

Presentation Title	Place in Schedule
Carbon Monoxide Exposure Levels in Hookah Bar Establishments	Poster Session <i>Day 2 – Wednesday – May 9th, 2018</i> <i>8:30am-9:30am</i>
Description of Presentation	Presenter Name(s) And Credentials
<p>Statement of the problem: Hookah smoking is a social form of tobacco smoking that continues as a public health threat. The constituents of hookah smoke derived from waterpipe use include a higher content of nicotine, tar, carbon monoxide(CO), volatile organic compounds, and polycyclic aromatic hydrocarbons (PAH) compared to traditional cigarette smoking. CO is extracted during the incomplete combustion of charcoal. The CO binds to hemoglobin with an affinity 243 times greater than oxygen. The oxygen carrying capacity of the blood is substantially reduced by the binding of CO to hemoglobin and prevents the transportation of oxygen throughout the body, leading to tissue hypoxia.</p> <p>Methods: Carbon monoxide measurements were conducted with a Digital Carbon Monoxide Detector that measures CO concentration from 0 to 1,000 ppm. Two readings of CO and maximum CO measurements were taken every half hour over a 4-hour period, for a total of 8 measurements in ten hookah bar establishments.</p> <p>Results: Data was analyzed using SPSS Statistics Software 21.0. Descriptive analyses were conducted using the mean, standard deviation, 90% confidence intervals, and interquartile ranges of the distributions. Half of the bars had intermittently opened one or more of their doors for ventilation throughout the visit. Only four of the bars had one or more ventilation machines and another claimed that their ventilation system was not working properly that evening. The average number of active water pipe smokers among all bars was 13.2 with a standard deviation of 9.6 patrons. The overall mean (standard deviation) of the ten</p>	<p>Mary Martinasek, PhD <i>University of Tampa</i></p>

bars was 45.4 (34.0) ppm with a median (interquartile range) of 39.0 (20-64.8) ppm. Eight of the ten bars had a mean

concentration greater than 20 ppm, with 7.6 ppm as the lowest mean concentration and 80.3 ppm as the highest mean

2

concentration. Nine of the ten bars reached a maximum concentration that was over 20 ppm within duration of air sampling. The

maximum concentration was extremely high at 158 ppm.

Conclusions: Hookah bar carbon monoxide levels should be regulated to ensure worker safety. Priming of hookah pipes and air

quality provides for sub-standard working conditions and puts workers at risk for carbon monoxide toxicity.