The Impact of Tobacco Dependence Treatment Coverage and Copayments in Medicaid

Jessica Greene, PhD, Rebecca M. Sacks, BA, Sara B. McMenamin, PhD, MPH

This activity is available for CME credit. See page A3 for information.

Background: The Affordable Care Act (ACA) expands Medicaid’s tobacco dependence treatment (TDT) coverage; however, these expansions differ in comprehensiveness based on Medicaid eligibility category.

Purpose: To examine whether more generous Medicaid TDT coverage (in terms of cost-sharing requirements and treatments covered) is associated with greater likelihood of quit attempts and successful quit rates.

Methods: This study used repeated cross-sections from the Current Population Survey (2001–2011), linked to state-level survey data on Medicaid TDT coverage. The sample included 3,071 adult Medicaid recipients who reported smoking 12 months prior to the survey and resided in 28 states with consistent TDT coverage across Medicaid fee-for-service and managed care. Logistic regression models, conducted in October 2013, examined the relationship between state TDT coverage and Medicaid recipients’ successful quits and attempted quit rates, controlling for individual and state characteristics.

Results: Forty-one percent of Medicaid recipients attempted to quit smoking in the prior year and 7% quit successfully. Medicaid recipients in states with the most generous coverage (counseling without copayment and pharmacotherapy with copayment) had the highest predicted successful quit rates (8.3%). Those living in states with no TDT or pharmacotherapy-only coverage had lower predicted successful quit rates (range=4.0%–5.6%).

Conclusions: These findings suggest that the ACA will increase smoking quit rates among Medicaid recipients. Recipients who have more generous TDT coverage (such as the new Medicaid expansion population and pregnant women) will likely see greater increases in quit rates compared to existing adult Medicaid enrollees.

covered all recommended TDTs also required some form of cost-sharing or other limitation to use.9
The Affordable Care Act (ACA) expands TDT coverage to adult Medicaid recipients through four provisions:11
1. Pregnant women (October 1, 2010): The ACA requires Medicaid programs to cover comprehensive TDTs for pregnant women without cost-sharing (Section 4107).
2. All Medicaid recipients (January 1, 2013): States that opt to cover effective clinical preventive services—including comprehensive tobacco-cessation programs—for all Medicaid recipients without cost-sharing receive a 1% increase in their Federal medical assistance percentage for preventive services (Section 4106).
3. ACA Medicaid expansion recipients (January 1, 2014): Recipients eligible for Medicaid under the ACA expansion will be entitled to comprehensive TDT coverage, which includes counseling, and cost-sharing is not allowed (Section 2001).12
4. All Medicaid recipients (January 1, 2014): States must cover tobacco-cessation drugs (but not counseling) for all recipients, and cost-sharing is allowed (Section 2502).

These provisions result in Medicaid recipients’ having different access to TDT coverage based on the state they reside in and the type of eligibility they have. None of the ACA provisions address other limitations to TDT coverage, such as step therapy, prior authorization, and limited treatment duration.

There have been surprisingly few studies investigating the impact of Medicaid TDT coverage on smoking cessation, particularly given the state variation in TDT coverage. In Massachusetts, where new TDT Medicaid coverage was widely promoted, in 2006 a study found that smoking prevalence among Medicaid recipients dropped from 38% to 28% after the introduction of TDT coverage.13 A related study found that the short-term return on investment for the Medicaid smoking-cessation program in Massachusetts was between $1.63 and $1.84 per person.14 Other studies have suggested more modest impacts of Medicaid TDT coverage. In Arkansas, for example, TDT coverage expansions within Medicaid initially increased the use of TDTs among recipients, but this increase only lasted several months.15 A national study using data from several years of the Current Population Survey (CPS) Tobacco Use Supplements found that for each additional type of TDT coverage a Medicaid program offered, women recipients aged 18–44 years who smoked were 7% more likely to quit smoking.16 No relationship, however, was observed between TDT coverage and quitting for older women or male recipients of Medicaid who smoked. A recent Cochrane review of studies that did not focus on Medicaid recipients found that more generous insurance coverage for TDTs positively affected abstinence from smoking, quit attempts, and use of TDTs.17

Because the ACA is expanding both Medicaid eligibility and TDT coverage within Medicaid, there is potential for many more low-income adults to stop using tobacco products. However, the impact of the TDT expansion across state Medicaid programs may be muted by cost-sharing and other requirements.18 There has been no research to date examining the impact of TDT coverage generosity, including cost-sharing, on quit rates among Medicaid recipients who smoke. This study seeks to examine the hypothesis that more generous Medicaid TDT coverage (in terms of cost-sharing requirements and treatments covered) is associated with increased quit attempts and successful quit rates.

Methods
Study Sample and Data Sources
This study combined data from two sources to examine the relationship between TDT coverage with and without copayment requirement and Medicaid recipients’ successful quits and attempted quit rates. We used the CPS for Medicaid recipient smoking and quitting behaviors. Smoking data were obtained from the 2001–2002, 2003, 2006–2007, and 2010–2011 CPS Tobacco Use Supplements, which were combined to create an adequately sized sample to examine the study’s research questions. The CPS Tobacco Use Supplement data were matched with Medicaid status data from the corresponding year’s March CPS. CPS respondents were included in the main study sample if they were aged ≥18 years, reported receiving Medicaid, and reported smoking 12 months prior to the survey. The CPS includes a state identifier, which was used to merge the Medicaid recipient data to state Medicaid TDT policy data.

Data on state Medicaid TDT coverage policies were provided by the Center for Health and Public Policy Studies at University of California, Berkeley, which has conducted repeated surveys of Medicaid TDT coverage policies from 1998 to 2010.8–10,19,20 Because TDT coverage can differ in Medicaid according to whether coverage is fee-for-service or managed care, we limited our study to the 28 states in which coverage policies were consistent regardless of fee-for-service or managed care (Alabama, Arkansas, Arizona, Connecticut, District of Columbia, Georgia, Hawaii, Illinois, Los Angeles, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Vermont, Wisconsin, and Wyoming).

There were 10,797 adult Medicaid respondents in our study states and they represented 48% of all Medicaid CPS respondents who completed the Tobacco Use Supplements. The sample size used in the main analyses was 3,071 adult Medicaid recipients who reported (1) having ever smoked at least 100 cigarettes; (2)
smoking some days or every day 12 months prior to being interviewed; (3) residing in one of the study states; and (4) not responding to the previous Tobacco Use Supplement.

**Study Variables**

The first of the two dependent variables studied was whether a respondent successfully quit smoking in the prior 12 months. Respondents were considered successful quitters if they were in the main study sample (having reported smoking at least 100 cigarettes in their life and smoking cigarettes either every day or on some days 12 months earlier) and reported not smoking at all at the time of the interview.

The second dependent variable was whether a quit attempt was made in the prior 12 months. Attempts at quitting were studied because they could be influenced by TDT coverage, and because it typically takes smokers more than one attempt to successfully quit smoking. Respondents were asked whether they “tried to quit smoking completely” in the past 12 months and whether they “stopped smoking for one day or longer because you were trying to quit smoking.” An affirmative answer to either question by a respondent in our study sample was considered a quit attempt.

The key independent variable was the state’s TDT coverage and copayment requirement. We originally determined whether each state covered, with or without a copayment requirement, each of the following three types of TDTs: (1) nicotine-replacement therapies (gum, patch, nasal spray, inhaler, or lozenge); (2) prescription non-nicotine drugs (Chantix or Zyban/bupropion); and (3) counseling (group, individual, or telephone). We found that almost all states had consistent coverage and copayment policies for nicotine-replacement therapies and prescription non-nicotine drugs; therefore, we collapsed the first two groups. Because all copayments were small (ranging between $1.00 and $5.00), we distinguished between requiring a copayment or not.

Our TDT coverage variable took on the following five categories, which are arranged from least generous to most generous: no TDT coverage; pharmacotherapy (nicotine-replacement therapy and non-nicotine drugs) with copayment (no counseling coverage); pharmacotherapy without copayment (no counseling coverage); pharmacotherapy and counseling with copayment; and pharmacotherapy with copayment and counseling without copayment. Ninety-two percent of the study participants resided in a state in a year when one of these five TDT coverage policies was in place.

**Analytic Strategy**

We first used the CPS data to assess smoking-related behavior for Medicaid and non-Medicaid respondents in the study states. Then we focused on the study sample of Medicaid former smokers, first examining demographic characteristics. We assessed the bivariate relationships between the dependent variables (successful quitting and attempting to quit smoking) and both demographic characteristics and Medicaid TDT coverage policies.

We developed logistic regression models that explored the relationship between Medicaid TDT coverage and the dependent variables, controlling for factors related to smoking and smoking cessation. Specifically we controlled for demographic factors (age, gender, race/ethnicity, and education level); state smoking variables (cigarette tax rate and the anti-smoking sentiment); and year of the CPS survey. SEs were adjusted for the clustering of Medicaid recipients by state. Supplemental models that used state fixed effects rather than the state smoking variables yielded similar

**Table 1. Characteristics of the Medicaid sample and their relationship to attempting and quitting smoking (N=3,071)**

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Percentage who attempted to quit smoking in prior 12 months</th>
<th>Percentage who successfully quit smoking in prior 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>41.4</td>
<td>6.5</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34.7</td>
<td>38.1**</td>
</tr>
<tr>
<td>Female</td>
<td>65.3</td>
<td>43.1</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–25</td>
<td>15.9</td>
<td>48.7**</td>
</tr>
<tr>
<td>26–35</td>
<td>23.8</td>
<td>40.0</td>
</tr>
<tr>
<td>36–45</td>
<td>23.3</td>
<td>41.9</td>
</tr>
<tr>
<td>≥ 46</td>
<td>37.1</td>
<td>38.8</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>67.1</td>
<td>39.7</td>
</tr>
<tr>
<td>African American</td>
<td>18.9</td>
<td>43.7</td>
</tr>
<tr>
<td>Native American</td>
<td>5.1</td>
<td>49.0</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>4.7</td>
<td>42.8</td>
</tr>
<tr>
<td>Other</td>
<td>4.3</td>
<td>45.8</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school diploma</td>
<td>33.1</td>
<td>40.1**</td>
</tr>
<tr>
<td>High school diploma</td>
<td>39.6</td>
<td>38.9</td>
</tr>
<tr>
<td>More than high school diploma</td>
<td>27.4</td>
<td>46.4</td>
</tr>
</tbody>
</table>


Note: Boldface indicates statistical significance by χ² test.

*p < 0.05; **p < 0.01
findings. Notably, more than half of the states changed their TDT policies during the study period. Six states started to cover TDTs (Arkansas, Massachusetts, Nebraska, Pennsylvania, South Carolina, and Wyoming); five states began requiring a copayment for their existing TDT coverage (Illinois, Maine, Minnesota, Ohio, and Vermont); five states added counseling coverage (Maryland, North Dakota, New Hampshire, Oklahoma, and Wisconsin); and one state broadened coverage and dropped its copayment (Arkansas). Analysis was conducted in October 2013 using Stata, version 12.1 (StataCorp LP, College Station TX).

Results

Table 1 shows that the majority of the study sample were women (65%); white (67%); and had low educational attainment (33% with less than a high school degree). Forty-one percent reported that they had attempted to quit smoking in the prior 12 months, whereas 7% reported that they had successfully quit smoking. Three demographic characteristics were related with quit attempts. Being younger (18–25 years) and having more education were associated with a higher percentage of quit attempts. Women were also more likely to attempt quitting. Those with greater education were more likely to successfully quit smoking, but no other demographic characteristics were related to successfully quitting.

Table 2 shows that there was a bivariate relationship between Medicaid TDT coverage and successfully quitting. Those with the most generous TDT coverage (pharmacotherapy with copayment and counseling without a copayment) had the highest successful quit rates (9.1%). They also had the highest proportion of quit attempts that were successful (20.3% of those who attempted quitting were successful). The rates of successful quitting were lower when copayments were required for both pharmacotherapy and counseling (6.9%) and when counseling was not covered (3.8% for pharmacotherapy with no copayment and 5.6% for pharmacotherapy with copayment required). Those with no TDT coverage had a successful quit rate of 4.7%, and only 12% of their quit attempts were successful. There was no significant relationship between Medicaid coverage of TDTs and whether a Medicaid recipient attempted to quit smoking, although there was a trend toward attempts being more likely when counseling was covered.

Table 3 shows the key ORs from the multivariate regression models. The odds of successfully quitting were highest for Medicaid respondents who lived in states with the most generous TDT coverage (pharmacotherapy with copayment and counseling without copayment). Compared with the most generous TDT coverage, the OR of successfully quitting was 0.77 for respondents in states.
where there was also coverage for pharmacotherapy and counseling, but copayments were required for both. This difference was not statistically significant. The odds of successfully quitting were significantly lower ($p < 0.10$) for recipients in states that had pharmacotherapy coverage only (0.45 and 0.65, respectively, for no copayment and required copayments). The odds of successfully quitting were significantly lower ($p < 0.05$) for those with no TDT coverage ($OR=0.59$). These ORs translate to the following predicted probabilities of successfully quitting: 8.3 (pharmacotherapy with copayment and counseling without copayment); 6.5 (both pharmacotherapy and counseling with copayment); 4.0 (pharmacotherapy without copayment); 5.6 (pharmacotherapy with copayment); and 5.1 (no TDT coverage). In addition, those with more than a high school degree were more likely to quit than those with less education, and those aged $\geq 45$ years were less likely to successfully quit than younger Medicaid recipients.

In multivariate models, quit attempts were less strongly related to TDT coverage. Compared to the most generous coverage, the ORs of attempting to quit were lower for those with pharmacotherapy coverage only without copayment ($OR=0.70$). Tax rates were positively associated with quit attempts, as was higher educational attainment. African Americans and Native Americans were more likely to attempt to quit than were white Medicaid recipients.

**Discussion**

This study shows that comprehensive TDT coverage, which includes pharmacotherapy and counseling, is associated with a greater likelihood of Medicaid recipients attempting to quit smoking than pharmacotherapy coverage alone or no coverage at all. We did not find significant differences in successful quit rates for those residing in states with pharmacotherapy compared to no coverage. We additionally observed a trend, though not statistically significant, that when cost-sharing was required for counseling, quit rates were lower than when cost-sharing was not required.

The ACA, which broadens TDT coverage for many Medicaid recipients, will likely increase the rate at which recipients quit. However, populations with more comprehensive coverage such as pregnant women and the expanded Medicaid population will likely have higher quit rates than existing Medicaid recipients, whose coverage will be less comprehensive in many states. It is notable that the most comprehensive coverage under the ACA is more generous than what was examined in this study (we had too few observations with such comprehensive coverage). Curiously, the Medicaid recipients who are most likely to have less comprehensive coverage are those who have lower incomes and are thus more vulnerable. Our findings raise concern over whether the ACA provision requiring pharmacotherapy alone to be covered for existing eligible Medicaid recipients will increase quit rates without a mandate to cover counseling.

Having different sets of TDT coverage policies for different Medicaid groups in the same state is likely to create confusion among providers and recipients. This will elevate the importance of promoting awareness of TDT coverage both to Medicaid recipients and health providers. Of the six states included in our study that had major benefit changes during the study period, only one—Massachusetts—conducted a media campaign to inform enrollees about their newly covered TDTs. Historically, there has been very little outreach by state Medicaid departments to inform enrollees of TDT coverage and encourage them to use covered TDT benefits, leading to a low level of awareness of TDT

---

**Table 3. ORs of attempting and successfully quitting smoking from multivariate logistic regression models**

<table>
<thead>
<tr>
<th>State Medicaid TDT coverage</th>
<th>ORattended to quit smoking</th>
<th>ORsuccessfully quit smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least generous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No TDT coverage</td>
<td>0.85</td>
<td>0.59*</td>
</tr>
<tr>
<td>Pharmacotherapy only, copayment required</td>
<td>0.83</td>
<td>0.65*</td>
</tr>
<tr>
<td>Pharmacotherapy only, no copayment</td>
<td>0.70*</td>
<td>0.45*</td>
</tr>
<tr>
<td>Pharmacotherapy and counseling, copayment required for both</td>
<td>0.90</td>
<td>0.77</td>
</tr>
<tr>
<td>Pharmacotherapy and counseling, no copayment for counseling</td>
<td>(1.00)</td>
<td>(1.00)</td>
</tr>
<tr>
<td>Most generous</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Current Population Survey and Medicaid Coverage of Tobacco Dependence Treatments Survey

**Note:** Boldface indicates statistically significant OR.

*Logistic regression model controls for individual characteristics (age, gender, race/ethnicity, and education level); state smoking-related variables (tax rate and anti-smoking sentiment); and survey year.

* $p < 0.10$; ** $p < 0.05$

TDT, tobacco dependence treatment
coverage among Medicaid recipients.\textsuperscript{9,10,19,20,23–25} Medicaid enrollee and provider outreach campaigns will be critical in maximizing the impact of the ACA coverage expansion on treating tobacco dependence.

Our results should be interpreted in light of the study’s limitations, which include the generalizability of our findings. Although our study sample was not inclusive of all states, it included 48% of the Medicaid recipients in the CPS over the study years, and the rates of attempted and successful quitting among those who smoked 12 months previously were very similar in the study sample and among Medicaid recipients in the excluded states (41.4% vs 41.8%, respectively, for attempted quitting and 6.5% vs 7.4% for successful quitting). Our smoking variables relied on self-reports, and because the CPS did not consistently ask about how long individuals had quit smoking, we were unable to examine longer-term measures of quitting. It is also notable that we operationalized coverage for pharmacotherapy as covering any nicotine-replacement therapy and any TDT non-nicotine prescription drug, but we did not assess whether the breadth of coverage within pharmacotherapy was related to quitting behavior (or the breadth of counseling coverage). Additionally, outside the scope of this investigation but warranting future research is whether other barriers to TDTs, such as prior authorization requirements and limited coverage duration, impact quitting.

In sum, this study confirms that more TDT coverage including counseling is associated with a higher likelihood of quitting smoking than coverage without counseling. The study did not find that cost-sharing was significantly associated with lower rates of quitting, although there was a trend observed of lowering quit rates when cost-sharing for counseling was required. Future studies should examine quit rates for those with comprehensive coverage under ACA and assess the extent to which differential coverage within states results in varied rates of smoking cessation across Medicaid-eligible groups.

We thank Naomi Seiler of George Washington University for sharing her expertise on the ACA and preventive care coverage with us. We also thank Donald Kenkel of Cornell University for providing state-level data on antismoking sentiment. Finally, we would like to acknowledge the CDC, which funded the Medicaid TDT coverage survey.

No financial disclosures were reported by the authors of this paper.

References

12. USDHHS. Medicaid and children’s health insurance programs: essential health benefits in alternative benefit plans, eligibility notices, fair hearing and appeal processes, premiums and cost sharing; exchanges; eligibility and enrollment; final rule. Federal Register 2013; 78(135).