May 18, 2015

Tobacco Prevention: Research to Policy

- Behavioral Data from Delaware's Surveillance Systems

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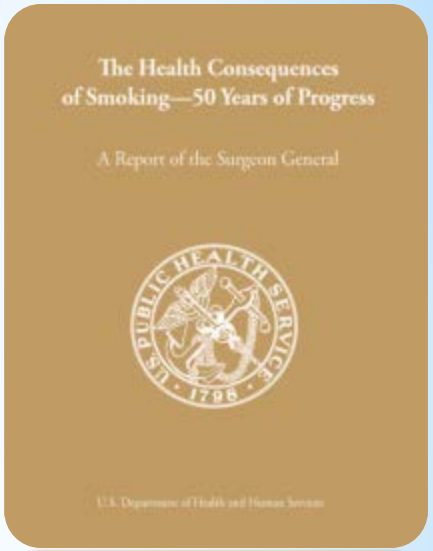
Health Promotion and Disease Prevention

- Compared to people who have never smoked, smokers – on average – lose more than a decade of life.
- 1 of 3 cancer deaths is caused by smoking.
- Smoking causes **87%** of lung cancer deaths, **32%** of coronary heart disease deaths, and **79%** of all cases of COPD.



SURGEON GENERAL'S REPORT ON SMOKING & HEALTH
50TH ANNIVERSARY
1964 - 2014

➢ From the 2014 U.S. Surgeon General's Report

The Health Consequences of Smoking—50 Years of Progress

Delaware data primarily come from two surveys:

Youth Risk Behavior Survey

- Data are from public high school students only
- Self-reported data
- Does not account for high school drop-outs, who may constitute a higher-risk population
- Sample N = ~2,700

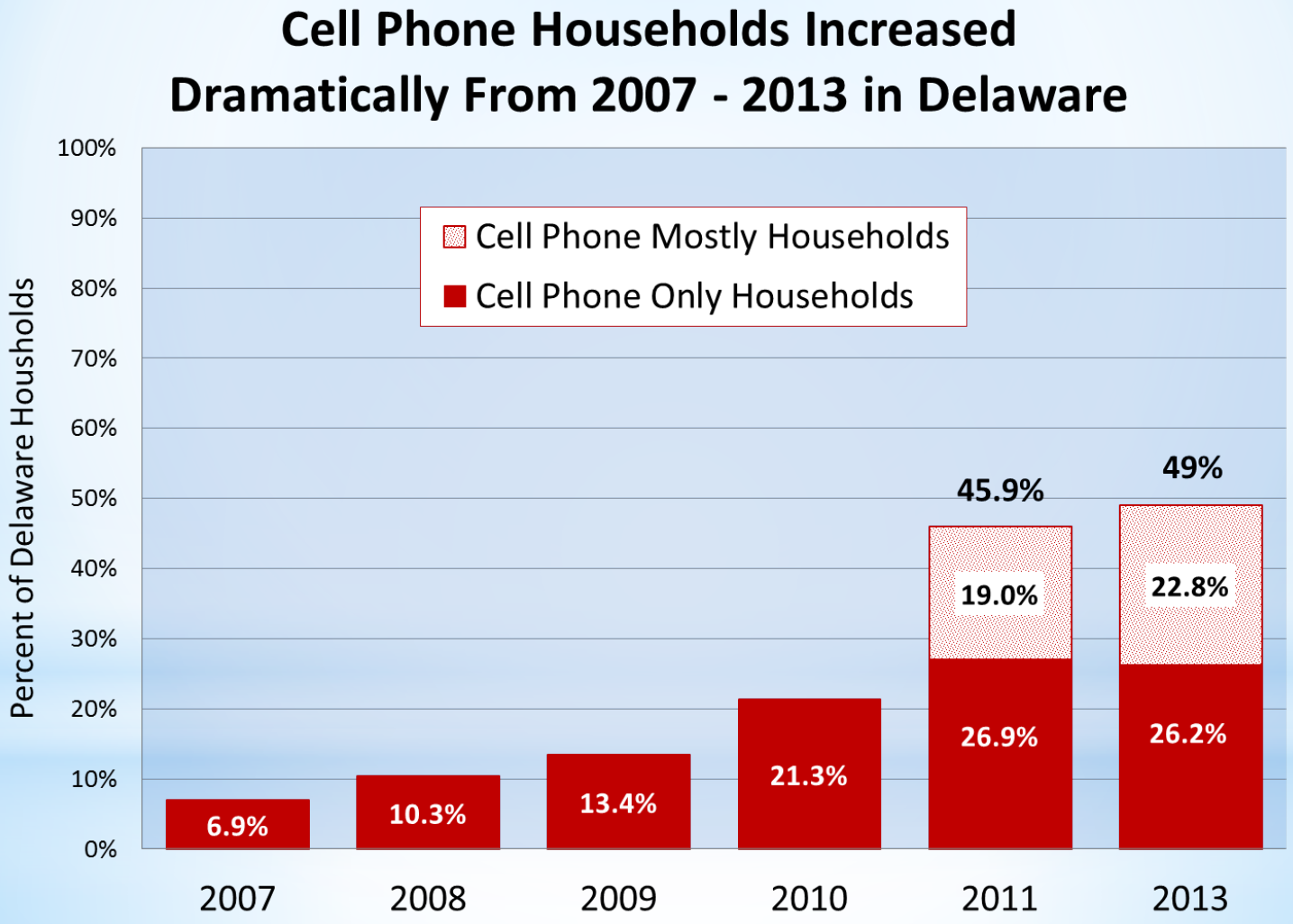
Behavioral Risk Factor Survey (adult)

- Random-sample telephone survey of adults 18+
- Self-reported data
- Multi-mode; landline sample does not include institutionalized adults
- Sample N = ~4,000

About the BRFS

- **State-based**; conducted in all 50 states, DC, and four territories
- **Multi-mode**, with cell phone and landline samples
  - Pilot online follow-up of non-respondents
- **Core questions** used by all states and territories
  - CDC-approved **optional modules**
  - Ability to add **state-specific questions**
  - We add questions about **other tobacco products**
- Sample is **stratified by county**
- Interview **all year** every year; report on calendar-year basis
- Data are **weighted** to census data, using Iterative Proportional Fitting (or "raking") weights

Challenges to telephone surveys



Source: CDC, *National Health Statistics Reports*, "Wireless Substitution"; NHIS, 2007-2013.

Keeping pace with proportion of cell phone use in Delaware

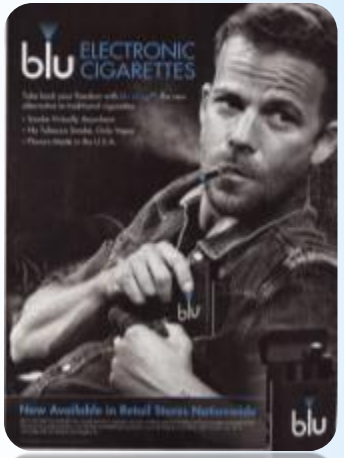
- Switched to **multi-mode with 201**1 data release
  - Started in 2010 with a cell phone-only sample of ~20%
- Current DE cell/landline split is 50-50.
  - Still over-represents some groups and under-represents others
- Moving to 60%-40% (cell-landline)

Additional data . . .

come from two surveys of the Tobacco Prevention and Control Program:

1) The **Adult Tobacco Attitudes and Media Survey** (conducted annually to provide data for evaluation of Tobacco Prevention and Control interventions)

2) The **Youth Tobacco Survey** (alternate years in Delaware public schools)



New Tobacco Industry Trends & Threats

New Issues to Monitor and Address

little cigars, snus

orbs & strips

“Little cigar” use among high school students:

- **12%** of Delaware public high school students reported smoking little cigars, cigarillos or cigars during the past month.

Source: CDC/DOE, YRBS, 2013

Smokeless Tobacco Use Has Doubled in Past Decade Among DE Public High School Students

Percent of DE Public H.S. Students

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

2003	2005	2007	2009	2011	2013
3.4%	5.1%	5.2%	6.8%	6.6%	7.1%

Source: CDC / DE Department of Education, Youth Risk Behavior Survey (YRBS), 2003 - 2013.

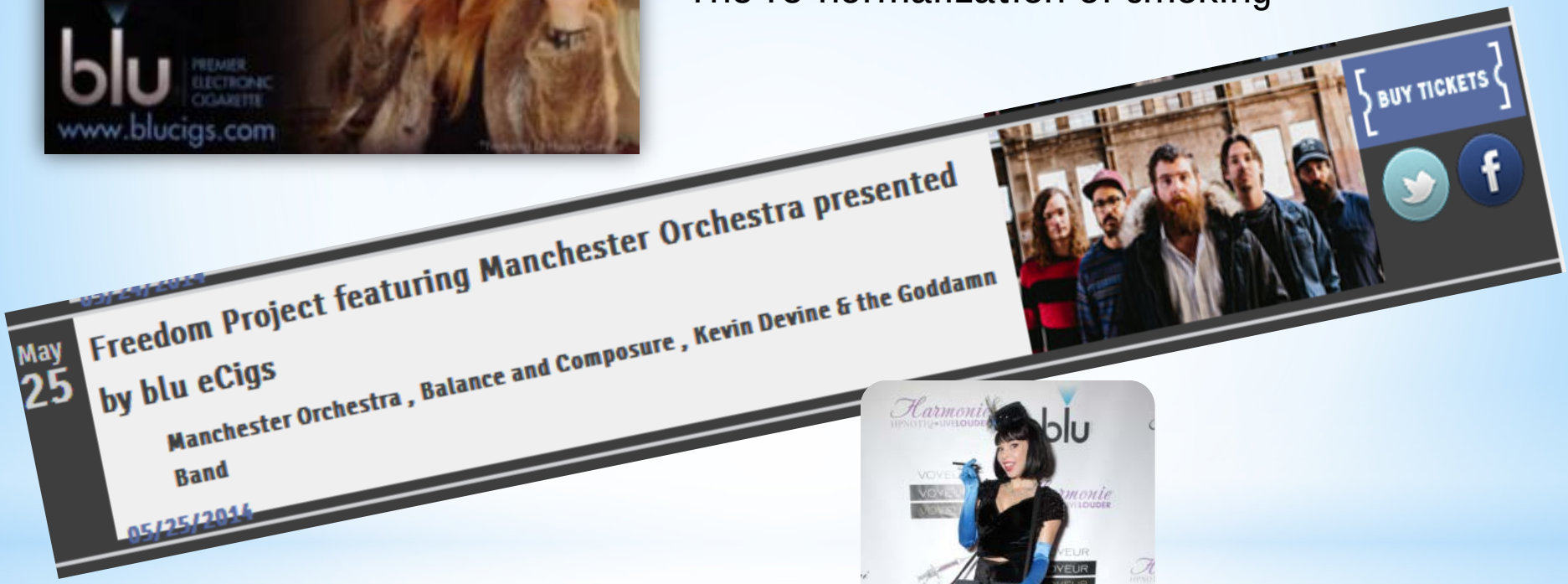
Adult male use of smokeless tobacco, 2014

- 3.1% of Delaware adult males reported using smokeless tobacco, and users are more likely to be young.
- 3.8% of white male adults use smokeless, compared to 0.7% of African American men.
- Less than 1% of adult women use smokeless tobacco.

Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

Vaping *e*-cigarettes

"The re-normalization of smoking"



e-Cigarette use among High School students doubled from 2012 - 2014

- In 2014, 1**4.3%** of H.S. students reported ever having tried *e*-cigarettes (up from **6.3%** in 2012)

- In 2014, **5.6%** of DE H.S. students said they **currently** use *e*-cigarettes (up from **2.1%** in 2012)

Source: Delaware Health & Social Services, Division of Public Health, Youth Tobacco Survey (YTS), 2012-2014. This is a companion survey to the YRBS, done in schools on alternate years.

Adult use of *e*-cigarettes

- In 2014, about **4.5%** of Delaware adults said they currently use *e*-cigarettes, either regularly or occasionally.

Source: Delaware Health & Social Services, Division of Public Health, Adult Tobacco Attitudes and Media Survey (ATS), 2014. ATS has a smaller sample than the BRFS, and different weighting.

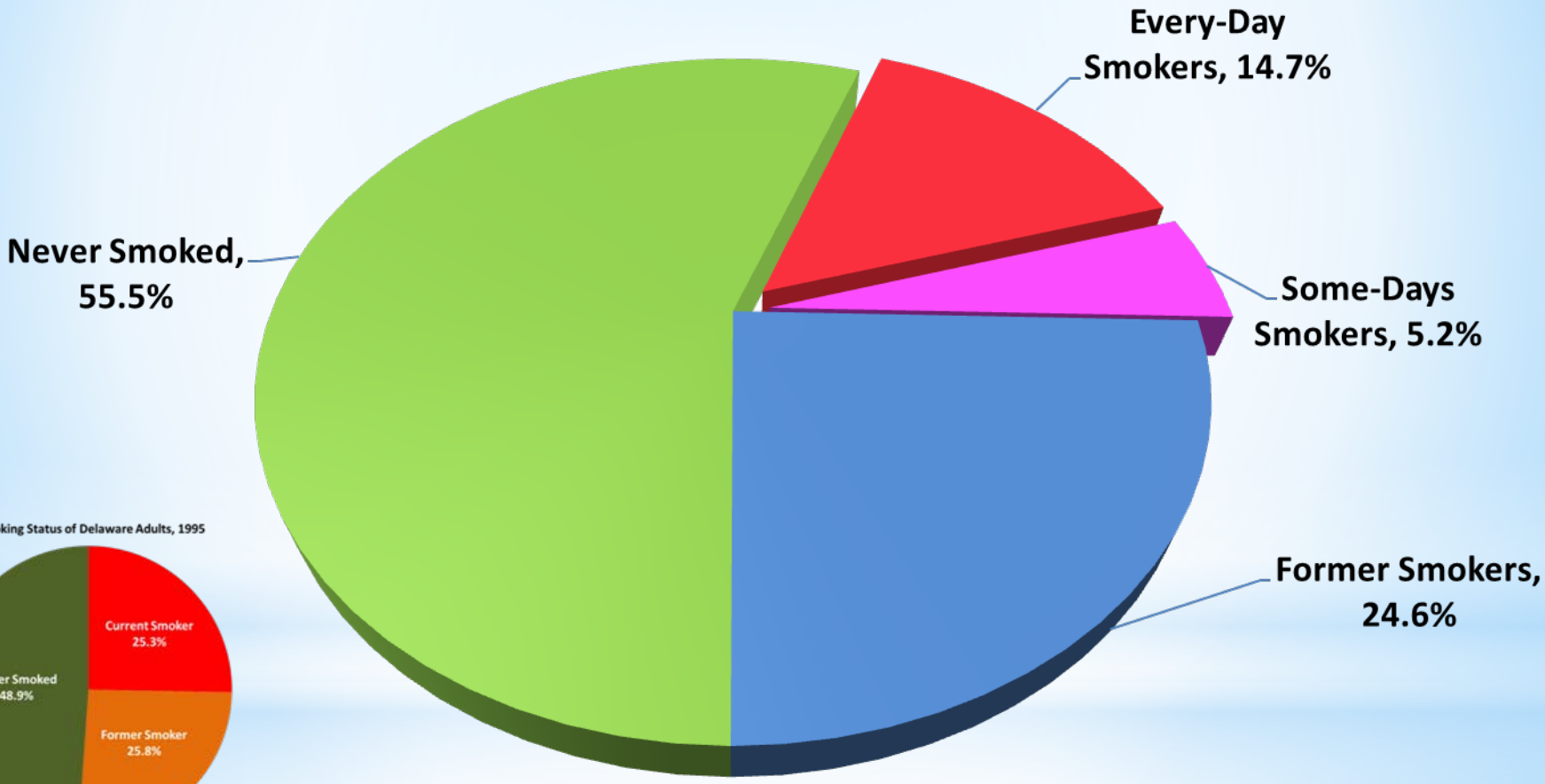
Adult Smoking

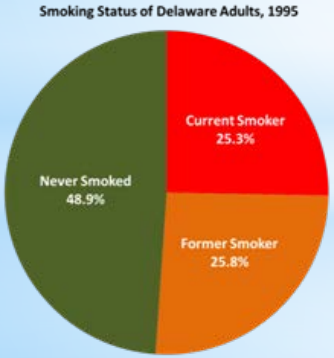
Behavioral Risk Factor Survey (BRFS)

plus the Pregnancy Risk Assessment and Monitoring System (PRAMS)

and the Delaware Adult Tobacco Survey (ATS)

Cigarette Smoking Among Delaware Adults: 2014

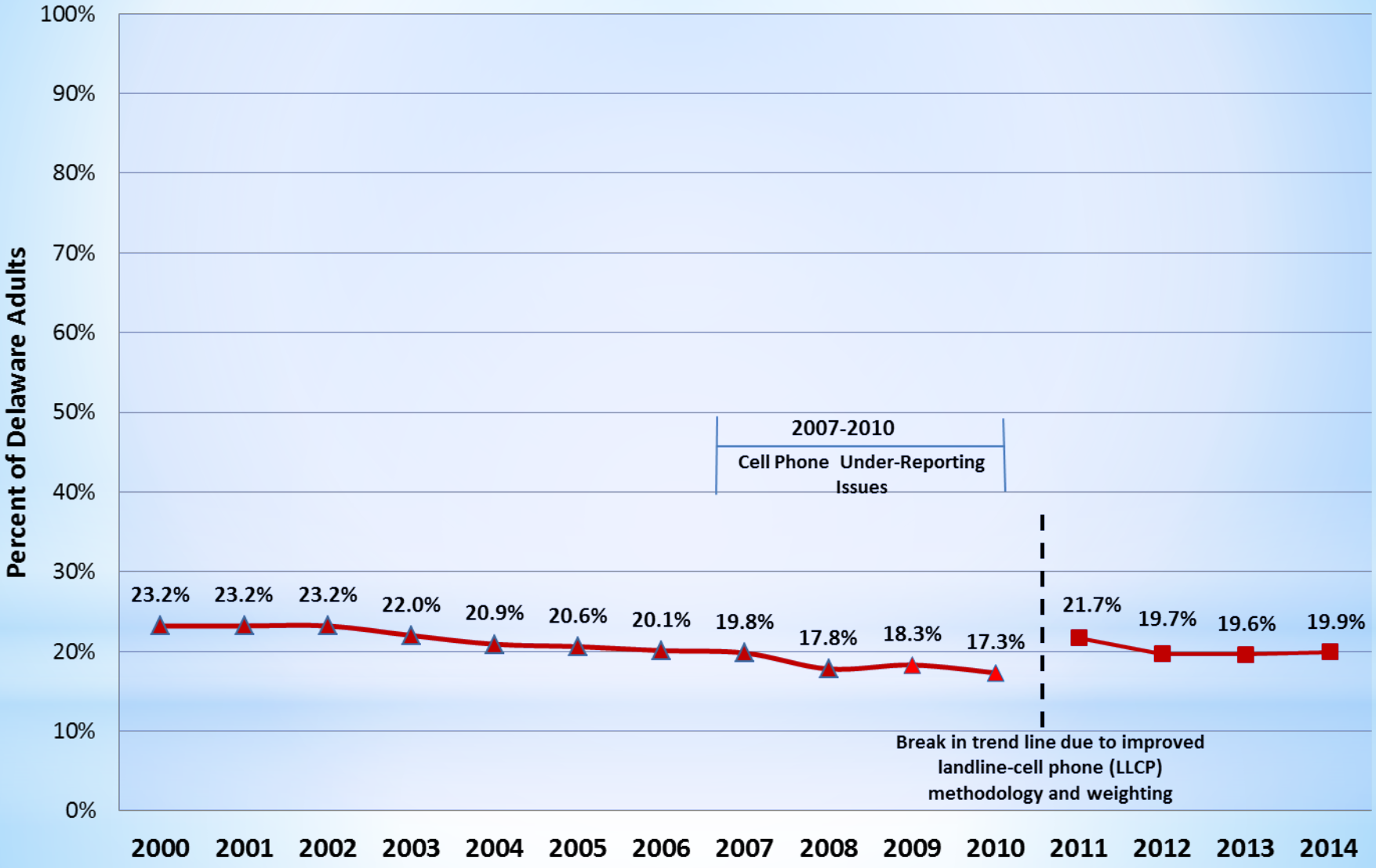




Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

Delaware Adult Cigarette Smoking: 2000-2014

Landline only 2000-10; Combined Landline-Cell Sample 2011-14



Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2000-2014.

Delaware adult smoking about at national median

Year	Delaware Prevalence	National Median
2011	**21.7%**	21.2%
2012	**19.7%**	19.6%
2013	**19.6%**	19%

Sources: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2011-13; and CDC, Population Health Surveillance Branch, Behavioral Risk Factor Surveillance System (BRFSS), 2011-13.

Delaware men smoke slightly more than women

- In 2014, **23.5%** (CI=20.2-26.8) of adult Delaware **men** smoked cigarettes
- About **16.6%** (CI=14.4-18.8) of **women** smoked cigarettes in 2014.

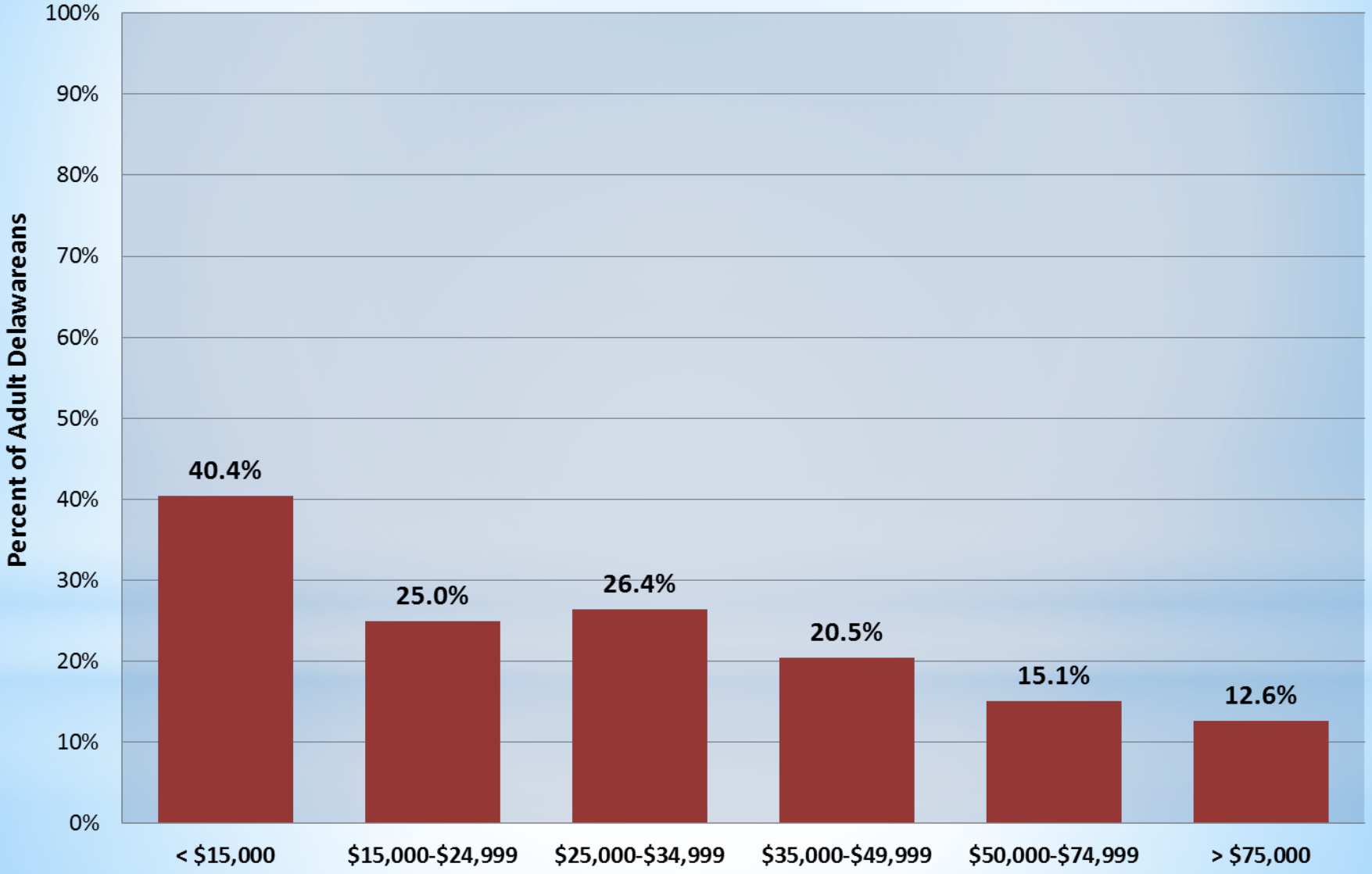
Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

Attempts to quit smoking, 2014

- Slightly more than half of current smokers (**59.3**%) said they tried to quit smoking at least once during the past year.
  - No statistical difference between men (58%) and women (60.9%)

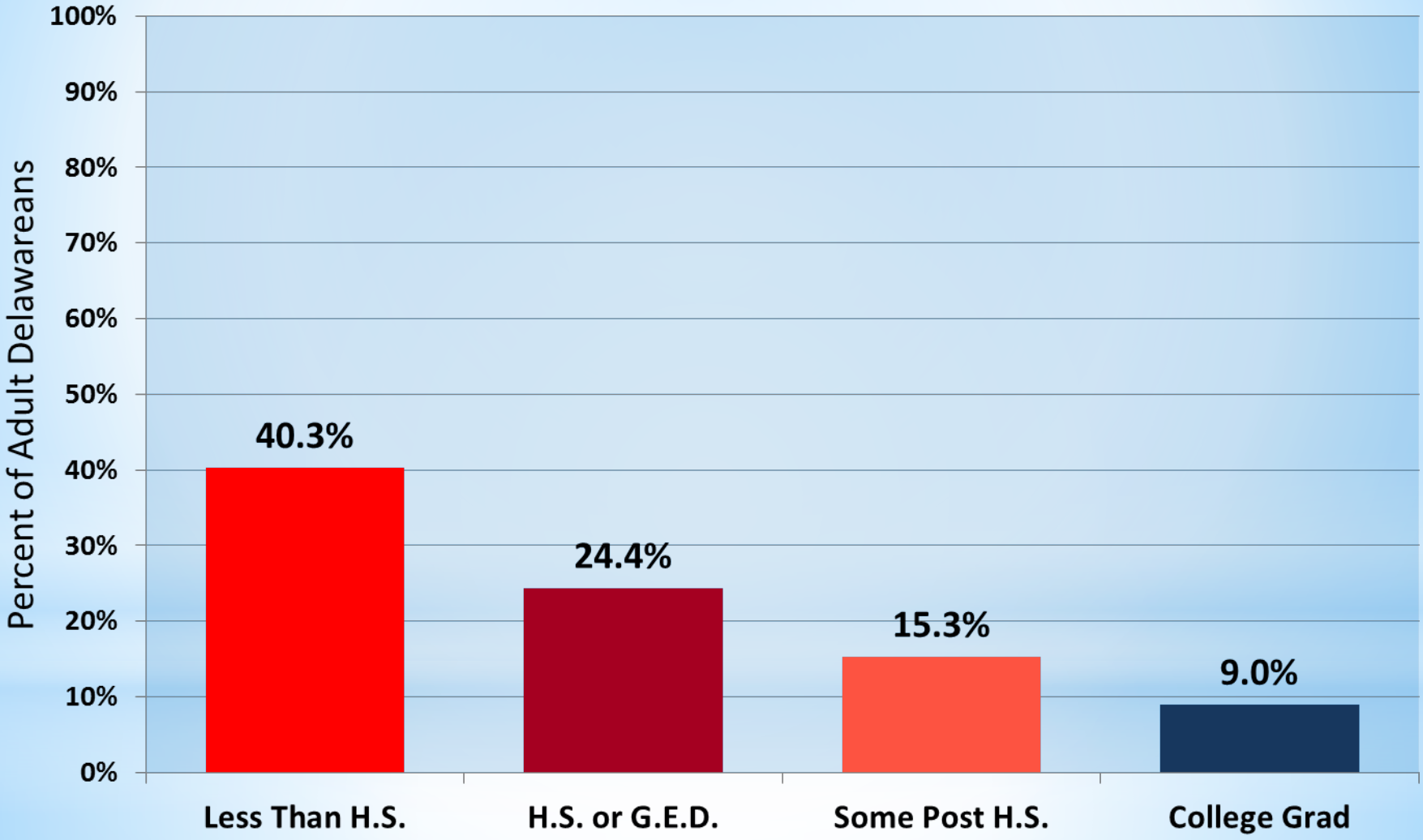
Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

Adult Cigarette Smoking Prevalence in Delaware by Income Level, 2014



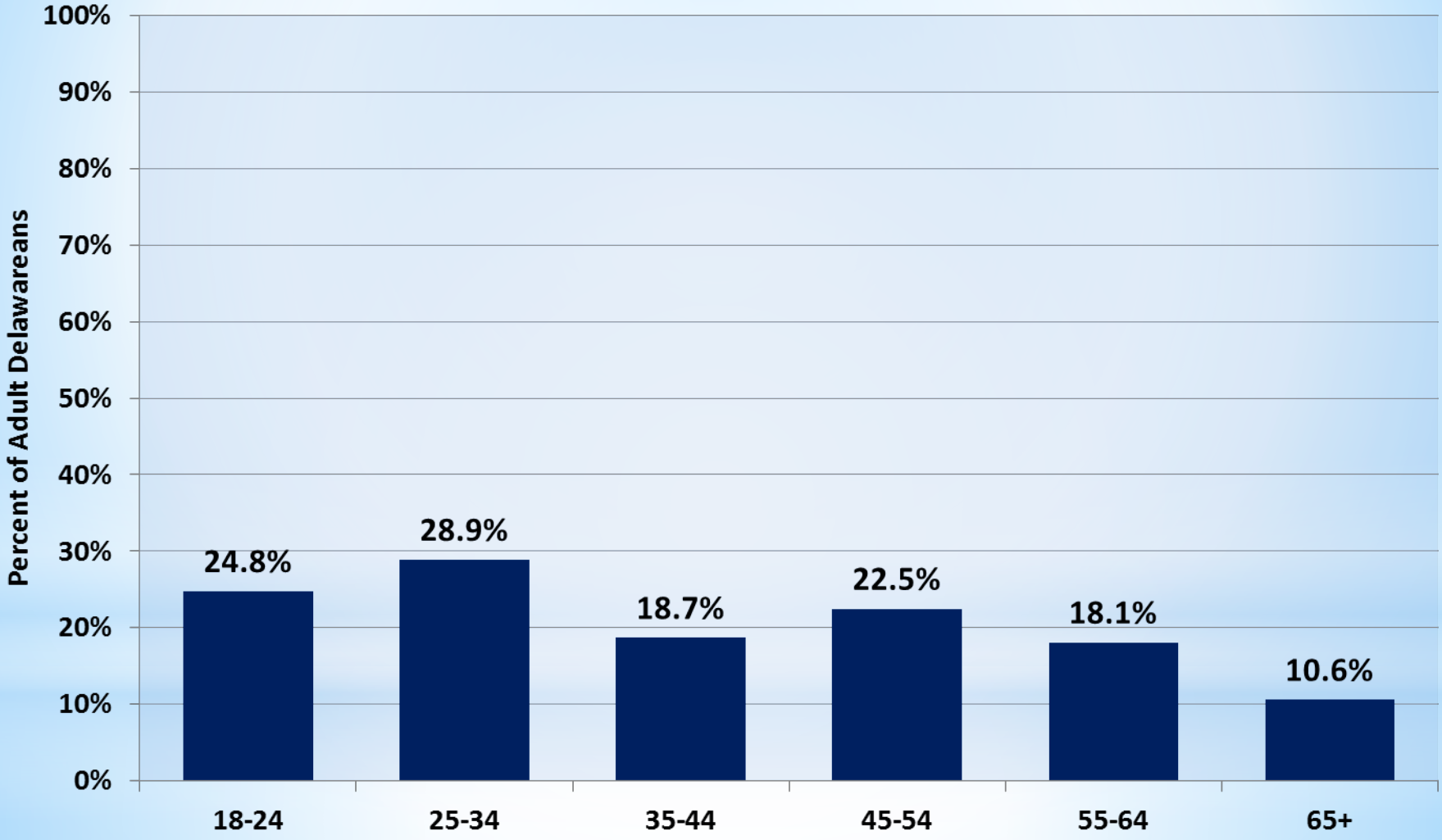
Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014 data.

Adult Cigarette Smoking Prevalence In Delaware by Educational Level, 2014



Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

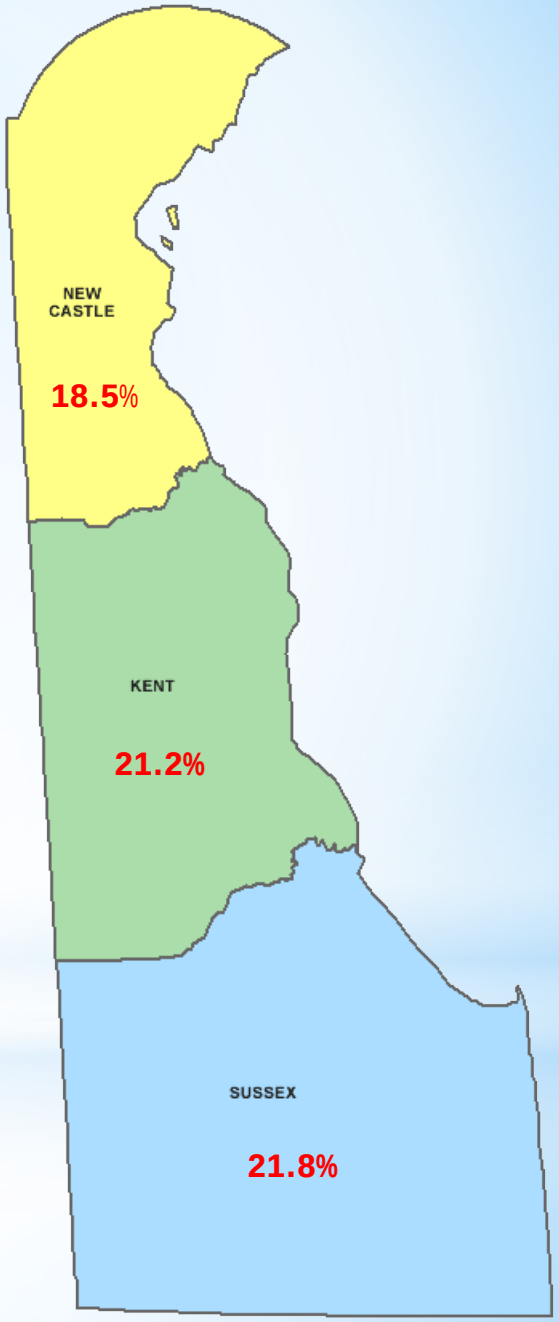
Delaware Adult Smoking Prevalence by Age Group, 2014



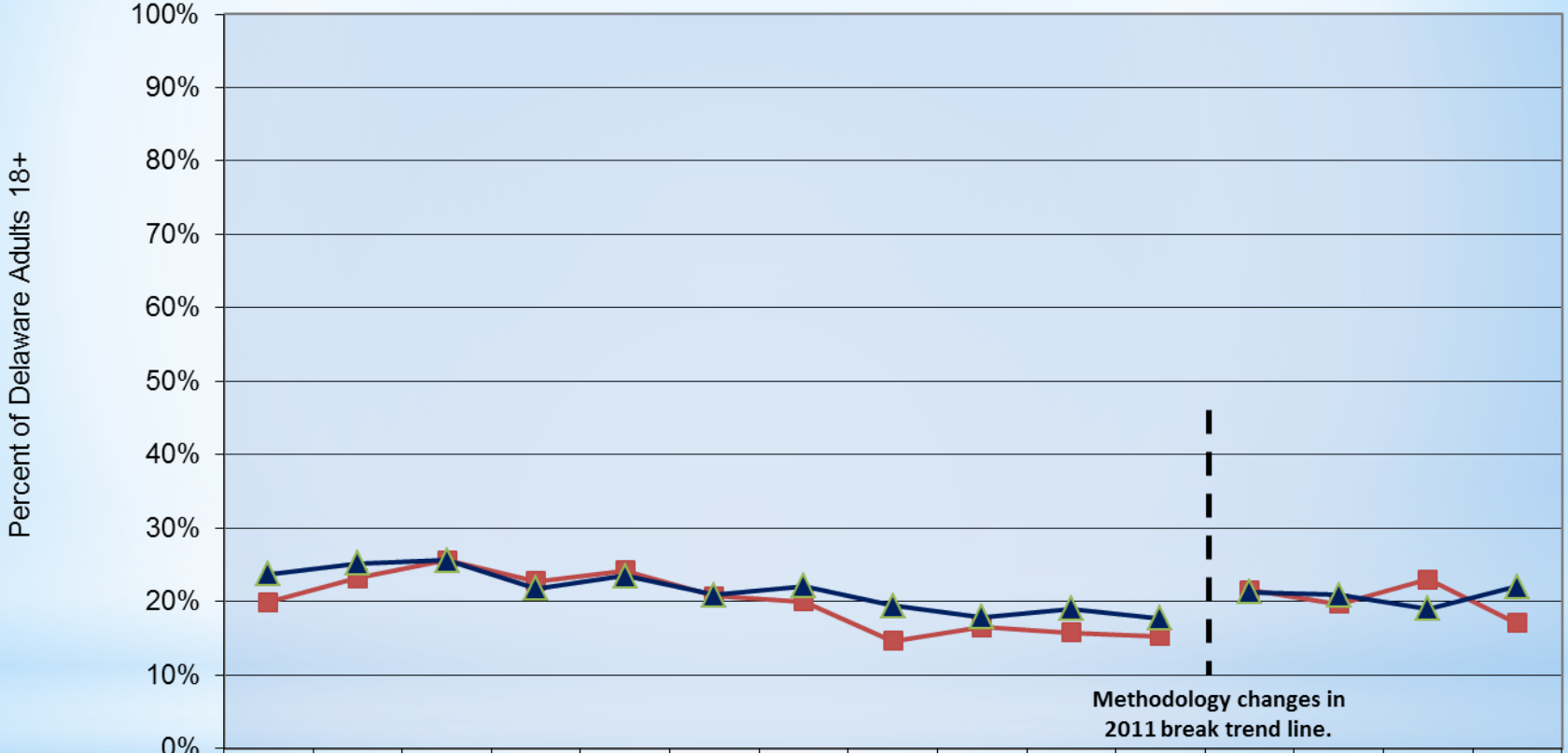
Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2014.

2012 adult smoking by county

County	Prevalence	CI
N.C. County	**18.5%**	(16.4 – 20.6%)
Kent County	**21.2%**	(17.9 - 24.4%)
Sussex County	**21.8%**	(18.6 – 25.1%)



DE Adult "Current Smoking" Trends 2000-2014: No Significant Differences by Race



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
African American	19.9%	23.2%	25.6%	22.8%	24.2%	20.7%	20.0%	14.6%	16.5%	15.8%	15.3%	21.5%	19.7%	23.0%	17.1%
White	23.7%	25.2%	25.6%	21.8%	23.5%	20.9%	22.1%	19.4%	17.9%	19.0%	17.7%	21.3%	20.9%	19.0%	22.0%

Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2000-2014.

No significant differences by race/ethnicity

. . . with larger three-year sample

BRFS Adult Data Aggregated for 2011, 2012, 2013		
Race/Ethnicity	**Prevalence**	Confidence Interval
Non-Hispanic White	**20%**	(18.9 – 21%)
Non-Hispanic Black	**20.2%**	(18 – 22.5%)
Hispanic/Latino	**20.3%**	(15 – 25.5%)

Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), aggregated data 2011-13.

Smoking during pregnancy

From the 2011 Pregnancy Risk Assessment Monitoring System (PRAMS) survey:

- For women who were pregnant, **26.7%** of them smoked during the three months *before becoming pregnant*.
- **13% reported they smoked during the last three months of pregnancy.**
- For those who did not quit, some reported that they reduced the number of cigarettes smoked, while others continued to smoke the same amount.

Source: Delaware Health & Social Services, Division of Public Health, Pregnancy Risk Assessment and Monitoring System (PRAMS), 2011.

Other populations at higher risk for tobacco use:

- In the 2013 BRFS, adults with physical disabilities were slightly more likely to smoke:
  - **25.8%** of adults with disabilities reported currently smoking cigarettes (compared to **17.1%** of people without disabilities).
  - Starting with the 2014 survey, the BRFS added a sexual preference question.

Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2013.

Association with mental health

- In 2012, **40.3%** of Delaware adults who reported frequent "bad mental health" days were current smokers.*
- That's the same smoking prevalence we saw in 2010 (39.9%) for adults with frequent bad mental health days.
- A special report in 2006 looked at depression among Delaware adults:
  - "Current smokers were about **twice as likely** as non-smokers to suffer from mild depressive symptoms."

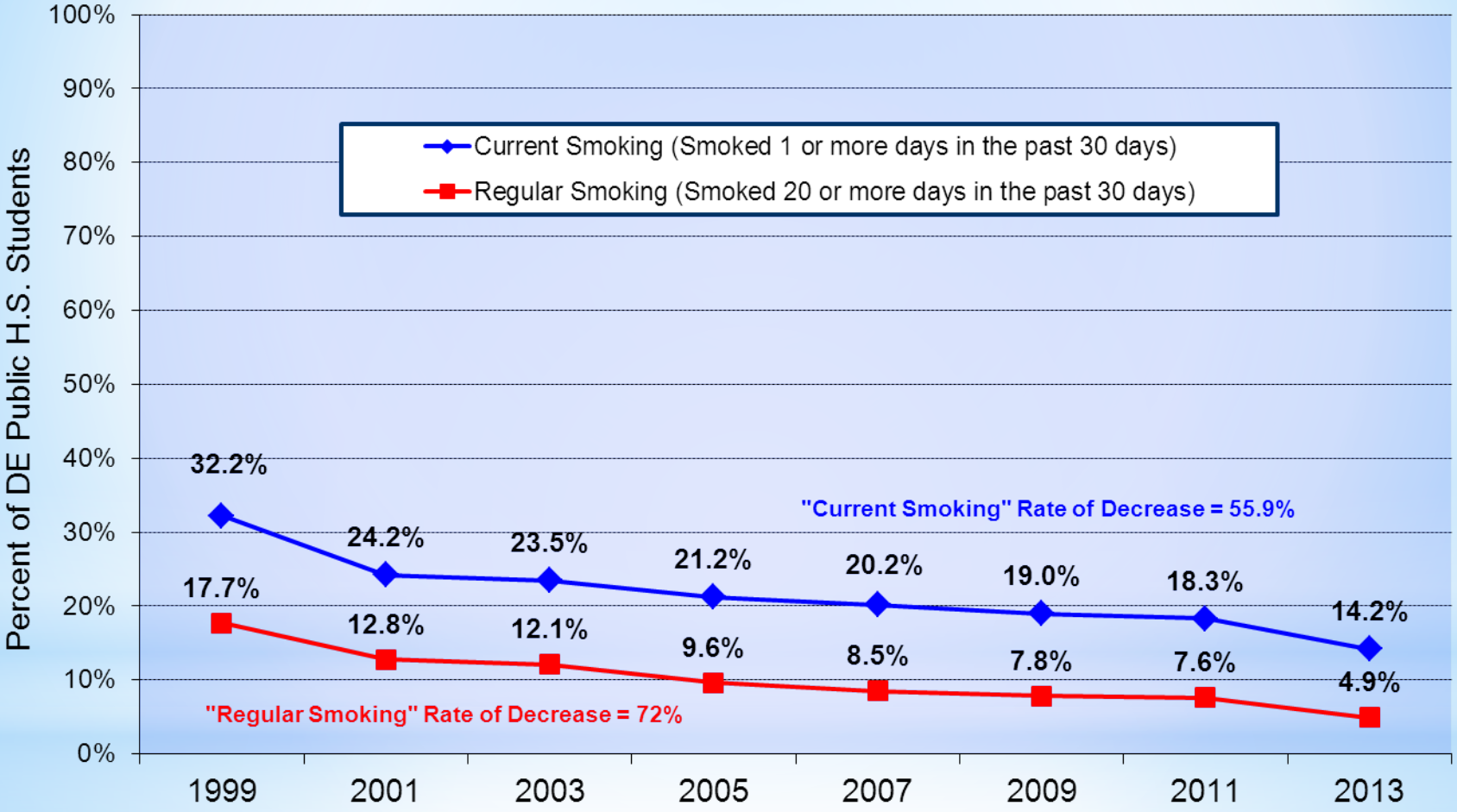
Source: Delaware Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2006-12.
*14 or more "bad mental health" days during the past month.

Youth Tobacco Use

Youth Risk Behavior Survey (YRBS)

Youth Tobacco Survey

Prevalence of Current Smoking Decreased Steadily Among Delaware H.S. Students from 1999-2013



Sources: CDC/DOE, Youth Risk Behavior Survey (YRBS), 1999-2013

Males appear more likely to smoke than females

Gender	Current Smoking Prevalence
Male	**15.6%** (CI = 13.1 - 18.6)
Female	**12.7%** (CI = 10.8 - 14.8)

Source: CDC/DOE, Youth Risk Behavior Survey (YRBS), 2013.
These differences are not statistically significant.

Smoking increases with age/grade level

Grade Level	Current Smoking Prevalence
9th Grade - Freshmen	**12.2%** (CI = 9.5 - 15.6)
10th Grade - Sophomores	**13.5%** (CI = 10.7 - 17.0)
11th Grade - Juniors	**13.4%** (CI = 10.7 - 16.5)
12th Grade - Seniors	**21.2%** (CI = 16.2 - 27.3)

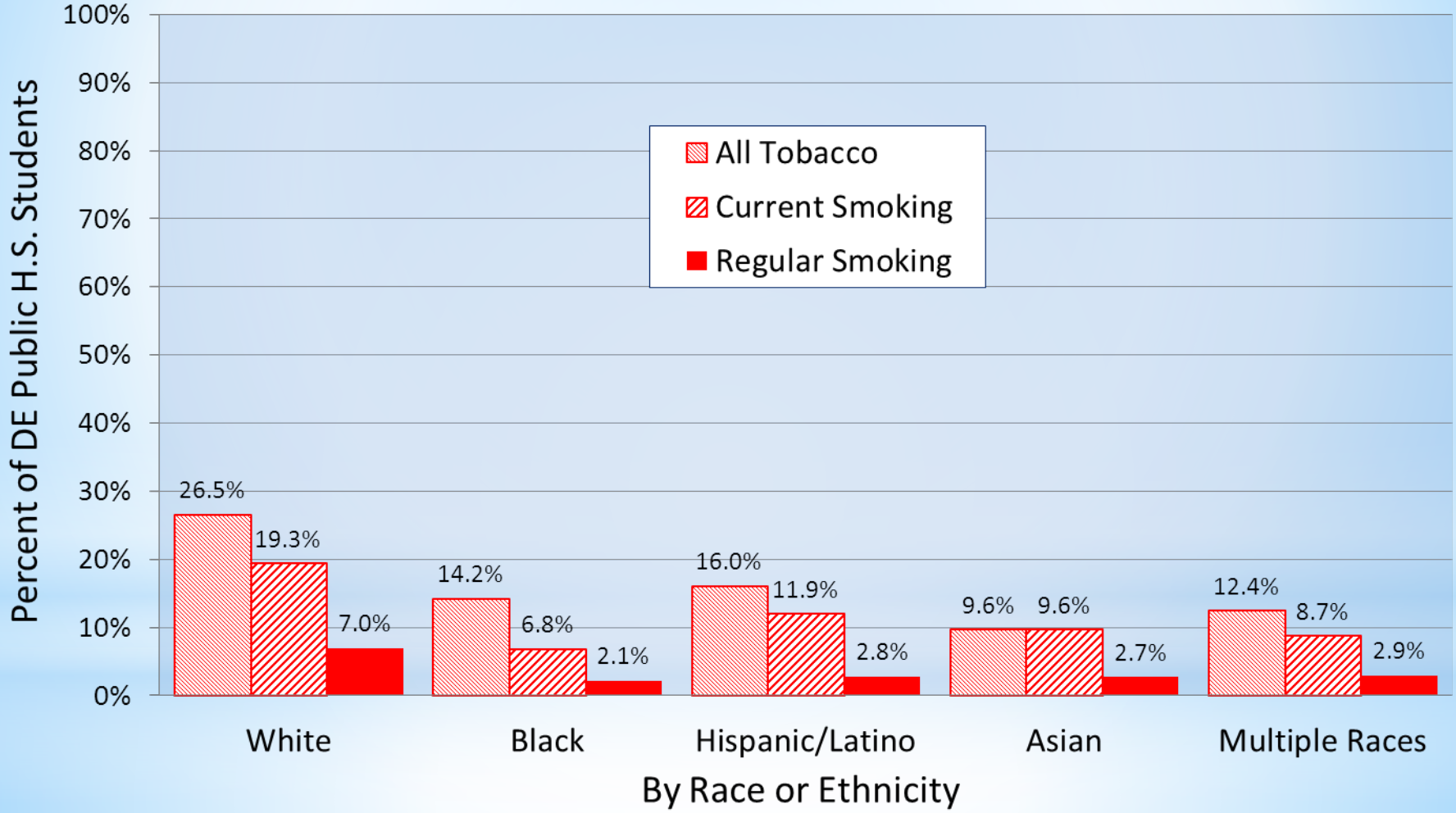
Source: CDC/DOE, Youth Risk Behavior Survey (YRBS), 2013.

Smoking by race/ethnicity in public high schools

Race/Ethnicity	Current Smoking Prevalence
White	**19.3%** (CI = 16.6 - 22.3)
Black / African American	**6.8%** (CI = 5.1 - 8.9)
Hispanic / Latino	**11.9%** (CI = 8.7 - 15.9)
Asian	**9.6%** (CI = 5.1 - 17.3)

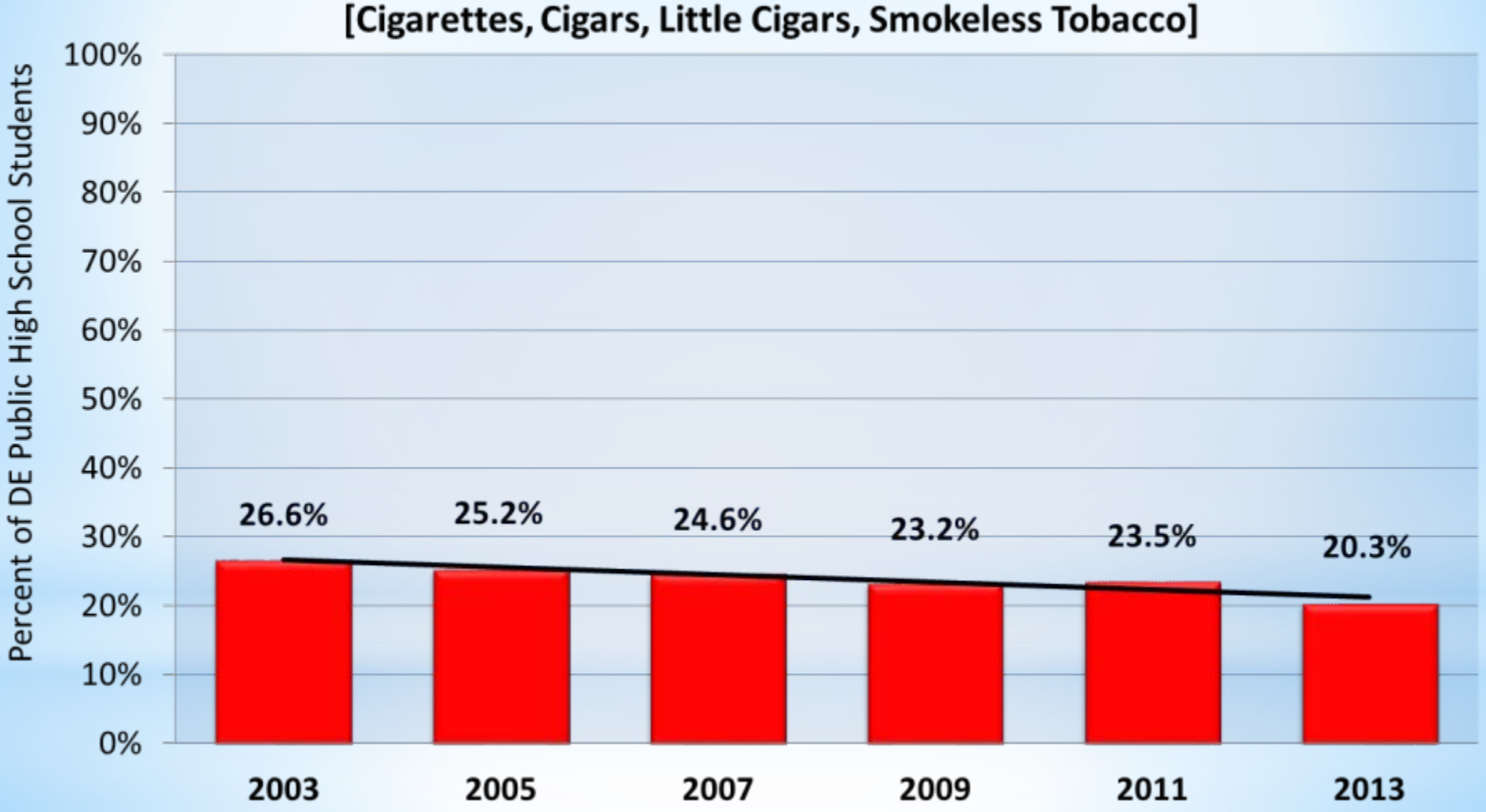
Source: CDC/DOE, Youth Risk Behavior Survey (YRBS), 2013.

Delaware Public High School Tobacco Use by Race or Ethnicity, 2013



Source: Delaware Department of Education, Youth Risk Behavior Survey (YRBS), 2013. "All Tobacco" includes smokeless & little cigars as well as cigarette smoking; "Current Smoking" = any smoking during past month; "regular smoking" = smoking almost every day.

"Total Tobacco Use" Declining Among DE Public H.S. Students in Past Decade



Source: CDC/DE Department of Education, Youth Risk Behavior Survey (YRBS), 2003-2013.

Current H.S. smoking by sexual orientation, Delaware 2013

"Any smoking during past month"

Sexual Orientation	Smoking Prevalence
Overall H.S. prevalence	**14.2%**
Heterosexual	**13.7%**
Gay or Lesbian	**21.8%**

Source: Delaware Department of Education, Youth Risk Behavior Survey (YRBS), 2013. Data analyzed by the Center for Drug and Alcohol Studies (CDAS), University of Delaware.

Current H.S. smoking prevalence by disability status, 2013 YRBS

Type of Disability	Smoking Past Month Among Students With Disability	Smoking Past Month Among Students Without Disability
Physical Disabilities	18.5%	14.4%
Emotional/Learning Disabilities	**27.4%**	13.4%
Either Physical or Emotional Disability	20.7%	13.4%

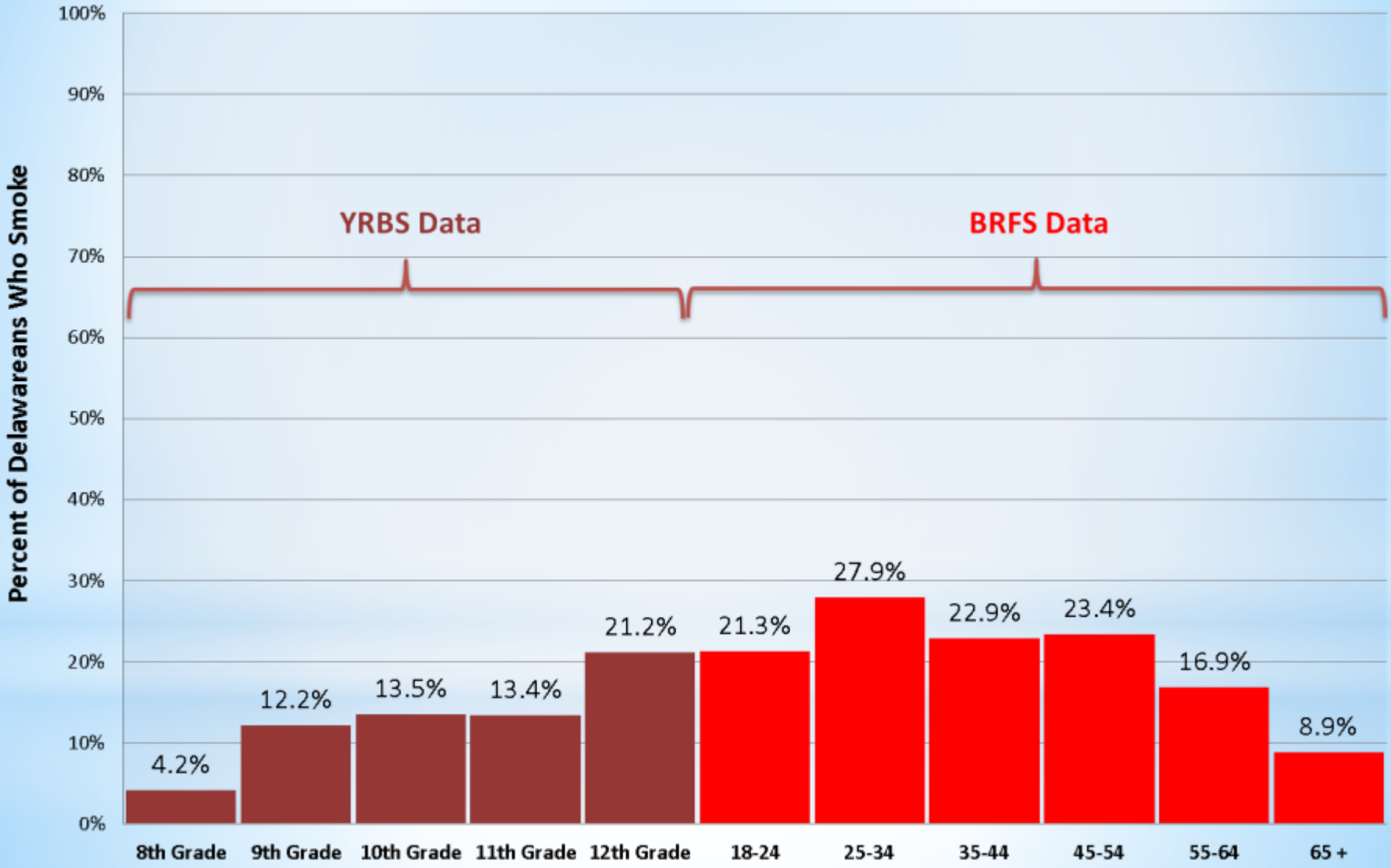
Source: Delaware Department of Education, Youth Risk Behavior Survey (YRBS), 2013. Data analyzed by the Center for Drug and Alcohol Studies (CDAS), University of Delaware.

Trying to quit

- Half (**50.4%**) of Delaware public high school students who smoke say they **tried to quit** at some time during the past year.
- Male smokers were more likely to try to quit (55.6%) than female smokers (44.1%).

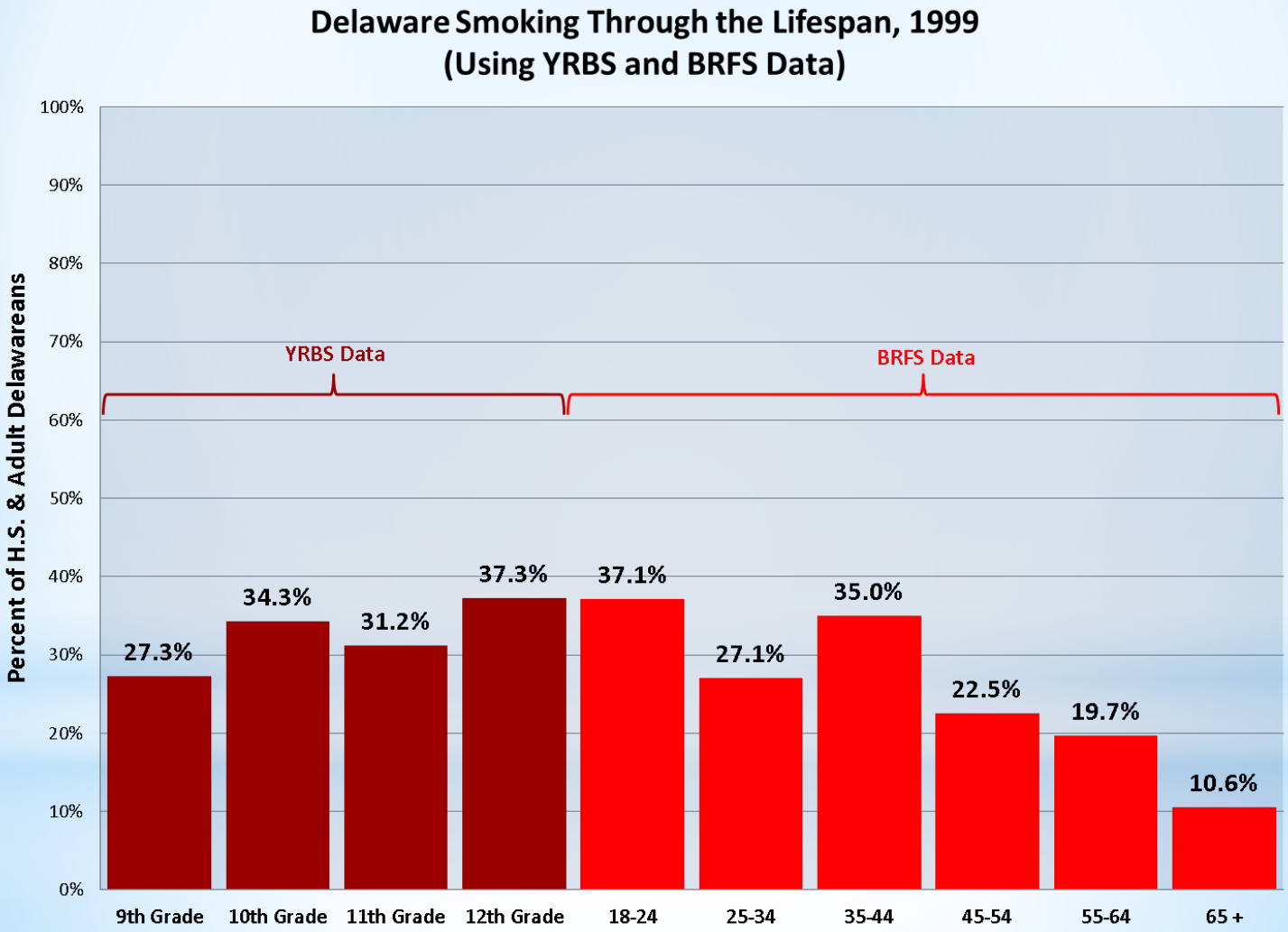
Source: CDC/DOE, Youth Risk Behavior Survey (YRBS), 2013.

Delaware Smoking Through the Lifespan (Using YRBS and BRFS Data)



Data sources: DE Department of Education, Youth Risk Behavior Survey (YRBS), 2013; and DE Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 2013. Caveat: Studies use different methodology and questions.

14 years ago the picture looked very different, esp. for youth and young adults



Data sources: DE Department of Education, Youth Risk Behavior Survey (YRBS), 1999; and DE Health & Social Services, Division of Public Health, Behavioral Risk Factor Survey (BRFS), 1999. Caveat: Studies use different methodology and questions.

For more information:

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Acknowledgments:

- **Stephanie H. Belinske**, MPH, chronic disease epidemiologist, Division of Public Health
- **George Yocher**, MS, epidemiologist and PRAMS coordinator, Division of Public Health
- **Roberta Gealt**, research scientist, Center for Drug and Health Studies, University of Delaware
- **Elizabeth Dubravcic**, program evaluator, Tobacco Prevention and Control Program, Division of Public Health

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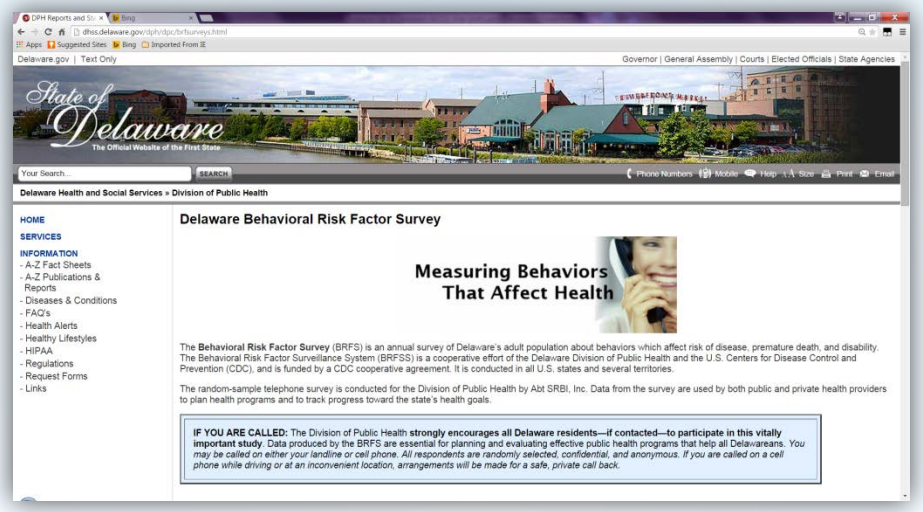
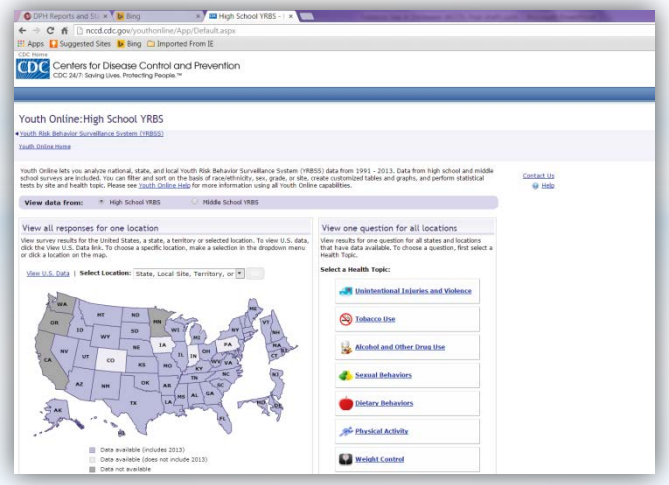


BRFS online **http://dhss.delaware.gov/dph/dpc/brfsurveys.html**

YRBS online **http://nccd.cdc.gov/youthonline/App/Default.aspx**