

### **Risks of shisha tobacco smoking through a hookah (water-pipe)**

On September 6, 2011, Dr. Bob Rolfs on behalf of Senator Howard Stephenson, made an inquiry to the Environmental Epidemiology Program (EEP) in regards to the comparative health risk of tobacco smoke inhalation/second hand smoke via cigarette vs. hookah (water-pipe). To that end, the EEP finds the following:

Based on existing data that quantifies carbon monoxide (CO), “tar”, carcinogenic polyaromatic hydrocarbons (PAH), and nicotine content of mainstream (MS) tobacco smoke; hookah-derived smoke is at least equivalent to tobacco smoke derived from a cigarette (Shihadeh & Saleh, 2005). Furthermore, direct human subject data indicates that exhaled CO and blood carboxyhemoglobin (COHb) are three times higher when smoking a hookah versus a cigarette and peak blood nicotine content is comparable between the two forms of smoking (Eissenberg & Shihadeh, 2009).

Studies have also been performed to determine the comparative hazards of second hand cigarette smoke vs. hookah smoke. Second hand smoke is a combination of side stream (SS) and exhaled mainstream (e-MS) smoke. SS tobacco smoke (the passive smoke emitted from the device) from a single hookah use contains four times the PAH, four times the volatile aldehydes, and 30 times the CO and more than twice the amount of ultra-fine particles (UFPs) as a single cigarette (Daher et al.). Accounting for e-MS, and assuming a habitual smoker consumes two cigarettes per hour, the second hand smoke generated by one hookah use generates ambient carcinogens and toxicants equivalent to 2-10 cigarette smokers (WHO, 2005) (Daher et al.).

Taking together the hazards to the smoker through direct inhalation and the hazards to the non-smoker due to second hand smoke, the EEP finds that the act of smoking tobacco through a hookah is of equivalent if not greater hazard than cigarette smoking.

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## References

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