

Hookah: How dangerous is it?

SOT Issue Statement

Since the Surgeon General's first report on smoking, concerted efforts to reduce the impact of tobacco on human health have been undertaken. Over the past 50 years, there has been a significant decline in the use of cigarettes in the US. However, many people are turning to alternative tobacco products, such as hookah water pipes, and recent studies indicate that the use of hookah is rapidly increasing among adolescents and young adults^{4 16 23}. This practice is particularly concerning, as research suggests that hookah use may actually be as addictive and harmful as cigarette use^{19 25}.

To use a hookah water pipe, flavored tobacco called shisha, is placed in a bowl and covered with a screen upon which charcoal combustion occurs. Air is drawn through the charcoal and shisha to produce vapors and smoke, which is bubbled through water before it is inhaled. Potential health effects from smoking shisha are not fully understood, but there are many factors that could impact the health of hookah users or those unintentionally exposed, including the inhaled smoke and vapors; secondhand smoke and its vapors⁶; and the emissions generated from the smoldering charcoal which produces high levels of carbon monoxide and metals⁴. Some of these products, such as the smoke and charcoal emissions, may pose health hazards to individuals present during hookah smoking even if they are not smoking themselves. In addition, workers in hookah bars may be subjected to prolonged exposure to these emitted chemicals, which could lead to a variety of health concerns²⁶. Beyond tobacco-based shisha, "herbal" shisha products are also sold for hookah use and, despite the lack of tobacco, have been shown to have toxic byproducts equivalent or greater than those produced by tobacco shisha⁹.

Hookah water pipes represent a different way to smoke tobacco, but carry with them many of the same health concerns associated with cigarette smoking^{10 11 24}. In fact, research has shown that a single water pipe session, which is usually between 45 and 60 minutes long⁴, can equate to smoking about 10 or more cigarettes¹⁹; yield greater levels of nicotine, tar, and carbon monoxide than conventional cigarettes^{7 18}; and, in general, lead to the inhalation of about 90,000 mL volume of smoke, which is substantially more smoke than from one cigarette (500–600 mL)⁴. Smoking tobacco-based shisha generates carcinogens, such as benzene¹², and has been linked to lung cancer¹⁴. Loss of lung function is seen in hookah smokers when compared to non-smokers³ and volunteers exposed to hookah smoke exhibit lung function and heart rate changes⁸. This study showed that hookah smoking was associated with similar peak plasma nicotine levels, greater

blood carbon monoxide levels, and much greater inhaled smoke volume compared to cigarette smoking. Hookah smoking also has been linked with women delivering babies of lower birth weight²¹.

Despite potential health concerns, users perceive hookah as a safer and less addictive alternative to cigarettes¹⁶ and the user group includes an increasing proportion of younger users, such as high school and university students^{4 1 20 15}. Alternative tobacco products are not subject to the same regulations as cigarettes. For example, the US does not currently have federal tobacco control policies that limit water pipe access by minors or require visible warning labels on water pipe products¹⁷. While a growing number of local communities and states are adopting wide-ranging clean indoor air laws, in some areas, hookah bars can claim exemption from these ordinances. These exceptions to regulations occur even though higher levels of carbon monoxide have been found in hookah bar patrons than in those visiting traditional bars where cigarette smoking occurs.

To help inform policymakers and the public of the potential health effects associated with hookah use, studies are needed to define the effects of hookah use on the smokers themselves as well as nonsmokers. Findings on the composition of indoor air where hookah is smoked will serve to better define the exposure levels in hookah bars. This is needed to enhance discussion of exposure levels as well as to provide a target measurement for possible reductions in key emissions. In addition, more complete assessments of the risk of adverse health effects of active hookah use and secondhand hookah smoke exposure, including measurement of exposure to carcinogens and toxins¹⁵, as well as the potential for damaging DNA^{22 13}, are needed. Toxicology, the study of adverse effects of substances on living organisms, can help provide a framework to fully define the health consequences of hookah use. Such information will allow for the development and implementation of science-based policies.

The misconception of many that hookah smoking is a healthier alternative to cigarettes is concerning. Given the current evidence of potential harm, scientists need to provide the public and policymakers with information so that informed decisions can be made regarding hookah use.

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