

# Asthma and Secondhand Smoke

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Utah's Youth 2010



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# Asthma and Secondhand Smoke

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## Introduction

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Asthma is a chronic inflammatory disease of the lungs affecting an estimated 7.8%<sup>1</sup> of children ages 0-17 in Utah, or about 65,000 children. People with asthma have hyperresponsive airways, meaning their airways react to triggers such as cold air, tobacco smoke, or exercise more quickly and intensely than people whose airways are normal. For people with asthma, exposure to triggers such as these can cause asthma symptoms or an asthma attack, which occur when the lining of the airways swell and the muscles around the airways tighten, making it more difficult for the person to breathe.<sup>2</sup>

Environmental tobacco smoke, often called secondhand smoke, is smoke that is created by a smoker and breathed in by another person nearby. There are no safe levels of exposure to secondhand smoke, which, among other harmful effects, can cause respiratory symptoms and slow lung growth in children.<sup>3</sup> Secondhand smoke is especially harmful for people with asthma since it can trigger asthma attacks including coughing, chest tightness, wheezing, and trouble breathing for those with asthma.<sup>4</sup>

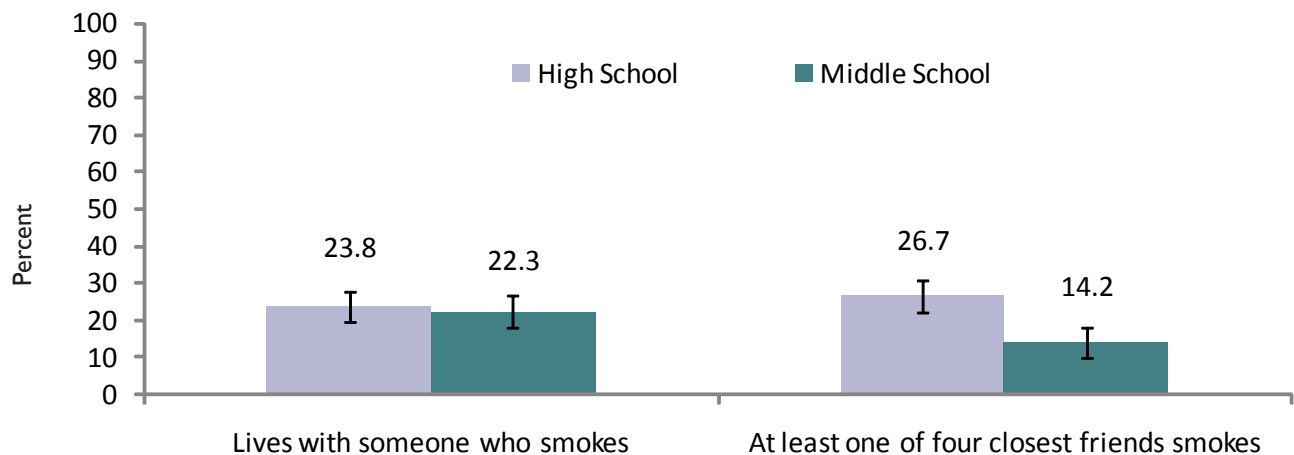
In 2003, 2005, and 2007, the Utah Youth Tobacco Survey (YTS) was administered statewide to a representative sample of middle (grades 6 to 8) and high school (grades 9 to 12) students attending public schools in Utah, to gather information on tobacco use and exposure. Survey results were analyzed to assess exposure to secondhand smoke specifically among students who self-identified as having active asthma. Students with active asthma included those who said they had ever been told by a doctor or nurse that they had asthma and who also reported experiencing at least one of the following during the past 12 months: having an asthma attack; visiting a doctor due to wheezing, dry cough, or breathing difficulties, or; using an inhaled asthma medication. Results included in this report are representative of all middle and high school students with active asthma attending public schools in Utah.

# Asthma and Secondhand Smoke

## Friends and Family Who Smoke

Having close friends or family members who smoke can put youth with asthma at risk for exposure to secondhand smoke. In fact, the CDC recommends that parents, friends, and relatives of children with asthma should try to stop smoking and never smoke around a person with asthma.<sup>4</sup>

Figure 1. Percentage of Middle and High School Students With Active Asthma Who Live With Someone Who Smokes or Have Friends Who Smoke, Utah 2003, 2005, and 2007



Data Source: Utah 2003, 2005, and 2007 YTS combined.

When asked about people close to them who smoked, Utah's youth with active asthma responded as follows:

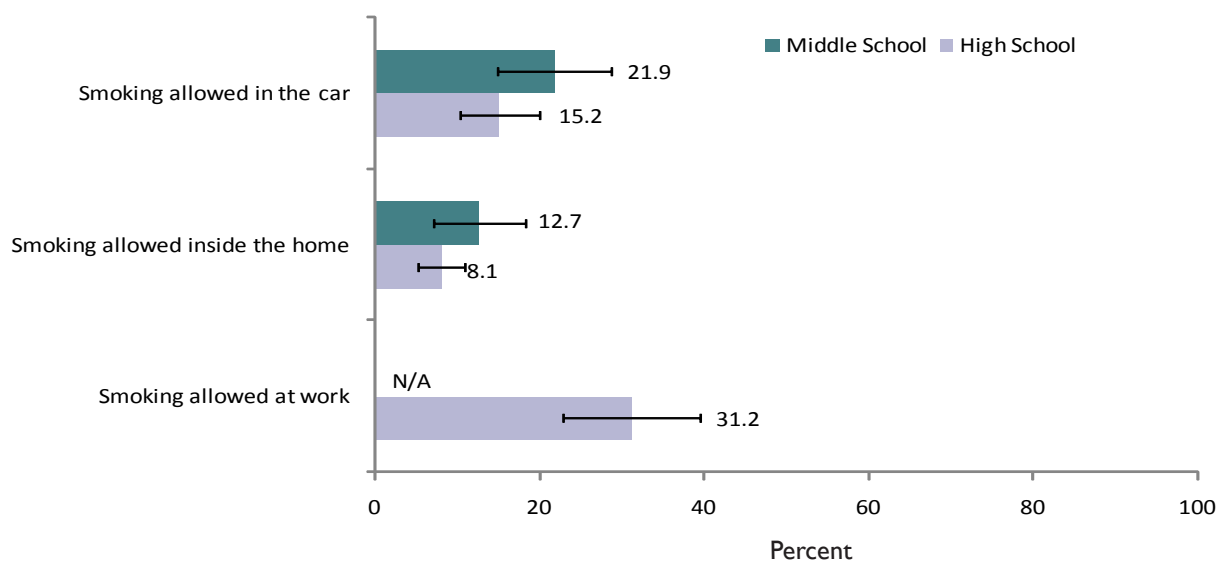
- More than one out of five high school (23.8%) and middle school (22.3%) students with active asthma said that they lived with someone who smoked.
- Just over one-quarter of high school students with active asthma (26.7%) reported that at least one of their four closest friends smoked, which was significantly higher than the percentage of middle school students (14.2%) who reported that at least one of their four closest friends smoked.

# Asthma and Secondhand Smoke

## Rules About Smoking

Rules against smoking in locations such as homes, vehicles, or public places can help reduce the risk of exposure to secondhand tobacco smoke. For this reason, many states, including Utah, have passed laws prohibiting indoor smoking in public places<sup>5</sup>, which can protect nonsmokers from exposure to secondhand smoke.

Figure 2. Percentage of Middle and High School Students With Active Asthma Who Reported That Smoking is Allowed by Location, Utah 2007



Data Source: Utah 2007 YTS. Note: These data were only available for 2007. Thus, data for years 2003 and 2005 are not shown.

When asked about smoking rules in various locations, middle and high school students with active asthma responded as follows:

- More than one in ten middle school students with active asthma (12.7%) said that smoking was allowed inside their homes, and nearly twice as many (21.9%) said that smoking was allowed in the car.
- Slightly smaller percentages of high school students with active asthma, though not statistically different from middle school students, reported that smoking was allowed in the home (8.1%) or the car (15.2%).
- Nearly one-third of high school students with active asthma (31.2%) reported that smoking was allowed at their workplace at least some of the time. \*

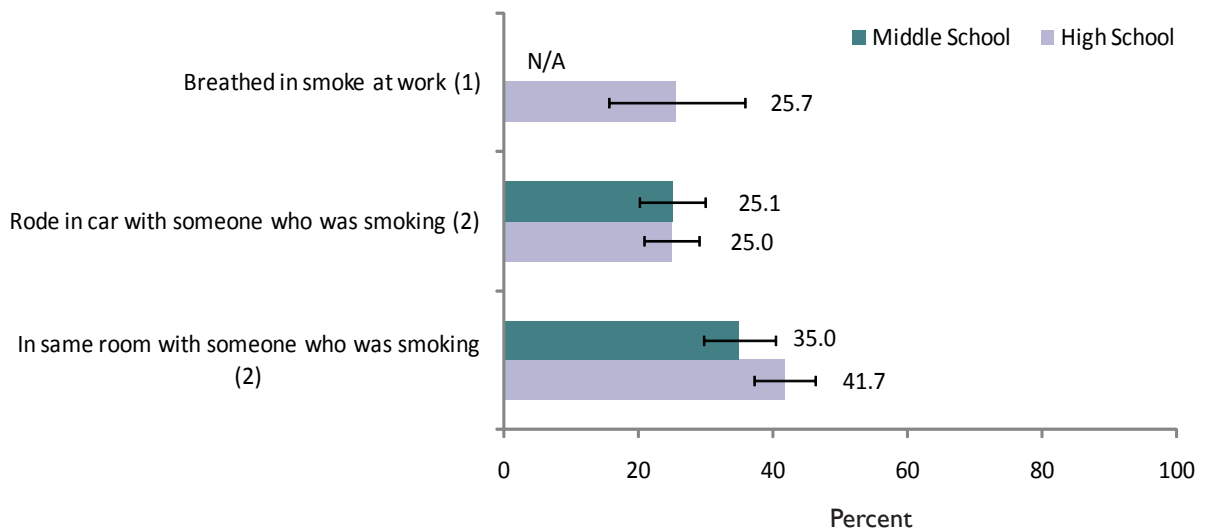
\*Effective January 1, 2009, amendments to the Utah Indoor Clean Air Act prohibited smoking in clubs or taverns, which may have reduced the percentage of youth exposed to tobacco smoke in the workplace.<sup>6</sup>

# Asthma and Secondhand Smoke

## Exposure to Secondhand Tobacco Smoke

Students were asked whether or not they had actually been exposed to secondhand tobacco smoke during the previous week. To determine sources of exposure, respondents were also asked about specific locations and types of people who were smoking most often.

**Figure 3. Percentage of Middle and High School Students With Active Asthma Who were Exposed to Secondhand Tobacco Smoke During the Past 7 Days, Utah 2003, 2005, and 2007**



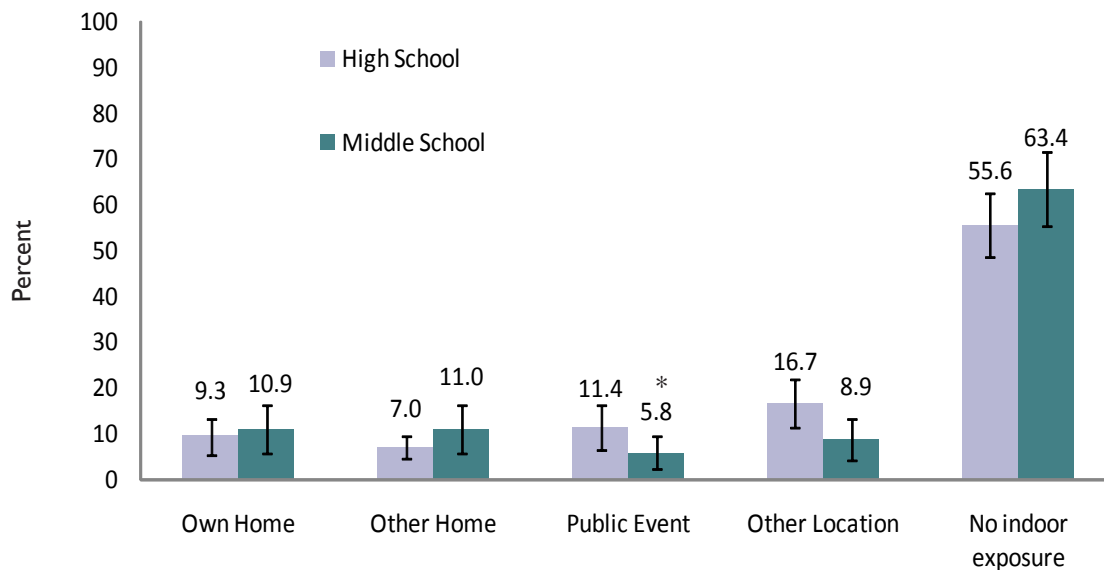
Data Source: (1) Utah 2007 YTS (2) Utah 2003, 2005, and 2007 YTS combined.

When asked about exposure to secondhand tobacco smoke during the past seven days, students responded the following:

- Over one-third of middle (35.0%) and high school (41.7%) students with active asthma reported having been in the same room as someone smoking.
- Approximately one out of four middle (25.1%) and high school (25.0%) students with active asthma reported having been in a car with someone smoking.
- Just over one-fourth of high school students (25.7%) with active asthma reported having breathed in tobacco smoke at work.

# Asthma and Secondhand Smoke

Figure 4. Percentage of Middle and High School Students With Active Asthma Who Reported Being in the Same Room with Someone Smoking During Past 7 Days by Type of Location Where They Were Most Frequently Exposed, Utah 2007



Data Source: Utah 2007 YTS. Note: These data were only available for 2007. Thus, data for years 2003 and 2005 are not shown.

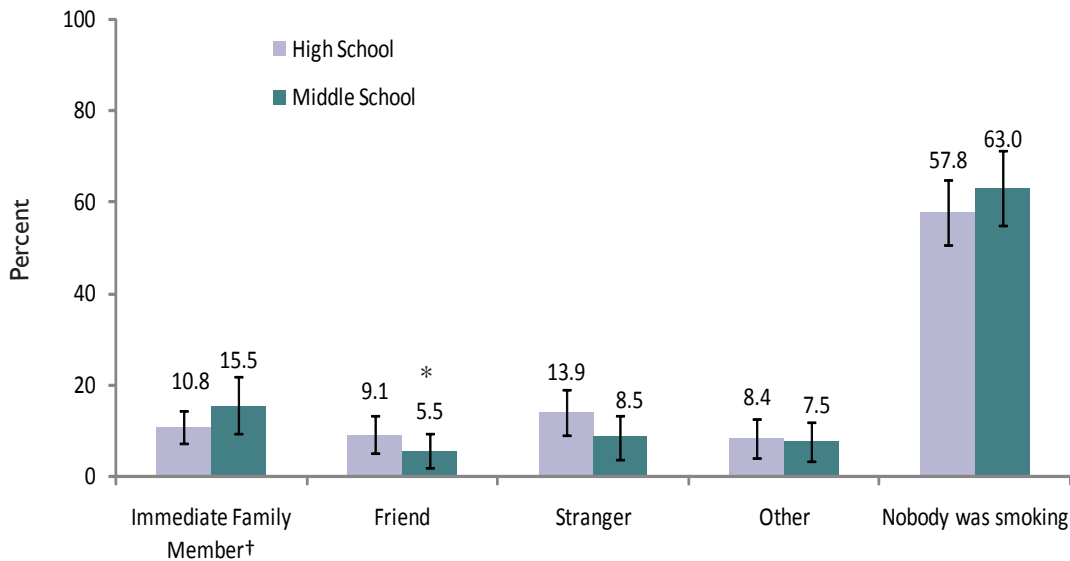
\*The coefficient of variation is >30% and does not meet UDOH standards for reliability. Interpret with caution.

When asked about specific locations where exposure to indoor tobacco smoke had occurred during the past seven days, over half of middle and high school students with active asthma reported no exposure. Reported exposures were as follows:

- Approximately one out of ten high school (9.3%) and middle school (10.9%) students with active asthma reported having been exposed to indoor tobacco smoke at their own home.
- The highest percentage of high school students reporting exposure to indoor tobacco smoke during the past seven days said they were exposed at a public event (11.4%) or some other location outside of a home setting (16.7%).
- The highest percentage of middle school students who reported having been exposed to indoor tobacco smoke said they were exposed either at their own home (10.9%) or someone else's home (11.0%).

# Asthma and Secondhand Smoke

Figure 5. Percentage of Middle and High School Students With Active Asthma Who Reported Being in the Same Room with Someone Smoking During the Past 7 Days by Type of Person Who Smoked Most Often, Utah 2007



Data Source: Utah 2007 YTS. Note: These data were only available for 2007. Thus, data for years 2003 and 2005 are not shown.

† Immediate family member includes a sibling, parent, or grandparent.

\* The coefficient of variation is >30% and does not meet UDOH standards for reliability. Interpret with caution.

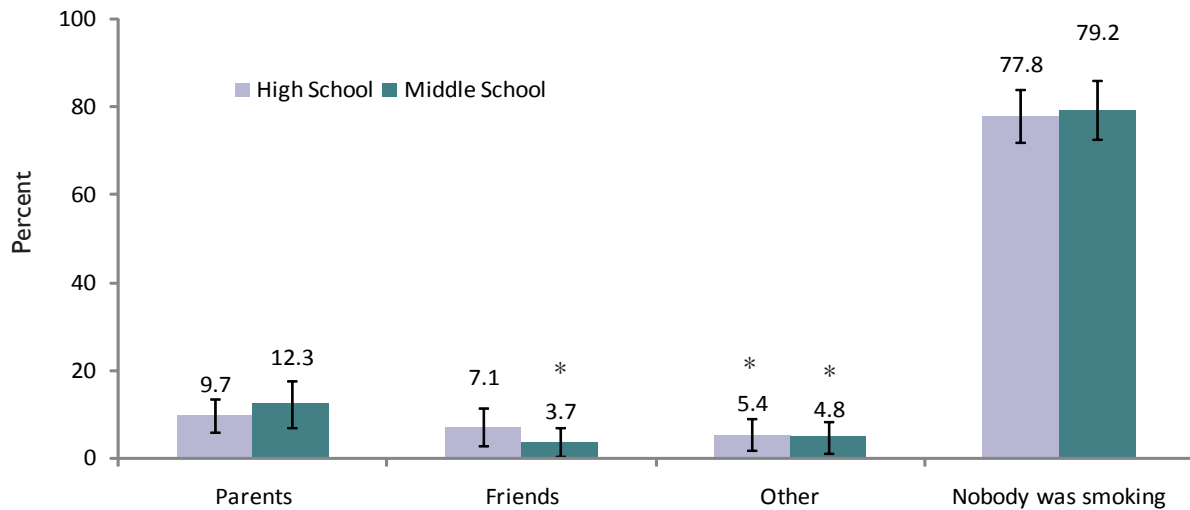
When asked about the types of people who were smoking most often in the same room, over half of students with active asthma said nobody was smoking in the same room during the past seven days. Students who said someone was smoking in the same room reported the following:

- Among youth with active asthma who were exposed, the highest percentage of high school students (13.9%) said a stranger was smoking most often, while the highest percentage of middle school students (15.5%) said an immediate family member was smoking most often.
- Approximately one in five high school (19.9%) and middle school (21.0%) students with active asthma reported that either an immediate family member or friend was smoking most often.



# Asthma and Secondhand Smoke

Figure 6. Percentage of Middle and High School Students With Active Asthma Who Reported Being in a Car With Someone Who Was Smoking During the Past 7 Days by Type of Person Who Smoked Most Often, Utah 2007



Data Source: Utah 2007 YTS. Note: These data were only available for 2007. Thus, data for years 2003 and 2005 are not shown.

\*The coefficient of variation is >30% and does not meet UDOH standards for reliability. Interpret with caution.

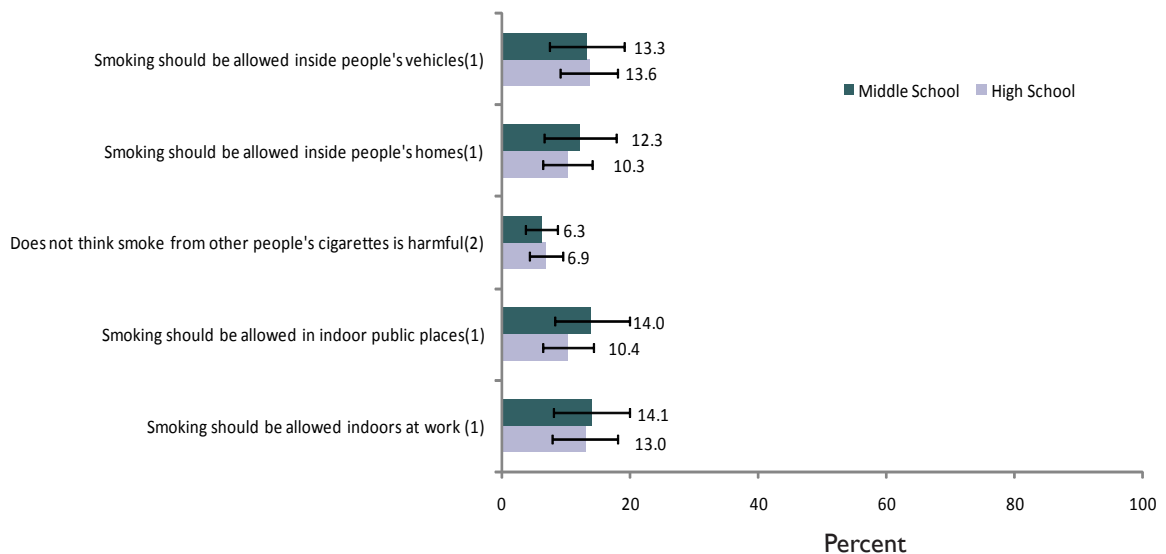
The highest percentage of youth who reported being exposed to tobacco smoke in a car within the past seven days said a parent was smoking most often (9.7% of high school, and 12.3% of middle school students with active asthma).

# Asthma and Secondhand Smoke

## Opinions About Smoking

Opinions about tobacco smoke can influence behaviors and thus affect the likelihood of being exposed to secondhand smoke. Particularly among youth with asthma, perceptions of tobacco smoke can be an indicator of areas where additional education may be needed. To assess opinions among youth with asthma about smoking, several questions were asked regarding allowance of and perceived harm from smoking.

Figure 7. Opinions about Smoking Among Middle and High School Students With Active Asthma, Utah 2003, 2005, and 2007



Data Source: (1) Utah 2007 YTS (2) Utah 2003, 2005, and 2007 YTS combined.

Students with active asthma reported the following opinions about smoking:

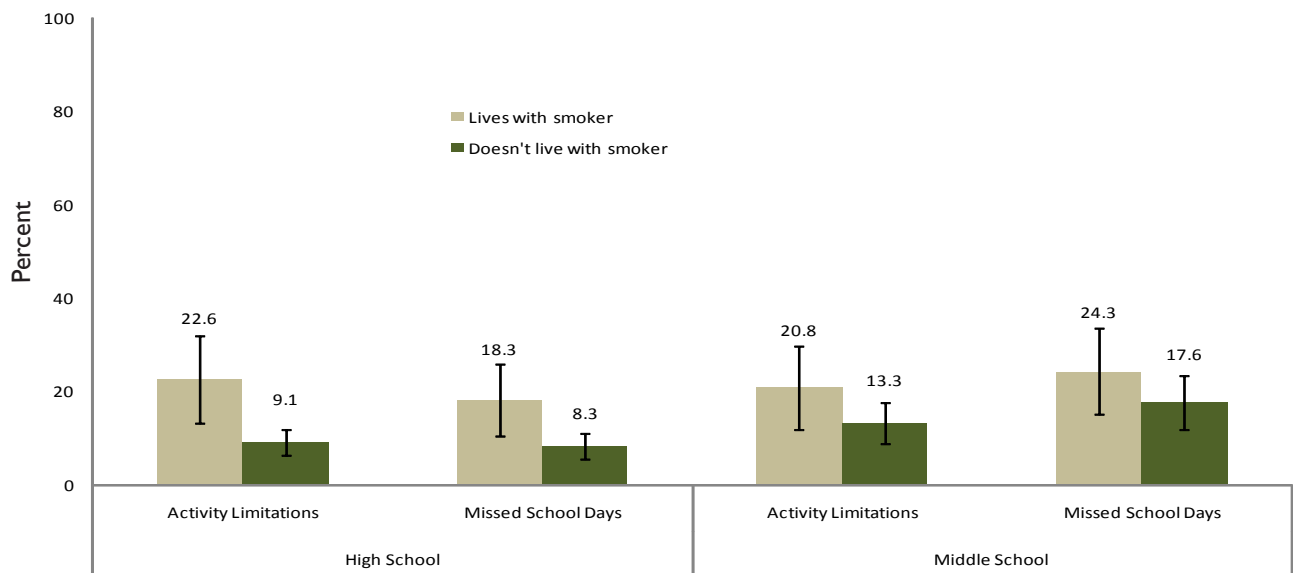
- 6.3% of middle school and 6.9% of high school students with active asthma did not think that smoke from other people's cigarettes was harmful.
- More than one in ten middle and high school students with active asthma thought smoking should be allowed in places including people's vehicles, their homes, and indoors at work or public places.

# Asthma and Secondhand Smoke

## Missed School Days and Activity Limitations

Activity limitations and missed school days can be a way to measure health outcomes for youth with chronic diseases such as asthma. Students were asked to report the frequency of missed school days or activity limitations due to wheezing, dry cough, or breathing difficulties. Statistical analyses were conducted comparing missed school days and activity limitations among youth with active asthma, based on having close friends or family who smoked.

Figure 8. Percentage of Middle and High School Students With Active Asthma Who Reported Missed School Days and Activity Limitations During the Past 12 Months by Living With Someone Who Smoked, Utah 2003, 2005, 2007



Data Source: Utah 2003, 2005, and 2007 YTS combined.

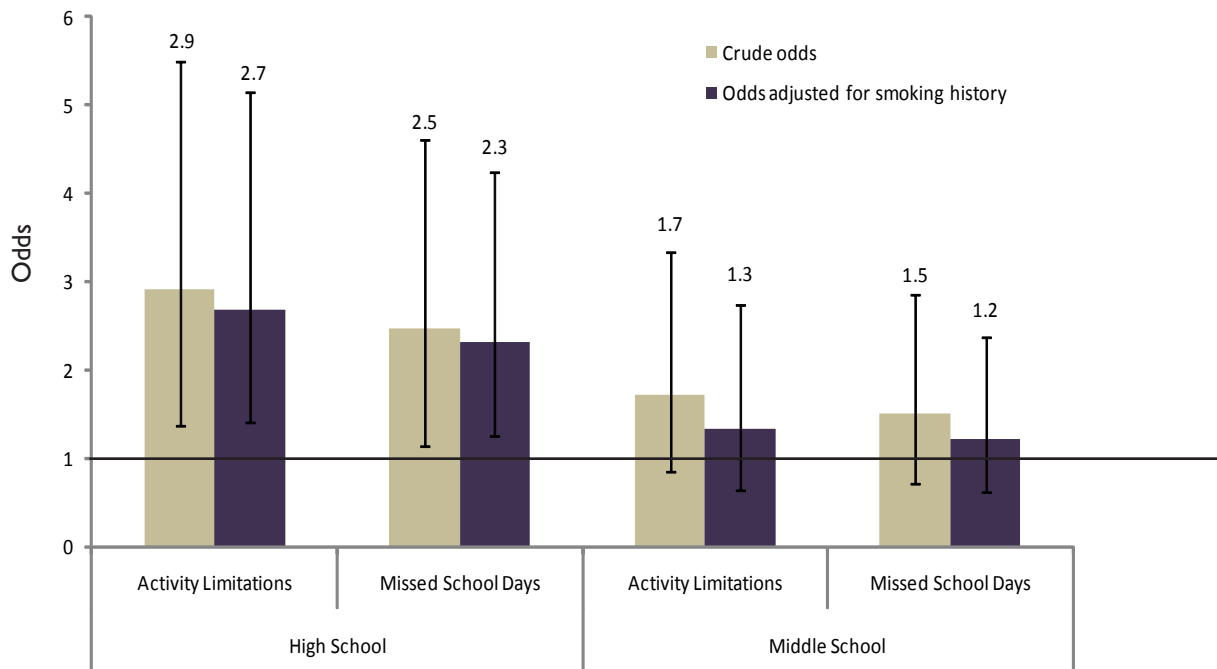
Note: Activity limitations included students who said they experienced activity limitations one or more times per week due to wheezing, dry cough, or breathing difficulties. Missed school days include students who said they missed one or more days of school per month due to wheezing, dry cough, or breathing difficulties.

Data suggest that students living with someone who smoked were more likely to report activity limitations or missed school days due to asthma, though not all differences were statistically significant. Specific findings included:

- Among high school students with active asthma, a significantly higher percentage of students living with someone who smoked reported experiencing activity limitations (22.6%) compared to students not living with a smoker (9.1%).
- More than twice as many high school students living with someone who smoked reported missed school days (18.3%) due to asthma symptoms compared to students not living with a smoker (8.3%), though the difference was not statistically significant.

# Asthma and Secondhand Smoke

Figure 9. Odds of Reporting Activity Limitations or Missed School Days During the Past 12 Months by Living With Someone Who Smoked, Utah Middle and High School Students With Active Asthma 2003, 2005, and 2007



Data Source: Utah 2003, 2005, and 2007 YTS combined.

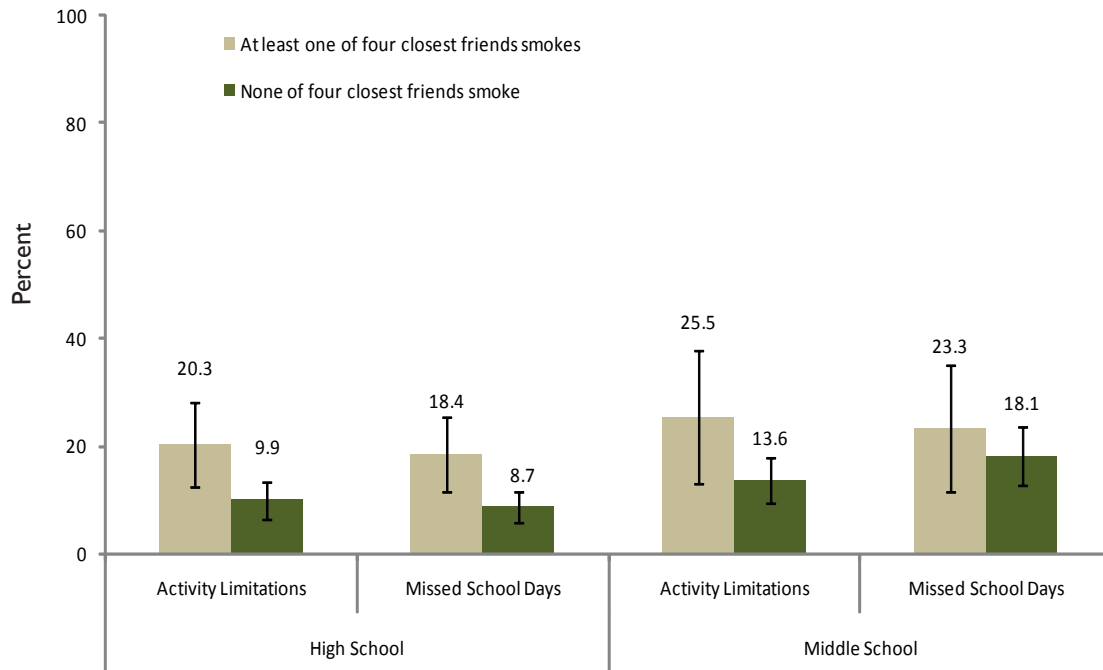
Note: Odds adjusted for smoking history were adjusted for the student having ever smoked daily, i.e., smoked every day for at least 30 days. Activity limitations included students who said they had experienced activity limitations one or more times per week due to wheezing, dry cough, or breathing difficulties. Missed school days included students who said they missed one or more days of school per month due to wheezing, dry cough, or breathing difficulties.

Odds of reporting missed school days or activity limitations based on living with someone who smoked were calculated. Because a smoking history among students (having ever smoked every day for at least 30 days) was significantly associated with activity limitations and missed school days, odds adjusted for students' having ever been a smoker were calculated as well as crude odds (see Figure 9). Findings were as follows:

- Both crude and adjusted odds indicated that high school students with asthma who lived with someone who smoked were more likely to report activity limitations or missed school days due to asthma symptoms, compared to high school students not living with someone who smoked.
- Among middle school students, crude and adjusted odds were not statistically different from 1.0. Thus, they did not indicate a greater likelihood of reporting missed school days or activity limitations among middle school students, based on living with someone who smoked.

# Asthma and Secondhand Smoke

Figure 10. Percentage of Middle and High School Students With Active Asthma Who Reported Missed School Days and Activity Limitations During the Past 12 Months by Having a Close Friend Who Smokes, Utah 2003, 2005, 2007



Data Source: Utah 2003, 2005, and 2007 YTS combined.

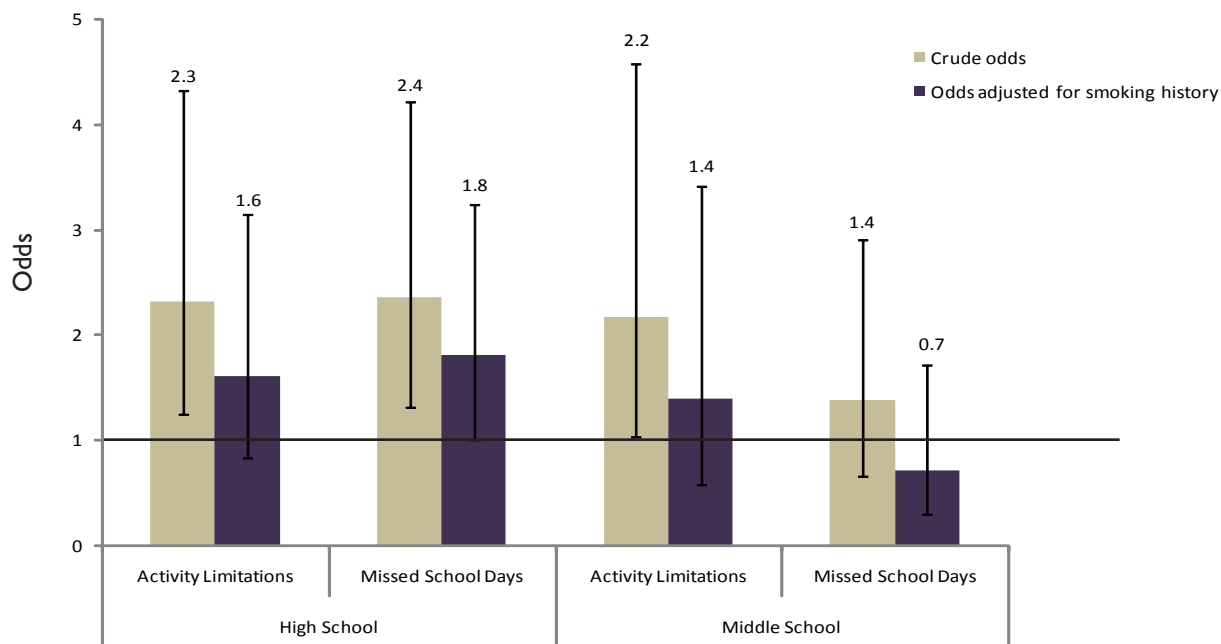
Note: Activity limitations include students who said they experienced activity limitations one or more times per week due to wheezing, dry cough, or breathing difficulties. Missed school days include students who said they missed one or more days of school per month due to wheezing, dry cough, or breathing difficulties.

Though differences were not statistically significant, data are suggestive that students with a close friend who smoked were more likely to report activity limitations and missed school days due to asthma symptoms compared to students without a close friend who smoked. Specific findings included:

- Among high school students with active asthma, more than twice as many students with a close friend who smoked reported activity limitations (20.3%) and missed school days (18.4%) due to asthma symptoms compared to students without a close friend who smoked (9.9% and 8.7% respectively).
- Nearly twice as many middle school students with a close friend who smoked reported activity limitations (25.5%) compared to students without a close friend who smoked (13.6%).

# Asthma and Secondhand Smoke

Figure 11. Odds of Reporting Activity Limitations or Missed School Days During the Past 12 Months by Having a Close Friend Who Smoked, Utah Middle and High School Students With Active Asthma 2003, 2005, and 2007



Data Source: Utah 2003, 2005, and 2007 YTS combined.

Note: Odds adjusted for smoking history were adjusted for the student having ever smoked daily, i.e., smoked at least one cigarette every day for 30 days. Activity limitations included students who said they experienced activity limitations one or more times per week due to wheezing, dry cough, or breathing difficulties. Missed school days included students who said they missed one or more days of school per month due to wheezing, dry cough, or breathing difficulties.

Both crude odds and odds adjusted for students having ever been a smoker (smoked every day for at least 30 days) were calculated to assess the likelihood of reporting missed school days or activity limitations based on having a close friend who smoked. Findings were as follows:

- Crude odds indicated that both high school and middle school students who had a close friend who smoked were more likely to report activity limitations (2.3 (CI 1.2-4.3) and 2.2 (CI 1.0-4.6) respectively) compared to students without a close friend who smoked. After adjusting for smoking history, odds were no longer significant, suggesting that results may have been partly due to students' own smoking history.
- Crude odds indicated that high school students with a close friend who smoked were 2.4 (CI 1.3-4.2) times more likely to report missed school days due to asthma symptoms compared to other students. After adjusting for smoking history, high school students with a close friend who smoked were still 1.8 (CI 1.0-3.2) times more likely to report missed school days due to asthma symptoms compared to other students.

Key: CI = 95% confidence interval

# Asthma and Secondhand Smoke

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## Conclusions

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Self-reported data by Utah's youth indicate that significant percentages of middle and high school age youth with asthma are exposed to secondhand smoke. Exposure was reported to occur in various locations including, the home, car, and public venues. Nearly one out of five middle and high school youth with active asthma reported having been indoors with friends or family who were smoking during the past week, and more than one in four high school students with asthma reported having breathed in tobacco smoke at work during the past week. Especially concerning were responses indicating that youth who lived with or had close friends who smoked were more likely to report missed school days or activity limitations due to wheezing, dry cough, or breathing difficulties compared to other students. However, when asked about their perceptions of secondhand tobacco smoke, 6.3% of middle school and 6.9% of high school students with active asthma said they did not think that smoke from other people's cigarettes was harmful.

These data indicate a need for greater education regarding asthma and secondhand smoke. The Utah Asthma Program works to educate the community on the harmful effects of triggers like secondhand smoke for people with asthma, and is currently partnering with the Utah Tobacco Program to improve public messaging regarding asthma and secondhand smoke. Additional information on asthma and secondhand smoke can be found on the Asthma Program Web site at [http://www.health.utah.gov/asthma/pdf\\_files/Fact\\_Sheets/secondhand\\_smoke.pdf](http://www.health.utah.gov/asthma/pdf_files/Fact_Sheets/secondhand_smoke.pdf).

## References

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1. 2007 Utah Behavioral Risk Factor Surveillance System
2. Utah Asthma Program. Asthma Basics, accessed at <http://www.health.utah.gov/asthma/basics/asthma.html> on June 17, 2010
3. U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General—Executive Summary*. U.S. Department of Health and Human Services, 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, 2006
4. Centers for Disease Control and Prevention. Important Asthma Triggers, accessed at <http://cdc.gov/asthma/triggers.html> on June 17, 2010
5. Utah Indoor Clean Air Act, accessed at <http://health.utah.gov/tobacco/uicaastat&rule.html> on June 17, 2010
6. 2006 and 2007 Utah Indoor Clean Air Act Amendments - Private Clubs and Taverns, accessed at <http://www.tobaccofreeutah.org/2006uicaa-pc.html>