

# Missouri Youth and Tobacco, 2003-2013

## A decade of progress in prevention



**Missouri Department of Health and Senior Services**  
Gail Vasterling, Acting Director

## ACKNOWLEDGEMENTS

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## Introduction

Tobacco use continues to be a leading cause of death and disability in Missouri and the United States. More than 9,500 Missourians die each year from tobacco related illnesses.<sup>1</sup> Preventing young people from becoming addicted to tobacco is a priority health objective for Missouri and the nation. More than 85 percent of adult daily smokers started smoking before the age of 18.<sup>2</sup>

The Missouri Department of Health and Senior Services, in collaboration with the Missouri Department of Elementary and Secondary Education and the U.S. Centers for Disease Control and Prevention (CDC) conducts bi-annual surveys of public middle and high school students to track progress in efforts to reduce youth tobacco use and exposure to secondhand smoke. Information about the methodology for the Youth Tobacco Survey (YTS) and Youth Risk Behavior Survey (YRBS) may be found on page 17.

This report summarizes key findings from the 2013 YTS and YRBS and includes results from previous years that demonstrate changes over time. To view reports of YTS findings from 2003-2009 and 2011, go to <http://health.mo.gov/data/yts/data.php>. YRBS data may be found on the CDC website at <http://apps.nccd.cdc.gov/YouthOnline/App/Default.aspx>.

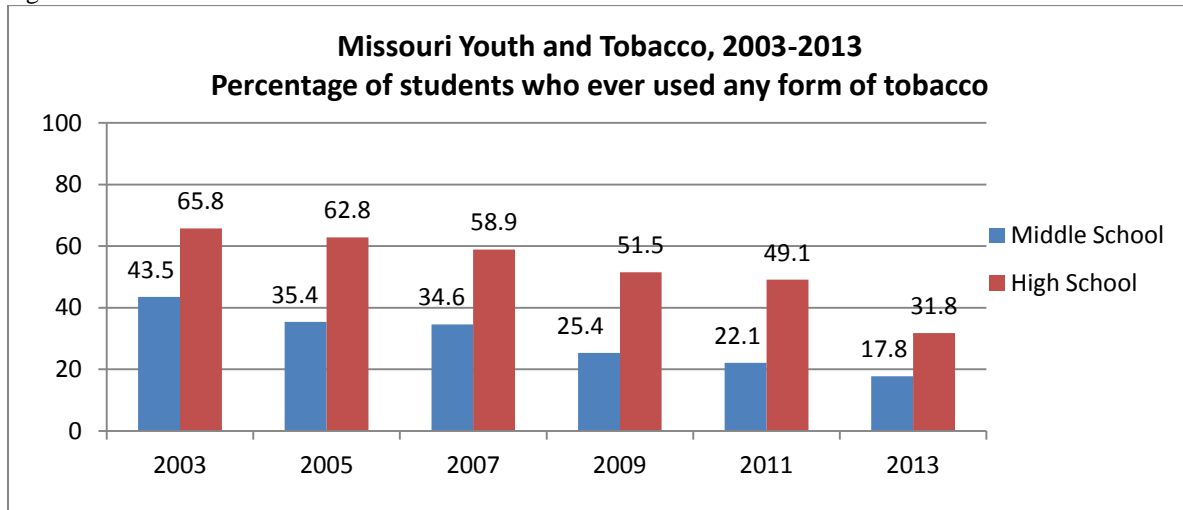
## 2013 Key Findings

- The percentage of middle and high school students that ever used any form of tobacco continued to decline
- The percentage of middle and high school students that ever tried smoking cigarettes continued a downward trend
- Current cigarette smoking among middle and high schools students continued a downward trend
- Daily cigarette smoking among high school students continued to decline
- Smokeless tobacco use among high school males continued to increase
- A significantly greater percentage of middle and high school students who smoked lived with someone that smoked than students who had never smoked
- The percentage of middle and high school students that saw or heard anti-tobacco ads in the past 30 days increased in 2013
- Less than half of middle school students had a parent or guardian discuss not using any type of tobacco product in the past year
- The percentage of middle school students who had never smoked that were exposed to secondhand tobacco smoke in the past seven days continued to decline
- More than seventy percent of middle and high school students live in homes where smoking is never allowed

## Tobacco Use

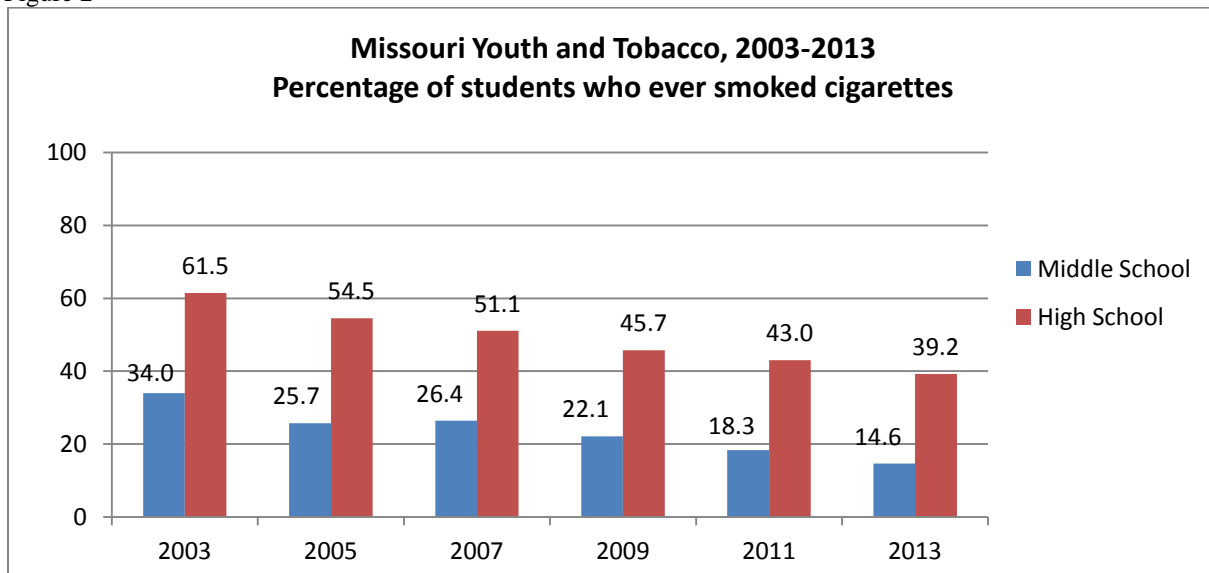
The percentage of middle and high school students that had ever used any form of tobacco declined significantly from 2003 to 2013 (Figure 1). **Note:** Any form of tobacco included cigarettes, cigars, smokeless, pipe, bidis, kreteks, and in 2013, electronic cigarettes. Any form of tobacco used by high school students in 2013 was limited to cigarettes, cigars, chewing tobacco, and electronic cigarettes. In 2013, 12.4 percent of high school students and 3.5 percent of middle school students had ever tried an electronic cigarette.

Figure 1



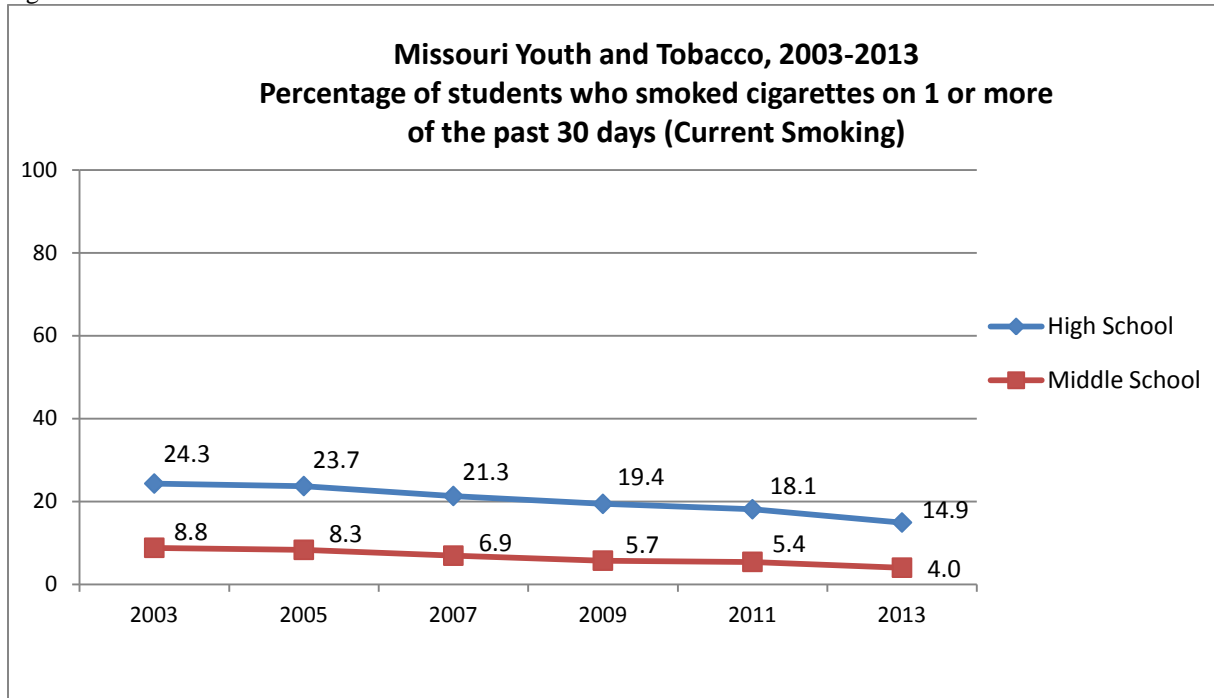
The percentage of middle and high school students that had ever smoked cigarettes declined significantly from 2003 to 2013 (Figure 2). The average annual percentage decline was 8.2 percent for middle school students and 4.3 percent for high school students.

Figure 2



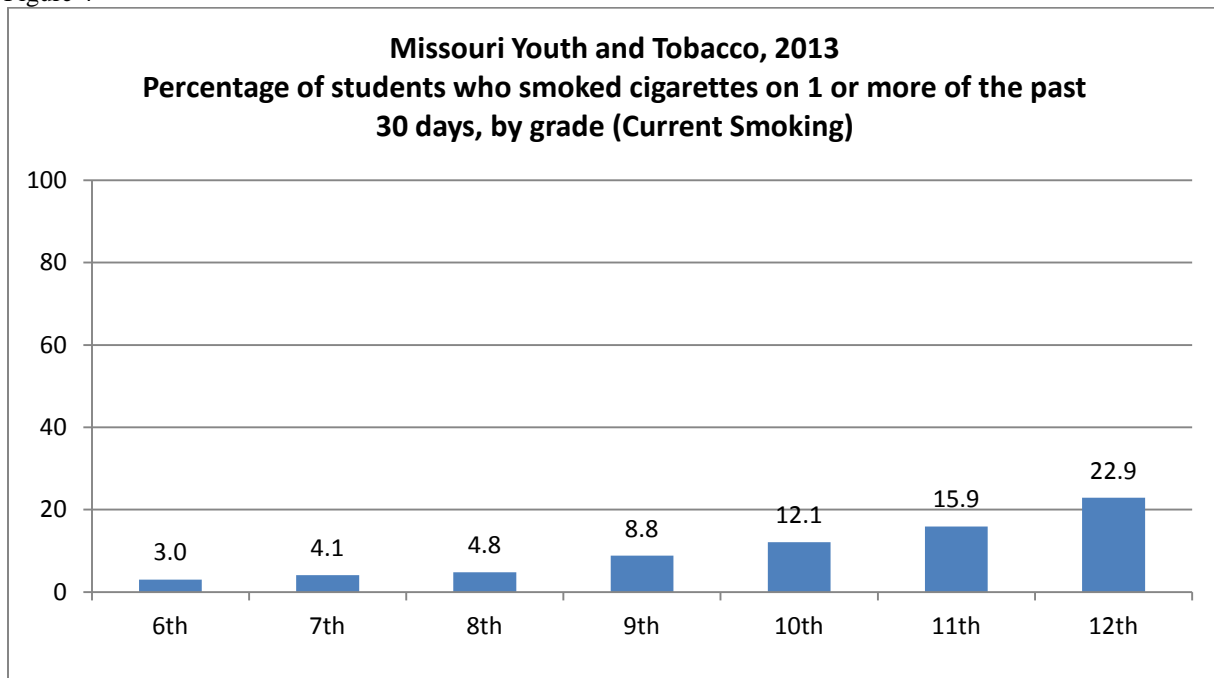
Current cigarette use among middle and high school students continued a significant downward trend over the period of 2003 to 2013 (Figure 3). The average annual percentage decline was 7.4 percent for middle school students and 4.9 percent for high school students.

Figure 3



In 2013, current cigarette smoking increased from 3.0 percent among 6<sup>th</sup> grade students to 22.9 percent of 12<sup>th</sup> grade students (Figure 4).

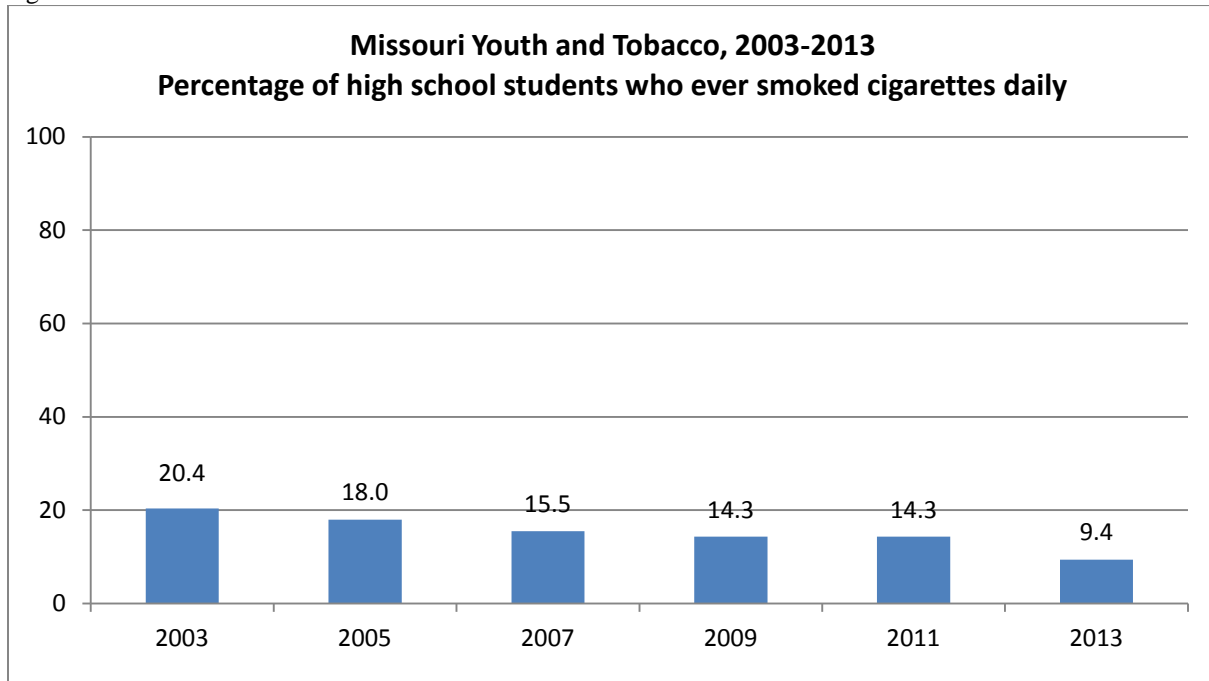
Figure 4





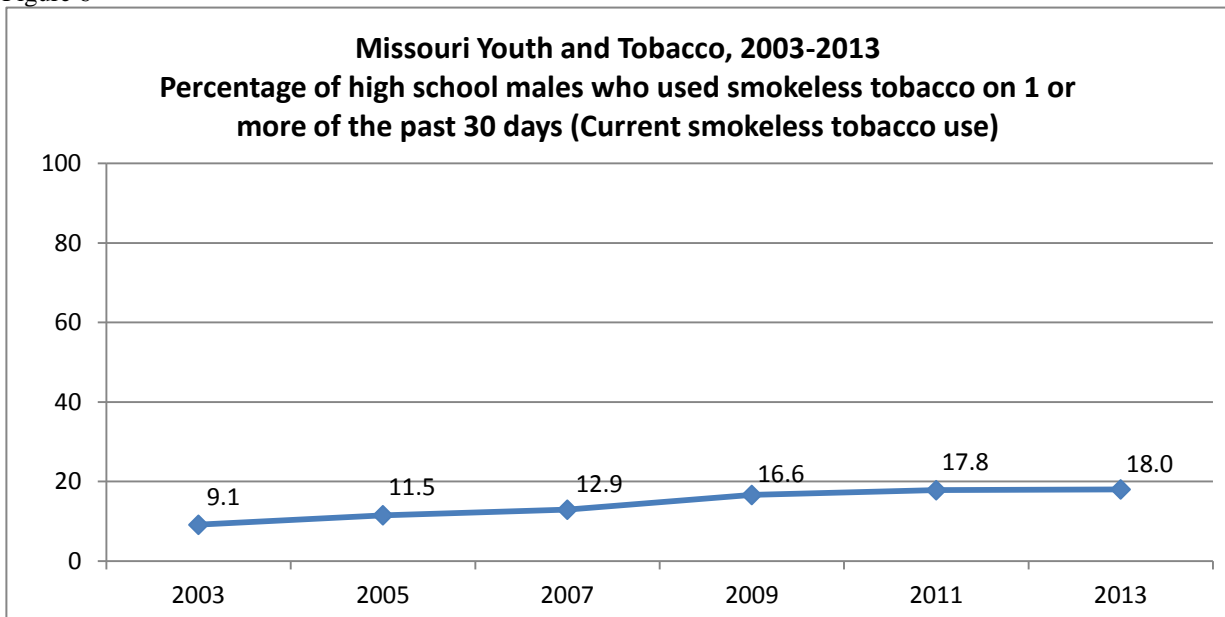
The percentage of high school students who had ever smoked cigarettes daily declined significantly from 20.4 percent in 2003 to 9.4 percent in 2013 (Figure 5).

Figure 5



Smokeless tobacco use among high school males increased significantly from 9.1 percent in 2003 to 18.0 percent in 2013 (Figure 6).

Figure 6



## Quit attempts and assistance

More than half of middle and high school current smokers tried to quit each year of the survey (Figure 7). However, few high school students that smoked had participated in a program to help them quit (Figure 8).

Figure 7

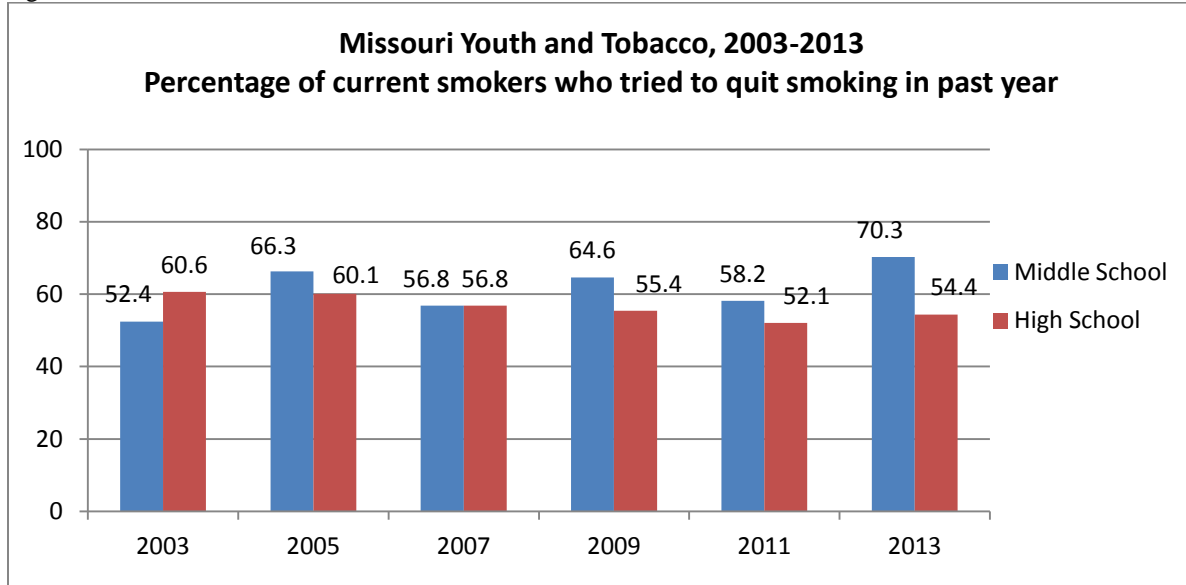
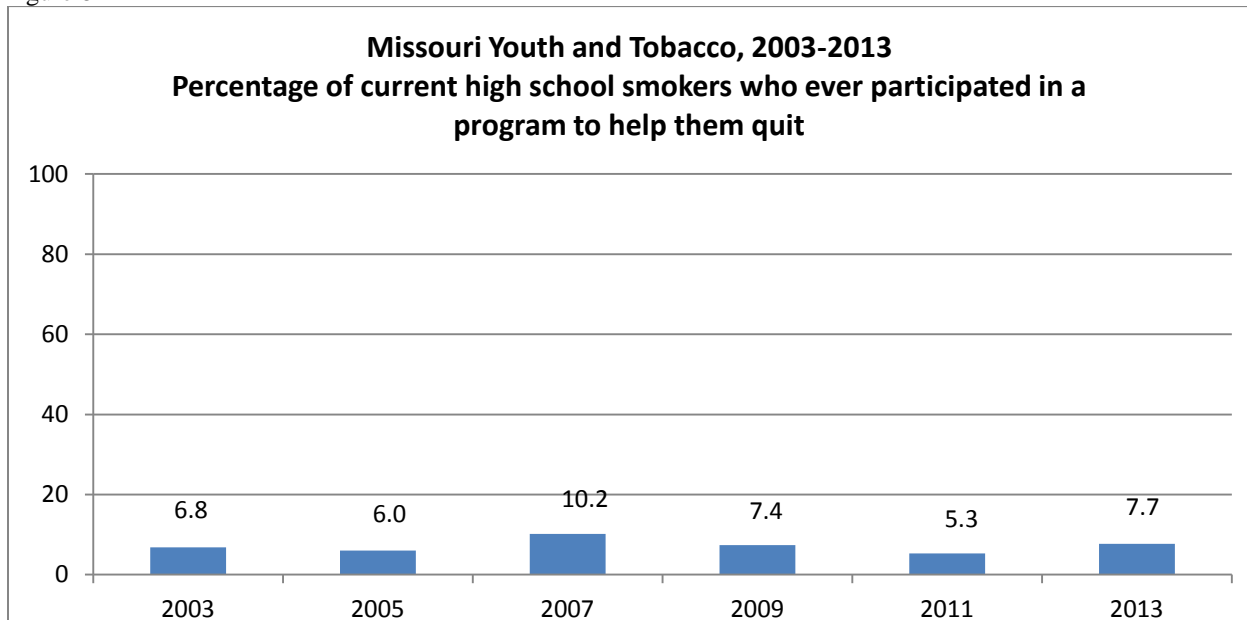


Figure 8

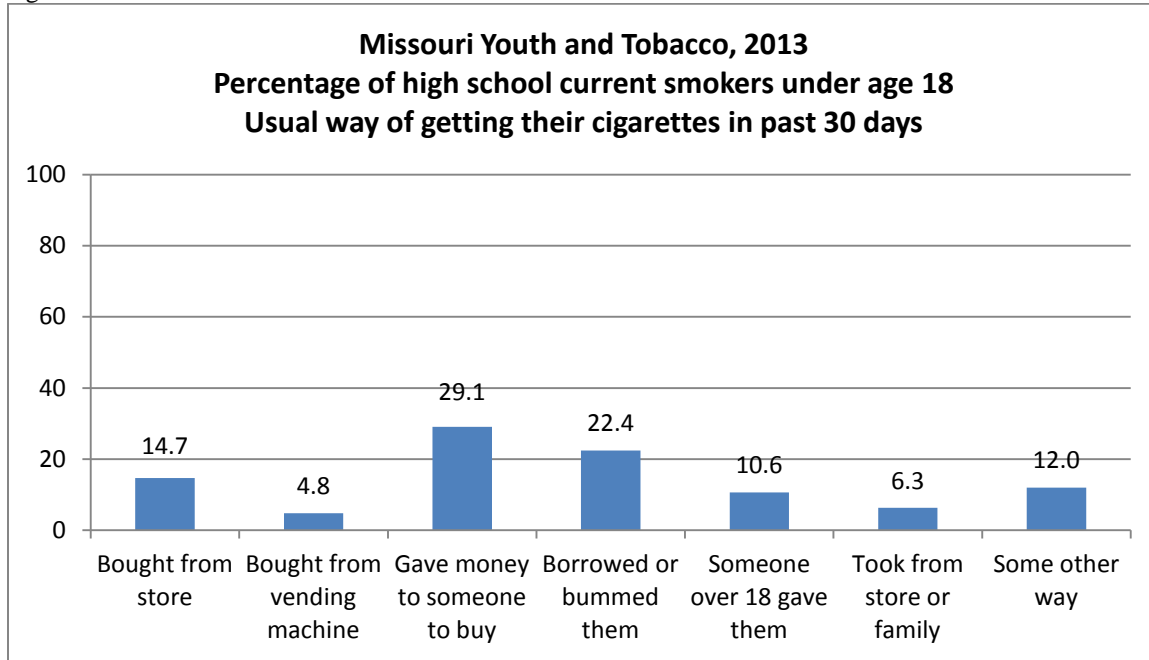




## Youth Access to Cigarettes

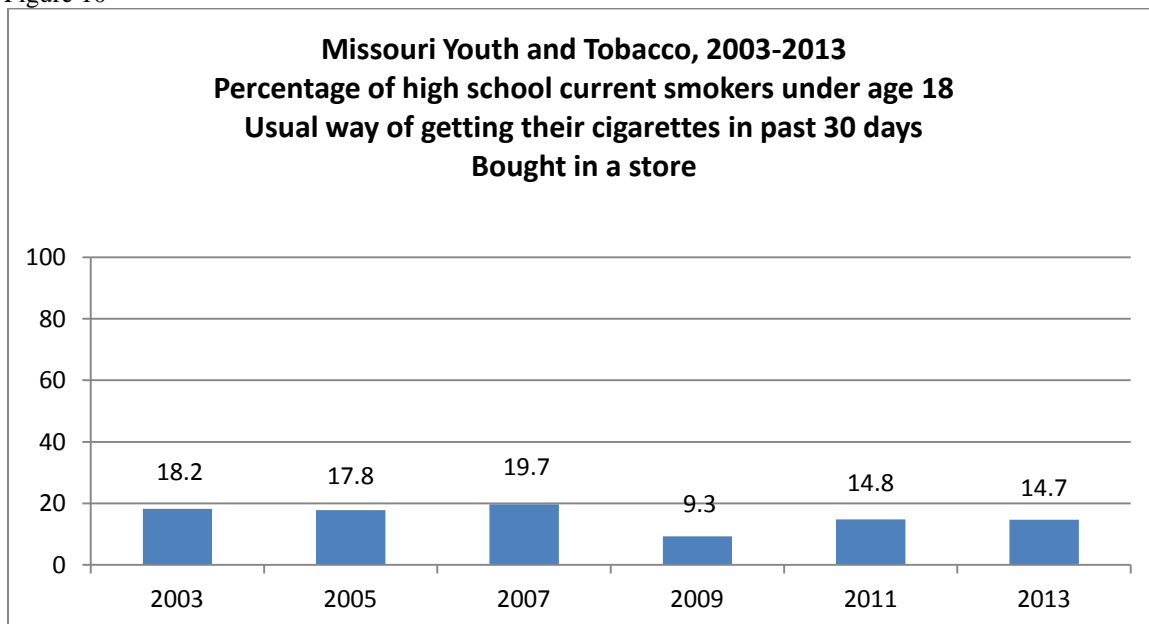
The most prevalent way in which high school current smokers under the age of 18 obtained their cigarettes in 2013 was by giving money to someone else to buy them (Figure 9).

Figure 9



Among high school smokers under the age of 18, the percentage whose usual way of obtaining their cigarettes was by buying from a store decreased from 2003 to 2009 then increased in 2011 and 2013 (Figure 10).

Figure 10

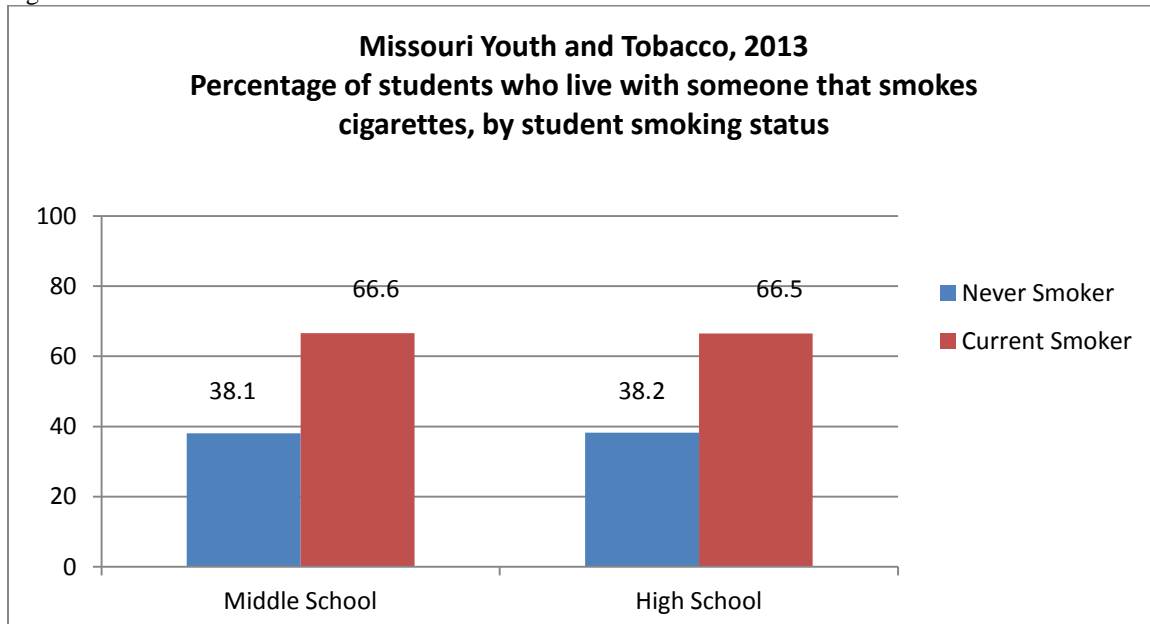


## Influences to Use Tobacco

### Living with someone who smokes

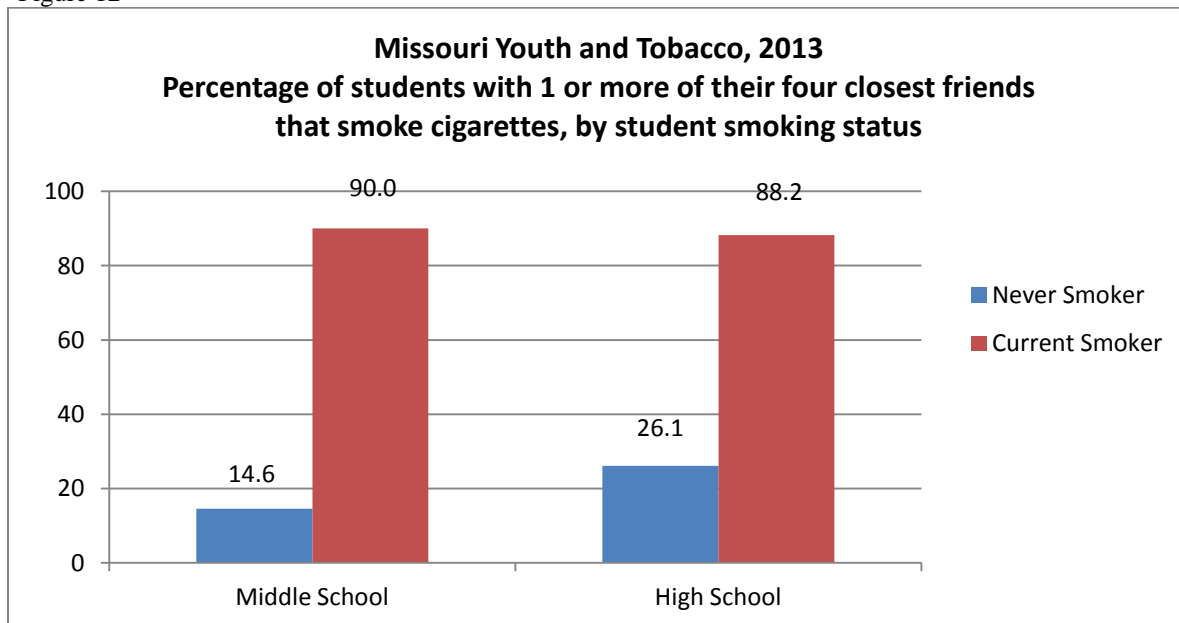
In 2013, significantly more middle and high school students who smoked lived with someone that smoked than did students who had never smoked (Figure 11).

Figure 11



Significantly more middle and high school students who smoked had one or more of their four closest friends that smoked than did students who had never smoked (Figure 12).

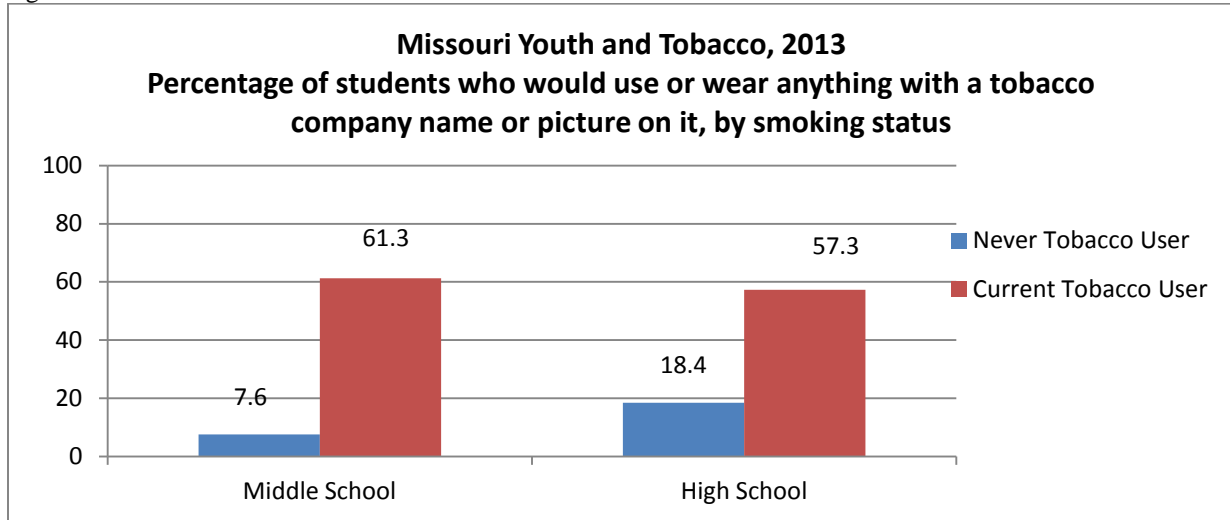
Figure 12



## Tobacco Product Promotion

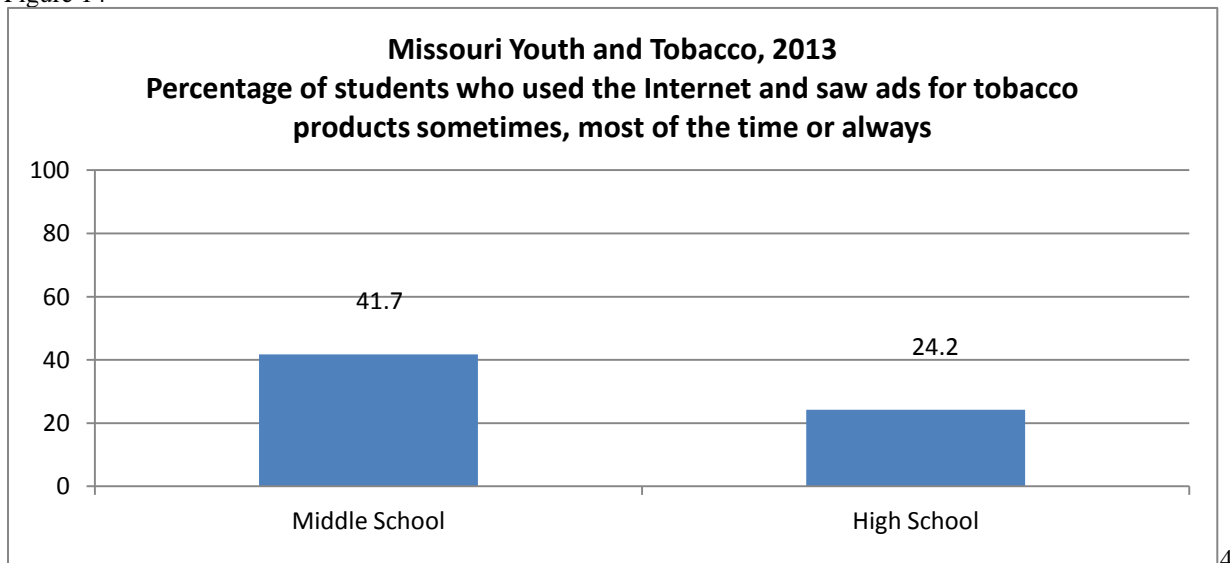
In 2013, significantly more middle and high school tobacco users would ever wear or use something with a tobacco company name or picture on it than never tobacco users (Figure 13).

Figure 13



In 2013, 41.7 percent of middle school students and 24.3 percent of high school students that used the Internet saw ads for tobacco products sometimes, most of the time or always (Figure 14). Additionally in 2013, 60.1 percent of middle school students always or most of the time saw ads or promotions for cigarettes and other tobacco products when they went to a convenience store, supermarket or gas station.

Figure 14

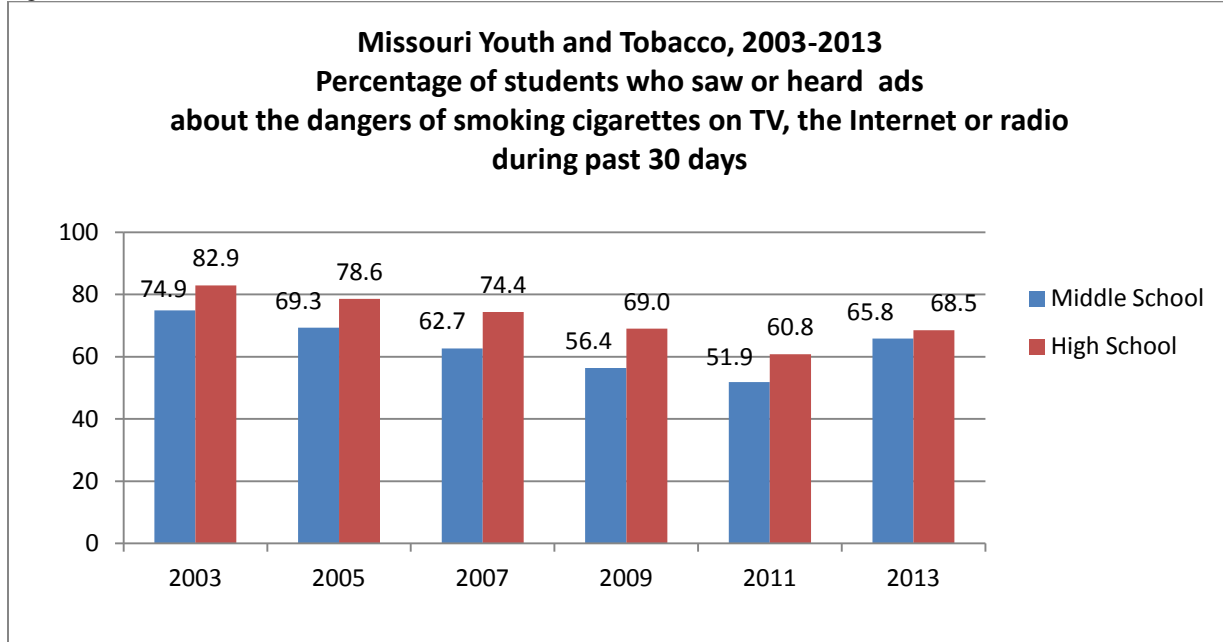


## Education about the dangers of tobacco and secondhand smoke

### Media Messages

The percentage of middle and high school students who saw or heard anti-smoking ads during the past 30 days declined significantly from 2003 to 2011, but increased significantly in 2013 from 2011 (Figure 15).

Figure 15



In 2013, less than half of middle students had discussed the dangers of tobacco use with a parent or guardian (Table 1). Among middle school students, 22.6 percent had participated in an organized activity to keep people from using tobacco during the past 12 months. In 2013, 8.6 percent of high school students had participated in community activities to educate the public about the dangers of secondhand smoke.

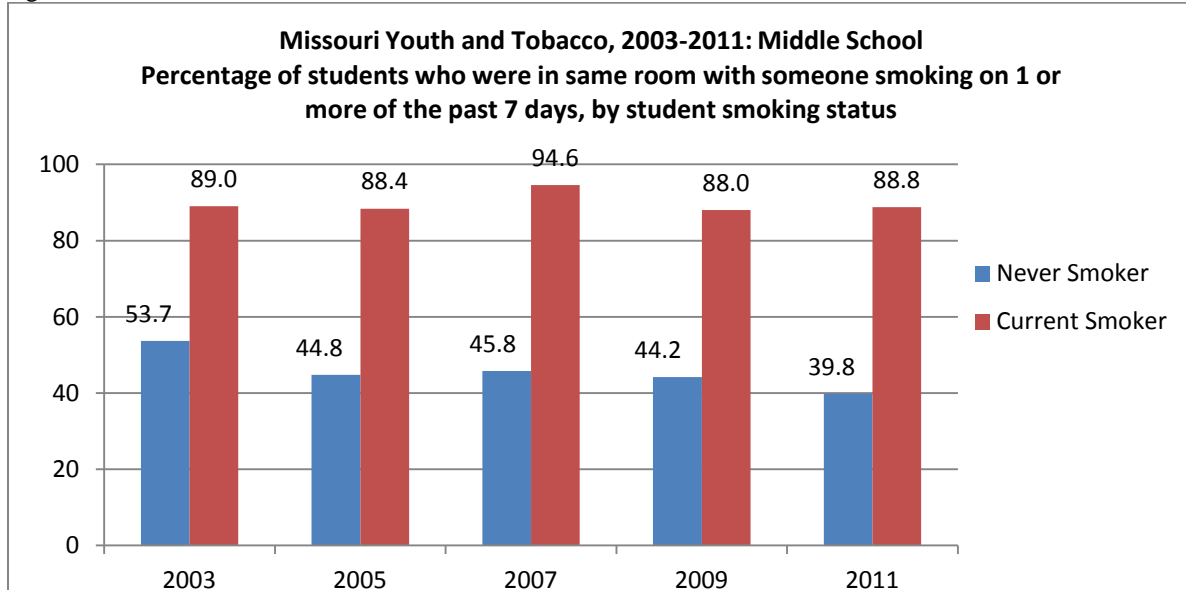
Table 1

<b>Percentage of students that had:</b>	<b>Middle School</b>	<b>High School</b>
Discussed not using any type of tobacco products with parent or guardian in past year	45.0	N/A
Participated in any organized activities to keep people from using any form of tobacco in past 12 months	22.6	N/A
Participated in any community activities to educate the public about the dangers of secondhand smoke in past year	N/A	8.6

## Secondhand smoke exposure

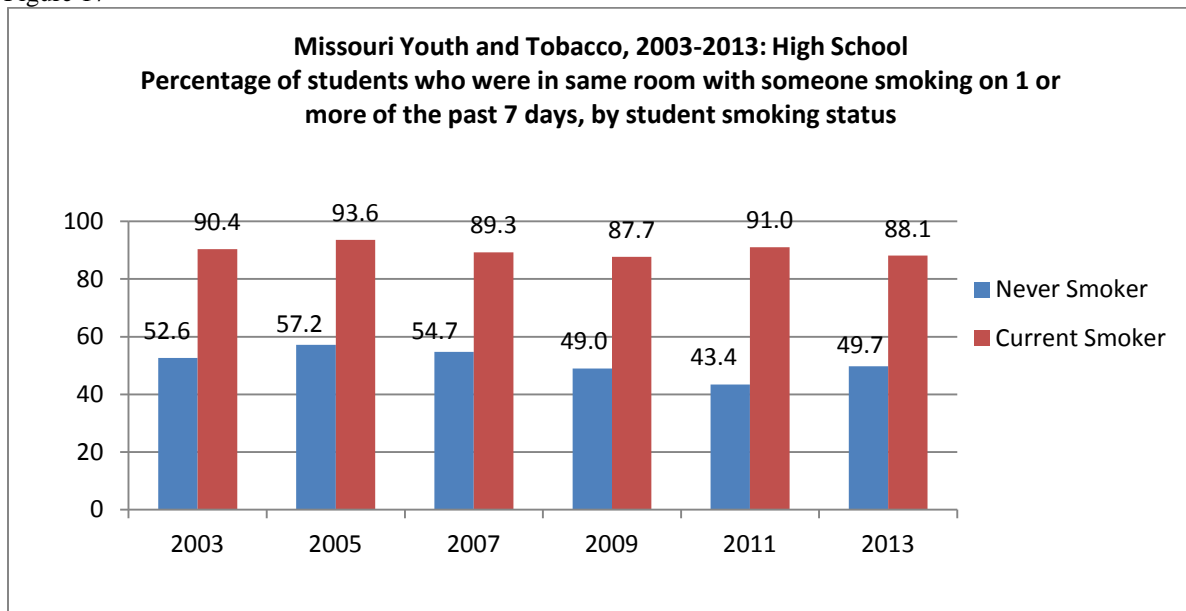
The percentage of middle school students who had never smoked that were in the same room with someone smoking cigarettes declined significantly from 53.7 percent in 2003 to 39.8 percent in 2011 (Figure 16). Note: 2013 data not available due to change in question.

Figure 16



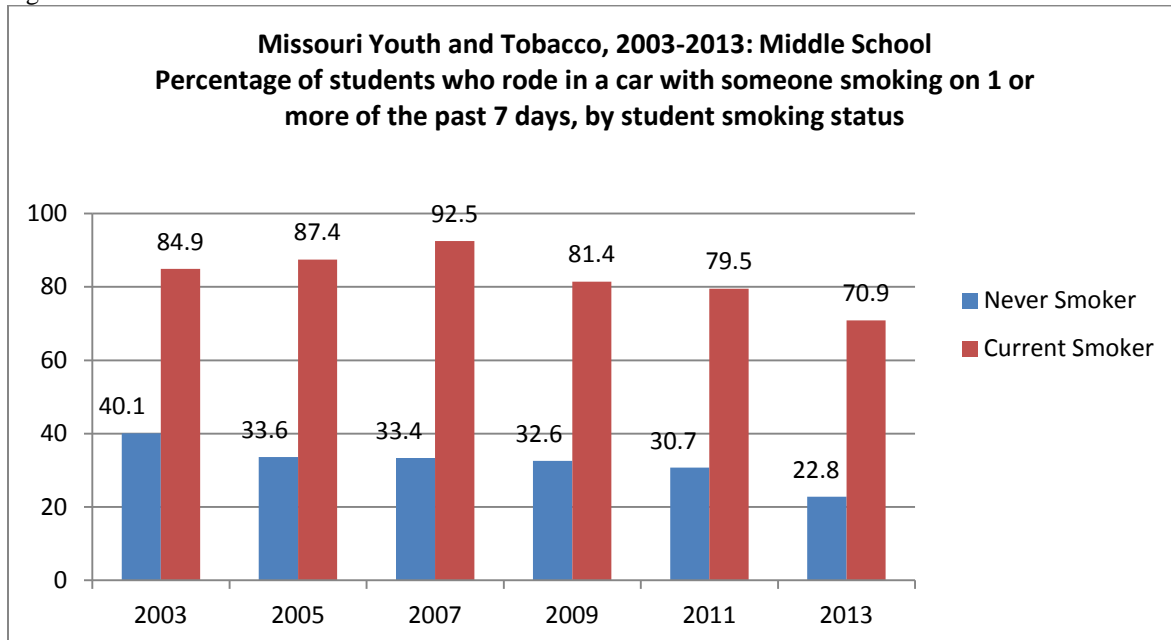
The percentage of high school students who had never smoked that were in the same room with someone smoking cigarettes declined significantly from 52.6 percent in 2003 to 43.4 percent in 2011, but increased to 49.7 percent in 2013 (Figure 17).

Figure 17



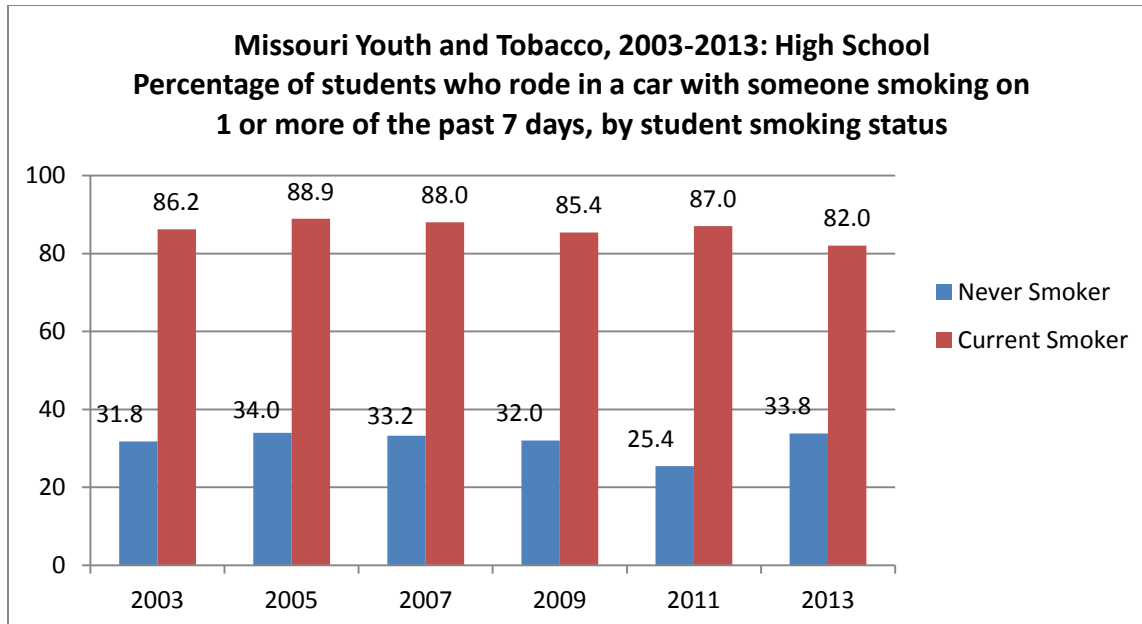
The percentage of middle school students who had never smoked that rode in a car with someone smoking tobacco on one or more of the past seven days declined significantly from 40.1 percent in 2003 to 22.8 percent in 2013 (Figure 18).

Figure 18



The percentage of high school students who had never smoked that rode in a car with someone smoking on one or more of the past seven days declined significantly from 2003 to 2011, but increased in 2013 (Figure 19).

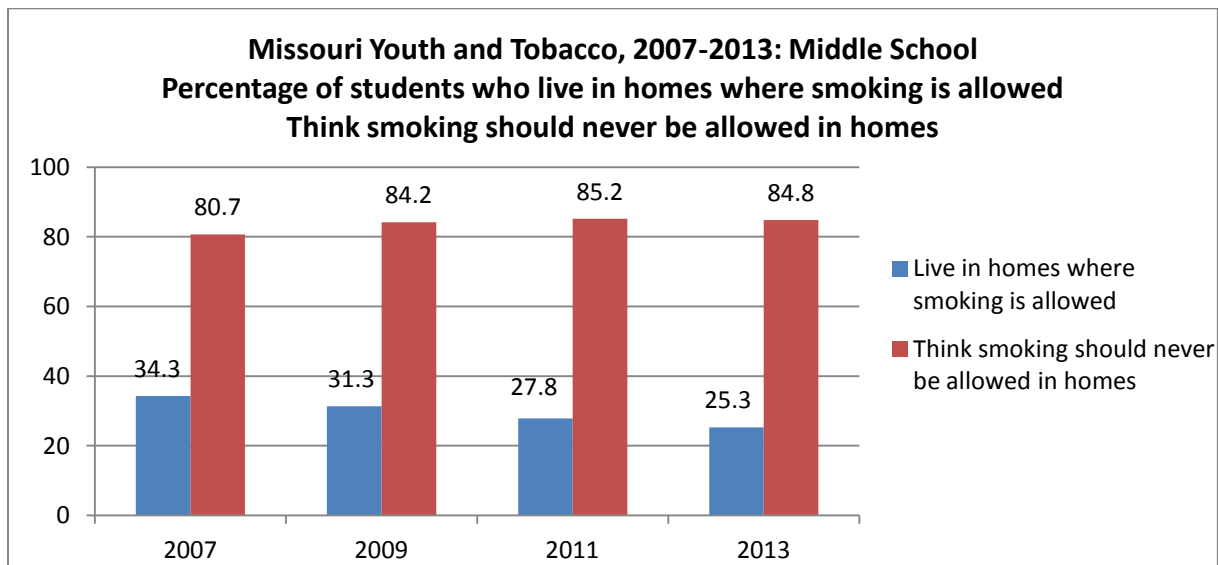
Figure 19



## Secondhand Smoke Policy and Beliefs

The percentage of middle school students who lived in homes where smoking was allowed decreased from 34.3 percent in 2007 to 25.3 percent in 2013 (Figure 20). The percentage of middle school students who think smoking should never be allowed in homes increased from 80.7 percent in 2007 to 84.8 percent in 2013.

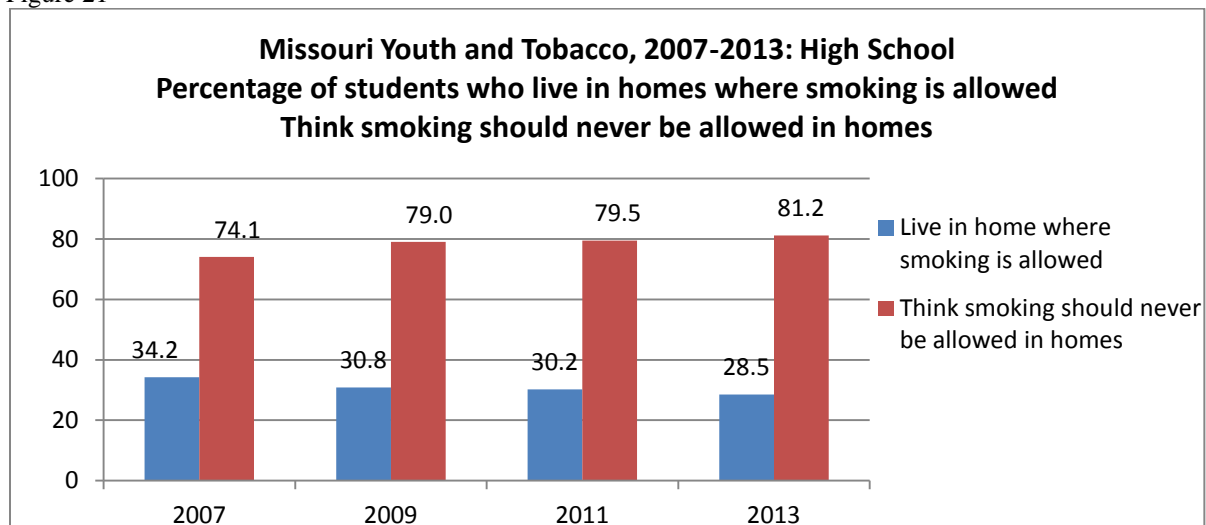
Figure 20



The percentage of high school students who lived in homes where smoking was allowed decreased from 34.2 percent in 2007 to 28.5 percent in 2013 (Figure 21). The percentage of high school students who thought smoking should never be allowed in homes increased from 74.1 percent in 2007 to 81.2 percent in 2013.



Figure 21



## Secondhand smoke in the workplace

Among high school students who had jobs, the percentage that worked in places where smoking was allowed declined significantly from 29.5 percent in 2007 to 19.3 percent in 2011 (Table 2). In 2013, 15.2 percent were exposed to cigarette smoke at work during the past seven days.

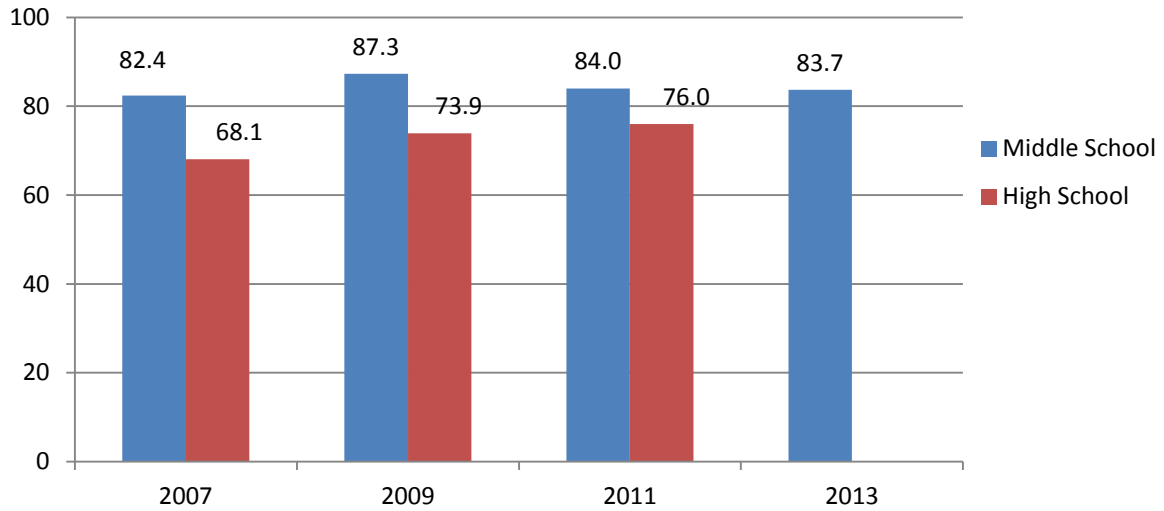
Table 2

Among high school students that had a job, the percentage that:	2007	2009	2011	2013
Worked in places that allowed smoking	29.5	23.2	19.3	N/A
Were exposed to cigarette smoke at work in past seven days	20.7	14.5	14.1	15.2

The percentage of high school students who thought employers should never allow smoking in workplaces increased significantly from 68.1 percent in 2007 to 76.0 percent in 2011 (Figure 22). More than 80 percent of middle school students thought workplaces should be smoke-free each year 2007 through 2013. Note: 2013 data for high school students are not available.

Figure 22

**Missouri Youth and Tobacco, 2007-2013**  
**Percentage of students who think employers should never allow smoking in places where people work**



## Survey methodology

The Missouri Youth Tobacco Survey (YTS) was conducted by the Missouri Department of Health and Senior Services (DHSS) with middle and high school students every odd-numbered spring from 2003 through 2011 and with middle school students only in 2013. The Missouri Youth Risk Behavior Survey (YRBS) was administered by the Missouri Department of Elementary and Secondary Education (DESE) with high school students only in odd-numbered springs from 1995 through 2011, and then by DHSS in 2013.

Both paper and pencil surveys were supported by the U.S. Centers for Disease Control and Prevention, which provided funding for survey administration, and performed school sampling, data tabulation, weighting and primary analysis. DHSS staff administered the surveys by obtaining participation of randomly selected schools, securing class schedules and randomly selecting classes for participation, providing survey materials to participating schools, and collecting and processing completed surveys for shipping to the CDC.

### *Sampling design*

All regular and charter public schools in Missouri containing grades 6-8 in which 6<sup>th</sup> grade was not the highest grade in the building were included in the sampling frame for middle schools. Buildings containing grades 9-12 were included in the sampling frame for high schools. A two-stage cluster sample design was used to produce a separate representative sample of students for middle school and high school.

In the first-stage sampling, schools were randomly selected with probability proportional to the school enrollment size. In the second stage, systematic equal probability sampling with a random start was used to select classes from each school that participated in the survey. All classes in the selected schools were included in the second-stage sampling frame. All students in the selected classes were eligible to participate in the survey. School and student participation were anonymous and confidential. Passive parental permission was utilized unless the school district required active permission.

### Response rates

The response rates were calculated by multiplying school participation rate by student participation rate for middle schools and high schools. The response rate must be equal to or greater than 60 percent for data to be weighted to adjust for unequal probability selection of each student and to reduce bias by compensating for differing patterns of non-response.

Sufficient responses for weighting the data have been obtained each year the YTS was conducted in Missouri. In 2013, 32 of 42 (76.2 percent) sampled middle schools participated with 1,838 of 2,111 (87.1 percent) sampled middle school students completing usable questionnaires. The overall response rate was 66.4 percent.

Sufficient responses for weighting the data have been obtained each year the YRBS was conducted in Missouri, with the exception of 2011. In 2013, 32 of 40 (80.0 percent) sampled high schools and 1616 of 1863 (86.7 percent) sampled students completed usable questionnaires. The overall response rate was 69.4 percent.

## **Strategies for Reducing Tobacco Use among Missouri Youth**

Results from the 2013 Missouri Youth Tobacco Survey and Youth Risk Behavior Survey showed continued progress in reducing tobacco use and exposure to secondhand smoke that was first reported in “Missouri Youth Tobacco Survey 2003-2009.” To continue the progress, the following evidence-based strategies should be fully implemented.

➤ **Promote quitting by adults and youth**

These survey results show significant differences between youth that have never smoked cigarettes and those that are current smokers with regard to influences to smoke. One such influence is living with someone that smokes. In 2013, 66.6 percent of middle school smokers lived with someone that smoked compared to 38.1 percent of never smokers. Among high school smokers, 66.5 percent lived with someone that smoked compared to 38.2 percent of never smokers. Missouri’s adult smoking prevalence in 2012 of 23.9 percent was among the highest of all states.<sup>3</sup> To continue reducing smoking among young people, efforts to promote quitting among adult smokers should continue, such as through the cessation assistance provided by the Missouri Tobacco Quitline (1-800-QUIT- NOW).

➤ **Increase the price of tobacco products**

Increasing the price of tobacco products is one of the most effective methods of decreasing use among both adults and youth.<sup>4</sup> Missouri’s state tax of 17 cents on a package of cigarettes is the lowest of all states.<sup>5</sup> The 2013 YRBS revealed that the most utilized method of obtaining cigarettes by high school students under the age of 18 that smoke was to give money to someone else to buy them. Increasing the cost would make cigarettes less affordable for youth.

➤ **Create tobacco-free environments**

Creating smoke-free environments not only reduces exposure to secondhand smoke, but has also been shown to contribute to less smoking initiation by youth due to less modeling of the behavior by adults. According to a Massachusetts study, youth in communities with strict smoking bans were 40 percent less likely to initiate smoking than youth in communities without bans.<sup>6</sup> Efforts to increase the number of smoke-free workplaces in Missouri have resulted in less exposure to secondhand smoke for the public and workers. More than 30 Missouri municipalities and one county have enacted smoke-free workplace ordinances covering public places, workplaces and restaurants and/or bars; 24 of these are comprehensive covering public places, workplaces, restaurants and bars.<sup>7</sup> The 2011 YTS revealed that significantly fewer high school students with jobs worked where smoking was allowed than in 2007. These efforts should increase, and involve youth in advocating for tobacco-free environments such as programs described in a report by the Center for Tobacco Policy Research.<sup>8</sup>

➤ **Decrease social acceptability of tobacco**

The percentage of middle and high school students who saw or heard anti-smoking ads in the past 30 days declined significantly from 2003-2011, but increased significantly in 2013. Mass-reach health communication interventions, particularly through television, have been shown to reduce tobacco use initiation among youth.<sup>9</sup> Efforts should be made to secure funding to support strong anti-tobacco mass communication interventions that counter tobacco product promotions.

## References

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- <sup>6</sup> Siegel M., Albers AB, Cheng DM, Hamilton WL, Biener L. Local Restaurant Smoking Regulations and the Adolescent Smoking Initiation Process: Results of a Multilevel Contextual Analysis Among Massachusetts Youth. *Archives of Pediatric Adolescent Medicine* 2008; 162(5):477-483.
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