TOBACCO SURVEILLANCE & EVALUATION PROGRAM
UNIVERSITY OF WISCONSIN COMPREHENSIVE CANCER CENTER

Program Brief

Madison Bartenders Baseline Survey

Preliminary Findings – Brief Report

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Abstract:

This report presents the findings from the first part of a longitudinal study designed to assess the health and attitudes of bartenders before and after the implementation of a smoke-free workplace ordinance in Madison, Wisconsin. The baseline survey results reveal that among non-smokers, bartenders that work in establishments where smoking is allowed are significantly more likely to experience five of eight upper respiratory symptoms assessed (cough first thing in the morning, cough during the rest of the day and night, red or irritated eyes, runny nose, nose irritation, or sneezing, and sore or scratchy throat) compared to bartenders that work in smoke-free establishments. These findings remained significant in multiple logistic regression analyses, after controlling for age and gender differences. For smokers, differences were not statistically significant. Attitudes towards allowing smoking in bars differed by type of establishment, and by smoking status of the bartender. Among both smokers and non-smokers, bartenders were more likely to feel that smoking should be allowed in bars that are not restaurants (bars/taverns) than in bars that are also restaurants (restaurant/bars). Smokers were more likely to feel that smoking should be allowed in both types of establishments when compared to non-smokers. The

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majority of bartenders reported that exposure to secondhand smoke presents some level of health risk, with non-smokers perceiving it as a greater health risk compared to smokers.

Introduction:

The purpose of the study is to assess the health and attitudes of bartenders in relation to secondhand smoke exposure in the workplace, both before and after the establishment of a smoke-free workplace ordinance. Accordingly, a survey was conducted during the two months prior to the ordinance, and will be repeated after the ordinance has been in place for two full months. Preliminary findings from the baseline (pre-ordinance) data are presented here.

Methods:

The baseline survey was conducted by the University of Wisconsin Survey Center (UWSC), under the direction of the University of Wisconsin Tobacco Surveillance and Evaluation Program and the Wisconsin Tobacco Prevention and Control Program. The sampling frame for this study included all individuals in Madison currently licensed to sell alcoholic beverages (n=2,405); this list was obtained from the Madison City Clerk. Data were collected using a 4-page, self-administered mail questionnaire. The questionnaire included a statement that instructed only recipients who were actually tending bar at the time of the survey to complete the questionnaire. Other recipients of the mailing (i.e., those working in liquor stores or convenience stores) were instructed to indicate that they were not working as a bartender, and return the questionnaire in the postage-paid envelope provided without completing the remaining questions. Questionnaires were mailed out on April 25, 2005, and had to be completed prior to establishment of the ordinance which occurred on July 1, 2005. Using the number of licensees with good addresses as a denominator, the final adjusted response rate for the survey was 60.1%.

The survey design consisted of three mailings: two full mailings including a cover letter, a survey, a $2 incentive (included in the first mailing only) and a return business-reply envelope; and one reminder postcard mailing.

Dates for the mailings:

	Type of Mailing	**Date Sent**
1st Mailing	Full Mailing	April 25, 2005
2nd Mailing	Postcard Reminder	April 29, 2005
3rd Mailing	Full Mailing	May 23, 2005

Preliminary Findings - Baseline Survey

Sample characteristics are presented in Table 1. Descriptives are included for those respondents that returned the survey and are currently working as bartenders within the city limits of Madison (n=693). The participating sample ranged from 19 to 80 years of age (mean = 34.7, median = 32.0), was 47.3% female, 94.5 % White, and 1.9% Hispanic. 1.7% of the participants had less than a high school education, 15.9% had a high school diploma or GED, 39.7% had completed some college while 11.1 % had an associate's degree, 26.7% had a bachelor's degree, and 4.6% had obtained a professional or graduate level of education. Number of months working at the "current bar" ranged from 1 to 480, (mean = 64.3, median = 36.0), and bartenders reported working from 1 to 70 hours per week (mean = 24.5, median = 23.0). 44.4 percent of the sample were current smokers, with level of consumption ranging from 1 to 80 cigarettes per day (mean = 13.1, median = 10.0).

Table 2 displays the ranges and mean estimates of exposure to secondhand smoke in the home, at work, and other places. Exposure was assessed in the number of hours exposed during the past 7 days. Outliers were truncated at the sample 99th percentile (those subjects that reported an extra-ordinarily high number of hours were assigned the value at which 99% of the sample fell at or below). Exposure to secondhand smoke in the home ranged from 0 to 60 hours (mean = 3.3), at work it ranged from 0 to 60 hours (mean = 19.4), and in other places it ranged from 0 to 50 (mean = 7.5).

Respondents were also asked to report how often they experienced a number of upper respiratory symptoms over the past 4 weeks. Data were dichotomized (collapsed into yes/no categories) for these analyses. The percentage of all bartenders that reported having experienced each of the eight symptoms, shown in the third column in Table 3, ranges from 38.4% for wheezing or whistling in the chest, to 71.3% for runny nose, nose irritation, or sneezing. The data were further analyzed by smoking status of the bartenders. Smokers (column 1) were more likely to report having experienced five of the symptoms (wheezing or whistling in the chest, shortness of breath, cough first thing in the morning, cough during the rest of the day and night, and coughing up phlegm). Non-smokers (column 2) were more likely to report the other three symptoms (red or irritated eyes, runny nose, nose irritation, or sneezing, and sore or scratchy throat).

Analyses were conducted to examine whether working in a bar where smoking is allowed has an impact on upper respiratory symptoms. Bartenders that work in smoke-free establishments were compared to those working in businesses where smoking is allowed. To control for smoking status of the bartender, separate analyses were conducted. The first and second columns in Table 4a display the percentage of non-smokers that reported experiencing each symptom relative to type of establishment (smoking allowed vs. smoke-free). The third column shows the crude relative risk (the ratio of the percentage of bartenders working where smoking is allowed that report the symptom, to the percentage of bartenders working in smoke-free establishments that report the symptom). A greater percentage of bartenders working where smoking is allowed reported experiencing each symptom compared to those that work in smoke-free establishments. The crude relative risks range from 1.27 for coughing up phlegm to 1.70 for coughing first thing in the morning.

Further analyses were conducted using multiple logistic regression, controlling for the age and gender of the respondents. Bartenders working in establishments where smoking is allowed were significantly more likely to report experiencing five of the eight symptoms assessed during the past 4 weeks (cough first thing in the morning, cough during the rest of the day and night, red or irritated eyes, runny nose, nose irritation, or sneezing, and sore or scratchy throat). For example, the odds of experiencing a cough first thing in the morning was nearly two and one-half times greater for non-smoking bartenders that worked in a bar where smoking is allowed (OR = 2.48, p=.008) than for those that work in smoke-free establishments.

Table 4b presents findings derived from the parallel analyses for those bartenders who reported being current smokers. A greater percentage of these bartenders working where smoking is allowed reported cough first thing in the morning, coughing up phlegm, runny nose, nose irritation, or sneezing, and sore or scratchy throat. In contrast, wheezing or whistling in the chest, shortness of breath, cough during the rest of the day and night, and red or irritated eyes was reported by a greater percentage of those bartenders working in smoke-free establishments. However, the multiple regression analyses suggest there are no significant differences between these two groups.

Respondents were asked whether they thought smoking should be allowed in bars that are also restaurants (restaurant/bars), and in bars that are not restaurants (bars/taverns). The percentage of all bartenders answering "Yes" to each question are presented in the third column of Table 5. Overall, 43.4% of all bartenders said they thought smoking should be allowed in bars that are also restaurants, while 66.5% said they thought it should be allowed in bars that are not restaurants. However, when examining the data relative to bartender smoking status, smokers are more likely to feel that smoking should be allowed in each type of establishment compared to non-smokers (61.4% vs. 29.3%, and 88.0% vs. 49.2%, respectively).

Finally, respondents indicated on a scale from 1 to 5, how great of a health risk they think secondhand smoke presents, with "1" representing "no risk at all" and "5" indicating "extremely serious risk". The mean score for all bartenders was 3.4, while smokers were somewhat less likely to think secondhand smoke is harmful (mean = 3.0) than non-smokers (mean = 3.7). The distribution of responses for smokers and non-smokers are displayed in Figure 1. Almost 60 percent of non-smokers feel that secondhand smoke is a fairly serious health risk (scores of 4 and 5), compared to about 27% of smokers. Yet, the majority of smokers (91.4%) do feel that secondhand smoke poses at least some level of risk (scores of 2 and greater).

Limitations

The generalizability of these findings to all bartenders in Madison is limited. While the survey resulted in an adequate response rate, it is not known how many of the individuals that did not return the questionnaire are working as bartenders. In addition, the sample size for the bartenders working in smoke-free establishments is quite small in comparison to those that work where smoking is allowed. In particular, only 17 of the bartenders that reported being smokers were working in smoke-free establishments at the time of the survey.

The multiple regression analyses did not control for asthma or chronic obstructive pulmonary disease (COPD). Analyses reveal that 13.0% of the bartenders report having asthma and 4.5% report having COPD (data not shown). Further, approximately 90% of these individuals worked in bars where smoking was allowed at the time of the survey. Future analyses can control for these factors.

The study did not assess the prevalence of allergies in the sample; however, findings based on data from the third National Health and Nutrition Examination Survey (NHANES III) show that 54.3% of individuals aged 6-59 years old had a positive skin test response to at least one of the 10 allergens tested[1]. Given the high prevalence of allergies in the general population, it is likely that equally high percentages of bartenders in both groups (those working in bars where smoking is allowed and in smoke-free bars) would have some type of allergy.

The format for the opinion question on whether smoking should be allowed in bars (with and without restaurants) may have elicited a very different response if asked in a manner by which respondents could distinguish between totally smoke-free establishments and allowing smoking in some areas. However, the questions were asked in a manner that can be directly compared to a previously conducted study by Eisner et al.[2].

Conclusions

In general, the findings presented here suggest bartenders that work in bars where smoking is allowed are more likely to experience upper respiratory symptoms. In particular, among bartenders that are non-smokers, those who work in the presence of secondhand smoke are significantly more likely to report having five of the eight symptoms assessed, after controlling for age and gender. Further, analyses revealed that the surveyed bartenders are most likely to be exposed to secondhand smoke while working, compared to other places or in the home. Accordingly, consideration should be given to the health implications of working in an environment where smoking is allowed, such as a bar.

Forty-three percent of the bartenders felt that smoking should be allowed in bars that are also restaurants, and 67% said they thought it should be allowed in bars that are not restaurants. However, the percentages change considerably when the sample is stratified by smoking status, with 88% of smokers and 49% of non-smokers believing smoking should be allowed in bars that are not restaurants (bar/taverns), and 61% of smokers and 29% of non-smokers stating that is should be allowed in bars that are also restaurants (bar/restaurants).

The vast majority of bartenders surveyed do perceive exposure to secondhand smoke as presenting some level of health risk. Again, the level of threat differs by smoking status of the bartender, with non-smokers perceiving it as a greater risk than smokers.

Acknowledgements:

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References:

1. http://allergies.about.com/od/research/a/blnih080405.htm
2. Eisner MD, Smith AK, Blanc PD. Bartenders' respiratory health after establishment of smoke-free bars and taverns. *JAMA*. 1998;280:1909-1914.

Table 1. Sample Characteristics

Bartenders working w/in city limits (#)	693
Age (years)	
Range	19-80
Mean	34.7
Median	32.0
Gender (%)	
Female	47.3
Race/Ethnicity (%)	
White	94.5
Hispanic	1.9
Education (%)	
Less than high school	1.7
High school diploma/ GED	15.9
Some college (no degree yet)	39.7
Associate's degree	11.1
Bachelor's degree	26.7
Graduate or professional degree	4.6
Months bartending at current bar (#)	
Range	1-480
Mean	64.3
Median	36.0
Hours work in current bar (# per week)	
Range	1-70
Mean	24.5
Median	23.0
Current Smoker (%)	44.4
Cigarettes smoked per day (#)	
Range	1-80
Mean	13.1
Median	10.0

Table 2. Level of Exposure to Secondhand Smoke at Home, Work, and Other Places

Secondhand Smoke Exposure (past 7 days)	Hours
Home	
Range	0-60
Mean	3.3
Work	
Range	0-60
Mean	19.4
Other	
Range	0-50
Mean	7.5

Table 3. Upper Respiratory Symptoms, by Bartender Smoking Status

	Percent "Yes"		
Upper Respiratory Symptoms (past 4 weeks)	**Smokers (n=308)**	**Non-Smokers (n=382)**	**All (N=693)**
Wheezing or whistling in chest	46.5	32.8	38.4
Shortness of breath	55.4	40.6	46.8
Cough first thing in the morning	60.3	43.4	50.2
Cough during the rest of the day/night	61.5	49.5	54.1
Cough up any phlegm	63.6	49.9	55.3
Red or irritated eyes	57.6	69.8	63.8
Runny nose/irritation, sneezing	67.9	74.3	71.3
Sore or scratchy throat	60.7	61.2	60.5

Table 4a. Upper Respiratory Symptoms of Madison Bartenders in Relationship to Smoking Status of Bar (Non-Smokers; n=381)

Symptom	Percent "Yes"		Crude Relative Risk	Odds Ratio*	p-value*
	Smoking is allowed (n=328)	Smoking not allowed (n=53)			
Wheezing or whistling in chest	34.0	26.4	1.29	1.25	.521
Shortness of breath	42.1	32.1	1.31	1.56	.172
Cough first thing in the morning	45.8	26.9	1.70	2.48	.008
Cough rest of the day or night	51.7	34.6	1.49	2.06	.025
Cough up phlegm	51.5	40.4	1.27	1.71	.101
Red or irritated eyes	73.8	44.2	1.67	4.72	.000
Runny nose, sneezing, irritation	77.7	52.8	1.47	3.41	.000
Sore or scratchy throat	63.8	46.2	1.38	2.56	.005

*** Controlled for age and gender in multiple logistic regression analyses**

Table 4b. Upper Respiratory Symptoms of Madison Bartenders in Relationship to Smoking Status of Bar (Smokers; n=308)

Symptom	Percent "Yes"		Crude Relative Risk	Odds Ratio*	p-value*
	Smoking is allowed (n=291)	Smoking not allowed (n=17)			
Wheezing or whistling in chest	46.1	52.9	.87	.80	.656
Shortness of breath	54.9	64.7	.85	.78	.536
Cough first thing in the morning	60.8	52.9	1.15	1.31	.594
Cough rest of the day or night	61.3	64.7	.95	.83	.718
Cough up phlegm	63.9	58.8	1.09	1.60	.368
Red or irritated eyes	56.9	68.8	.83	.67	.470
Runny nose, sneezing, irritation	68.1	64.7	1.05	1.23	.699
Sore or scratchy throat	61.5	47.1	1.31	1.98	.189

*** Controlled for age and gender in multiple logistic regression analyses**

Table 5. Bartenders' Opinions on Smoking in Restaurant/Bars and Bars/Taverns, and Perceived Health Risk of Exposure to Secondhand Smoke, by Smoking Status

	Smokers (n=308)	Non-Smokers (n=382)	All (N=693)
Should smoking be allowed in restaurant/bars? (% yes)	61.4	29.3	43.4
Should smoking be allowed in bars/taverns? (% yes)	88.0	49.2	66.5
Perceived health risk of secondhand smoke (1 = no risk, 5 = extremely serious risk)			
Range	1-5	1-5	1-5
Mean	3.0	3.7	3.4

Figure 1. Bartenders' Perceived Health Risk of Secondhand Smoke by Smoking Status