseases and breathing problems are the leading causes of infant deaths in the United States today, and asthma is the leading serious chronic childhood illness. Smoking remains the nation's leading preventable cause of death. Lung disease death rates continue to increase while other leading causes of death have declined.

The American Lung Association has long funded vital research on the causes of and treatments for lung disease. It is the foremost defender of the Clean Air Act and laws that protect citizens from secondhand smoke. The Lung Association teaches children the dangers of tobacco use and helps teenage and adult smokers overcome addiction. It educates children and adults living with lung diseases on managing their condition. With the generous support of the public, the American Lung Association is "Improving life, one breath at a time."

For more information about the American Lung Association or to support the work it does, call 1-800-LUNG-USA (1-800-586-4872) or log on to [www.lungusa.org](http://www.lungusa.org).



*Improving Life, One Breath at a Time*