

2018



Substance Abuse in Minnesota: A State Epidemiological Profile

Section 4.

Tobacco and Nicotine:

Use, Consequences, and Intervening Variables

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**for the Minnesota Department of Human Services, Alcohol and
Drug Abuse Division**

Substance Abuse in Minnesota

Section 4. Tobacco and Nicotine:

Use, Consequences, and Intervening Variables

The 2018 Minnesota State EpiProfile is divided into eight parts:

- 1. Introduction (which includes a profile overview, population snapshot, and acknowledgements)**
- 2. Executive Summary**
- 3. Alcohol: Use, Consequences, and Intervening Variables**
- 4. Tobacco and Nicotine: Use, Consequences, and Intervening Variables**
- 5. Drugs: Use, Consequences, and Intervening Variables**
- 6. Mental Health and Shared Factors**
- 7. Socioeconomic Factors**
- 8. Appendix (which includes technical notes and data sources)**

Tobacco and Nicotine In Minnesota: Use

Adults Reporting Tobacco and Nicotine Use

About the Indicator

Current cigarette use is defined here as adults reporting smoking cigarettes on one or more days within the past 30 days. Daily cigarette use is defined as persons 18 and over having smoked 100 or more cigarettes in their lifetime, and who now smoke cigarettes every day.

MNSASU asked about e-cigarette use for the first time in 2015.

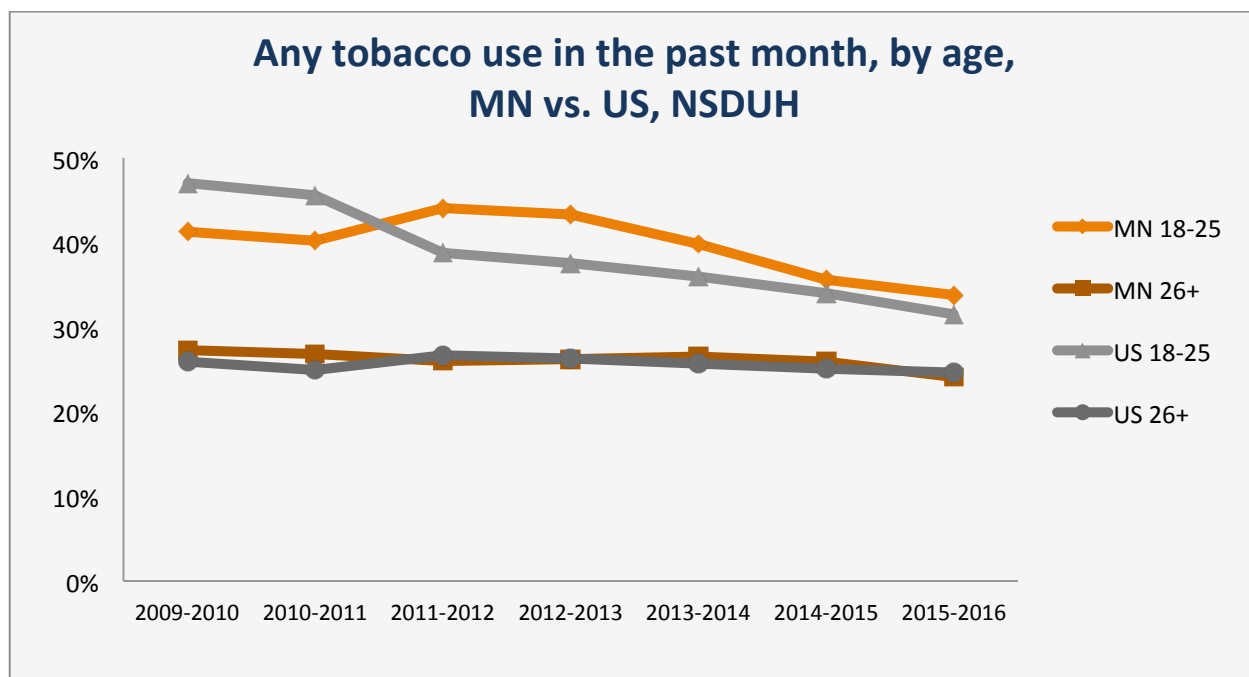
Data Source(s)

National Survey on Drug Use and Health (NSDUH), Behavioral Risk Factor Surveillance System (BRFSS) and the Minnesota Survey of Adult Substance Use (MNSASU)

Section Summary

- While reported cigarette smoking has declined substantially among 12 to 25 year-olds in Minnesota, rates have been nearly flat for adults age 26 and older.
- Minnesotans' smoking rates are on par with the national average.
- Young Minnesotans are more likely to smoke.
- Most adults using e-cigarettes report using them as a cigarette-cessation strategy.

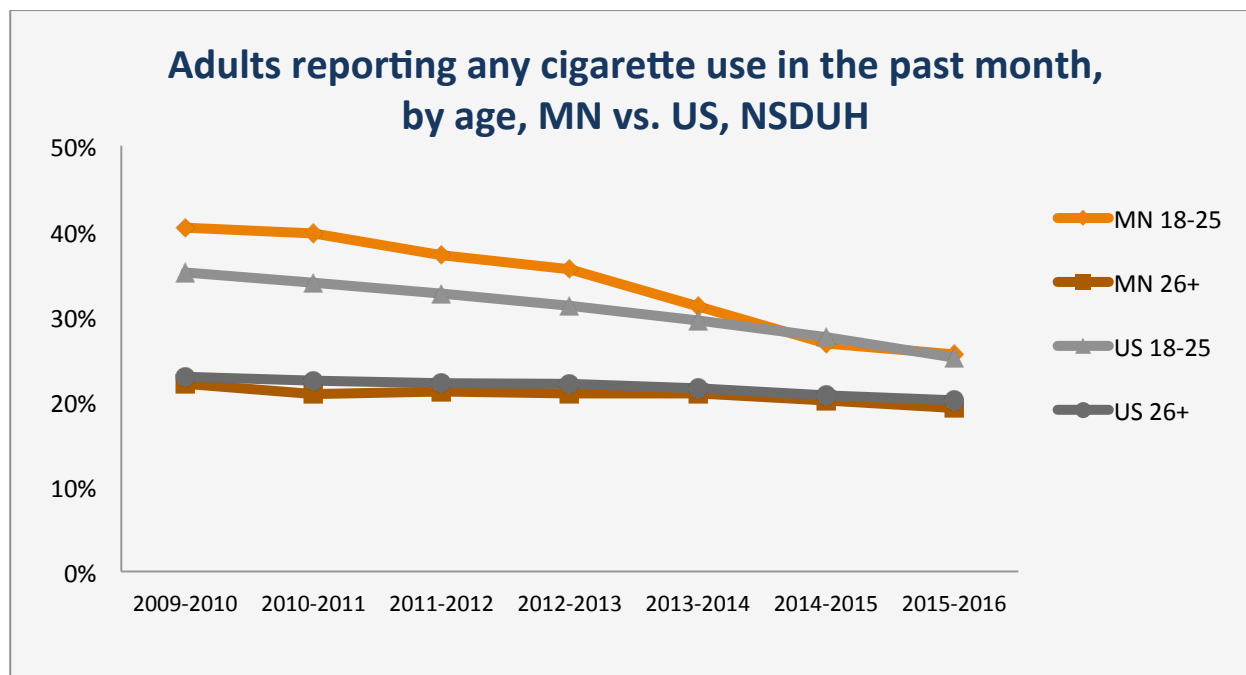
Data source: NSDUH



Adults Reporting any Tobacco Product Use in the Past Month, NSDUH

Minnesota	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Tobacco use 12+	27.6%	27.0%	26.8%	27.0%	26.4%	25.3%	23.6%
Ages 12 thru 17	11.3%	10.3%	10.6%	8.9%	7.5%	6.7%	5.6%
Ages 18 thru 25	41.3%	40.2%	44.0%	43.3%	39.8%	35.6%	33.8%
Ages 26 and Over	27.3%	26.8%	26.0%	26.2%	26.5%	25.9%	24.1%
United States	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Tobacco use 12+	27.3%	26.3%	26.6%	26.1%	25.4%	24.6%	23.7%
Ages 12 thru 17	11.2%	10.4%	9.3%	8.2%	7.4%	6.5%	5.7%
Ages 18 thru 25	47.0%	45.6%	38.8%	37.6%	36.0%	34.0%	31.5%
Ages 26 and Over	25.9%	24.9%	26.7%	26.3%	25.7%	25.1%	24.6%
MN:US rate ratio	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Tobacco use 12+	1.01	1.03	1.01	1.03	1.04	1.03	1.00

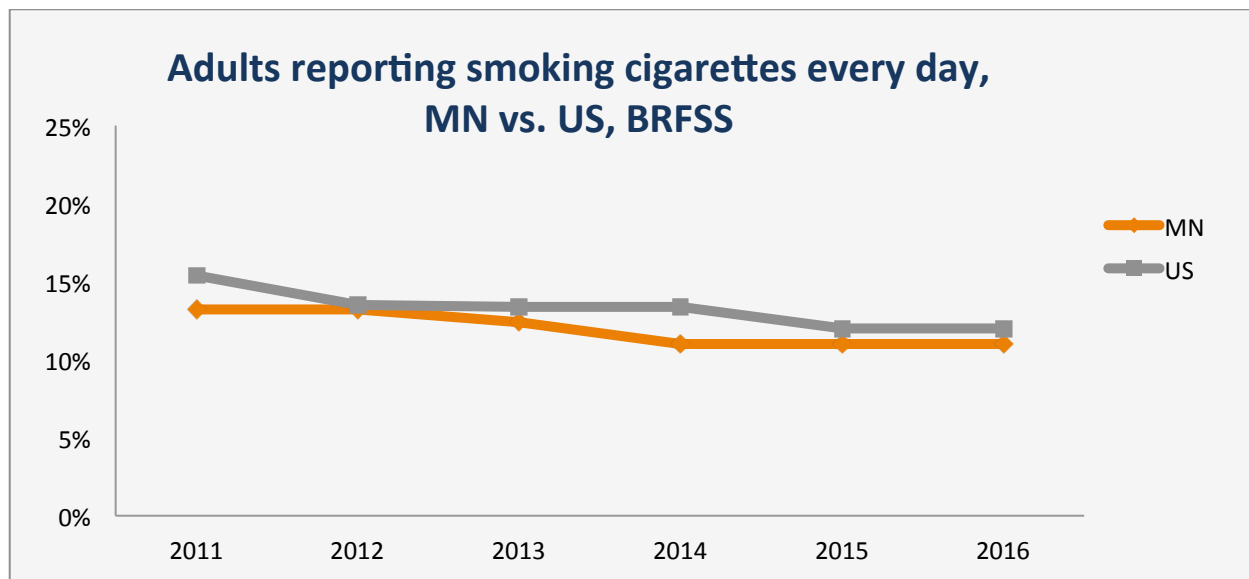
Data Source: NSDUH



Adults Reporting any Cigarette Use in the Past Month, NSDUH

Minnesota	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Cigarette use 12+	23.2%	22.1%	22.0%	21.5%	20.7%	19.5%	18.6%
Ages 12 thru 17	8.9%	8.7%	8.9%	7.0%	5.5%	4.7%	4.2%
Ages 18 thru 25	40.4%	39.7%	37.1%	35.5%	31.1%	26.8%	25.5%
Ages 26 and Over	22.0%	20.8%	21.1%	20.9%	20.9%	20.1%	19.2%
United States	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Cigarette use 12+	23.2%	22.5%	22.1%	21.7%	21.1%	20.1%	19.2%
Ages 12 thru 17	8.7%	8.1%	7.2%	6.1%	5.2%	4.5%	3.8%
Ages 18 thru 25	35.1%	33.9%	32.7%	31.2%	29.5%	27.5%	25.1%
Ages 26 and Over	22.9%	22.4%	22.1%	22.0%	21.5%	20.7%	20.1%
MN:US rate ratio	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Tobacco use 12+	1.00	0.98	0.99	0.99	0.98	0.97	0.97

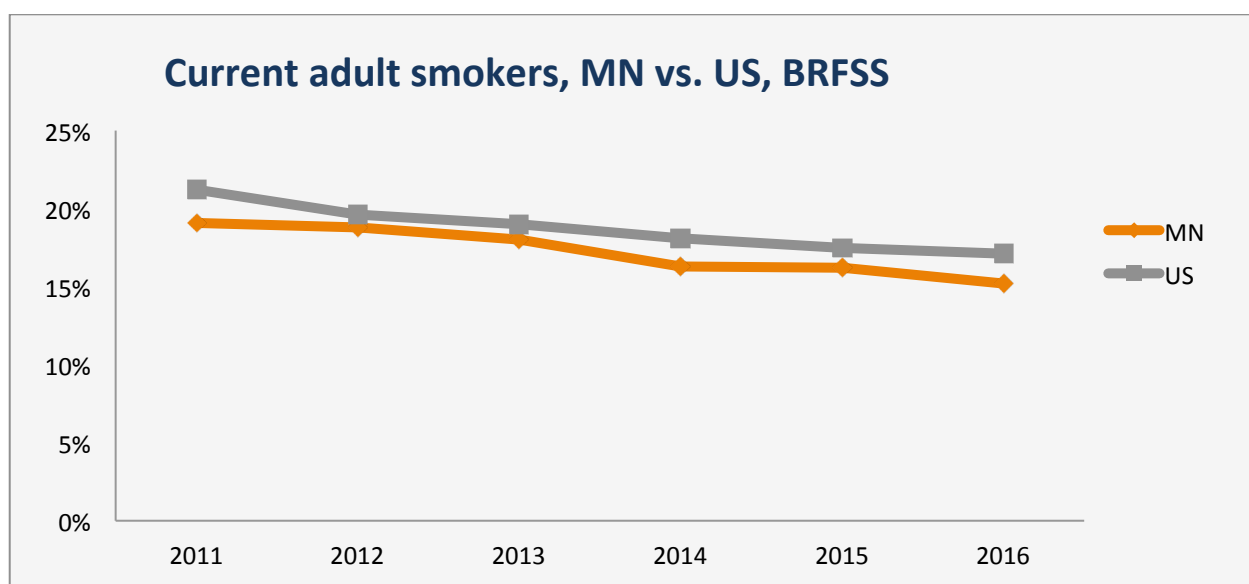
Data Source: BRFSS



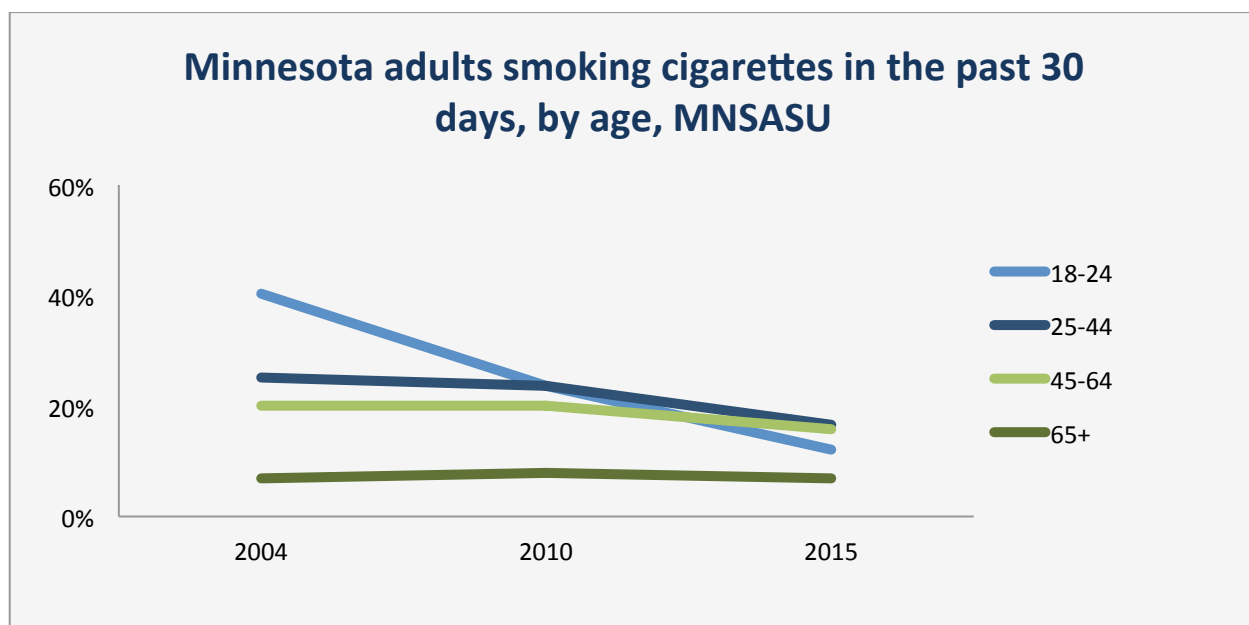
Adults Reporting Smoking Cigarettes Every Day, BRFSS

	2011	2012	2013	2014	2015	2016
Minnesota	13%	13%	12%	11%	11%	11%
US	15%	14%	13%	13%	12%	12%
MN:US*	0.87	0.93	0.92	0.85	0.92	0.85

NOTE: In 2011, BRFSS changed the definition for current smokers, from those who had smoked more than 100 cigarettes in their lifetimes and are now daily smokers, to those who are currently daily smokers. Therefore, the data from 2011 and later are not comparable with those from 2010 and earlier. Between 2004 and 2010, Minnesota’s rate of smokers steadily dropped from 15% to 11%. The rate for Minnesota remained below that of the US for the entire period, with rate ratios between 0.86 and 0.96.

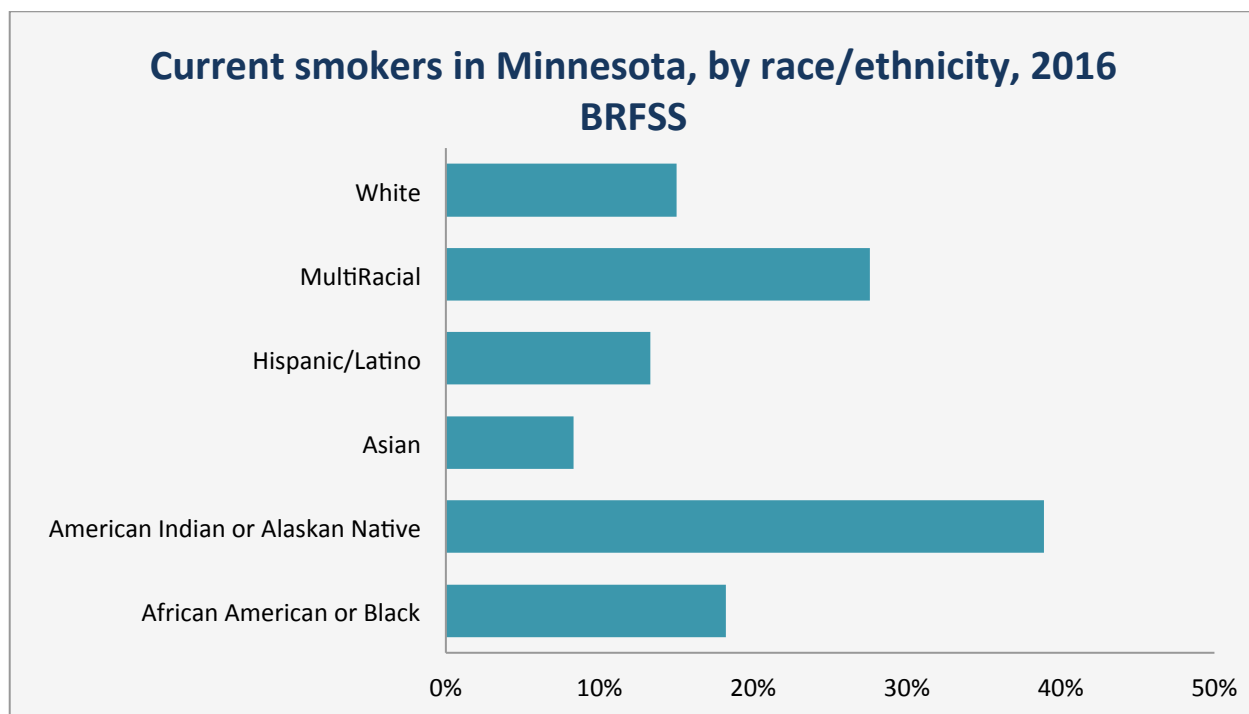


Data Source: MNSASU



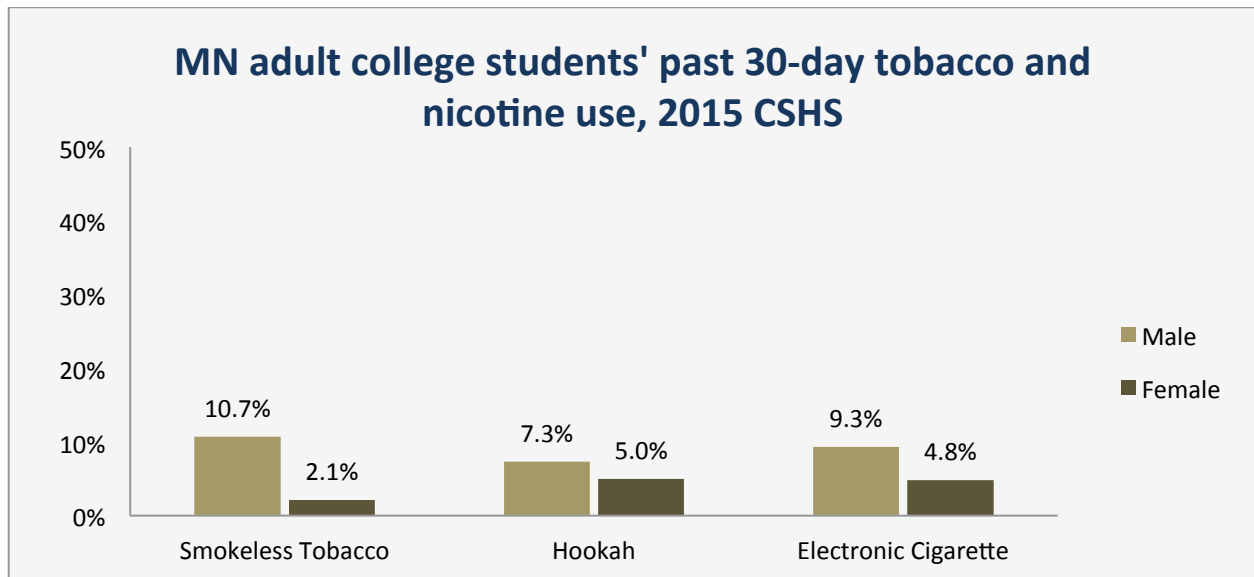
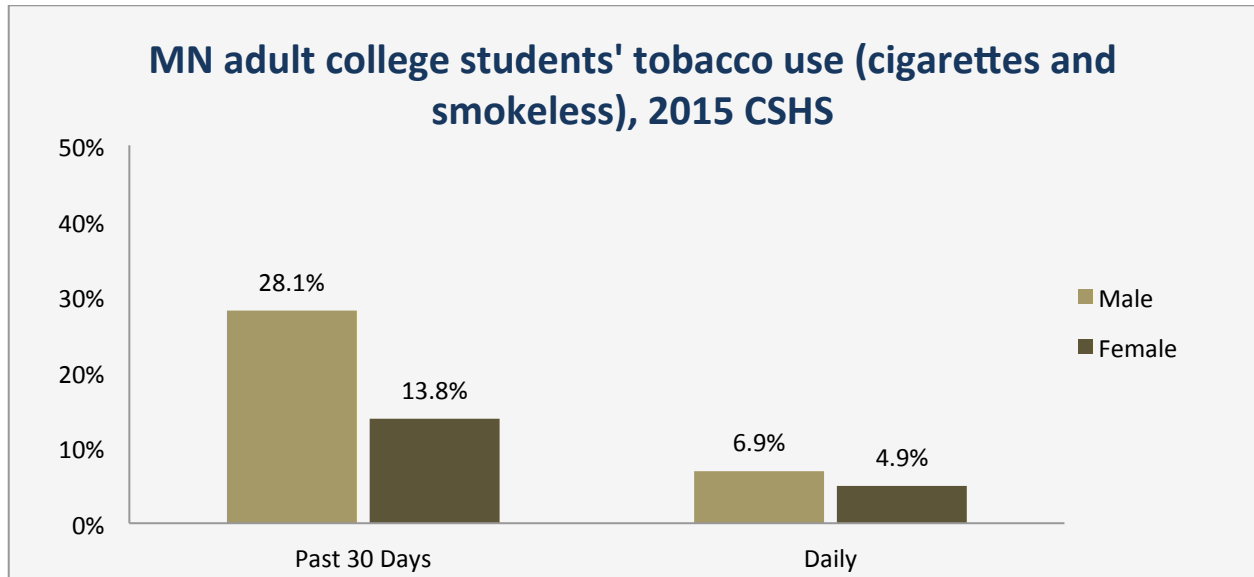
Minnesota adults reporting smoking cigarettes within the past 30 days, MNSASU		2004	2010	2015
Age	Ages 18 thru 24	40.3%	23.7%	12.1%
	Ages 25 thru 44	25.1%	23.7%	16.6%
	Ages 45 thru 64	20.0%	20.0%	15.8%
	Ages 65 and over	6.9%	7.9%	6.9%
Race/Ethnicity	African American or Black	27.1%	26.3%	18.1%
	American Indian	54.2%	58.9%	46.1%
	Asian American/Pacific Islander	18.2%	11.8%	11.4%
	Hispanic/Latino	23.5%	18.3%	11.0%
	Bi-Racial/Multi-Racial	46.9%	38.4%	25.9%
	White	22.2%	19.2%	15.4%
Gender	Male	24.2%	21.0%	16.6%
	Female	21.3%	18.7%	14.9%
	Total	22.7%	19.8%	15.8%
Sexual Orientation	Lesbian, Gay, and Bisexual	N/A	N/A	21.4%
	Heterosexual	N/A	N/A	15.6%

Data Source: BRFSS

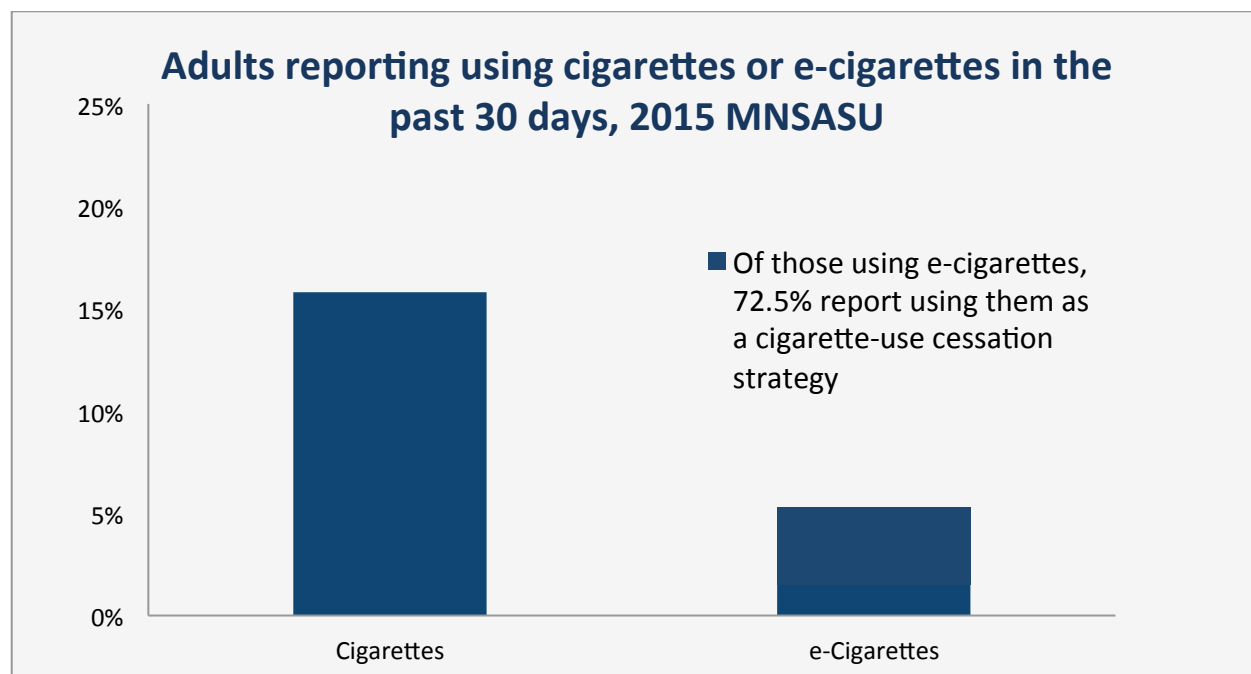


Cigarette Use: Current smokers in Minnesota, BRFSS							
		2011	2012	2013	2014	2015	2016
Age	Ages 18 thru 24	24.7%	20.6%	21.9%	16.1%	17.3%	12.6%
	Ages 25 thru 34	27.6%	26.8%	25.5%	23.0%	22.8%	20.5%
	Ages 35 thru 44	17.4%	21.3%	17.2%	18.0%	16.9%	17.9%
	Ages 45 thru 54	20.7%	20.0%	18.0%	17.5%	18.6%	17.5%
	Ages 55 thru 64	16.3%	16.1%	17.9%	15.8%	15.9%	15.3%
	Ages 65 and over	8.6%	8.8%	9.3%	8.1%	7.4%	8.1%
Race/Ethnicity	African American or Black	29.8%	29.4%	22.2%	22.3%	21.0%	18.2%
	American Indian/Alaskan Native	N/A	N/A	N/A	N/A	37.2%	38.9%
	Asian	N/A	N/A	N/A	N/A	7.7%	8.3%
	Hispanic/Latino	20.1%	18.5%	16.9%	14.3%	16.8%	13.3%
	MultiRacial	40.2%	30.6%	35.7%	29.8%	36.6%	27.6%
	White	18.2%	18.0%	18.0%	15.9%	15.8%	15.0%
Gender	Male	21.2%	21.7%	19.4%	17.9%	17.6%	16.6%
	Female	17.0%	16.0%	16.7%	14.8%	14.8%	13.9%
	Total	19.1%	18.8%	17.0%	16.3%	16.2%	15.2%

Data Source: MNSASU



Data Source: MNSASU



Adults reporting use of e-cigarettes on one or more days within the past 30 days, 2015 MNSASU		
		2015
Age	Ages 18 thru 24	11.5%
	Ages 25 thru 44	6.7%
	Ages 45 thru 64	3.9%
	Ages 65 and over	1.1%
Race/Ethnicity	African American or Black	3.8%
	American Indian	11.9%
	Asian American/ Pacific Islander	6.0%
	Hispanic/Latino	4.1%
	Bi-Racial/Multi-Racial	11.0%
	White	5.2%
Gender	Male	6.0%
	Female	4.6%
	Total	5.3%
Sexual Orientation	Lesbian, Gay, and Bisexual	10.2%
	Heterosexual	5.2%

Mothers Reporting Smoking During Pregnancy

About the Indicator

Smoking can increase a woman's risk of having a low-birthweight baby. Low-birthweight babies face an increased risk of serious health problems during the newborn period, and chronic lifelong disabilities. Smoking during pregnancy is also associated with a number of pregnancy complications.

Minnesota's maternal smoking prevalence was 9.7% in 2014 as compared to the nation's 8.4%.

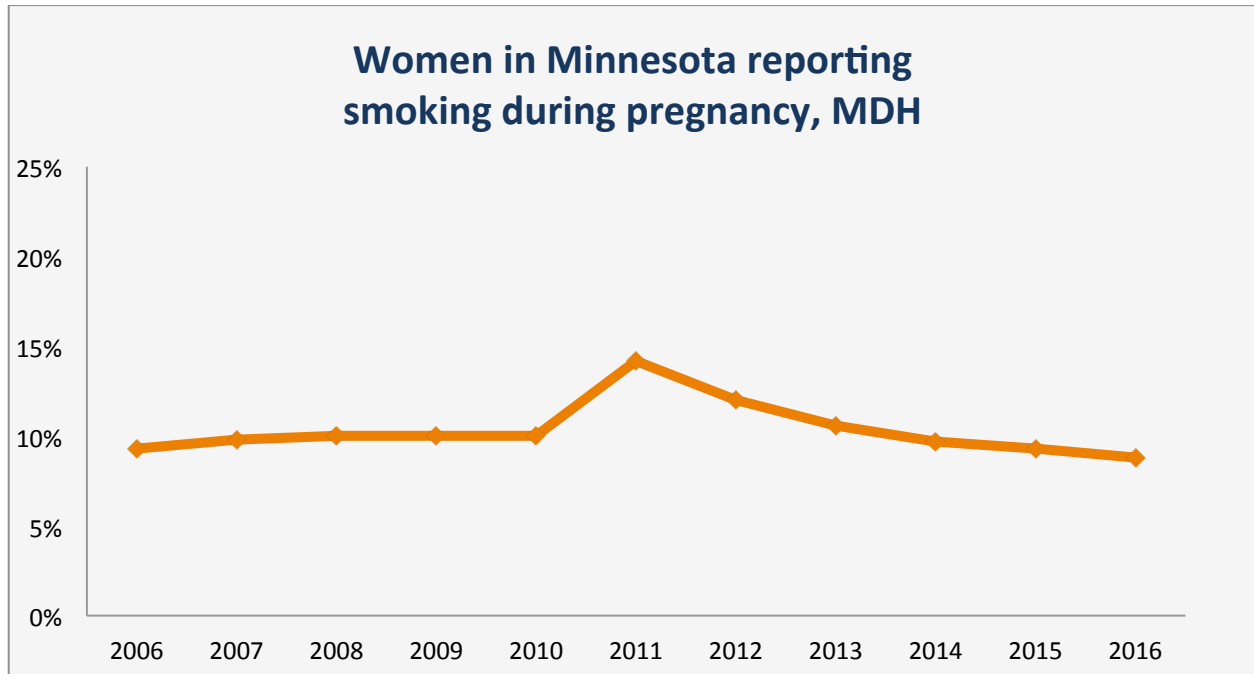
Data Source(s)

Minnesota Health Statistics Annual Summary, Minnesota Department of Health

Section Summary

- Over the 11-year period from 2006 to 2016, an average of 10.3% of mothers reported smoking during pregnancy.

Data Source: MDH



Women in Minnesota Reporting Smoking during Pregnancy

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Percent	9.3%	9.8%	10.0%	10.0%	10.0%	14.2%	12.0%	10.6%	9.7%	9.3%	8.8%

Youth Reporting Current Tobacco and Nicotine Use

About the Indicator

Reported tobacco use within the past 30 days (“30-day use”) is a frequent measure of current use, especially among youth. Youth tobacco use is presented here using 5 statistics: smoking a cigarette on one or more days, smoking cigarettes on 20 or more days, and use of chewing tobacco or snuff.

Data Source(s)

Minnesota Student Survey (MSS), Monitoring the Future (MTF)

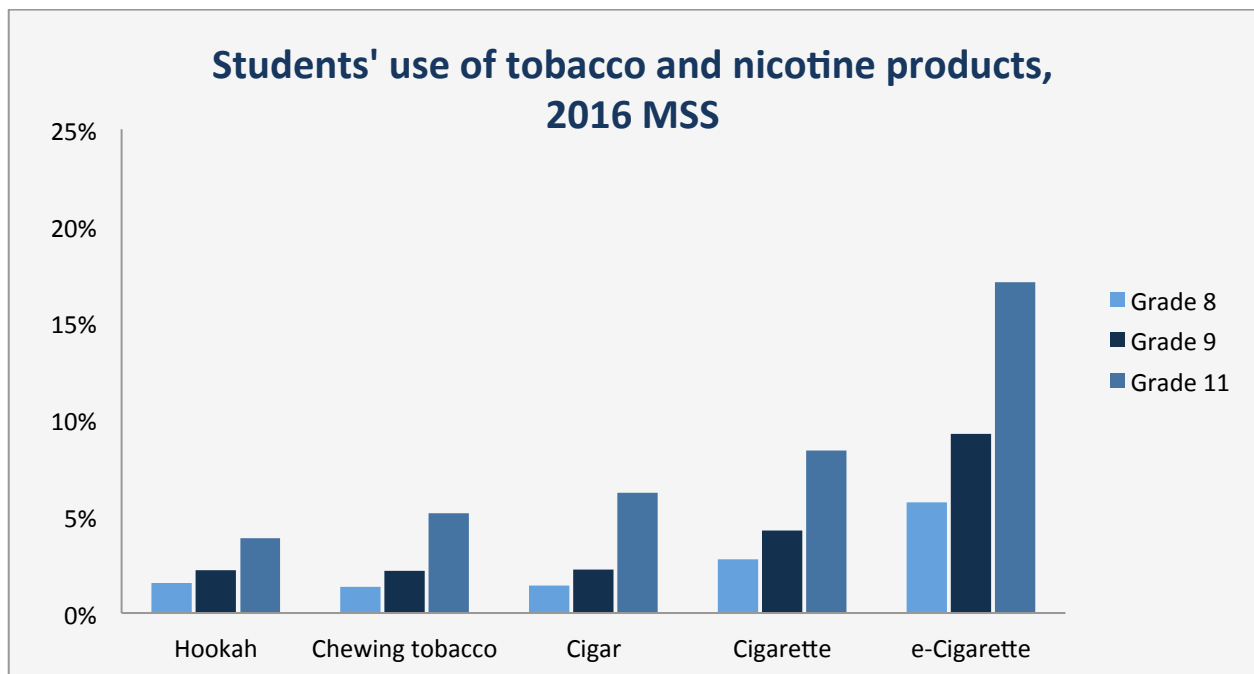
Section Summary

- Reported 30-day cigarette smoking dropped dramatically for 9th grade students from 1998 to 2016 (from 23% down to 4%).
- Older students are more likely to use tobacco or nicotine.
- Male students are much more likely to use chewing tobacco; male and female students smoke at similar rates.
- Minnesota students’ use of tobacco and nicotine is generally on par with, or slightly lower than, use by students nationally.

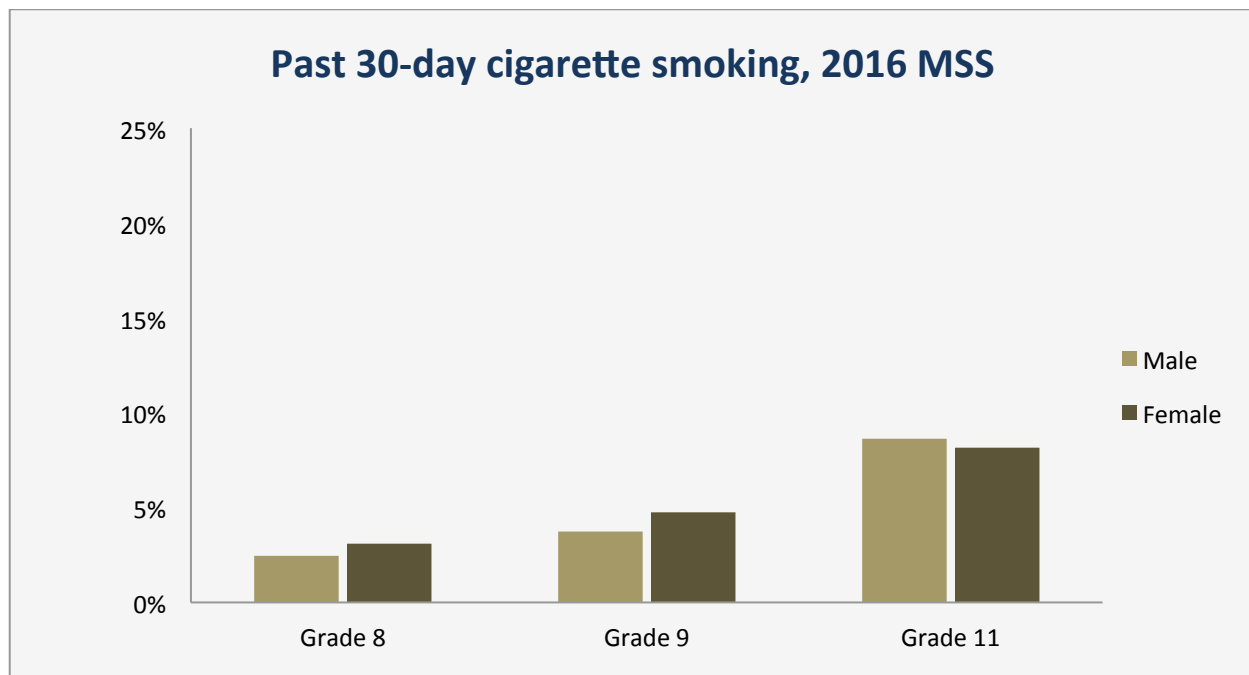
Data Source: MSS

While use of traditional nicotine products by students continues to fall nationwide, e-cigarette and hookah use are on the rise.

Questions about these methods of tobacco and nicotine use were added to the Minnesota Student Survey in 2016.



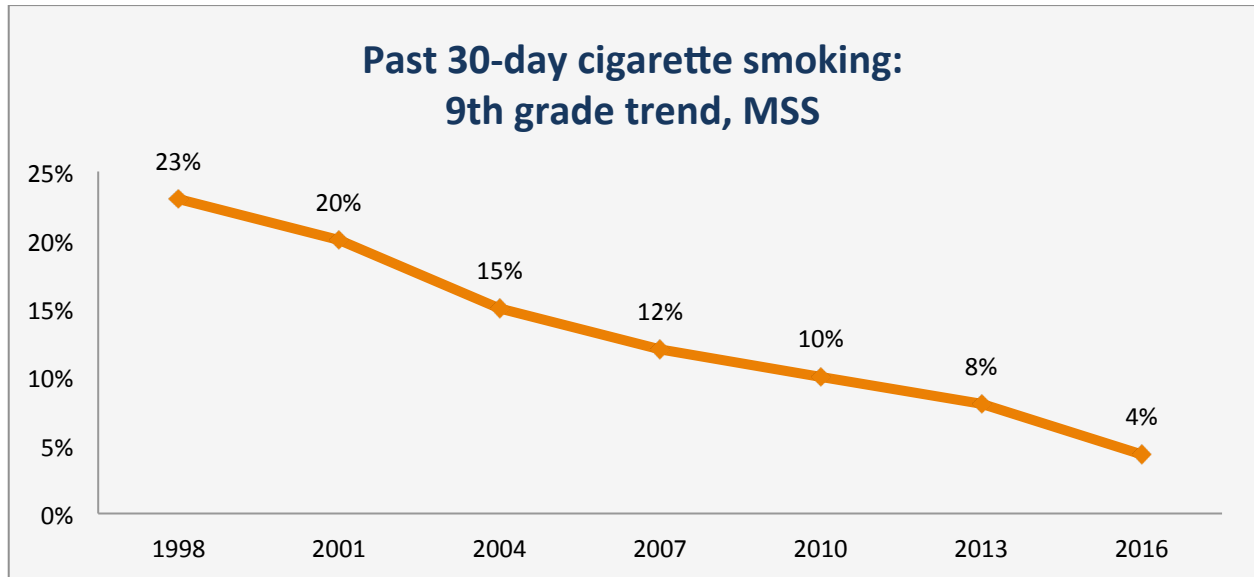
Data Source: MSS



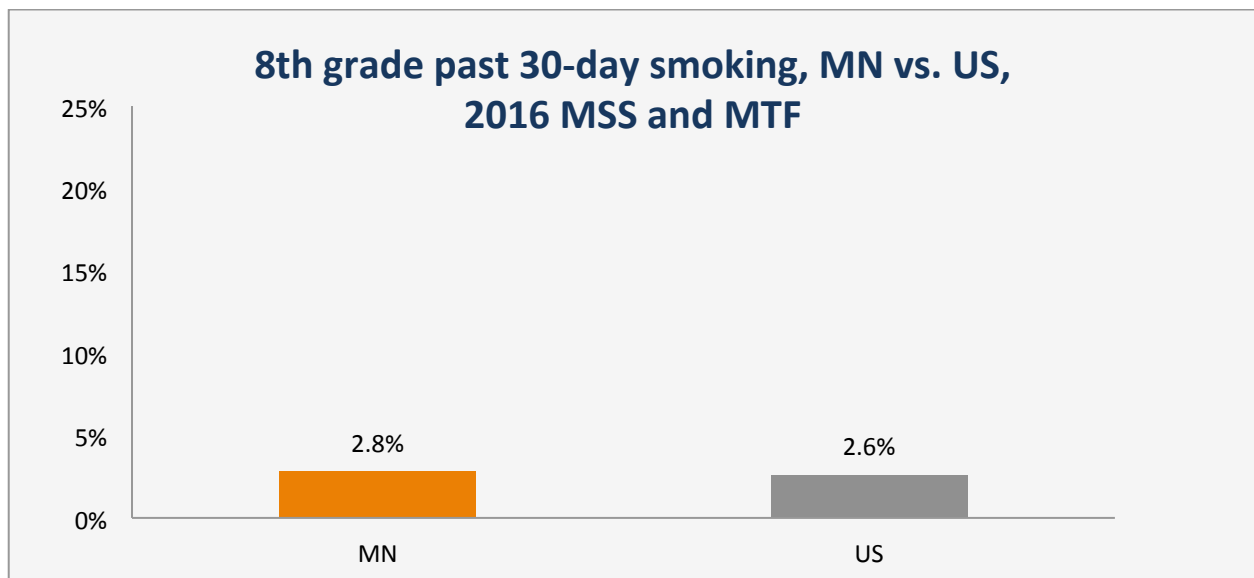
Students Reporting Smoking a Cigarette on One or More Days in the Past 30 Days, 2016 MSS

		Male		Female		Total	
		N (#)	%	N (#)	%	N (#)	%
Grade	8th	513	2.5%	656	3.1%	1,169	2.8%
	9th	776	3.7%	1,010	4.8%	1,786	4.3%
	11th	1,449	8.6%	1,398	8.2%	2,847	8.4%
	Total	2,738	4.7%	3,064	5.1%	5,802	4.9%

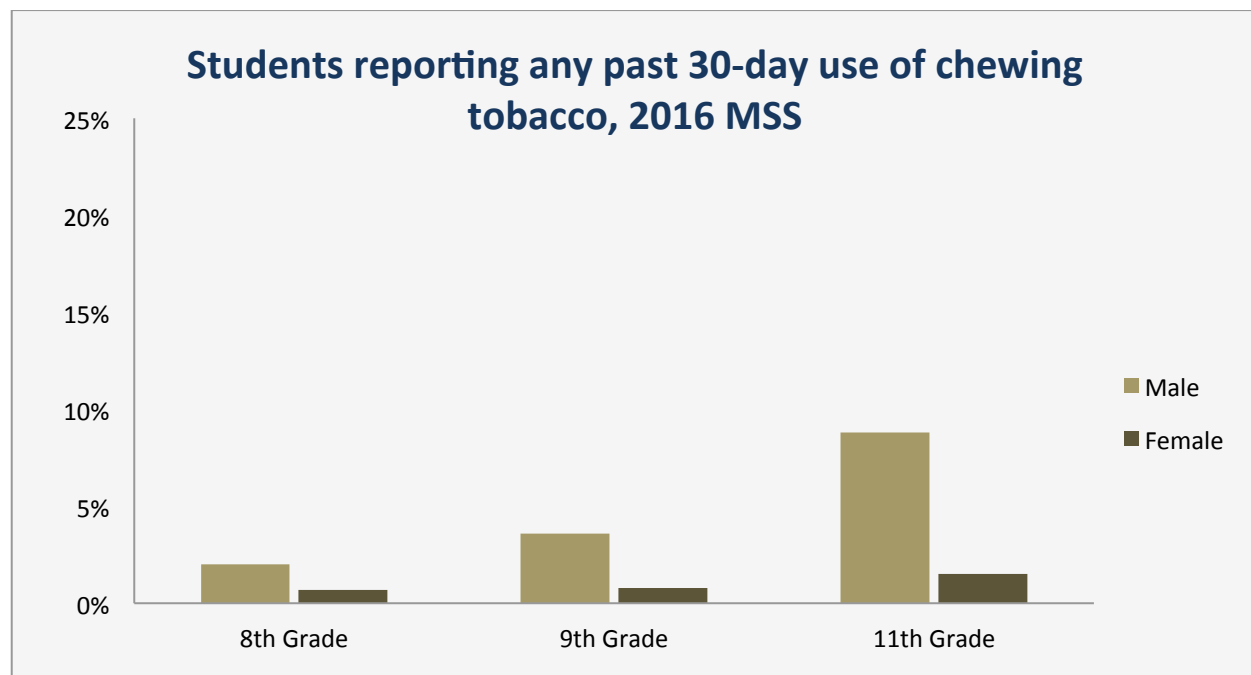
Data Source: MSS and MTF



*9th graders' past 30-day smoking rates continue to decrease.
The level for 8th graders is slightly below the 8th grade national average.*



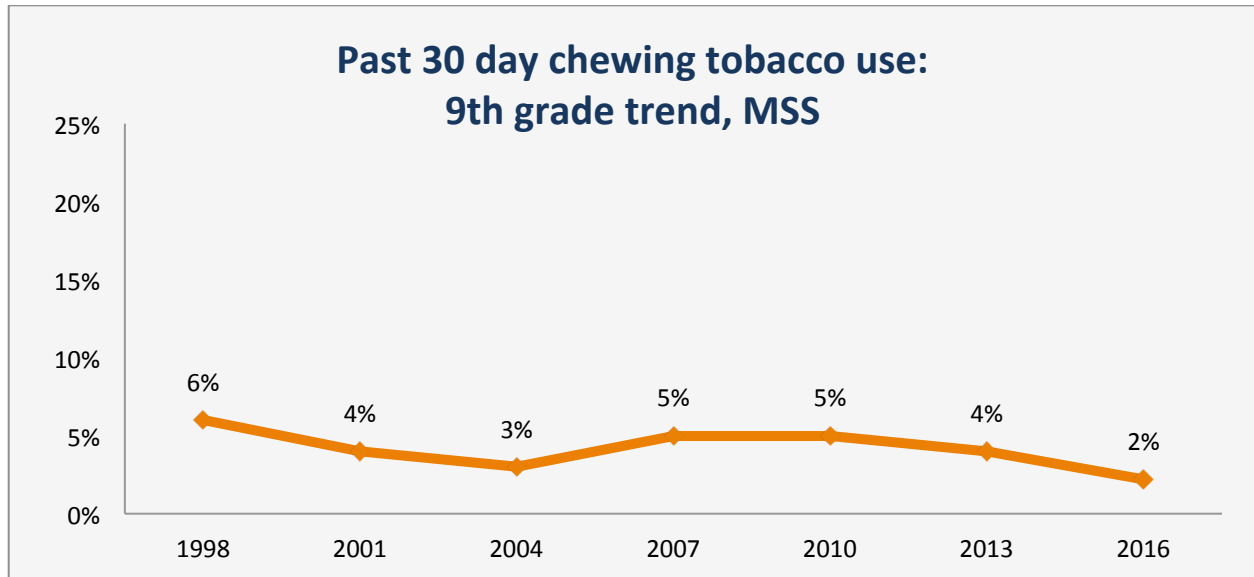
Data Source: MSS



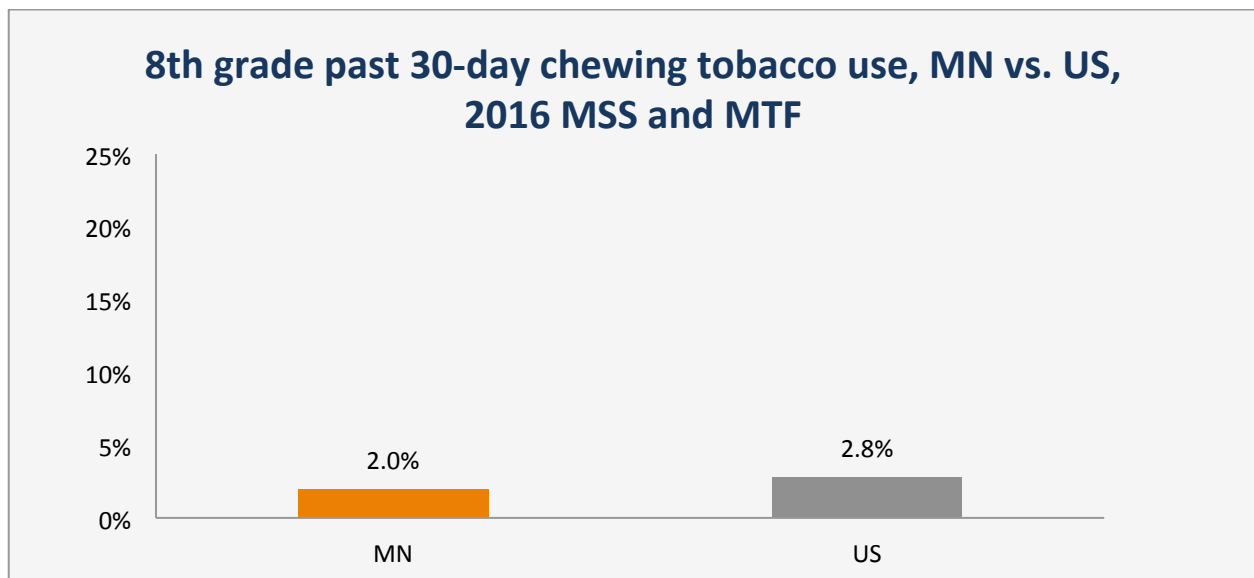
Students Reporting Use of Chewing Tobacco on One or More Days within the Past 30 Days, 2016 MSS

		Male		Female		Total	
		N (#)	%	N (#)	%	N (#)	%
Grade	8th	426	2.0%	146	0.7%	572	1.4%
	9th	741	3.6%	177	0.8%	918	2.2%
	11th	1,476	8.8%	263	1.5%	1,739	5.1%
	Total	2,643	4.5%	586	1.0%	3,229	2.7%

Data Source: MSS and MTF

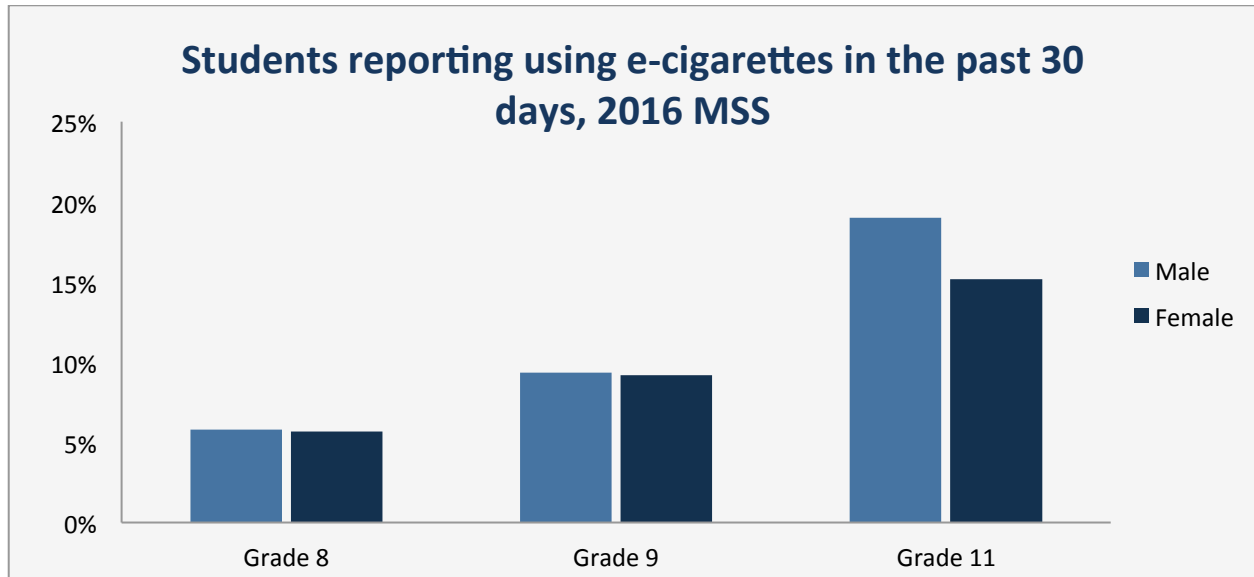


*9th graders' past 30-day chewing tobacco use has decreased over time.
The level for 8th graders is slightly below the 8th grade national average.*



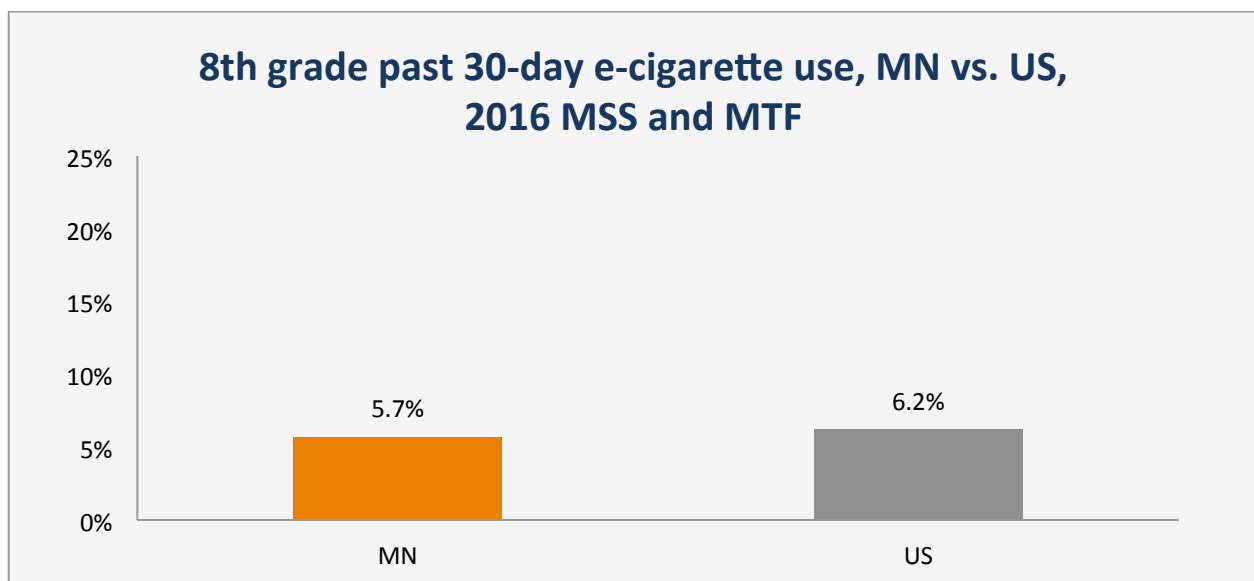
Note: The wording of the MTF (US) survey is “smokeless tobacco,” while the MSS (MN) survey asks about “chewing tobacco.”

Data Source: MSS and MTF



Minnesota Students Reporting Use of e-Cigarettes in the Past 30 Days, by Grade, 2016 MSS

		Male		Female		Total	
		N (#)	%	N (#)	%	N (#)	%
Grade	8th	1,205	5.8%	1,201	5.7%	2,406	5.7%
	9th	1,935	9.3%	1,948	9.2%	3,883	9.3%
	11th	3,188	19.0%	2,598	15.2%	5,786	17.1%
	Total	6,328	10.8%	5,747	9.7%	12,075	10.2%



Tobacco In Minnesota: Consequences

Tobacco-Related Mortality

About the Indicator

Smoking is a risk factor for many causes of death in Minnesota.

Lung cancer is the most common cause of cancer deaths, for both men and women. The risk of lung cancer increases in proportion to the duration of smoking and the numbers of cigarettes smoked.

Data Source(s)

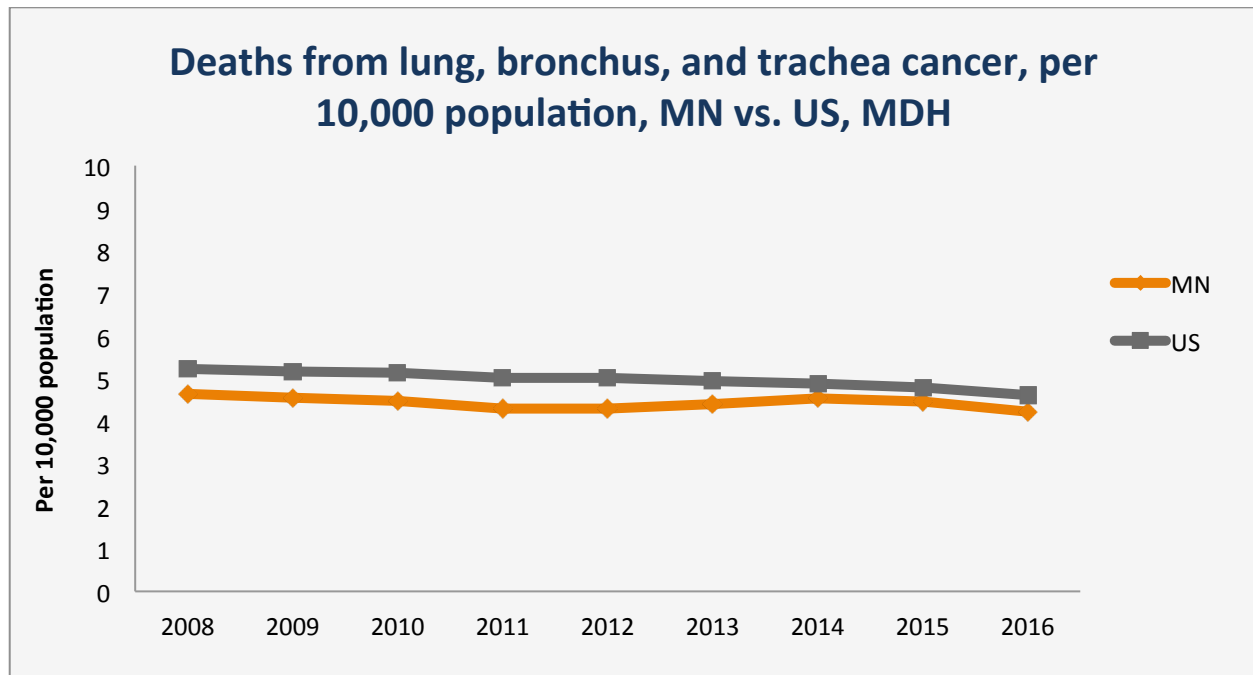
Minnesota Department of Health, CDC Wonder

Section Summary

- Lung, bronchus and trachea cancer death rates have declined slightly over time, both in Minnesota and nationally.
- Rates in Minnesota have been consistently slightly lower than nationwide rates.

Tobacco and Nicotine: Consequences

Data source: Minnesota Department of Health and CDC Wonder



Deaths from Lung, Bronchus, and Trachea Cancer Per 10,000 Population, MDH and CDC

Minnesota	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of deaths	2,433	2,401	2,373	2,316	2,330	2,386	2,473	2,384	2,331
Rate per 10,000 population	4.64	4.55	4.47	4.30	4.30	4.40	4.53	4.35	4.22
United States	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of deaths	158,656	158,158	158,318	156,131	157,499	156,252	155,610	153,819	148,945
Rate per 10,000 population	5.22	5.16	5.13	5.01	5.02	4.94	4.88	4.79	4.61
MN:US rate ratio	2008	2009	2010	2011	2012	2013	2014	2015	2016
Deaths	0.89	0.88	0.87	0.86	0.86	0.89	0.93	0.91	0.92

Tobacco In Minnesota: Intervening Variables

Tobacco Retailer Noncompliance

About the Indicator

The Synar Amendment requires states to have laws prohibiting the sale of tobacco products to those younger than 18 and to conduct annual random, unannounced inspections of a valid sample of tobacco retailers to ensure compliance. Statistics presented are the retailer violation rates (RVR) by Federal Fiscal Year (FFY).

Data Source(s)

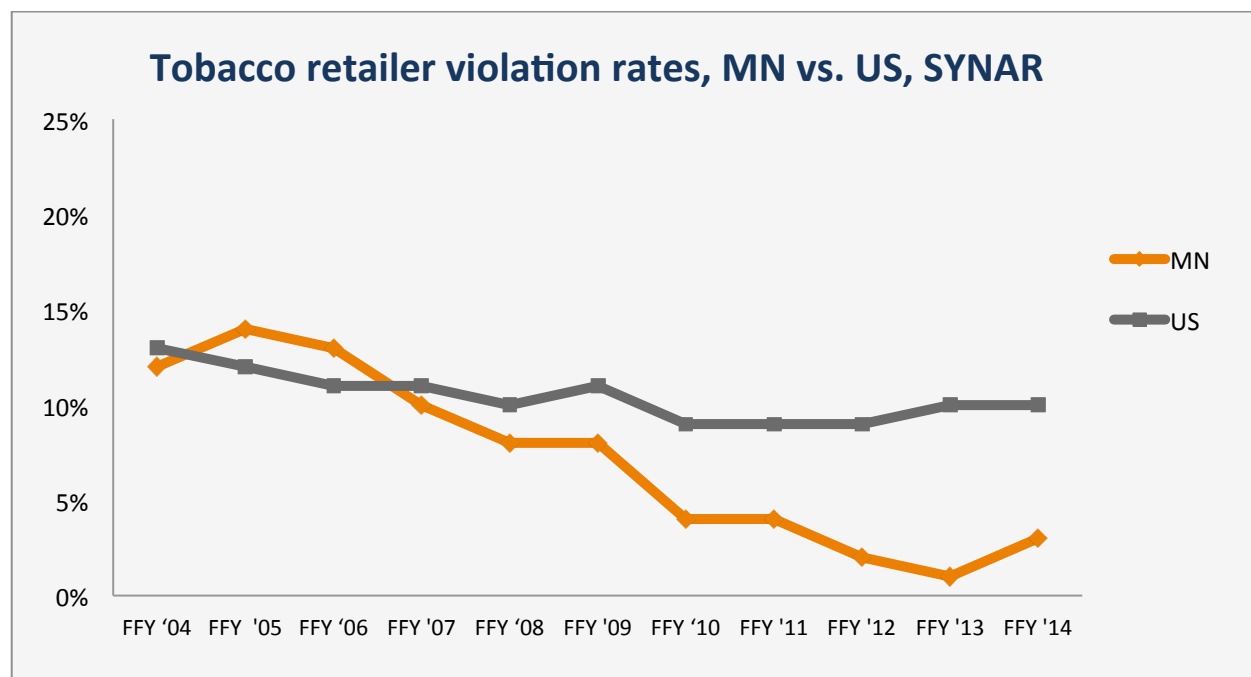
Center for Substance Abuse Prevention (CSAP)

Section Summary

- Minnesota retailer violation rates have steadily declined, from 16% in Federal Fiscal Year 2003 to 1% in Federal Fiscal Year 2013.
- Minnesota's retailer violation rates have been lower than the national average since Federal Fiscal Year 2007. In FFY 2013, Minnesota (along with Nevada) had the lowest RVR in the country.

Tobacco and Nicotine: Intervening Variables

Data source: SYNAR



SYNAR Tobacco Retailer Violation Rates (RVR)

	FFY '05	FFY '06	FFY '07	FFY '08	FFY '09	FFY '10	FFY '11	FFY '12	FFY '13	FFY '14
MN	14%	13%	10%	8%	8%	4%	4%	2%	1%	3%
US	12%	11%	11%	10%	11%	9%	9%	9%	10%	10%
MN:US	1.17	1.18	0.91	0.80	0.73	0.44	0.48	0.22	0.10	0.30

Note: RVR are reported in Federal Fiscal Years. National RVRs were calculated by weighting each state's reported DVR by that state's population.

Perceptions of Disapproval and Harm

About the Indicator

Perception of Harm

Adults were asked about their perceptions of harm of cigarettes and e-cigarettes on the Minnesota Survey of Adult Substance Use (MNSASU) for the first time in 2015. Students on the Minnesota Student Survey (MSS) have been asked about their perceptions since 2007.

For both groups, respondents were asked how much they thought people risked harming themselves physically or in other ways by smoking one or more packs of cigarettes per day. The data show the number and percent of respondents answering either “great risk” or “moderate risk” of harm. The other two options on the survey were “slight risk” and “no risk.”

Perception of Disapproval

Also in 2007, students were asked how they thought their parents or guardians would feel if they smoked one or more packs of cigarettes a day. The statistics presented here for 2007-2010 show the number and percent of students responding that their close friends would either “greatly disapprove” or “disapprove.” The other two selection options on the survey were “would not care at all” and “would approve.” In 2010, the question changed to encompass any smoking at all by students, rather than specifying one or 2 packs a day. In 2013, the wording used to indicate disapproval was changed: students were asked whether others would feel it is “wrong” or “very wrong” for them to smoke cigarettes.

For more information on these data, see the SUMN.org website.

Data Source(s)

Minnesota Survey of Adult Substance Use (MNSASU), Minnesota Student Survey (MSS), Monitoring the Future (MTF)

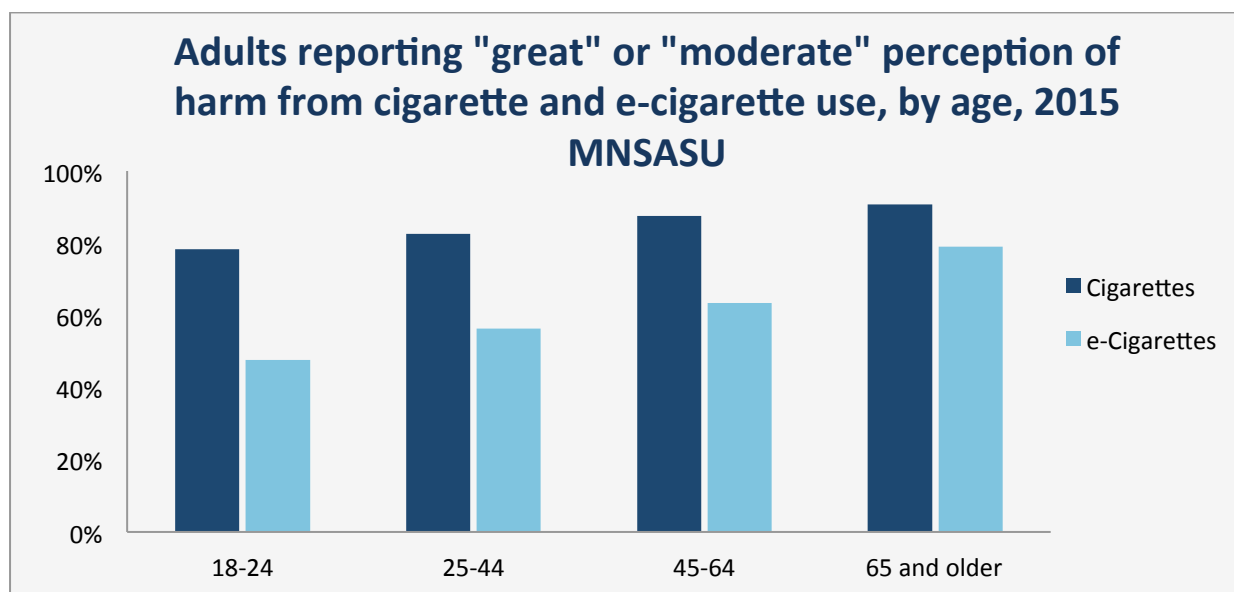
Section Summary

- Perception of harm of smoking is higher among female students than among male students.
- In 2016, perception of harm increased with grade level.
- Female students perceive a greater level of disapproval than male students, from both friends and parents or guardians, for all grade levels.
- Adults perceive e-cigarettes to be much less harmful than cigarettes.

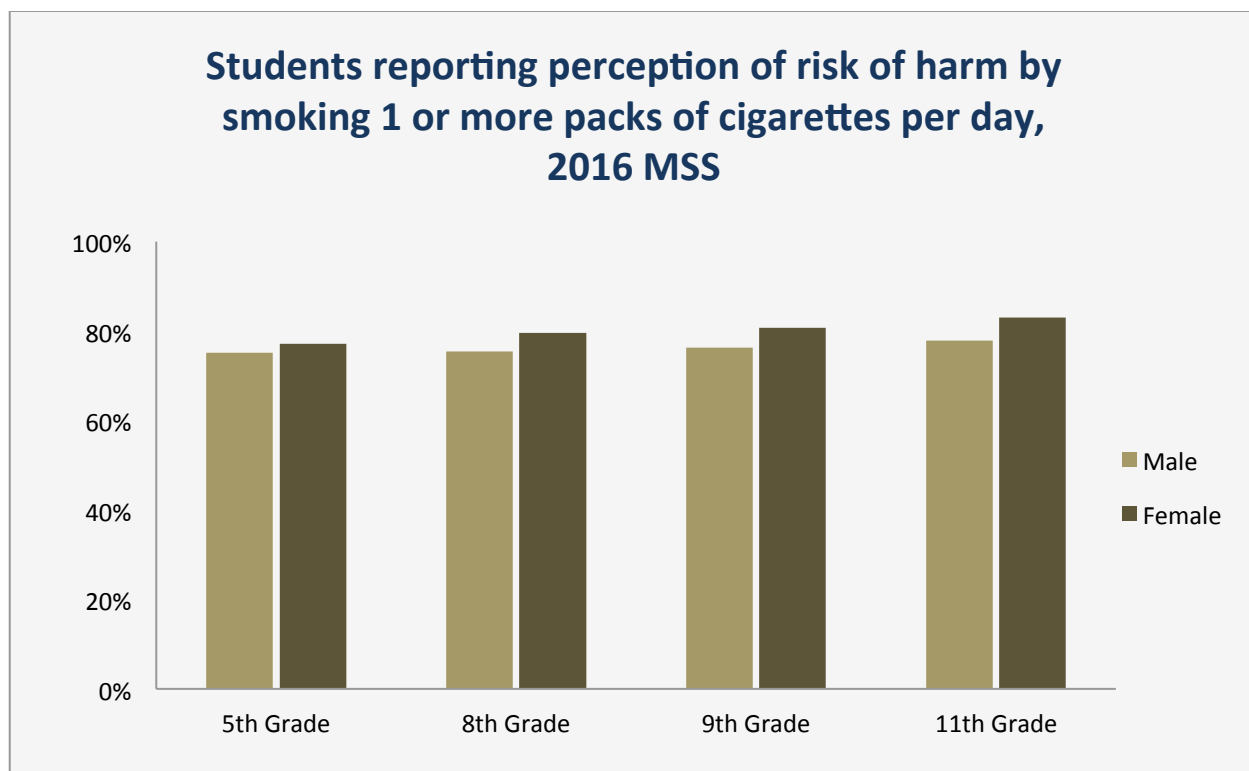
Tobacco and Nicotine: Intervening Variables

Data source: MNSASU

Minnesota adults reporting perception of "great" or "moderate" harm from cigarette and e-cigarette use, 2015 MNSASU			
		Cigarettes	e-Cigarettes
Age	Ages 18 thru 24	78.3%	47.7%
	Ages 25 thru 44	82.6%	56.3%
	Ages 45 thru 64	87.5%	63.5%
	Ages 65 and over	90.7%	79.0%
Race/Ethnicity	African American or Black	82.7%	66.9%
	American Indian	78.8%	57.3%
	Asian American/Pacific Islander	82.5%	67.9%
	Hispanic/Latino	86.4%	73.7%
	Bi-Racial/Multi-Racial	80.3%	59.8%
	White	85.6%	59.7%
Gender	Male	83.1%	59.4%
	Female	87.0%	62.1%
	Total	85.2%	60.9%
Sexual Orientation	Lesbian, Gay, and Bisexual	86.1%	50.6%
	Heterosexual	85.4%	60.9%



Data source: MSS

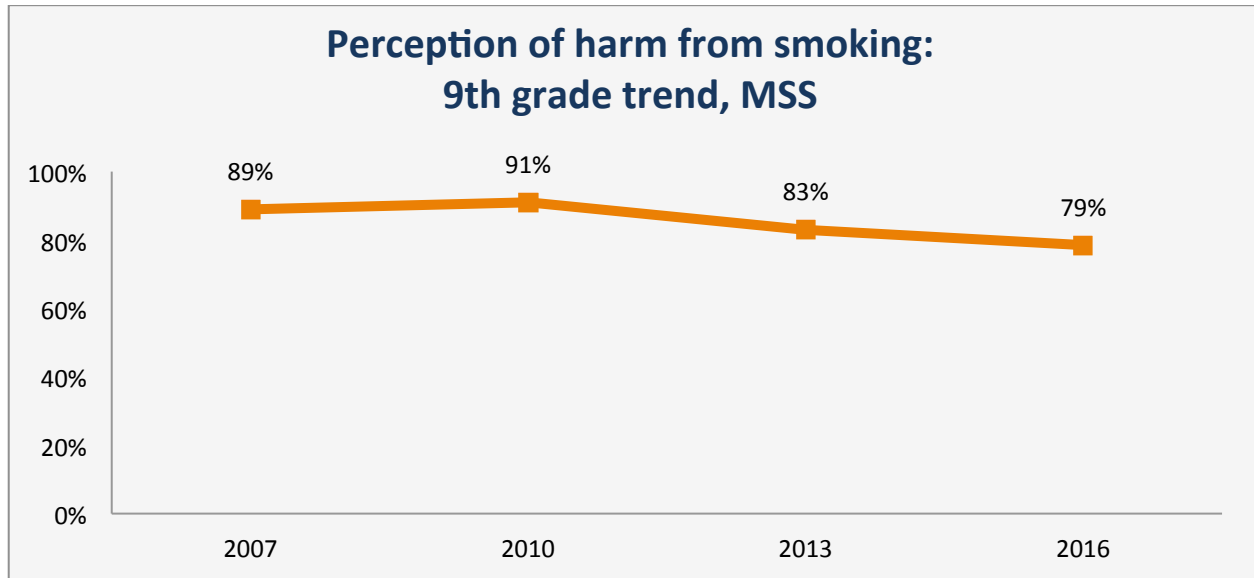


Students reporting they think people put themselves at "great" or "moderate" risk of harming themselves physically or in other ways by smoking 1 or more packs of cigarettes per day, 2016 MSS

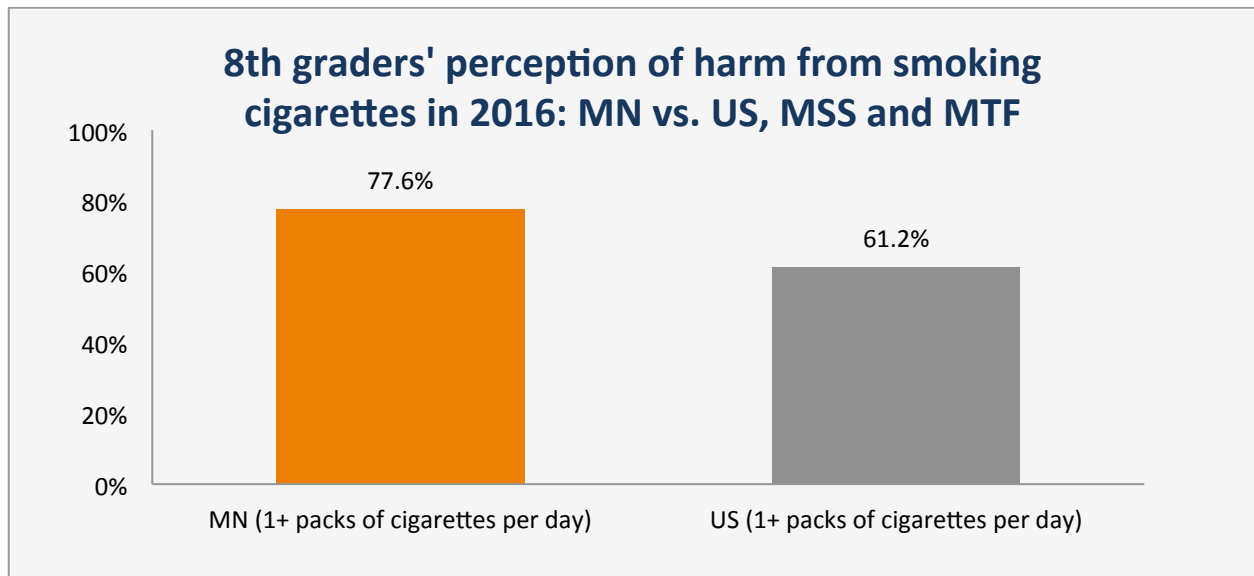
	Male		Female		Total	
	N (#)	%	N (#)	%	N (#)	%
5th Grade	14,153	75.1%	14,291	77.2%	28,444	76.1%
8th Grade	14,880	75.4%	15,932	79.6%	30,812	77.6%
9th Grade	14,586	76.3%	15,837	80.7%	30,423	78.5%
11th Grade	12,212	77.9%	13,356	83.0%	25,568	80.5%
Total	55,831	76.1%	59,416	80.0%	115,247	78.1%

Tobacco and Nicotine: Intervening Variables

Data source: MSS and MTF



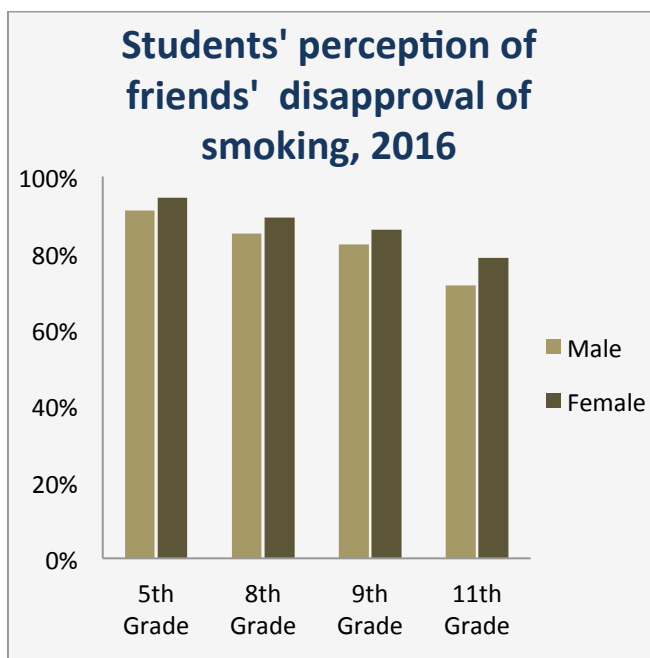
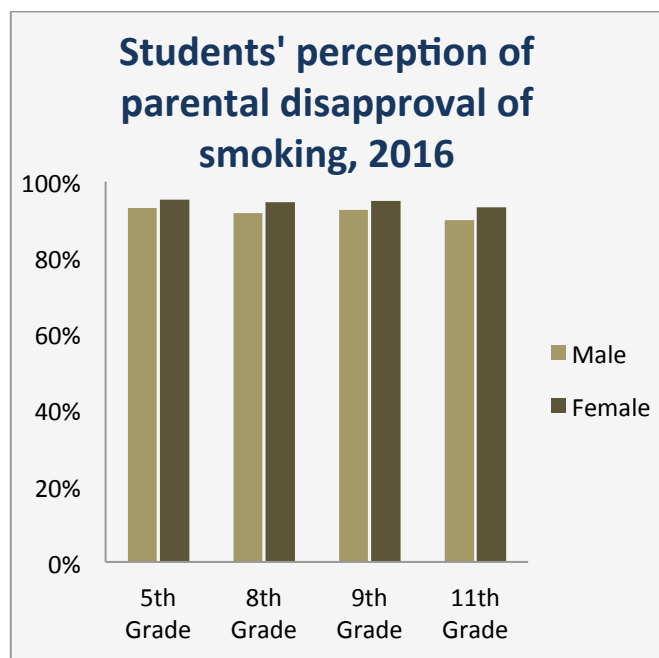
Minnesota's 8th graders' perception of risk of harm from smoking cigarettes is higher than the US average, and Minnesota 9th graders' perception of risk is even higher than that of the 8th graders'.



NOTE: US number is taken from the MTF survey, and represents students who responded that smoking puts a person at "great risk" of harm. Other risk categories included "no risk," slight risk," and "moderate risk."

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Data source: MSS



Minnesota students reporting their parents or guardians would feel it is "wrong" or "very wrong" for them to smoke cigarettes, 2016

	Male		Female		Total	
	N (#)	%	N (#)	%	N (#)	%
5th Grade	17,735	93.1%	17,944	95.2%	35,679	94.1%
8th Grade	18,133	91.8%	19,023	94.6%	37,156	93.2%
9th Grade	17,677	92.5%	18,601	94.9%	36,278	93.7%
11th Grade	14,100	89.8%	15,004	93.2%	29,104	91.5%
Total	67,645	91.9%	70,572	94.5%	138,217	93.2%

Minnesota students reporting their friends would feel it is "wrong" or "very wrong" for them to smoke cigarettes, 2016

	Male		Female		Total	
	N (#)	%	N (#)	%	N (#)	%
5th Grade	17,191	91.1%	17,689	94.5%	34,880	92.8%
8th Grade	16,753	85.1%	17,884	89.2%	34,637	87.2%
9th Grade	15,613	82.2%	16,825	86.1%	32,438	84.2%
11th Grade	11,179	71.5%	12,641	78.7%	23,820	75.1%
Total	60,736	83.0%	65,039	87.5%	125,775	85.2%