

About the Project

State-level cost estimates of tobacco-related illness in the literature typically apply national estimates of Medicaid's share of costs to state-specific Medicaid spending totals. However, this doesn't account for differing prevalence rates for tobacco-related diseases in different populations, differences in Medicaid members' rate of smoking, and the effects of a state's provider payment policies on costs.

Hilltop accounted for all three of these factors. The estimated cost of tobacco-related illness to Mississippi Medicaid was \$388 million in 2016 and \$396 million in 2017—about 9 percent of annual Medicaid expenditures. National estimates of the burden of tobacco-related illness to Medicaid are around 15 percent, with a confidence interval between 6.2 percent and 27.4.¹

Methodology

The Mississippi Division of Medicaid provided a limited data set of Medicaid and Children's Health Insurance Program enrollees and claims for 2016 and 2017. A literature review identified diagnosis codes from the International Classification of Diseases-10th edition (ICD-10) to select claims for Medicaid services that indicated a tobacco-related illness. A relative risk (RR) for smokers compared with non-smokers was determined from the literature review for each tobacco-related disease studied. The RR, along with the estimated rate of smoking among Mississippi Medicaid participants, enabled calculation of Smoking Attributable Fractions (SAFs) for expenditures for health services with a primary diagnosis of a smoking-related illness.

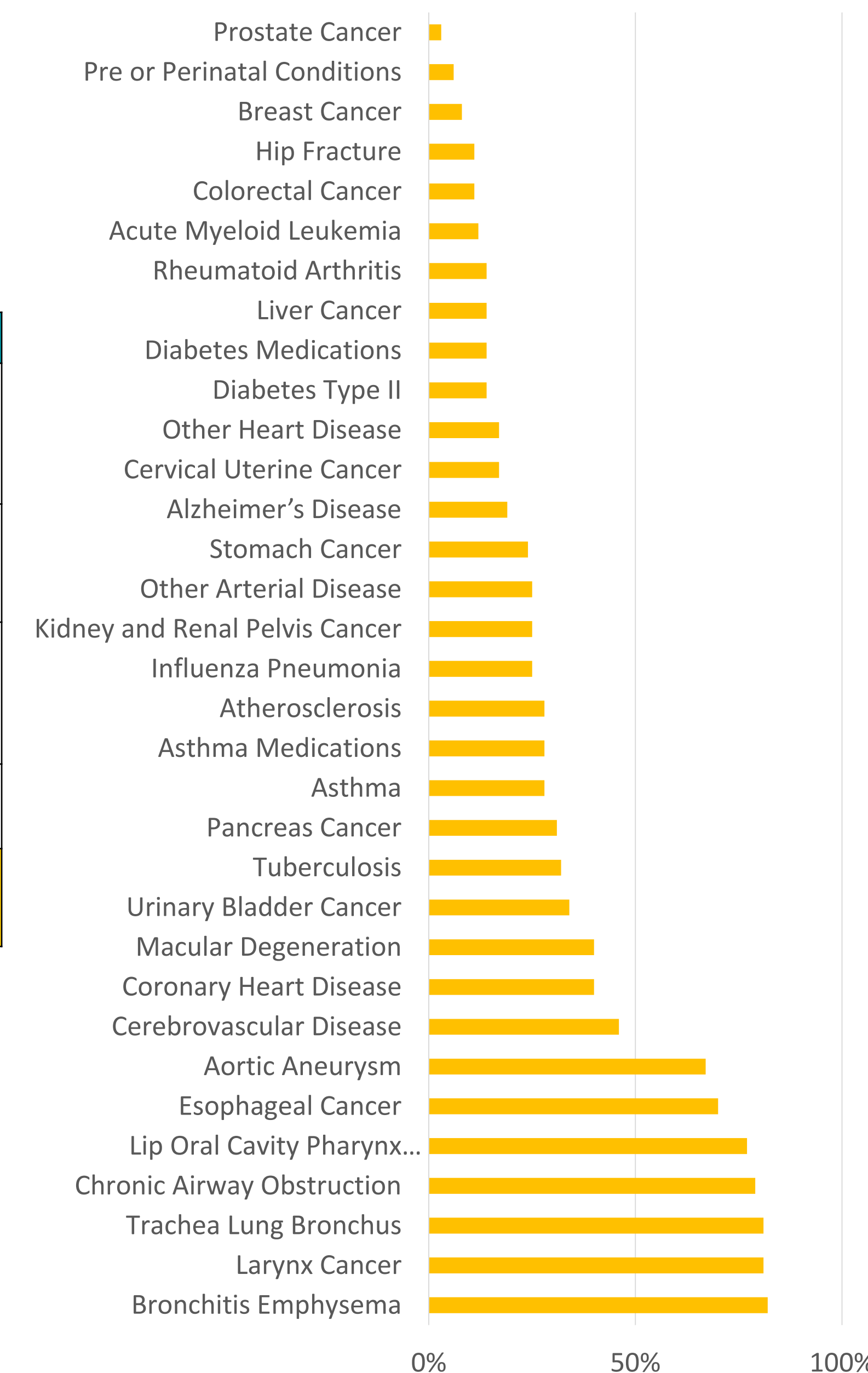
$$SAF = \frac{\text{Smoking Rate} * (RR - 1)}{\text{Smoking Rate} * (RR - 1) + 1}$$

Results

Estimates of Direct and Indirect Costs of Tobacco-Attributable Illness to Mississippi Medicaid, 2016-2017

Direct and Indirect Costs	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

Estimated Percentage of Diseases Treated by Mississippi Medicaid Caused by Smoking Tobacco



Methodology continued

The resulting illness-specific estimates were summed to estimate Medicaid costs attributable to tobacco. In addition, the SAFs for prescription drugs identified as treatments for tobacco-related illnesses, neonatal intensive care for infants affected by maternal tobacco use, and nursing facility costs for residents identified with tobacco-related illnesses were calculated similarly.

The SAFs for diseases likely to be caused by secondhand smoke were calculated separately. These additional cost estimates were summed to estimate total cost to Mississippi Medicaid.

Conclusion

Mississippi Medicaid spent approximately \$4.4 billion on health services, which accords with total spending reported by the Mississippi Division of Medicaid in its 2018 Annual Report, of which **tobacco-attributable expenses accounted for about 9 percent of Medicaid expenses** in 2016 and 2017.

This methodology for estimating Medicaid costs could be adapted for other states by using their specific smoking prevalence rates and the costs for each diagnosis. Such estimates may guide states seeking a more equitable assessment for estimating tobacco tax rates and tobacco control activities.

Acknowledgments, Reference, & Contact

This project was funded by a grant from the Center for Mississippi Health Policy, with data provided by the Mississippi Division of Medicaid.

¹Xu, X., Bishop, E.E., Kennedy, S.M., Simpson, S.A., & Pechacek, T.F. (2015). Annual healthcare spending attributable to cigarette smoking: An update. *American Journal of Preventive Medicine*, 48(3), 326–333.