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**To:** Chairwoman Landwehr and members of the House Health and Human Services Committee

**From:** Rachel Smit, Caitlin McMurtry, and Cheng-Chung Huang, Kansas Health Institute

**Date:** February 15, 2010

**Re:** Information requests from February 10<sup>th</sup> hearing on HB 2642

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Thank you again for the opportunity to provide testimony on HB 2642 at the hearing last Wednesday. The Committee made three requests of KHI for additional information. In particular, the Committee was interested in:

- 1) The impact of secondhand smoke on the health of bar workers
- 2) The effectiveness of separately ventilated rooms/ventilation systems on reducing secondhand smoke exposure
- 3) The economic impact of statewide smoking bans on casinos

Additional information about each of these topics is provided below. Please do not hesitate to contact us at 785-233-5443 if you have any additional questions about this information or other topics of interest.

### **1) The impact of secondhand smoke on bar workers**

*“[T]he levels of secondhand smoke ... in bars were 3.9 to 6.1 times higher than in typical office settings and 4.4 to 4.5 times higher than in homes with at least one smoker.” (U.S. Surgeon General 2006)*

Rep. Furtado asked about studies that examine the particular impact of secondhand smoke on the health of workers in bars. Bar workers represent a population that is particularly vulnerable to secondhand smoke because they may be exposed for long periods to high concentrations of secondhand smoke. And as we noted in our previous testimony, even brief exposure to secondhand smoke has “adverse consequences for the heart, blood, and blood vessels.”<sup>1</sup>

In 2006, the U.S. Surgeon General released a report titled “The Health Consequences of Involuntary Exposure to Tobacco Smoke.”<sup>2</sup> The report summarizes the scientific literature about secondhand smoke and policies to control secondhand smoke. The report noted that, “the levels of secondhand smoke in restaurants were 1.6 to 2.0 times higher than in offices and 1.5 times higher in homes with at least one smoker. Levels in bars were 3.9 to 6.1 times higher than in typical office settings and 4.4 to 4.5 times higher than in homes with at least one smoker.”

Studies that measure exposure to nicotine in the air have recorded a maximum exposure among bartenders as 100 micrograms per cubic meter, which is 12.5 times greater than the exposures recorded in homes that the report identified as among the nation’s smokiest (8 micrograms of nicotine per cubic meter).

While bar workers are at risk for all of the diseases associated with secondhand smoke exposure, most studies examining the health of bar workers as a subpopulation look at respiratory health as opposed to cardiovascular health. In particular, a number of studies have documented significant improvements in respiratory health among bar workers immediately after a smoking ban.<sup>3,4,5,6</sup>

## **2) The effectiveness of separately ventilated rooms/ventilation systems on reducing secondhand smoke exposure**

*“Although complete separation and isolation of smoking rooms can control secondhand smoke exposure in non-smoking spaces in the same building, adverse health effects for the occupants of the smoking room cannot be controlled by ventilation.” The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE 2005)*

Rep. Quigley asked about the effectiveness of separately ventilated rooms and ventilation systems on reducing secondhand smoke exposure. In addition to allowing certain establishments to become smoking facilities, HB 2642 allows an exemption from the smoking ban for any physically separate smoking area in a food service establishment, class A club, class B club, casino, or drinking establishment. “Physically separated” is defined in the bill as “all space between a floor and ceiling which is enclosed on all sides by solid walls or windows, exclusive of a door or passageway, which is independently ventilated from smoke-free areas, so that air within permitted smoking areas does not drift or get vented into smoke-free areas.”

In the Surgeon General’s report referenced previously, the authors arrive at two conclusions relevant to a discussion of physically separate smoking areas:

- 1) “The scientific evidence indicates that there is no risk-free level of exposure to secondhand smoke.”
- 2) “Establishing smoke-free workplaces is the only effective way to ensure that secondhand smoke exposure does not occur in the workplace.”

Smoke-free policies are the only way to completely protect both smokers and non-smokers from secondhand smoke exposure.<sup>7</sup> However, the report also states that, “with separate rooms and physical barriers, air supply and exhaust routes can be designed to more effectively isolate impacts.” In particular, the report states that, “specially designed smoking areas inside a building can effectively isolate secondhand smoke, but effectiveness depends on engineering design and on high volume exhaust separated from the main AHU [Air Handling Unit] to maintain a negative pressure within the physically isolated area. Mechanical air cleaning has not been sufficiently effective to permit exhaust air, transported or leaked air from a designated smoking area, or air from a physically separated smoking room or lounge to be remixed with ventilation air.”

In other words, specially designed smoking areas can isolate smoke from nonsmoking areas, but only when the rooms do not allow any secondhand smoke to escape. When the door to the room is opened, a negative pressure must be maintained so that air does not flow out of the room. Air leaving these rooms cannot be effectively filtered, so it cannot be allowed to enter the ventilation systems used for the nonsmoking areas. The report concludes, “the only effective controls that eliminate exposures of nonsmokers are the complete physical isolation of smoking areas with separate air exhausts or a total smoking ban within the structure.”

While *properly designed* physically separated smoking areas can be effective in isolating secondhand smoke from other areas of a building, the Surgeon General’s report also points out that, “employees may not have the same options as patrons to avoid exposure, particularly if their work activities require them to enter designated smoking areas.” Therefore, a physically separated smoking area does not protect all nonsmokers from exposure.

Among smokers, exposure to secondhand smoke can be more concentrated in a physically separated smoking area: one study of an office building that restricted smoking to a snack bar on one floor found that, “Smokers using the designated area were themselves subject to levels that were 1,800 times higher than the typical office nicotine levels before the new smoking policy took effect.”<sup>8</sup>

### **3) The economic impact of statewide smoking bans on casinos**

*The evidence that a statewide smoking ban will negatively affect casino revenue is mixed.*

Chairwoman Landwehr asked for documentation of the information provided to the committee about the impact of a statewide smoking ban on casinos. The evidence for the impact of a statewide smoke-free law on casinos is mixed, with two recent studies finding a negative impact<sup>9,10</sup> and one study finding no impact.<sup>11</sup> All three studies examined the effect of Delaware’s statewide smoking ban on the three *racinos*, or racetrack casinos, in the state. Thalheimer and Ali (2008) estimate that the smoking ban reduced “handle” (wagering) at racino slot machines by 15.9%.

## References

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<sup>1</sup> U.S. Department of Health and Human Services. (2006). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

<sup>2</sup> U.S. Department of Health and Human Services. (2006). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

<sup>3</sup> Menzies et al. (2006) Respiratory symptoms, pulmonary function, and markers of inflammation among bar workers before and after a legislative ban on smoking in public places. *Journal of the American Medical Association*. 296(14): 1742 – 8.

<sup>4</sup> Goodman et al. (2007). Effects of the Irish smoking ban on respiratory health of bar workers and air quality in Dublin pubs. *American Journal of Respiratory and Critical Care Medicine*. 175(8):840-5.

<sup>5</sup> Dimich-Ward, H, Lawason J., Chan-Yeung, M. (1998) Work shift changes in lung function in bar workers exposed to environmental tobacco smoke. *American Journal of Respiratory and Critical Care Medicine*. 157:A505.

<sup>6</sup> Skogstad, M. et al. (2006). Cross shift changes in lung function among bar and restaurant workers before and after implementation of a smoking ban. *Occupational and Environmental Medicine*. 63:482-487.

<sup>7</sup> American Society of Heating, Refrigerating and Air-Conditioning Engineers. (2005) *Environmental Tobacco Smoke: Position Document*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers.

<sup>8</sup> Vaughan, WM and Hammond, SK. (1990) Impact of “designated smoking area” policy on nicotine vapor and particle concentrations in a modern office building. *Journal of the Air & Waste Management Association*. 40(7):1012–7.

<sup>9</sup> Pakko, M. (2008). No smoking at the slot machines: the effect of a smoke-free law on Delaware gaming revenues. *Applied Economics*. 40(14): 1769-1774.

<sup>10</sup> Thalheimer, Richard and Ali, Mukhtar M. (2008). The demand for casino gaming with special reference to a smoking ban. *Economic Inquiry*. 46(2): 273-282.

<sup>11</sup> Mandel LL, Alamar BC, and Glantz SA. (2005) Smoke-free law did not affect revenue from gaming in Delaware. *Tobacco Control*. 14: 10-12.