



Prevalence of quit method use among adult smokers by demographics: Evidence from the 2014-2016 *Tips* cohort

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Disclaimer

The findings and conclusions in this presentation are those of the presenters and do not necessarily represent the official position of the Centers for Disease Control and Prevention, RTI International, or the University of North Carolina at Chapel Hill

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Background

- Quitting cigarette smoking greatly reduces the risk of developing smoking-related diseases
- Nearly 7 out of every 10 current smokers want to quit completely¹
- In 2012, approximately 4 out of 10 adult daily cigarette smokers stopped smoking for more than 1 day because they were trying to quit²
- Most former smokers quit without using evidence-based treatments^{1,3-5}
- Little is known about how e-cigarette use may have impacted quitting behaviors

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Tips From Former Smokers Campaign

- Launched in 2012, first federally-funded national antismoking campaign in the United States
- Airs on national television with complementary ads online and on radio, print, and outdoor channels
 - All campaign ads viewable at www.cdc.gov/tips
- Evidence-based strategy: graphic/emotional stories from former smokers about living with smoking-related diseases
 - Inaugural campaign associated with 1.6 million quit attempts and 100,000 sustained quits⁶
 - Subsequent *Tips* campaigns in 2013⁷ and 2014⁸ were also associated with increased quit attempts and intentions to quit

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Objectives

- **Compare quit method prevalence by demographics among adult smokers in the United States**
- **Understand how use of electronic vapor products (EVPs) as part of quitting compares to evidence-based cessation aids**
- **Determine implications for cessation effectiveness and future research**

Data

- **Series of online surveys conducted with nationally representative sample of adult cigarette smokers aged ≥ 18 years (n = 9,507 unique individuals)**
 - Sample sourced from nationally representative online panel, recruited using randomly selected households in the U.S.
- **Data limited to current smokers and recent quitters**
 - Current smokers defined as adults who smoked 100 cigarettes in their lifetime and currently smoke either “every day” or “some days”
 - Recent quitters were smokers who quit smoking in past 3 months
- **Uses 7 survey waves from 2014 to 2016**
 - Longitudinal cohort with periodic replenishment
- **Each survey wave weighted to national distributions of age, sex, race/ethnicity, and education among smokers**

Measures

- **Quit Methods**
 - Give up cigarettes all at once
 - Gradually cut back on cigarettes
 - Switched completely to e-cigarettes
 - Substituted some regular cigarettes with e-cigarettes
 - Switch to mild or some other brand of cigarettes
 - Use nicotine replacements like the nicotine patch or nicotine gum
 - Use medications like Zyban or Chantix
 - Get help from a telephone quit line
 - Get help from a website such as Smokefree.gov
 - Get help from a doctor or other health professional

Measures

- **Demographics**

- **Age**
 - 18-24, 25-44, 45-64, ≥65
- **Gender**
 - Male, female
- **Race/ethnicity**
 - White, non-Hispanic, African American, non-Hispanic, Hispanic, other/multi-race, non-Hispanic
- **Education**
 - Less than high school, high school or equivalent, some college, Bachelor's degree or higher
- **Employment status**
 - Employed, unemployed, retired
- **Household income**
 - <\$25,000, \$25,000-\$49,999, \$50,000-\$99,999, ≥\$100,000
- **Urbanicity**
 - Metro (in MSA), non-metro

Analytic Design

- **Surveys**

- **2014 – 2 waves**
 - April 12 to June 30
 - September 11 to November 17
- **2015 – 3 waves**
 - January 7 to March 10
 - April 3 to June 16
 - September 17 to December 1
- **2016 – 2 waves**
 - March 23 to May 13
 - June 16 to August 1

Statistical Analysis

- **Descriptive analysis**
 - Prevalence estimate for each quit method –
% of quit attempts during which method was used
 - Overall and stratified by demographic characteristics
 - Estimated using survey-weighted mean
 - Standard errors clustered to account for multiple responses by a single respondent
 - Joint F-tests to identify significant differences across all subgroups within each demographic characteristic
- **Multiple methods may be used in combination and smokers may switch quit methods across survey waves**
- **Does not control for underlying smoker characteristics**

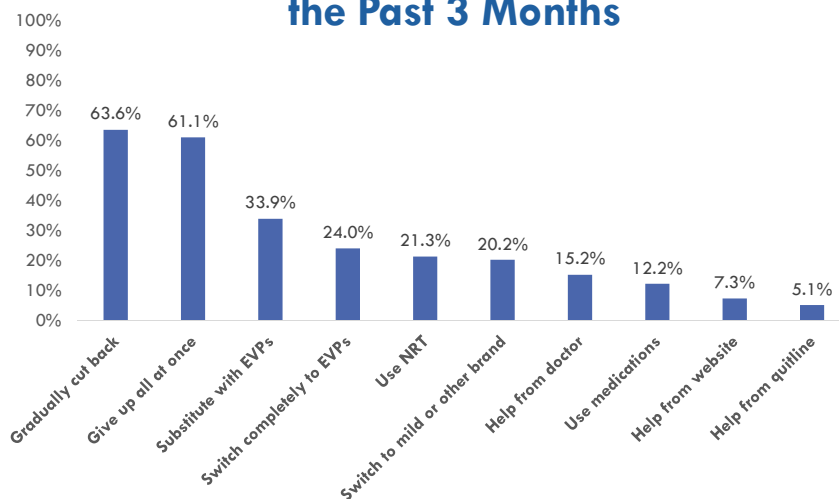
Sample Demographics

- **N = 9,507 unique smokers and recent quitters**
 - 8,573 smokers, 934 recent quitters
- **Data weighted to U.S. general population of adult smokers using 2010-2011 Tobacco Use Supplement of U.S. Census Current Population Survey**

Characteristic	Weighted	Unweighted
Age		
18–24	12.4%	4.9%
25–44	44.1%	29.0%
45–64	35.0%	49.8%
≥65	8.6%	16.4%
Sex		
Female	48.7%	58.1%
Male	51.3%	41.9%
Race/ethnicity		
White	62.6%	76.1%
Black	15.4%	10.0%
Hispanic	14.3%	8.2%
Other	7.7%	5.7%
Education		
< High School	13.9%	7.4%
High School	36.9%	23.8%
Some College	34.4%	47.0%
≥College Degree	14.9%	21.8%

Results

Quit Methods Reported Among All Cigarette Smokers Who Attempt to Quit in the Past 3 Months



Quit Method Used by Demographics

- **Sex**
 - Only one significant difference: Use of cessation medications (11.1% male vs. 13.3% female, $p < 0.05$)
- **Urbanicity**
 - No significant differences by urbanicity

Age

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	18-24	25-44	45-64	≥65
Give up all at once**	60.2% [55.3, 65.2]	63.3% [61.1, 65.4]	58.3% [56.5, 60.1]	62.1% [59.1, 65.2]
Gradually cut back	66.3% [62.1, 70.6]	62.7% [60.6, 64.8]	64.2% [62.4, 66.0]	61.7% [58.4, 64.9]
Switch completely to EVPs**	28.0% [23.6, 32.5]	25.8% [23.7, 28.0]	21.8% [20.1, 23.5]	16.4% [13.9, 19.0]
Substitute with EVPs**	40.9% [35.8, 46.0]	34.0% [31.6, 36.3]	33.3% [31.4, 35.1]	25.4% [22.4, 28.3]
Switch to mild or other brand	24.0% [19.4, 28.6]	18.8% [16.9, 20.8]	20.8% [19.2, 22.4]	19.6% [16.9, 22.4]

** $p < 0.01$

Age

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	18-24	25-44	45-64	≥65
Use NRT**	16.3% [12.3, 20.3]	18.8% [16.9, 20.7]	25.5% [23.8, 27.3]	25.1% [21.8, 28.3]
Use medications**	7.9% [5.0, 10.9]	10.8% [9.4, 12.3]	14.9% [13.6, 16.2]	14.9% [12.6, 17.1]
Help from quitline**	4.7% [2.6, 6.9]	5.2% [4.1, 6.3]	5.7% [4.8, 6.7]	2.8% [2.0, 3.6]
Help from website**	8.8% [5.8, 11.9]	7.8% [6.5, 9.0]	6.8% [6.0, 7.7]	4.7% [3.3, 6.1]
Help from doctor**	8.0% [5.2, 10.9]	12.9% [11.3, 14.5]	19.8% [18.2, 21.3]	19.3% [16.9, 21.8]

** p<0.01

Race/ethnicity

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	White	African American	Hispanic	Other
Give up all at once**	63.1% [61.6, 64.6]	52.8% [48.8, 56.7]	61.2% [57.5, 64.9]	63.7% [58.3, 69.2]
Gradually cut back**	59.4% [57.9, 61.0]	71.4% [68.1, 74.6]	69.2% [65.7, 72.8]	66.2% [61.1, 71.4]
Switch completely to EVPs**	26.9% [25.3, 28.5]	17.6% [14.8, 20.4]	18.4% [15.2, 21.7]	26.8% [21.2, 32.4]
Substitute with EVPs**	36.9% [35.3, 38.6]	27.1% [23.4, 30.8]	29.6% [25.4, 33.8]	34.2% [28.4, 40.0]
Switch to mild or other brand**	17.4% [16.1, 18.8]	25.1% [21.9, 28.3]	24.3% [20.6, 28.1]	21.9% [16.6, 27.3]

** p<0.01

Race/ethnicity

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	White	African American	Hispanic	Other
Use NRT**	22.8% [21.4, 24.2]	20.4% [17.5, 23.4]	15.4% [12.1, 18.7]	23.7% [17.3, 30.1]
Use medications**	14.0% [12.9, 15.1]	9.8% [7.7, 11.9]	6.9% [4.9, 8.9]	14.2% [9.9, 18.4]
Help from quitline**	3.9% [3.2, 4.5]	7.2% [5.4, 8.9]	6.3% [4.2, 8.3]	7.9% [4.7, 11.1]
Help from website**	5.8% [5.1, 6.5]	9.8% [7.5, 12.2]	8.7% [6.3, 11.2]	10.5% [6.8, 14.2]
Help from doctor**	15.3% [14.2, 16.4]	17.8% [14.8, 20.8]	10.6% [8.2, 13.0]	17.6% [13.0, 22.1]

** p<0.01

Education

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	<High school	High school	Some college	≥College degree
Give up all at once**	50.5% [46.4, 54.6]	56.7% [54.4, 59.1]	65.6% [63.8, 67.3]	71.2% [68.5, 74.0]
Gradually cut back**	64.5% [60.6, 68.4]	67.1% [64.9, 69.3]	62.0% [60.0, 63.9]	57.6% [54.6, 60.6]
Switch completely to EVPs*	21.4% [17.9, 24.8]	24.6% [22.2, 26.9]	25.7% [23.9, 27.6]	21.3% [18.2, 24.3]
Substitute with EVPs**	28.0% [24.0, 32.1]	37.1% [34.4, 39.7]	35.4% [33.4, 37.4]	28.4% [25.3, 31.5]
Switch to mild or other brand**	21.5% [18.1, 24.9]	22.4% [20.1, 24.6]	18.3% [16.8, 19.7]	18.0% [15.2, 20.7]

* p<0.05

** p<0.01

Education

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	<High school	High school	Some college	≥College degree
Use NRT	19.0% [15.6, 22.4]	20.8% [18.7, 22.9]	21.6% [19.9, 23.2]	24.0% [20.9, 27.2]
Use medications	10.1% [7.8, 12.4]	11.7% [10.2, 13.3]	13.0% [11.6, 14.3]	13.6% [11.2, 15.9]
Help from quitline	6.2% [4.0, 8.3]	4.7% [3.6, 5.8]	5.2% [4.3, 6.0]	5.2% [3.5, 6.8]
Help from website	7.2% [4.9, 9.4]	7.4% [6.0, 8.8]	6.7% [5.8, 7.7]	8.6% [6.6, 10.6]
Help from doctor	14.0% [11.5, 16.6]	15.2% [13.4, 16.9]	15.5% [14.1, 16.8]	15.7% [13.4, 17.9]

Household income

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	<\$25k	\$25k-<\$50k	\$50k-<\$100k	≥\$100k
Give up all at once**	55.2% [52.8, 57.7]	60.7% [58.3, 63.1]	64.5% [62.1, 66.8]	69.5% [65.9, 73.1]
Gradually cut back**	66.6% [64.4, 68.8]	64.4% [62.0, 66.8]	61.0% [58.7, 63.3]	59.3% [55.6, 63.0]
Switch completely to EVPs**	22.0% [20.0, 24.1]	22.2% [20.0, 24.4]	27.9% [25.3, 30.5]	22.7% [19.6, 25.9]
Substitute with EVPs	34.0% [31.4, 36.5]	33.0% [30.5, 35.5]	35.4% [32.6, 38.1]	31.2% [27.6, 34.8]
Switch to mild or other brand**	24.4% [22.1, 26.6]	20.2% [18.1, 22.2]	16.9% [14.7, 19.0]	16.7% [13.6, 19.8]

** p<0.01

Household income

Prevalence of Quit Method Use				
	Weighted % [95% CI]			
Quit Method	<\$25k	\$25k-<\$50k	\$50k-<\$100k	≥\$100k
Use NRT	20.6% [18.6, 22.6]	22.1% [19.9, 24.4]	20.5% [18.3, 22.7]	23.6% [20.3, 26.9]
Use medications**	11.2% [9.8, 12.7]	11.0% [9.6, 12.4]	12.6% [10.9, 14.3]	17.1% [13.8, 20.3]
Help from quitline**	6.7% [5.4, 7.9]	5.2% [4.0, 6.4]	3.9% [2.9, 4.9]	4.1% [2.3, 5.9]
Help from website	8.9% [7.5, 10.3]	6.7% [5.5, 7.9]	6.4% [4.9, 7.8]	7.3% [5.0, 9.5]
Help from doctor	16.0% [14.3, 17.8]	14.7% [12.9, 16.5]	14.2% [12.6, 15.9]	16.9% [13.9, 19.9]

** p<0.01

Employment status

Prevalence of Quit Method Use			
	Weighted % [95% CI]		
Quit Method	Employed	Unemployed	Retired
Give up all at once**	63.5% [61.7, 65.3]	57.7% [55.3, 60.0]	59.2% [56.1, 62.4]
Gradually cut back	62.5% [60.8, 64.3]	65.0% [62.9, 67.2]	64.6% [61.6, 67.6]
Switch completely to EVPs**	25.7% [23.9, 27.5]	22.7% [20.5, 24.8]	18.2% [15.8, 20.6]
Substitute with EVPs**	34.7% [32.7, 36.6]	33.9% [31.4, 36.3]	29.2% [26.3, 32.1]
Switch to mild or other brand	19.4% [17.8, 21.1]	21.7% [19.7, 23.8]	19.1% [16.6, 21.5]

** p<0.01

Employment status

Prevalence of Quit Method Use			
	Weighted % [95% CI]		
Quit Method	Employed	Unemployed	Retired
Use NRT	20.8% [19.2, 22.4]	21.2% [19.1, 23.3]	24.6% [21.9, 27.4]
Use medications**	11.7% [10.4, 12.9]	12.1% [10.6, 13.6]	15.7% [13.4, 18.0]
Help from quitline**	4.9% [4.0, 5.8]	6.1% [5.0, 7.2]	2.9% [2.0, 3.8%]
Help from website**	7.6% [6.6, 8.7]	7.4% [6.2, 8.6]	5.0% [3.7, 6.4]
Help from doctor**	21.1% [12.0, 14.4]	16.9% [15.0, 18.8]	21.1% [18.6, 23.5]

** p<0.01

SUMMARY

- The most common methods used by cigarette smokers to try to quit were:
 - Gradually **cutting down** on the number of cigarettes smoked and **giving up all** cigarettes at once: **3 of every 5 smokers**
 - **Substituting** some cigarettes with EVPs: **1 of every 3 smokers**
 - **Switching** completely to EVPs: **1 of every 4 smokers**

Discussion

- **African Americans** had a lower prevalence of trying to quit by giving up cigarettes all at once than Whites and Hispanics
- **Whites** had a higher prevalence to either switch completely or substitute regular cigarettes with EVPs than African Americans or Hispanics
- The prevalence of attempting to giving up cigarettes all at once increases with education and household income
- **College graduates** most likely to use NRT
- The prevalence of switching to 'mild' brand as a quit method increases with decreasing household income
- **Retirees** less likely than all others to switch completely or substitute with EVPs or use help from a website to quit

Implications

- **Further attention to the distribution and impact of different quit methods in racial/ethnic populations is important**
 - There may be misperceptions about the relative efficacy of quit methods among different racial/ethnic groups
- **Younger smokers are more likely to attempt to quit using a method involving EVPs**
 - The long-term harms of EVPs use are still unknown
 - The current scientific evidence is insufficient to recommend e-cigarettes for smoking cessation in adults, including young adults
- **Further research on the comparative harms and effect on sustained cessation and abstinence from tobacco products for EVPs relative to other cessation aids is important**
 - However, EVPs are not an FDA-approved quit aid

Limitations

- Although designed with probability sample of U.S. households, use of online panel may limit generalizability
- Stratification by demographics can miss differences by state/region and smoker characteristics (e.g., heaviness of smoking)
- Does not account for combinations and/or switching of quit methods by individuals
- Does not examine the potential for changes over time
 - Additional waves of data may allow for the identification of trends in quit methods use over time
- Is not linked to short- or long-term cessation outcomes
 - Possible with available data but many potential issues with selection bias and self-reported use of quit methods
 - Observational data are not well-suited for establishing efficacy of quit methods, though may speak to real-world effectiveness



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