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Providers' advice concerning smoking cessation: Evidence from the Medical Expenditures Panel Survey☆

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ABSTRACT

Importance and objective. We estimate how often adult smokers are advised to quit using a nationally representative sample of adults in the United States.

Design and participants. Data are from the 2012–2013 household component of the United States (US) Medical Expenditures Panel Survey (MEPS).

Main outcome measure. Current smoking and advice to quit offered by providers.

Results. Smoking was reported by 18.26% (CI 17.13%–19.38%) of 2012 MEPS respondents. Less than half of adult smokers (47.24%, CI 44.30%–50.19%) were advised to quit by their physicians although 17.57% (CI 15.37%–19.76%) had not seen a doctor in the last 12 months. Advice to quit was given significantly less often to respondents classified as: aged 18–44 (40.29%), men (40.20%), less educated (42.26%), lower family income (43.51%), Hispanic (33.82%), never married (39.55%), and living outside the northeast. Smoking status at year 2 for patients who had received advice to quit was similar (85.13%: SE 1.62%) to those who had seen a physician but were not advised to quit (81.95%: SE 2.05%). Advice to quit smoking was less common than the use of common medical screening tests.

Conclusions and relevance. Smoking cessation advice is given to less than half of current cigarette smokers and it is least likely to be given to the most vulnerable populations. Efforts to reduce smoking are deployed less often than other preventive practices. The rate of advice to quit has not changed over the last decade. Health care providers are missing an important opportunity to affect health behaviors and outcomes.

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Cigarette smoking is the largest preventable cause of death in the United States and other high and middle-income countries. In 2014, the United States Surgeon General's report estimated that cigarette smoking causes more than 480,000 premature deaths per year in the United States (Health UDo and Services H, 2014). The effects of cigarette smoking on a global basis are even more disturbing. Jha and Peto estimate that about half of young men and 10% of young women are becoming smokers worldwide. If this trend continues it will result in about 5 million smoking related deaths this year and more than 10 million per year within a few decades (Jha and Peto, 2014). New analyses indicate that the impact of cigarette smoking may have been underestimated in the United States. The traditional methodologies consider deaths attributable to specific diseases associated with cigarette smoking and then add together deaths in these diagnostic categories. Considering all-cause mortality increases the estimate of cigarette smoking on fatal outcomes. About 17% of excess mortality among cigarette smokers is attributable to diseases not ordinarily included in the counts (Carter et al., 2015).

While there has been substantial progress in tobacco control over the last 50 years, cigarette smoking remains common. Current estimates indicate that about 18% of US adults, or about 41 million people, smoke cigarettes (Health UDo and Services H, 2014). Because of the serious consequences of cigarette smoking, there has been strong interest in identifying interventions that can reduce cigarette smoking. These include pharmacological therapies such as nicotine replacement medications, bupropion (Zyban), and varenicline, behavioral interventions, and combinations of pharmacological therapies and behavioral counseling.

A variety of papers demonstrate that behavioral advice on smoking cessation can reduce smoking rates. One Cochrane meta analysis compared physician advice versus usual care. Across studies ($N = 22{,}339$)

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brief physician interventions increased quit rates by 76% (from 4.8% in usual care to 8% in the intervention group ($p < 0.001$) (Stead et al., 2013). A related Cochrane review considered nurse based interventions ($N = 17{,}605$) and demonstrated that these brief provider encounters increased cessation rates to 13.3% in comparison to 11.3% in minimal intervention control groups (RR 1.29: 95% CI 1.20–1.39) (Rice et al., 2013).

Because of the profound consequences of cigarette smoking, even relatively small treatment effects can have large population effects if they gain widespread use in practice. The purpose of this paper is to evaluate how frequently tobacco cessation advice is given in medical practice.

1. Methods

1.1. Data

We used data from the 2012 Medical Expenditures Panel Survey (MEPS). MEPS has three components: a household survey which is based on a subsample from the National Health Interview Survey (NHIS), a survey of the healthcare providers who care for the respondents, and a sample of medical insurance claims that are attached to the respondents and their providers. This study uses the household component. The sampling frame, derived from the National Health Interview Survey (NHIS), is a representative sample of US civilian non-institutionalized adults. Members of the sample are then entered into the MEPS panel study and followed for 2 1/2 years. During this period there are five in person interviews. Data from the first year of the new panel are combined with data from the second year of the previous panel.

This study used the Full-Year Consolidated Public-Use File (PUF) (HC-155), 2013 Full-Year Consolidated PUF (HC-163), and Panel 17 Longitudinal PUF (HC-164) with data collected in 2012 and 2013. There were 19,714 sample persons for Panel 17 in the 2012 FY data. 17,678 of the 19,714 persons completed the longitudinal follow-up and 11,944 of these 17,678 completed the Self-Administered Questionnaire (SAQ) in year 1 (2012). 11,374 of the 11,944 persons provided SAQ responses in year 2 (2013). The study group focuses on the 11,374 adults who provided data on the Self-Administered Questionnaire (SAQ) in both 2012 and 2013. Weights for race, age and sex were used to adjust the 11,375 sample persons to represent the 216 million non-institutionalized adults in the US population. MEPS is used to provide estimates at the national and the state level of healthcare use, healthcare expenditures, health insurance coverage, sources of payment, access to healthcare, and healthcare quality. MEPS and NHIS have unusually high response rates among sample surveys. Follow-up participation rates are conditioned on survey participation in the prior round. The MEPS begins with the National Health Interview Survey which had an 82.9% response rate in 2012. The MEPS follow-up rate in 2013 was 61.3%. The 2013 FY data were released to the public in September of 2015 and are the most recent public access data set. Details of the MEPS sampling methodology are offered in Cohen and Cohen (2013) and other details, including the questionnaires can be found at: https://meps.ahrq.gov/mepsweb/survey_comp/household.jsp.

1.2. Smoking question

This study focused on adults, age 18 and over, who answered yes to the question, “Do you currently smoke”. Among those who reported smoking, we tabulated the number who responded “yes” to the question: “In the past 12 months did a doctor advise you to stop smoking?” Nonresponses and “Don't Know” responses (6.30% of respondents) were excluded.

1.3. Other preventive practices

In order to place advice to quit smoking in the context of preventive care, we considered data on the use of tests over the last two years including blood pressure, cholesterol, prostate specific antigen (for men) and mammography (for women).

1.4. Analysis

The data were analyzed in 2016. The analysis considered physician advice to quit smoking among acknowledged smokers at year 1 (calendar year 2012). We also considered smoking status in year 2 (2013), smoking status in year 2 for those who also reported smoking at year 1, and smoking status at year 2 for those who did or did not receive advice to quit smoking. The percentage of patients advised to stop smoking is a point-in-time estimate at round 2 (middle 2012). The quit rate reflects smoking status one year later (middle 2013). A complete summary and tabulation of the data is provided in Supplemental Appendix 1.

2. Results

Overall, 18.38% (CI 17.13–19.38) of 2012 Panel 17 MEPS respondents reported smoking at year 1 and 17.71% reported smoking at year 2. Among the 2012 smokers 83.18% (CI 81.14–85.22%) were still smoking at the 2013 interview (detailed breakdowns by demographic variables are given in Supplemental Appendix Table 2). However, many of those who quit (6.6 million people) were replaced by new smokers (3.08% or 5.4 million people). In terms of numbers of adult smokers for Panel 17 sample persons, we estimate that there were 41.5 million smokers at year 1 and 40.1 million smokers at year 2 (Table 1). The decline in smoking rate was not statistically significant. Less than half of adult smokers (47.24% CI 44.30–50.19%) were advised to quit by their physicians, although 17.57% (CI 15.37%–19.76%) had not seen a doctor in the last 12 months. Advice to quit varied by age, with younger individuals, aged 18–44 years least likely to be advised to stop (40.29% CI 35.89%–44.70) in contrast to 52.88% of those 45–64 years and 61.83% of those 65 years or older. Women were advised to quit more often (56.15% CI 51.12%–61.18%) than men (40.20% CI 36.97–43.44%). The detailed breakdown is shown it Table 1 of the Supplemental Appendix. The interaction between age and sex in receiving advice to quit is shown in Fig. 1. Male smokers were less likely to receive advice to quit smoking until age 65. In older age groups the sexes were equally likely to receive advice to quit.

There was a systematic relationship between the probability of receiving advice to quit and level of education. Those with greater than a high school education were more likely to receive advice to quit (48.24% for those with high school or beyond) in comparison to those with less than a high school education (42.26%, CI 36.25%–48.27%).

Respondent family income was also associated with the likelihood of receiving advice to quit. High family income respondents were most likely to be advised to quit (52.61%, CI 46.56%–58.66%) while those in

Table 1
Summary of numbers for analysis: MEPS Panel 17.

Sum of longitudinal panel weights of persons with a longitudinal panel weights for Panel 17 (estimate of population size)	318,971,967
Estimated number of non-institutionalized adults over age 18 who were eligible to participate	226,195,781
Among the eligible persons, % smoking in year 1	18.38% (41,569,811)
Among the year 1 smokers (41,569,811), % receiving advice about not smoking in year 1	47.21% (19,626,119)
Among the year 1 smokers (41,569,811), % receiving advice about not smoking in year 2	40.44% (16,812,782)
Among year 1 smokers, who were advised to quit in year 1, still smoking in year 2	80.79% (15,855,544),
Among year 1 smokers, who were not advised to quit in year 1, still smoking in year 2	79.00% (9,432,079),

Notes: SAQ - Self-Administered Questionnaire.
Longitudinal Panel Weight.