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The impact of inter-survey differences in the definition of current smokeless tobacco use on comparability of US national and state-specific prevalence estimates, 2009–2011

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ABSTRACT

Background. We assessed how varying definitions of adult current smokeless tobacco (SLT) use affected overall prevalence estimates.

Methods. National prevalence estimates were from five surveys: 2009–2010 National Health and Nutrition Examination Survey (NHANES), 2009–2010 National Adult Tobacco Survey (NATS), 2010–2011 Tobacco Use Supplement of the Current Population Survey (TUS-CPS), 2010 National Survey on Drug Use and Health (NSDUH), and 2010 National Health Information Survey (NHIS). State-specific prevalence estimates were from three surveys: 2009–2010 NATS, 2010–2011 TUS-CPS, and 2010 Behavioral Risk Factor Surveillance System (BRFSS). Current SLT use definitions were as follows: past 5-day use (NHANES), past 30-day use (NATS and NSDUH), and "every day" or "some days" use (TUS-CPS, NHIS, and BRFSS). Inter-survey variations further existed in number and types of SLT products assessed.

Results. National prevalence estimates of current SLT use were as follows: NATS (3.9%), NSDUH (3.6%), NHIS (2.8%), NHANES (2.3%), and TUS-CPS (1.6%). State-specific prevalence estimates of SLT use were generally lower for TUS-CPS (median = 2.1%, range: 0.5% in California and New York, to 7.2% in Wyoming) compared to either BRFSS (median = 4.0%: range: 0.9% in Washington D.C., to 8.2% in Wyoming) or NATS (median = 4.7%; range: 1.3% in New Jersey, to 9.8% in Wyoming).

Conclusion. Concerted efforts are needed among interagency groups to harmonize SLT definition within different surveys.

Introduction

Tobacco use remains the leading cause of preventable morbidity and mortality in the United States, accounting for over 480,000 deaths annually and costing the US economy over $289 billion every year (U.S. Department of Health and Human Services [US DHHS], 2014). Smokeless tobacco (SLT) use is associated with several oral conditions, such as gingivitis, periodontitis, gingival recession, dental caries, oral sub-mucous fibrosis, oral leukoplakia, and oral cancer (Greer, 2011; Kallischnigg et al., 2008; Warnakulasuriya et al., 2010). While cigarette smoking has declined significantly among US adults, the prevalence of SLT use among persons aged ≥12 years has remained unchanged in the past decade (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012). Reducing overall prevalence of SLT use to ≤0.3% among all US adults aged ≥18 years is a national objective of Healthy People 2020 (US DHHS, 2014b).

The importance of accurately measuring the prevalence and patterns of SLT use cannot be overemphasized considering that such information may be useful in guiding decisions about tobacco control strategies for the overall population and its subgroups, at national, state, and local levels Government agencies and policy makers rely on population-level data to make decisions regarding health policy, and to evaluate the impact of public health interventions (US Government Accountability Office [GAO], 2006). In addition, health professionals and researchers may utilize national and state-specific tobacco data to formulate research priorities for tobacco control and prevention.

Given the importance of federally and state-funded surveys to the practice of public health, and the ever-increasing demand for more and better information within limited resources, it is essential to maximize the precision, accuracy, and utility of surveys (US Government Accountability Office, 2006). This is often a challenge as varying sampling methodologies, survey settings, and question wording or context may influence the accuracy and comparability of data across

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Table 1
Characteristics of representative surveys measuring current smokeless tobacco (SLT) use, United States, 2009–2011.

Characteristics	National Health and Nutrition Examination Survey (NHANES)	National Adult Tobacco Survey (NATS)	Tobacco Use Supplement of the Current Population Survey (TUS-CPS)	National Survey on Drug Use and Health (NSDUH)	National Health Information Survey (NHIS)	Behavioral Risk Factor Surveillance System (BRFSS)
Sponsor	National Center for Health Statistics, CDC	Office on Smoking and Health, CDC	National Cancer Institute, National Institutes of Health	Substance Abuse and Mental Health Services Administration	National Center for Health Statistics, CDC	Behavioral Risk Factor Surveillance Branch, CDC [e]
Frequency	Annually	Biennially	Bi or Tri-annually	Annually	Annually	Annually
Survey wave analyzed	2009–2010	2009–2010	2010–2011	2010	2010	2010
Data collection period	January 2009–December 2010	October 2009–February 2010	May 2010, August 2010, and January 2011	January 2010–December 2010	January 2010–December 2010	January 2010–December 2010
Data collection Mode	In person using computer assisted Personal Interviewing [a]	Landline, and Cell Phone	About 64% of respondents interviewed by telephone and 36% in person using computer assisted Personal Interviewing	In person using computer assisted Personal Interviewing	In person using computer assisted Personal Interviewing	Telephone (Landline) [f]
Representativeness	National	National and State	National and State	National and State[d]	National	State, City, and County
Universe of entire survey	Non-institutionalized persons aged ≥ 0 years in all 50 US states and Washington D.C.	Non-institutionalized persons aged ≥ 18 years in all 50 US states and Washington D.C.	Non-institutionalized persons aged ≥ 18 years in all 50 US states and Washington D.C.	Non-institutionalized persons aged ≥ 12 years in all 50 US states and Washington D.C.	Non-institutionalized persons aged ≥ 0 years in all 50 US states and Washington D.C.	Non-institutionalized persons aged ≥ 18 years in all 50 US states, Washington D.C., Guam, the U.S. Virgin Islands, and the Commonwealth of Puerto Rico
Languages survey administered in	English and Spanish	English and Spanish	English, Spanish, Chinese, Korean, Vietnamese, and Khmer	English and Spanish	English and Spanish	English and Spanish
Overall interview response rate	79.4%	CASRO Response rate [b] = 37.6% (40.4% for landline sample; 24.9% for cell phone sample). National cooperation rate [c] = 62.3% (61.9% of landline participants; 68.7% of cell phone users). Response rates by state ranged from 28.2% in New Jersey to 49.3% in Vermont (median = 37.9%); state-specific cooperation rates ranged from 52.9% in Louisiana to 72.4% in Vermont (median	January 2011 (household non-response = 8.6%; person-level non-response = 40.2%); August 2010 (household non-response = 8.0%; person-level non-response = 38.4%), and May 2010 (household non-response = 7.6%; person-level non-response = 37.7%)	74.6%	60.8%	CASRO median response rate[b] = 54.6% (range: 39.1% in Oregon to 68.8% in Nebraska). Median cooperation rate [c] = 76.9% (range: 56.8% in California to 86.1% in Minnesota)

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