



The Hilltop Institute

Estimating the Costs to Mississippi Medicaid Attributable to Tobacco

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UMBC

Overview

- Background
- Methodology
- Results

Background

- Policymakers' interests:
 - Want most recent data available, especially in matters that affect the budget
 - Medicaid example of churning enrollment, ACA expansions, etc.
- Researchers' directive:
 - Use consistent, reliable data, especially when combining data sources for inferential statistical analysis

Background

continued

- Costs to Mississippi Medicaid for tobacco-related illness:
 - Center for Mississippi Health Policy contracted with Hilltop to estimate tobacco-related costs in 2018
 - Aspired to inform January 2019 legislative session debate on tobacco tax
 - Mississippi did not enact ACA expansion
 - Mississippi tobacco tax per pack: \$0.68

Background

continued

- Using most recent completed annual Medicaid claims, this method accounts for
 - Unique characteristics of the Mississippi Medicaid population
 - Health care delivery system distinctions, rural settings, poverty rates
 - Payment policies to providers
- Although other studies of state-level Medicaid costs used claims data for specific diseases, we have not found studies using these data to estimate tobacco-related costs as a whole for a specific state
- Different studies applied national estimates of tobacco burden to state's total Medicaid expenditures to develop state-level cost estimates

Methodology

- Center for Mississippi Health Policy facilitated transfer of CY 2016 and 2017 de-identified claims data from Mississippi Medicaid to Hilltop
- Use of claims data so far appears unique and allows for most timely data
 - 12 months previous allow for lags in providers' submission of claims
 - Two years of data to capture short-term changes
 - 2016 first full year to use ICD10 codes

Methodology continued

- Use existing literature on tobacco's contribution to specific disease burdens
 - Counts on peer review process of professional medical and economic journals to apply multivariate methods to isolate the contribution of tobacco use from other causal factors.
 - Much of the literature on tobacco's contribution to disease was summarized in the 2014 Surgeon General's report: *The Health Consequences of Smoking—50 Years of Progress*
 - Search for more recent literature on diseases identified by S.G. Report with newly discovered connections to tobacco

Methodology

continued

- For each smoking-related disease/condition identified in the literature, calculate a smoking-attributable fraction (SAF) based on relative risk for smokers versus non-smokers and the estimated rate of smoking in the Medicaid population
- SAF Calculation depends on two factors:
 - Relative Risk (RR) of how much smoking increases disease occurrence. E.g. RR=5.0 means smokers have 5x higher risk
 - The proportion of smokers in the (Medicaid) population = Smoking Rate.

$$SAF = \frac{Smoking\ Rate * (RR - 1)}{Smoking\ Rate * (RR - 1) + 1}$$

Methodology

continued

- Smoking Rate is constant (33.7% estimated in MS Medicaid from CMS survey data)
- RR varies according to the disease

Sample Relative Risk Estimates Used

Other Diseases	Respiratory Diseases	Cardiac and Vascular Diseases	Cancer	RR	Acute Myeloid Leukemia	Breast	Cervical and Uterine	Colorectal	Esophageal Cancer	Renal	Laryngeal	Pharynx Cancer	Cancer	Pancreatic	Prostate	Stomach	Tracheal, Lung, and Bronchial	Urinary and Bladder
				RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR
Alzheimer's Disease	Asthma	Aortic Aneurysm	Acute Myeloid Leukemia	1.7	2	7	1.4	1.4	7.8	2.0	14.0	11.0	1.5	2.3	1.1	2.0	14.0	2.5
Diabetes Type II	Bronchitis and Emphysema	Atherosclerosis	Breast	1.5	14.6	2	1.2	1.2	2.0	2.0								
Hip Fracture	Chronic Airways COPD	Cerebro-vascular	Cervical and Uterine	1.4	12	3.5	1.6	1.6	2.0	1.6								
Macular Degen.	Influenza and Pneumonia	Coronary Heart Disease	Colorectal	3.0	2.0	3.0	1.4	3.0	2.0									
NICU Services	Tuberculosis	Other Arterial Disease	Esophageal Cancer	1.2	2.4	2.0	1.6	1.4	2.0									
Rheumatoid Arthritis		Other Heart Disease	Renal	1.5														

Methodology

continued

- Apply the calculated SAF for each disease/condition to the sum of payments for claims that listed the disease as a primary diagnosis in order to estimate expenditures attributable to smoking
- Also applied the SAF to prescription drug costs for disease-specific drugs
 - will not capture all drug spending for each disease if the drugs have multiple uses
- Estimated tobacco-attributable costs related to chemotherapy and secondhand smoking using a similar methodology

Methodology

continued

- Special case for calculating nursing facility (NF) costs to Medicaid
- Many NF claims had primary DX for non-smoking related conditions: hypertension, fatigue, muscle weakness, etc., so could not be attributed to smoking under the standard method

Methodology

continued

- Matched persons with NF claims to their other claims to identify whether they had other medical services where smoking-related disease was primary then applied those SAFs to the NF claims
- Assumes that the SAFs calculated for acute and chronic health conditions are a reasonable proxy for the unavailable SAF for the physical, cognitive, and health service needs that lead individuals to use NF services

Results

Estimates of Costs of Tobacco-Attributable Illness to Mississippi Medicaid

	2016	2017
Direct Costs of Treatment for Tobacco-Attributable Conditions as Primary Diagnoses	\$241,134,957	\$246,616,165
Costs of Conditions from Secondhand Smoke	\$18,612,551	\$19,547,028
Nursing Facility Costs Estimated from Other Claims for Tobacco-Attributable Conditions	\$123,535,768	\$124,892,593
Chemotherapy	\$4,666,951	\$4,867,313
Total	\$387,952,243	\$395,925,117

Results

continued

Estimated Smoking-Attributable Expenditures as a Percentage of Mississippi Medicaid Medical Expenditures

	2016	2017
Total Mississippi Medicaid Health Expenses	\$4,399,338,301	\$4,303,793,903
Estimated Smoking-Attributable Amounts	\$387,952,243	\$395,925,117
Percentage of Total Health Expenses Attributable to Smoking	8.8%	9.2%

Results

continued

- Media: January 20, 2019, Northeast Mississippi Daily Journal: The tobacco expense report was among the items presented this week during a state Senate Medicaid committee hearing by Dr. Steve Demetropoulos, who serves as the chairman of the state Medicaid Medical Advisory Board.
- “This is as close as you can get for real time data for this population,” said Tupelo pulmonologist Dr. Jim Rish, a member of the advisory board. “I hope they pay attention to it.”



Results

continued

Bill Text: MS HB1675 | 2019 | Regular Session | Introduced

Bill Title: Cigarettes; increase excise tax on.

Spectrum: Partisan Bill (Republican 1-0)

Status: *(Failed)* 2019-02-27 - Died In Committee [\[HB1675 Detail\]](#)

Download: [Mississippi-2019-HB1675-Introduced.html](#)

MISSISSIPPI LEGISLATURE

2019 Regular Session

To: Public Health and Human Services; Ways and Means

By: Representative Lamar

Conclusion

- This study estimates costs attributable to tobacco based on current levels of spending recorded in Mississippi Medicaid's transactions with health care providers and estimated SAFs generated from the current literature on higher risks of diseases from smoking.
- As these diseases are still being studied, estimates of the SAF may change in the future. Efforts to prevent people from starting to smoke and encouraging existing smokers to quit may result in lower future prevalence of smoking as well.

Conclusion

continued

- Nevertheless, this methodology can be adapted and updated for any states by researchers having access to Medicaid claims to estimated current expenditures.
- Such studies' influence on the policy process will depend on other factors, such as the timing of legislation and competition from other issues.

About Hilltop

The Hilltop Institute is a nonpartisan research organization at the University of Maryland, Baltimore County (UMBC) dedicated to improving the health and wellbeing of people and communities. We conduct cutting-edge data analytics and translational research on behalf of government agencies, foundations, and nonprofit organizations to inform public policy at the national, state, and local levels.

www.hilltopinstitute.org

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