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## RESEARCH LETTERS

### Implementation of the Federal Excise Tax on Indoor Tanning Services in Illinois

In July 2010, a 10% federal excise tax on the use of indoor tanning services was implemented as part of the Patient Protection and Affordable Care Act.<sup>1</sup> The tax was intended to be borne by indoor tanning clients to discourage utilization of indoor tanning services because exposure to indoor tanning dramatically increases the risk of developing melanoma.<sup>2-5</sup> The tax code permits tanning salon owners to absorb the tax themselves if they fail to collect it from their clients.<sup>1</sup> Salon owners' fear of losing clients and associated profits may drive cost shifting of the tax, which would hinder attempts at achieving a reduction in consumer demand.

This study sought to determine (1) whether salon owners or clients were paying the tax; (2) what factors influenced the salon owners' decisions to pay the tax or to pass it on to clients; and (3) general attitudes regarding the tanning tax as well as opinions on legislation banning indoor tanning for all minors younger than 18 years.

**Methods.** A database of indoor tanning salons in Illinois was compiled by searching listings of indoor tanning businesses on an online version of the Yellow Pages. Inclusion criteria for the study were as follows: (1) subject willing to answer questions over the telephone; (2) subject 18 years old or older; (3) salon contact information searchable on the Internet; (4) salon offered UV light tanning services; (5) salon located in Illinois; (5) primary service provided by the salon was tanning, or reference to tanning was included in salon name; and (6) salon had a working telephone number. Taxation on tanning services was exempt for salons that existed as part

of a fitness facility<sup>1</sup>; therefore, these salons were excluded from the study.

The location of each salon was defined as *urban* or *rural* using the Office of Management and Budget<sup>6</sup> definition of metropolitan and nonmetropolitan counties, respectively. Median family income for the zip code of the location of the salon was obtained from US Census 2000<sup>7</sup> data. The owners or employees at indoor tanning salons in the state of Illinois reported the approximate number of clients per day (**Table 1**). Additional questions were asked about the tax and the potential tanning ban for minors younger than 18 years (**Table 2**). The institutional review board of Northwestern University deemed this study as qualifying in the exempt category.

For statistical analysis, the categorical variables (number of clients per day, median family income) were recoded to be the category midpoint or the upper or lower limit for open-ended extreme categories. Associations between (1) salons that pay the tax and (2) salons reporting fewer clients since the tax was levied were related to rural or urban status using the Fisher exact test, and to number of clients per day and median family income using the Wilcoxon rank sum test. Responses that were missing or unknown were excluded from the statistical analysis.

**Results.** From the initial Yellow Pages search, 726 salons were identified as potentially meeting inclusion criteria. Of the 726 salons called, 647 met our criteria: 168 rural and 558 urban. A total of 308 salons were surveyed (48%) (Table 1). The response rates for urban and rural salons were similar at 47% and 51%, respectively.

Most salons were collecting the tax from clients (80%) (Table 2). Eighty-four percent of rural salons collected the tax from clients (63 of 75), while 79% of urban salons did so (185 of 233) ( $P = .11$ ). The median number of clients per day was similar at 41 for salons that collected the tax from clients and for those paying the tax ( $P = .17$ ). The median family income was similar at \$51 000

**Table 1. Characteristics of Included Tanning Salons**

| Characteristic   | Salons Surveyed, No. (%) (n = 308) |
|--|------------------------------------|
| Rural/urban location   |                                    |
| Rural  | 75 (24)                            |
| Urban  | 233 (76)                           |
| Median family annual income of zip code where salon is located, year 2000 \$ |                                    |
| ≤40 999  | 26 (8)                             |
| 41 000-60 999  | 163 (53)                           |
| 61 000-80 999  | 73 (24)                            |
| 81 000-100 999   | 18 (6)                             |
| 101 000-120 999  | 4 (1)                              |
| ≥121 000   | 5 (2)                              |
| No information   | 19 (6)                             |
| Clients/d at salon, No.  |                                    |
| 0-10   | 13 (4)                             |
| 11-20  | 29 (9)                             |
| 21-30  | 29 (9)                             |
| 31-40  | 34 (11)                            |
| ≥41  | 200 (65)                           |
| Not sure/no information  | 3 (1)                              |

**Table 2. Survey Results**

| Survey Question  | Respondents, No. (%)<br>(n = 308) <sup>a</sup> |
|--|--|
| Is the salon paying the tax itself or collecting it from clients?                                  |  |
| Salon  | 28 (9)   |
| Clients  | 247 (80)                                       |
| Both   | 22 (7)   |
| Not sure/no information  | 11 (4)   |
| Does the salon inform clients about the tax?   |  |
| Yes  | 274 (89)                                       |
| No   | 28 (9)   |
| No information   | 6 (2)  |
| Do you have fewer clients?   |  |
| Yes  | 78 (25)  |
| No   | 224 (73)                                       |
| No information   | 6 (2)  |
| Do clients come in less frequently?  |  |
| Yes  | 83 (27)  |
| No   | 219 (71)                                       |
| No information   | 6 (2)  |
| Do clients oppose the tax?   |  |
| Yes  | 245 (79.5)                                     |
| No   | 57 (18.5)                                      |
| No information   | 6 (2)  |
| Do clients not seem to care about the tax?   |  |
| Yes  | 239 (78)                                       |
| No   | 63 (20)  |
| No information   | 6 (2)  |
| How does your tanning salon feel about the potential tanning ban for minors younger than 18 years? |  |
| Support it   | 22 (7)   |
| Oppose it  | 210 (68)                                       |
| Not sure/no information provided   | 76 (25)  |

<sup>a</sup>Missing and unknown data points were excluded from analysis.

for salons that collected the tax from clients and for those paying the tax ( $P = .45$ ).

Twenty-four percent of rural salons (18 of 74) reported fewer clients after the tax was implemented, while 26% of urban salons did so (60 of 228) ( $P = .88$ ) (Table 2). The median number of clients per day was similar at 41 for salons that reported fewer clients and for those that did not ( $P = .61$ ). The median family income was similar at \$51 000 for salons that reported fewer clients and for those that did not ( $P = .79$ ).

**Comment.** This study found that the tax on indoor tanning was implemented as it was intended, with most clients paying the tax. Although it was hypothesized that variables including rural vs urban location of the salon, number of clients per day, and median family income of the zip code where the salon was located would influence whether the salon collected the tax from clients or absorbed the tax and if the salon would experience a decline in clients following implementation of the tax, no such associations were found.

The impact of the tax on consumer behavior remains unclear. Only 26% of salons surveyed reported experiencing fewer clients after implementation of the tax, and distinguishing the impact of the tax from the current economic climate as the source of decline was difficult. Furthermore, a large number of respondents (78%) re-

ported that clients did not seem to care about the tax. Research on taxation of tobacco led to the hypothesis that, owing to the limited income of younger clients, a price increase might be a greater deterrent for younger than for older clients<sup>8</sup>; however, this may not be the case for indoor tanning, the utilization of which has steadily increased in the last 2 decades.<sup>9-11</sup> The often female indoor tanners have fair skin and a positive attitude about looking more attractive with a tan.<sup>9,10</sup> Study participants frequently reported that the salon's younger and first-time clients were less likely than its older clients to notice or care about the increased prices resulting from the tax. Taken as a whole, these results may indicate that the demand for indoor tanning services is somewhat inelastic and perhaps insensitive to a 10% tax level.

Further research on how the tax affects individual indoor tanning practices is necessary for future health policy development. If the survey comments about younger clients failing to be influenced by the tax accurately reflect youth tanning practices, stricter teenage bans on indoor tanning may be more effective than taxation at limiting tanning bed utilization.

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## Attitudes Toward Indoor Tanning Among Users of Sunless Tanning Products

Despite primary prevention efforts aimed at reducing exposure to UV radiation (UVR), tanning bed use among women and girls remains high, ranging from 35% to 47% for young women aged 17 to 19 years.<sup>1-3</sup> Rising melanoma incidence rates among women and girls aged 15 to 39 years<sup>4</sup> coupled with high rates of tanning bed use<sup>1,2</sup> call for innovative alternatives such as sunless tanning products (STPs).<sup>5</sup> In the United States, few studies have examined the use of STPs. In a recent national survey of 1600 adolescents, nearly 20% of young women reported STP use in the previous year. Use was high among those with strong tan preferences and was also associated with higher rates of indoor tanning and recent sunburns.<sup>6</sup> In a smaller sample, Sheehan et al<sup>7</sup> found that 73% of STP users had or were planning to decrease their tanning bed use.

We report herein on young women's use of STPs, including lotions, creams, and salon-administered sprays, during the 12 months prior to a survey conducted in the summer of 2007. The purpose of this pilot study was to examine associations between use of STPs and use of tanning beds and to explore differences in tan-promoting attitudes among STP users.

**Methods.** We approached women who appeared to be between the ages of 18 and 40 years on Boston streets and at 2 local university campuses. From counts of respondents and nonrespondents, we estimated that more than 50% of passers-by completed the survey. Exempt approval to conduct this study was provided by the institutional review boards at Boston University Medical Center and the Harvard School of Public Health.

The survey instrument included questions from earlier surveys and new ones developed specifically for this survey.<sup>7,8</sup> The pilot survey included 6 women aged 23 to 31 years. The survey asked for respondent demographic information and how often they had used tanning beds and STPs within the past year. Participants responded to statements addressing tan-promoting attitudes, for example, "It is worth burning to get a tan." They also addressed sun protection practices, exposures, and reasons for sunless tanning (**Table**).

Among STP users, bivariate associations were assessed between measures of attitudes, practices, tanning bed use, and changes in tanning bed use. Proportions were calculated, and differences were assessed using the  $\chi^2$  test. Logistic regression was used to calculate odds ratios (ORs) and 95% CIs.

**Results.** For this report, we restricted our analysis to the 181 women who had used STPs in the previous 12 months (ages ranged from 18 to 38 years, with a median age of 21 years). Among these, 131 used a sunless lotion only (72%); 8 used a spray tan only (4%); and 42 used both types of STPs (23%). Of the 181 respondents, 98 used a tanning bed at least once in the previous 12 months (54%). Of the 98 respondents who used a tanning bed and an STP at any time in the previous 12 months, 40 did not change their tanning bed use while using STPs; 9 increased their tanning bed use; 24 decreased tanning bed use; and 25 stopped using a tanning bed altogether while using STPs.

Among the 49 respondents who maintained or increased their tanning bed use, 43 agreed or strongly agreed with the statement that "people are more attractive if they have a tan" (88%) compared with 28 of the 49 respondents who decreased or stopped tanning bed use (58%) (OR, 5.12; 95% CI, 1.83-14.32) ( $P < .001$ ). Respondents who maintained or increased tanning bed use were more likely to report that they "found it hard not to tan" (OR, 4.51; 95% CI, 1.81-11.28), to state that it was "worth burning to get a tan" (OR, 3.11; 95% CI, 1.01-9.54), and to use sunscreen rarely or never (OR, 10.23; 95% CI, 2.19-47.81). Those respondents who reported that they had decreased or stopped tanning bed use were more likely to use STPs as a substitute for receiving a tan from tanning beds (OR for maintained or increased vs decreased or stopped, 0.34; 95% CI, 0.12-0.96), to use STPs for special occasions (OR, 0.36; 95% CI, 0.15-0.83), and to worry about wrinkles (OR, 0.33; 95% CI, 0.15-0.83) or skin cancer (OR, 0.40; 95% CI, 0.16-1.01) (Table).

**Comment.** Sales of STPs in the United States nearly quadrupled between 2003 and 2008,<sup>9</sup> but, it is unclear whether these products are working to reduce tan-seeking practices. One trial found that STPs helped to decrease rates of sunbathing<sup>10</sup>; however, another study found conflicting results.<sup>11</sup> Neither of these studies reported on STPs' association with tanning bed use. We found that of the 50% of STP users who used a tanning bed at least once in the prior 12 months, and 50% stopped or decreased the use of tanning beds while using STPs. These results leave room for cautious optimism.

Our findings suggest that specific tan-promoting attitudes might predispose particular individuals to use sunless tanners. We found that women who maintained or increased their use of tanning beds were more likely to have stronger tan-promoting attitudes than their counterparts who decreased or stopped such use and were also far more likely to practice other risky sun behaviors such as not using sunscreen. Understanding the foundations of these attitudes may provide direction for ways to reduce adverse UVR exposures.