“Smoking Allowed” — Trends in Policies that Allow Smoking in the Workplace: Wisconsin and the United States

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Acknowledgements

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Executive Summary

A key objective of the *Wisconsin Tobacco Prevention and Control Plan (2006)*\(^1\) is to reduce the percentage of employees reporting that smoking is allowed in some or all work areas to 13%. The purpose of this report is to examine trends in the establishment of workplace smoking policies, as reported by indoor employees in Wisconsin and the United States between 1999 and 2007, and to assess the state’s progress in meeting the aforementioned goal. In addition, the relationships between smoking policies and select employee socio-demographic factors are demonstrated for the state of Wisconsin.

There have generally been two levels at which workplace smoking policies have been evaluated. One level has been to evaluate smoking restrictions in *work areas*—areas where the job is performed. The other has been to evaluate smoking restrictions in *public areas*—common areas that may be shared by employees and patrons, such as dining rooms or lobbies. This report briefly reviews trends in the establishment of Wisconsin and U.S. policies for work areas and public areas separately. More comprehensive analyses examine Wisconsin smoking policies for the entire workplace, where data for work areas and public areas are combined. This combined approach allows us to estimate the overall risk of exposure to secondhand smoke in *the workplace*.

**Work Area Policies vs. Public Area Policies (Wisconsin and the United States)**

- In Wisconsin, the percentage of employees reporting that smoking was allowed in *work areas* decreased from 16% to 12% between 1999 and 2007. During the same time period, the percentage of employees reporting smoking was allowed in *public areas* decreased from 27% to 17%.
- In the United States, the percentage of employees reporting that smoking was allowed in *work areas* decreased from 15% to 11% between 1999 and 2006, while the percentage of employees reporting smoking was allowed in *public areas* decreased from 21% to 17%.
- The percentage of employees reporting that smoking was allowed in public areas was consistently greater than those reporting smoking was allowed in work areas during the period examined.

**Workplace Policies**

*Wisconsin and the United States*

- In Wisconsin, the percentage of employees reporting that smoking was allowed in their workplace decreased from 31% to 22% between 1999 and 2007.
- In the United States, the percentage of employees reporting that smoking was allowed in their workplace decreased from 24% to 22% between 1999 and 2006.

*Wisconsin, by Region*

- The percentage of employees reporting that smoking was allowed in their workplace decreased among all regions in Wisconsin between 1999 and 2007.
- Regional disparities in the percentage of employees reporting that smoking was allowed in their workplace decreased between 1999 and 2007.
Wisconsin, by Sex

- The percentage of employees reporting that smoking was allowed in their workplace decreased among both males and females between 1999 and 2007; however, males were consistently more likely to report working under policies that allowed smoking.

Wisconsin, by Race/Ethnicity

- The percentage of employees reporting that smoking was allowed in their workplace decreased among Hispanics, Blacks and Whites, between the years 1999-2002 and 2004-2007.
- However, Hispanics and Blacks were more likely to report working under policies that allowed smoking during both time periods.

Wisconsin, by Education

- The percentage of employees reporting that smoking was allowed in their workplace decreased among individuals of all levels of educational attainment between 1999-2002 and 2004-2007.
- However, individuals with lower levels of educational attainment were more likely to report working under policies that allowed smoking during both time periods.

Wisconsin, by Income

- The percentage of employees reporting that smoking was allowed in their workplace was greater among individuals that reported lower levels of income in 2007.

In sum, the prevalence of both types of policies—those that allow smoking in work areas and those that allow smoking in public areas—have decreased over time. In fact, the state’s Tobacco Prevention and Control Plan goal, to decrease the percentage of adults who report their workplace’s official smoking policy allowed smoking in some or all work areas to 13%, was met in 2004. However, the current goal does not address the overall risk of exposure to secondhand smoke in the workplace. Consequential to overall risk, policies for public areas in the workplace have been consistently more likely to allow smoking. Discrepancies in the prevalence of work area and public area policies may have resulted from variations in the type of policies established, variations in the implementation of established policies, or confusion or lack of understanding of policies.

Additional analyses in this report present a more comprehensive evaluation of potential exposure to secondhand smoke in Wisconsin workplaces by combining data on work area and public area policies. This approach is more in step with the related Healthy People 2010 goal for the U.S.—to increase the proportion of worksites that have formal smoking policies prohibiting smoking or limiting smoking to separately ventilated areas to 100%. Wisconsin, and the U.S. overall, have room for progress, as 22% of workplace policies still allowed smoking in 2007, and 2006, respectively.
Introduction

According to the U.S. Surgeon General, secondhand smoke is associated with premature death and disease in non-smokers. Secondhand smoke exposure reportedly causes lung cancer, sudden infant death syndrome, and coronary heart disease in non-smokers. And evidence suggests there is no risk-free level of secondhand smoke exposure.3

In both the United States and Wisconsin, smoke-free workplace policies have increased and fewer indoor employees are working in environments where smoking is allowed in some or all areas.4,5 Accordingly, studies have shown a decrease in serum cotinine levels among non-smokers in the workplace.6-8 (Cotinine is a by-product of nicotine found in the blood, saliva, and urine of individuals exposed to tobacco smoke.)

In addition to reducing environmental tobacco smoke exposure, 100% smoke-free workplace policies can help reduce smoking prevalence and cigarette consumption among workers that smoke.4,9 Previous research showed that in workplaces that maintained or implemented smoke-free policies from 1993 to 2001, smoking employees were twice as likely to stop smoking as compared to employees who worked in locations where smoking was allowed.10 Additional findings from a 2002 paper suggest that smoke-free workplace policies not only reduce the prevalence of smoking, but also reduce the daily cigarette consumption of those workers who continue to smoke.11

Despite reductions in secondhand smoke exposure, millions of Americans are still exposed in the workplace,3 and for some non-smoking employees, the workplace can be the primary source of secondhand smoke exposure.6 Moreover, previous research indicate disparities in exposure, relative to sociodemographic background.5-8 Research examining U.S. worker exposure to secondhand smoke, relative to industry, illustrated that a decrease in exposure occurred in all industries during 1988-2002. However, employees within some industries, such as construction, remained at higher rates of exposure to environmental tobacco smoke.7 Furthermore, 1999 research showed that blue collar and service workers had higher rates of exposure than white collar workers.5 In a study specific to Wisconsin, employees with lower levels of education and income were less likely to work in a no-smoking environment when compared to higher education and income groups.4

One objective of the Wisconsin Tobacco Prevention and Control Plan (2006)1 is to decrease the percentage of adults who report their workplace’s official smoking policy allows smoking in some or all work areas to 16% by 2007, and to 13% by 2010. The related Healthy People 2010 goal for the U.S. is to increase the proportion of worksites that have formal smoking policies prohibiting smoking or limiting smoking to separately ventilated areas to 100%. The overarching purpose of this report is to evaluate the state’s progress in reaching these goals.

Accordingly, the current report examines trends in the establishment of workplace smoking policies in Wisconsin and the United States using data from the Behavioral Risk Factor Surveillance System from
1999 through 2007. More specifically, the trends represent the percentage of respondents who reported such policies were in place at their worksite during those years. Only survey respondents that reported working indoors at the time they were interviewed were asked about smoking policies in their workplaces. Utilizing a risk perspective, the percentage of employees that reported their workplace’s official policy allowed smoking are presented.

Preliminary analyses follow the approach established by the surveillance system, and the corresponding state-level goal used to assess progress in the reduction of workplace smoke exposure. Thus, the percentage of respondents reporting smoking was allowed in their work areas (e.g., offices, warehouses) is presented independent of that for public areas (e.g., dining areas, lobbies, hallways). (See technical notes for a more detailed description.)

Utilizing a more inclusive approach, Wisconsin smoking policies are further evaluated for the entire workplace by combining data for work areas and public areas. Geographic and socio-demographic disparities, relative to the percentage of employees reporting that smoking was allowed in their workplaces, are also shown.

The findings presented in this report are intended to provide a resource for individuals and organizations working to reduce environmental tobacco smoke exposure in Wisconsin workplaces. In addition, this information may assist public health agencies and policy-makers in assessing progress toward the overall goal of reducing secondhand smoke exposure.
Results

Figure 1
Wisconsin and the United States, by Policy
Figure 1 provides a comparison of workplace smoking policies by type of policy, for Wisconsin and the United States from 1999 through 2007. In general, both Wisconsin and U.S. data revealed decreasing trends in the percentage of employees reporting that smoking was allowed in work areas and public areas. In addition, Wisconsin appears to have caught up to the U.S. average. However, the rate of decline appears to have slowed after 2004. Moreover, workplaces were consistently more likely to allow smoking in public areas, as compared to work areas.

More specifically, the percentage of employees reporting that smoking was allowed in work areas in Wisconsin decreased from 16.3% in 1999 to 11.6% in 2007. During that same period, the percentage of employees reporting that smoking was allowed in public areas fell from 27.0% to 16.8%.

Across the U.S., the percentage of employees reporting that smoking was allowed in work areas decreased from 14.6% in 1999 to 10.8% in 2006. This decrease corresponded with a decrease in the percentage of employees reporting that smoking was allowed in public areas (21.3% in 1999 to 17.0% in 2006). (Data for Figure 1 are located in Table 1 of the appendix.)

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**Percentage of Employees Reporting that Smoking is Allowed in Work Areas and Public Areas*, Wisconsin (WI) and the United States (U.S.), 1999-2007**

*Data were limited to indoor areas
**The 2003 WI prevalence was imputed by calculating the mean of the 2002 and 2004 percentages
^2007 data were not available for the U.S.
Figure 2

Wisconsin, by Policy

Figure 2 compares Wisconsin workplace smoking policies that allowed smoking in work areas, public areas, and work and public areas combined, from 1999 to 2007. The percentage of employees reporting that smoking was allowed in work areas decreased from 16.3% to 11.6%, and the percentage of employees reporting that smoking was allowed in public areas fell from 27.0% to 16.8%. Examination of the workplace as a whole reveals that 30.8% of employees reported smoking was allowed in their workplace in 1999, and 21.6% reported smoking was allowed in 2007. (Data for Figure 2 are located in Tables 1 and 2 of the appendix.)

Figure 3

Wisconsin, by Region

Figure 3 shows the general trend in the percentage of employees reporting that smoking was allowed in the workplace, by region, from 1999 through 2007, using linear regression (see Technical Notes). During that time period, all regions showed a decrease in the percentage of employees reporting that smoking was allowed in the workplace, ranging from a 2.1% average annual decrease in the Northeastern region to a 0.9% average annual decrease in the Western region. As of 2007, 26.5% or fewer employees, in all regions, were working under policies that allowed smoking. Moreover, regional disparities in the prevalence of policies permitting smoking decreased during the observed time period. (Data for Figure 3 are located in Table 2 of the appendix.)
Figure 4
Wisconsin, by Sex
The percentage of both female and male employees reporting that smoking was allowed in the workplace decreased between 1999 and 2007, as revealed in Figure 4. For females, the percentage fell from 24.2% to 17.5%, and for males it fell from 39.0% to 26.6%. While the disparity between these two groups decreased slightly over time, males have been consistently more likely to work in places that allow smoking. (Data for Figure 4 are located in Table 2 of the appendix.)

Figure 5
Wisconsin, by Race/Ethnicity
Figure 5 displays the percentage of employees reporting that smoking was allowed in the workplace by race/ethnicity using four-year averages. Whites were least likely to work in places that allowed smoking during 1999-2002 and 2004-2007 (30.1% and 21.6%, respectively), while Hispanics and Blacks were equally likely to work in places that allowed smoking during 1999-2002 (43.6% and 43.1%, respectively). Hispanics were slightly more likely than Blacks to work in places that allowed smoking during 2004-2007 (37.4% compared to 35.8%). (Data for Figure 5 are located in Table 3 of the appendix.)
Figure 6
Wisconsin, by Education

Figure 6 reveals that employees of all levels of educational attainment were less likely to report that smoking was allowed in the workplace during 2004-2007 as compared to 1999-2002. However, a greater percentage of employees reported that smoking was allowed in the workplace, commensurate with lower levels of educational attainment (ranging from 40.5% of those with less than a high school degree to 12.7% of those with a college degree or more during 2004-2007). (Data for Figure 6 are located in Table 3 of the appendix.)

Figure 7
Wisconsin, by Income

Figure 7 shows the percentage of employees reporting that smoking was allowed in the workplace, by level of annual household income for 2007. Fewer employees reported working in places that allowed smoking, commensurate with higher levels of income, ranging from 37.7% of employees with annual household incomes of less than $25,000, to 16.6% of employees with household incomes of at least $75,000. (Data for Figure 7 are located in Table 3 of the appendix.)
Discussion

The findings presented in this report reveal that a decreasing percentage of Wisconsin employees worked in places that allowed smoking in some or all work areas, as well as some or all public areas, between 1999 and 2007. In fact, the state’s goal, to decrease the percentage of adults who report their workplace’s official smoking policy allows smoking in some or all work areas to 13%, has been met. However, throughout the observed time period, employees reported their workplace policies were consistently more likely to allow smoking in public areas than work areas. As of 2007, in Wisconsin, public area policies were 45% more likely to allow smoking. Thus, employees were at higher risk for exposure to secondhand smoke while in the public areas of their workplaces.

More comprehensive examination of employee’s reports—for the workplace as a whole—also revealed a decline in policies that allow smoking in the workplace, in both Wisconsin and the United States. Between 1999 and 2007, the percentage of Wisconsin employees reporting workplace policies that allowed smoking fell from 31% to 22%. Between 1999 and 2006, reports of such policies from employees across the U.S. decreased from 24% to 22%. At first glance, Wisconsin seems to follow the U.S. trends. However, compared to U.S. employees, Wisconsin employees reported a greater average annual decrease in workplace policies that allowed smoking during the time periods examined (-0.6% vs. -1.6%). These findings suggest that the rate of establishment of workplace policies that restrict smoking has been higher in Wisconsin than across the U.S. Accordingly, Wisconsin has caught up to the U.S. average.

Fewer employees in all regions of Wisconsin reported having a workplace policy that allowed smoking in 1999 than in 2007. Notably, regions that reported a greater prevalence of policies that allowed smoking in 1999 experienced a greater decrease in such policies during the time period examined. Specifically, reports from employees in the more rural, northern regions (Northern and Northeastern) revealed the greatest reduction in workplace policies that allowed smoking. Thus, regional disparities have been reduced.

Decreases in the percentage of Wisconsin workers employed where official workplace policies allowed smoking were observed across all socio-demographic groups, regardless of sex, race/ethnicity, education, or income. However, for some of the sub-groups, disparities continue to exist.

For example, fewer males and females reported a having workplace policies that allowed smoking between 1999 and 2007. However, males had a greater tendency to work under policies that allowed smoking than females. Perhaps this disparity was found because men are more likely to work in occupations that have a greater prevalence of employees that smoke. Prior research indicated that at least 30% of machine operators, transportation, and precision production employees were smokers, and the U.S. Census reported that material moving, transportation, and production occupations were almost three times more likely to be filled by male employees. In comparison, women were almost 50% more likely to work in a professional or professional related occupation than men, where few smokers were found to work (11%).4,12
Employees from all the racial/ethnic groups included in this report experienced a decrease in working under policies that allowed smoking. Still, racial/ethnic disparities were evident. Whites were least likely to work for employers that allowed smoking in the workplace during 1999-2002 and 2004-2007. During the same time periods, Hispanics were most likely to work under policies that allowed smoking, while the prevalence was just slightly lower for Blacks.

Decreases in the prevalence of workplace policies that allowed smoking was evident among individuals of all education levels. However, employees with lower levels of educational attainment were more likely to work under a policy that allowed smoking during both periods examined.

In 2007, employees who reported their household income was less than $25,000 reported the highest prevalence of workplace policies that allowed smoking, while employees earning $75,000 or more per year were least likely to work where smoking was allowed. Previous research has shown that over time, all occupational classes have experienced a reduction in workplace policies that allow smoking. Nevertheless, blue collar workers and service workers have remained significantly less likely to work under smoke-free policies than higher paid, white collar workers. Interestingly, while females generally earn less than males, they have been more likely to work for employers that do not allow smoking.

Conclusion

The findings in this study revealed that fewer Wisconsin employees are working in places that allow smoking. In turn, these results imply that fewer employees are exposed to secondhand smoke while in the workplace. Yet, nearly one out of four persons employed indoors reported working under a policy that allowed smoking in his or her workplace. In addition, men, Hispanics and Blacks, employees with lower levels of education, and employees with lower levels of household income all remained disparately more likely to work where smoking was permitted.

In addition, this analysis found a discrepancy in the reported prevalence of smoking policies in work areas relative to public areas. Variations in the type of policy established, or variations in the implementation of the established policies, may account for these discrepancies. Additionally, there may be confusion or a lack of understanding of workplace smoking policies. Regardless of the cause of the discrepancy, workplaces that do not equally incorporate work areas and public areas into their smoking policies result in a higher number of employees who are at risk of exposure to secondhand smoke while at work.

The state’s Tobacco Prevention and Control Plan goal, to decrease the number of adults who report their workplace’s official smoking policy allows smoking in some or all work areas to 13%, was met in 2004. By 2007, the percentage of employees reporting that smoking was allowed in some or all of their work areas had further declined to 11.6%. This progress suggests that state efforts aimed at reducing smoking in the workplace have had an effect on communities and employers. Thirty-six Wisconsin municipalities
have passed smoke-free air ordinances. However, most of these are not 100% smoke-free policies. Thus, many employees may still be exposed to secondhand smoke while at work.

Moreover, policies aimed at reducing smoking in public areas of the workplace have lagged behind. When consideration is given to the workplace as a whole, 22% of Wisconsin employees are still at risk for exposure to secondhand smoke while at work. If the U.S. Healthy People 2010 goal, which aims to ensure all U.S. employees have the opportunity to work in smoke-free environments is to be met, then Wisconsin, in addition to a number of other states, may need to consider more comprehensive approaches to establishing smoke-free workplace policies.

Limitations

Data in this report came from the Behavioral Risk Factor Surveillance System (BRFSS), which is a landline telephone survey. To the extent that any particular subgroup of the population does not have a landline telephone, estimates may not be representative of the entire Wisconsin and/or U.S. population. Generalizability of estimates may also be affected by the characteristics of people who are willing to complete the telephone survey. In addition, due to small sample sizes, workplace smoking policy responses of Hispanics may not be reliable population estimates.

Technical Notes

All data in this report are from the Behavioral Risk Factor Surveillance System (BRFSS), which is coordinated by the Centers for Disease Control and Prevention (CDC). The BRFSS is a state-based random-digit dialing telephone survey of non-institutionalized adults aged 18 years and older. Statistical analyses were conducted using SAS 9.1 software.

The two BRFSS workplace policy questions that were included in this report were asked as follows:

Which of the following best describes your place of work’s official smoking policy for indoor public or common areas, such as lobbies, rest rooms, and lunch rooms? READ:

1. Not allowed in any public areas
2. Allowed in some public areas
3. Allowed in all public areas
4. No official policy
5. Don’t know
Which of the following best describes your place of work’s official smoking policy for work areas? READ:

1. Not allowed in any work areas
2. Allowed in some work areas
3. Allowed in all work areas
4. No official policy
5. Don’t know

The smoking policy trends for regions and for sex were analyzed using a linear regression trendline because of the large variation between data points that resulted from varying sample sizes and possible uneven sampling. 2003 Wisconsin data and 2007 U.S. data on smoking policies were missing because the questions on official workplace smoking policies were not included in the respective surveys. Respondents that answered “don’t know” and those who refused to answer were treated as missing. In addition, respondents who answered “no official policy” were omitted from analyses as there is no way of determining whether or not smoking occurs in their workplace. The workplace policy trend for household income was difficult to analyze within each income category over several years without adjustment for inflation. Because this was not possible with the available data, only the most recent year of data is shown. For any year where population over-sampling was conducted, only the main sample was used in the current analysis.

U.S. data were comprised of states that elected to ask the two BRFSS questions listed above. Not all 50 states included these questions in their BRFSS survey, and the states that did include the questions varied each year. The number of states included in the U.S. data for each year of analysis ranged from 15 to 25.

Relative percent change was calculated using the following formula: \( \frac{(\text{Time 2}-\text{Time 1})}{\text{Time 1}} \times 100 \). Average annual change was calculated by finding the slope of the trend line for each data set.

Wisconsin regions are defined as follows:

**Northeastern Region** counties include Brown, Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Sheboygan, Waupaca, Waushara, and Winnebago.

**Northern Region** counties include Ashland, Bayfield, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Oneida, Portage, Price, Sawyer, Taylor, Vilas, and Wood.

**Western Region** counties include Barron, Buffalo, Burnett, Chippewa, Clark, Douglas, Dunn, Eau Claire, Jackson, La Crosse, Monroe, Pepin, Pierce, Polk, Rusk, St. Croix, Trempealeau, and Washburn.

**Southern Region** counties include Adams, Columbia, Crawford, Dane, Dodge, Grant, Green, Iowa, Juneau, Lafayette, Richland, Rock, Sauk, and Vernon.

**Southeastern Region** counties include Jefferson, Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha.
# Appendix

## Table 1

Percentage of Employees Reporting that Smoking is Allowed in the Workplace*, by Work Areas and Public Areas, and Average Annual Change, Wisconsin and the United States, 1999-2007

<table>
<thead>
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*Data were limited to indoor areas
**The 2003 Wisconsin prevalence was imputed by calculating the mean of the 2002 and 2004 percentages

## Table 2

Percentage of Employees Reporting that Smoking is Allowed in the Workplace*, by Region and Sex, and Average Annual Change, Wisconsin and the United States, 1999-2007

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<td>38.3</td>
<td>38.6</td>
<td>34.9</td>
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<td>31.9</td>
<td>27.0</td>
<td>26.6</td>
<td>-2.0</td>
</tr>
<tr>
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<td>25.1</td>
<td>27.7</td>
<td>20.6</td>
<td>18.9</td>
<td>17.2</td>
<td>17.8</td>
<td>16.0</td>
<td>17.5</td>
<td>-1.3</td>
</tr>
</tbody>
</table>

*Data were limited to indoor areas
**2003 WI prevalence was imputed by calculating the mean of the 2002 and 2004 percentages
### Table 3

**Percentage of Employees Reporting that Smoking is Allowed in the Workplace*, by Respondent Characteristics, and Relative Percent Change, Wisconsin, 1999-2002 and 2004-2007**

<table>
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<tr>
<th></th>
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<tr>
<td><strong>Race/Ethnicity</strong></td>
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<td>Hispanic</td>
<td>43.6</td>
<td>37.4</td>
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<td>35.8</td>
<td>-17.0</td>
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<td>21.6</td>
<td>-28.2</td>
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<td>&lt; HS Grad</td>
<td>53.3</td>
<td>40.5</td>
<td>-24.0</td>
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<tr>
<td>HS Grad/GED</td>
<td>41.6</td>
<td>32.5</td>
<td>-22.1</td>
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<tr>
<td>Some College/Tech</td>
<td>33.6</td>
<td>23.9</td>
<td>-29.0</td>
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<tr>
<td>College Grad/Post Grad</td>
<td>16.7</td>
<td>12.7</td>
<td>-23.7</td>
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<tr>
<td><strong>Income</strong></td>
<td>2007</td>
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<td>&lt; $25,000</td>
<td>37.7</td>
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<td>$25,000-$34,999</td>
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<tr>
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<td>≥ $75,000</td>
<td>16.6</td>
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*Data were limited to indoor areas*
References


