Assessing the Impact of Smoking Cessation Therapies on a Managed Care Organization's Budget using Census Region and State-Specific Smoking Estimates

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BACKGROUND

- Smoking is one of the mostly costly addictions in the United States (US) today.[1]
- The prevalence of smoking in the US varies greatly by state and by census region analyzed.[2]
- Stopping smoking can translate to long-term cost savings for former smokers and managed care organizations (MCOs).[3, 4, 5, 6, 7]
- Quitting smoking is difficult—only 3% to 5% of quit attempts are successful over the long term (e.g., 6-12 months).[8, 9]
- Because of the difficulty in quitting, introducing new pharmacological therapies is valuable. However, history has shown that when a new smoking cessation therapy is introduced to the market, there is a dramatic uptake of the new therapy.[10]
- As new smoking cessation therapies come onto the market, MCOs need to be prepared with accurate financial planning in order to appropriately estimate the impact on their prescription drug budget.

OBJECTIVES AND PURPOSE

In this study, we estimate the potential budget impact of adding a new smoking cessation therapy to an existing mix of covered and noncovered therapies in an MCO's formulary. This analysis is undertaken at both the state level and census region level to provide an accurate representation of the budget impact for MCOs across differing geographic areas. This analysis can inform decision makers who are faced with the prospect of an increasing number of smoking cessation therapies and are considering adding new therapies to their formularies.

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METHODS

To evaluate the potential economic impact by state and census region of the use of new and existing smoking cessation therapies on an MCO's budget, we modeled 1-year budgetary outcomes in a decision-analytic framework (Figure 1).

- Two scenarios were modeled: (1) the current smoking cessation market; and (2) a future market after the introduction of a new smoking cessation therapy (post-introduction).
- The model considered the following comparators: NicoDerm CQ, Nicotrol transdermal patch, generic transdermal patch, Nicorette, generic nicotine gum, Nicotrol Inhaler, Nicotrol NS, Commit Lozenge, Zyban, generic bupropion HCl, new prescription therapy, and no therapy.
- Input parameters for the model population and efficacy of comparators are displayed in Table 1.

Figure 1. Schematic of the Decision-Analytic Model

Note: For simplification purposes, the "with smoking cessation therapy" arm is displayed as only one arm. In the model, this arm was made up of the various model comparators and thus was affected by the smoking cessation rates, drug and physician visit costs, and the market share of each comparator.

Table 1. Population and Efficacy Input Parameters and Sources

Population Input Parameter	Value
Percentage attempting to quit in the past year[11]	41.1%
Number of quit attempts per year*	2
Efficacy Input Parameter	
Unassisted ("cold turkey") quit rate[8, 9*]	4%
Commit lozenge[12*]	9%
Generic bupropion HCl[13]	9%
Generic nicotine gum[13]	8%
Generic nicotine transdermal patch[13]	6%
New prescription product[14*]	13%
NicoDerm CQ[13]	6%
Nicorette[13]	8%
Nicotrol inhaler[13]	8%
Nicotrol NS[13]	8%
Nicotrol transdermal patch[13]	6%
Zyban[13]	9%

*Assumption.

- The model assumed all therapies are dosed and used according to product labeling.
- Over-the-counter therapies were assumed to be not covered by the MCO.
- Prescription drugs were assumed to be placed on Tier 2 copayment levels with average US copayment costs.[15]
- One incremental physician visit was assumed to be needed for prescription therapy dosing or patient and/or adverse event monitoring. The cost of the visit is that of an established patient outpatient visit.[16]
- Drug costs were referenced to wholesale acquisition costs.[17]
- Assumed market share for the current market and post-introduction market are displayed in Table 2.[18]

Table 2. Product Mix Inputs

Comparator	Current Market	Post-Introduction Market
Unassisted ("cold turkey") quit rate	72.0%	70.6%
Commit Lozenge	3.8%	3.0%
Generic bupropion HCl	7.7%	6.2%
Generic nicotine gum	5.0%	4.0%
Generic nicotine transdermal patch	2.6%	2.1%
New prescription product	0.0%	7.0%
NicoDerm CQ	2.5%	2.0%
Nicorette	5.4%	4.3%
Nicotrol inhaler	0.7%	0.6%
Nicotrol NS	0.1%	0.1%
Nicotrol transdermal patch	0.1%	0.1%
Zyban	0.1%	0.1%

Source: Data on file; Assumption.

RESULTS

The prevalence of smoking by state and census region (Northeast, Midwest, South, and West) is presented in Figure 2.

Figure 2. Prevalence of Current Cigarette Smoking by Adults by State and Census Region

Source: CDC, 2005.
NR = not reported.

The annual per-member per-month (PMPM) cost for the current market and post-introduction market are presented in Figure 3.

Figure 3. Annual PMPM Cost by State and Census Region: Current Market/Post-Introduction Market

NR = not reported.

Annual PMPM cost differences between the current market and post-introduction market are summarized in Figure 4.

Figure 4. Annual PMPM Cost Differences between the Current and Post-Introduction Markets

NR = not reported.

- The introduction of a new smoking cessation therapy can increase annual PMPM cost by the following:
  - $0.16 to $0.41 when analyzed at the state-specific level, and
  - $0.25 to $0.35 when analyzed at the census region-specific level.

LIMITATIONS

- The model considered only physician visit and drug costs. The model did not consider the downstream cost benefits of quitting smoking. These costs could contribute to formulary decision making.
- Historical sales data were used to predict future outcomes that may be of interest to decision makers. The new product uptake will vary by region, managed care plan, and market.

CONCLUSIONS

- When modeling diseases or addiction behaviors with varying prevalence, it is important to analyze budgetary impact considering MCO population-specific prevalence values.
- Without micro-prevalence estimates, these costs could be underestimated or overestimated.
- The introduction of new smoking cessation therapies to the market will have a dramatic effect on an MCO's budget, regardless of the census region or state covered by the MCO. However, the impact can vary in magnitude.
- MCOs must use care in decision making in order to make accurate decisions on budgetary issues for new smoking cessation therapies.

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