

The Economics of Expanded Smoking Cessation Treatment

A Report Prepared for the National Alliance on Mental Illness-NAMI Kansas

Tami Gurley-Calvez, PhD, MA, and Jessica Sand, MPH

May 2020

Correspondence should be addressed to Tami Gurley-Calvez, University of Kansas School of Medicine, 3901 Rainbow Blvd., Mail Stop 3044, Kansas City, KS 66160; Telephone: 913-588-0869; email: tgurley-calvez@kumc.edu.

T. Gurley-Calvez is an associate professor and PhD program director, Department of Health Policy and Management, University of Kansas School of Medicine, Kansas City, Kansas.

J. Sand is a PhD student and Graduate Research Assistant, Department of Health Policy and Management, University of Kansas School of Medicine, Kansas City, Kansas.

Acknowledgements: The authors would like to thank staff at NAMI-Kansas, and Dr. Kim Richter, University of Kansas School of Medicine, Department of Population Health for sharing their time and expertise.

Introduction

Tobacco use remains the single largest preventable cause of death and disease in the United States. Despite significant progress in smoking cessation programs, an estimated 34.2 million adults in the US currently smoke cigarettes leading to more than 480,000 deaths every year [1]. In the state of Kansas, this amounts to 17.3% of adults who currently smoke, or about 381,500 people [2]. Furthermore, smoking increases the likelihood of developing many of the most common and disabling conditions in health care. Estimates show smoking increases the risk for coronary heart disease by 2 to 4 times, and smokers are 25 times more likely to develop lung cancer than nonsmokers [1].

In addition to the clinical consequences, smoking also has major economic impacts. Smoking-related illness in the United States costs more than \$300 billion each year, including almost \$170 billion for direct medical care for adults [3]. Additionally, the indirect cost due to loss of productivity nationwide is estimated at more than \$150 billion [1]. For the state of Kansas alone, the annual health care costs directly caused by smoking is \$1.12 billion [4]. The impact of smoking cessation on health conditions can have a significant effect on healthcare spending. A recent study found that if smokers quit before experiencing any symptoms of smoking-related disease, 70% of their excess medical costs could be avoided [5].

Smoking cessation programs are an effective strategy to improve health outcomes, reduce health care burden, and decrease the high costs of health care. Comprehensive insurance coverage for cessation services encourages treatment

utilization and increases quit rates [6]. Health care payers play a vital role in driving the use of smoking cessation programs and must consider both the near- and long-term financial investment of increased coverage on health care budgets. This analysis assesses the net economic effects of mandating a more robust benefits package for private marketplace plans and the State Employee Health Plan (SEHP). This focus is particularly timely, given the 2014 Affordable Care Act (ACA)-required smoking cessation treatment coverage. Compliance with these ACA rules requires health plans to cover two quit attempts for each covered individual per year. A covered quit attempt is typically defined as four sessions of counseling and 90 days of any single FDA-approved smoking cessation medications [7]; two quit attempts, therefore, includes eight counseling sessions and 180 days of a single medication. The analysis below presents the net economic effects of covering two quit attempts per year and a more comprehensive benefit of four quit attempts per year.

Methods

This report compares the costs to payers of continuing to cover 2 quit attempts per year, versus increasing coverage to 4 quit attempts per year. The report estimates the costs of covered treatments, including counseling and medication, and the near and long-term savings in healthcare expenditures. Results are presented on an annual basis as well as cumulative effects over a ten-year period. Expected costs and savings are presented on a per-smoker basis for ease of interpretation. For example, a private insurance plan with 10,000 smokers would multiply the per-smoker estimates by 10,000

to get a total estimate of the economic effects. *Although we present the estimates on a per-smoker basis, the costs of treatment are only applied to the estimated fraction of covered smokers expected to use their smoking cessation benefits (i.e., coverage for medication and counseling) to quit smoking.*

The analysis begins with existing national estimates for the economic impacts of smoking cessation in private insurance plans [8, 9]. These estimates are adjusted to include only participants under age 65 at the time the coverage is increased to 4 quit attempts per year. Additionally, the estimates are adjusted to present per smoker, not aggregate estimates. Finally, the estimates are adjusted to include the costs and savings related to using counseling services in addition to pharmacotherapy.

More specifically, the baseline estimates are based on seven FDA-approved smoking cessation medications, including five forms of nicotine replacement therapy (NRT) (patch, gum, lozenge, nasal spray, and inhalers) and two non-NRT medications (bupropion SR and varenicline) [1]. Pricing and utilization of these medications were obtained from previously published data derived from the IQVIA NPA data as of February 2017 [10]. The cost of counseling was conservatively estimated at \$30 per session based on Medicare reimbursement rates of about \$27 for intensive (greater than 10 minutes) tobacco cessation counseling [11]. The total cost of smoking cessation coverage was estimated as the sum of the costs of medication and counseling, multiplied by the number of smokers who are attempting to quit using their cessation benefit.

The cost savings from expanding tobacco cessation coverage represent the reduction in medical spending attributed to a reduction in the number of smokers over time [10]. This reduction in expected medical costs is calculated as the difference in medical spending for current smokers and former smokers [10]. Medical cost savings is calculated separately for male and female smokers and by age group [10]. These savings are adjusted for higher quit rates associated with combining counseling and medication in a given quit attempt [12]. The estimates account for a 4.4% relapse rate for those that quit smoking for at least one year [10, 13, 14].

Results

Figure 1 presents the results for the estimated per year economic effects of providing comprehensive smoking cessation coverage for four quit attempts per year with counseling to commercial health insurance beneficiaries. In the first year, the cost of increasing cessation coverage is about \$58 per smoker versus \$32 per smoker, with the more limited coverage of two attempts per year. Both coverage levels produce a net economic gain by year four. Beginning in year five, net economic benefits are much greater with the more comprehensive coverage. At year 10, the per person benefit of covering four quit attempts per year is almost double that of two quit attempts, at \$215 and \$109 per smoker, respectively.

Figure 2 presents the results for the estimated net cumulative effects of insurers providing comprehensive smoking cessation coverage. The cumulative effect reaches its most negative in year three, with a to-date net cost of about \$128 per smoker. The

cumulative estimated savings from medical spending begins to offset costs in year four and become positive in years five or six, depending on coverage level. By year 10, the per person cumulative benefit of covering four quit attempts per year is almost double that of two quit attempts, at \$621 and \$312 per smoker, respectively.

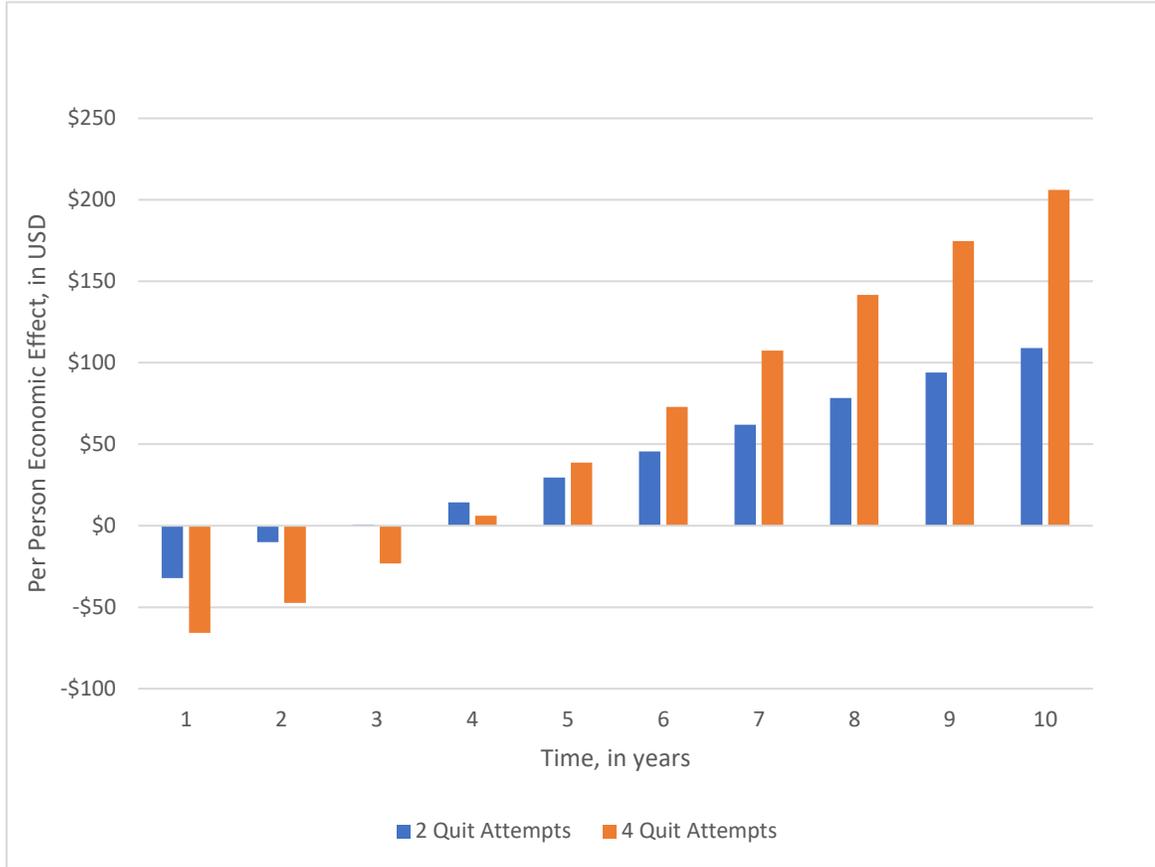
An economic benefit of \$621 per smoker means more resources available in the economy, which can be used to purchase goods and services. Some of these dollars will be available to Kansans in the form of lower medical spending and health insurance premiums. Additionally, some of these dollars will be available to businesses for hiring and training employees. Accounting for these indirect economic effects, the total economic benefit of expanded smoking cessation coverage is almost \$1,200 per smoker (Figure 3) or \$60 million per 100,000 smokers with expanded coverage (Figure 4). Moving from limited to expanded coverage for all smokers in the state of Kansas would generate about \$225 million in economic benefit (Figure 5).

Discussion

In this report, we analyzed the economic impact of mandating more robust smoking cessation benefits for commercial health insurance beneficiaries and state employees. We compared the current ACA-coverage requirements of two quit attempts per year to more comprehensive coverage of four quit attempts per year, both including FDA approved smoking cessation medications and counseling. This analysis is consistent with prior research, which has demonstrated the efficacy and cost-effectiveness of smoking cessation programs that include medications and counseling.

It is possible that insurers do not expect to retain members for the four years needed to reach annual net economic benefits or the five to six years needed to reach cumulative economic benefits. However, if the coverage is applied uniformly across all commercial providers and the SEHP, insurers will achieve these economic benefits through a healthier insurance population. This report provides commercial health care payers and the SEHP with an analysis of the economic benefits of expanding their investment in smoking cessation programs as they strive to balance health outcomes and costs.

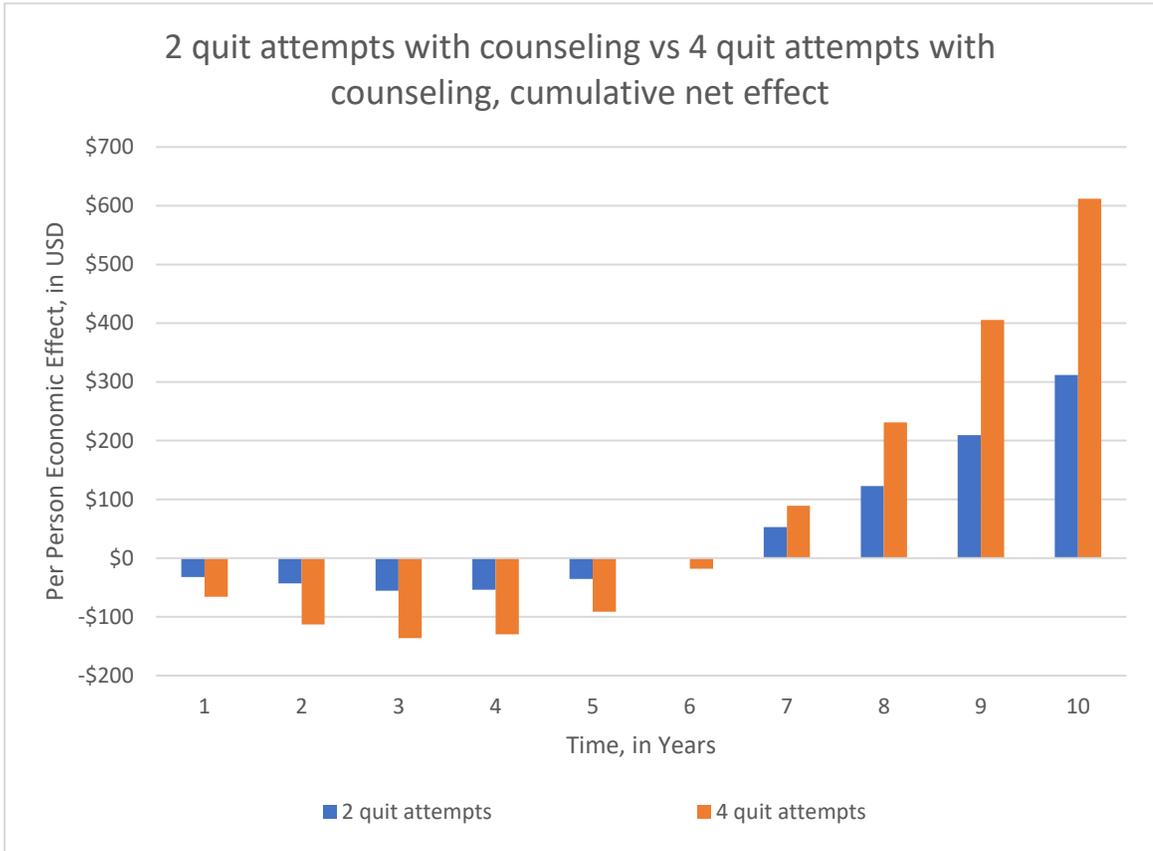
Figure 1. Per year economic effects of providing comprehensive smoking cessation coverage



Notes:

The horizontal axis shows the time in years, the vertical axis shows per person economic effect, in USD. The blue bars represent per person cost of providing 2 quit attempts per year including FDA approved smoking cessation medication and counseling. The orange bars represent per person cost of providing 4 quit attempts per year including FDA approved smoking cessation medication and counseling.

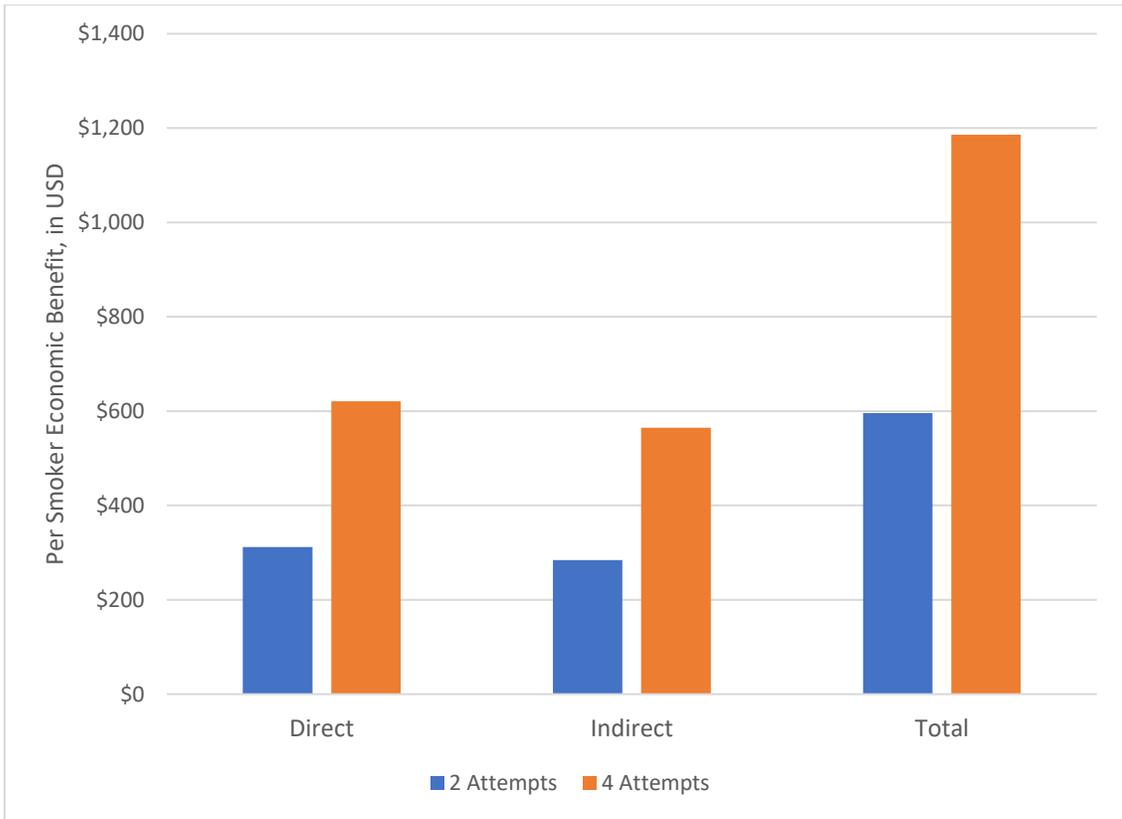
Figure 2. Cumulative net effect of providing comprehensive smoking cessation coverage



Notes:

The horizontal axis shows the time in years, the vertical axis shows per person cost economic effect in USD. The blue bars represent per person cost of providing 2 quit attempts per year including FDA approved smoking cessation medication and counseling. The orange bars represent per person cost of providing 4 quit attempts per year including FDA approved smoking cessation medication and counseling.

Figure 3. Direct, indirect, and total economic impact per smoker



Notes:

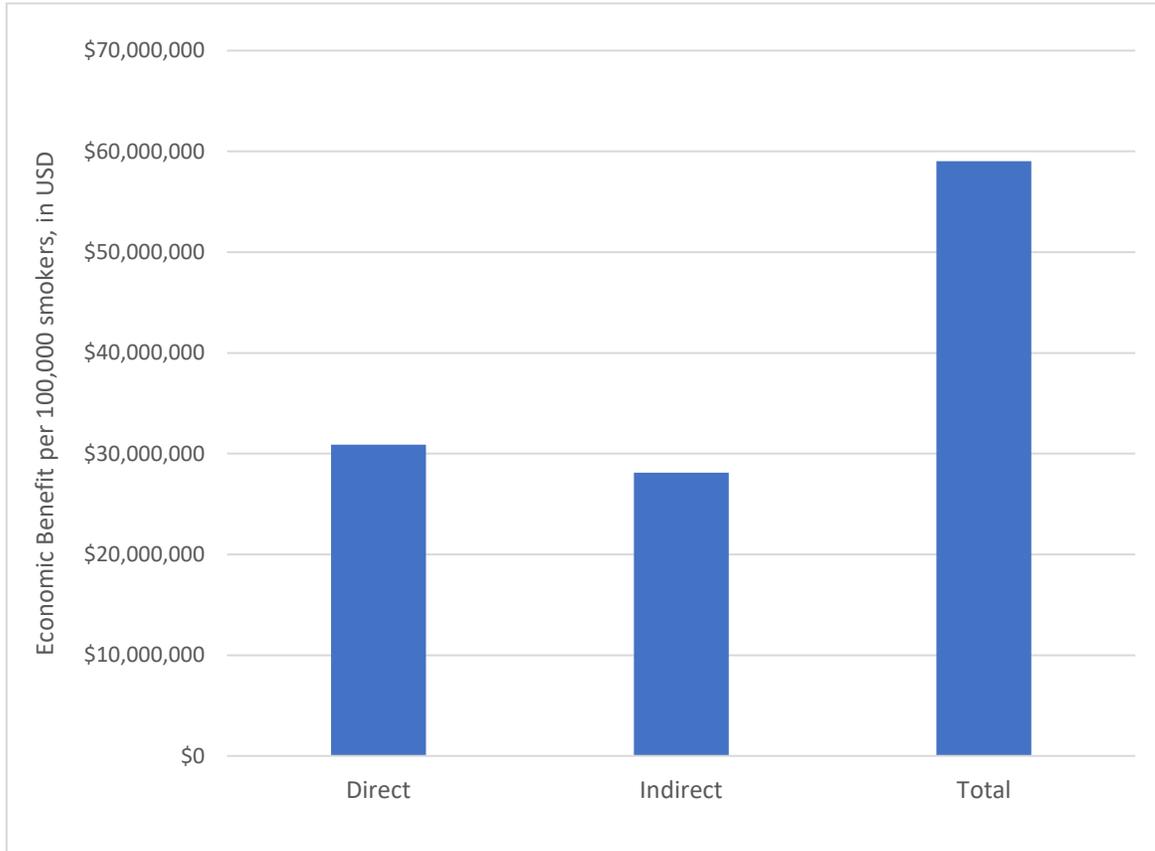
Estimated using the Kansas IMPLAN (Impact Analysis for Planning) model [15].

The horizontal axis shows the direct, indirect and total economic impact, the vertical axis shows the per smoker economic benefit.

The blue bars represent per person benefit of providing 2 quit attempts per year including FDA approved smoking cessation medication and counseling.

The orange bars represent per person benefit of providing 4 quit attempts per year including FDA approved smoking cessation medication and counseling.

Figure 4. Added economic benefit for covering four quit attempts per 100,000 smokers

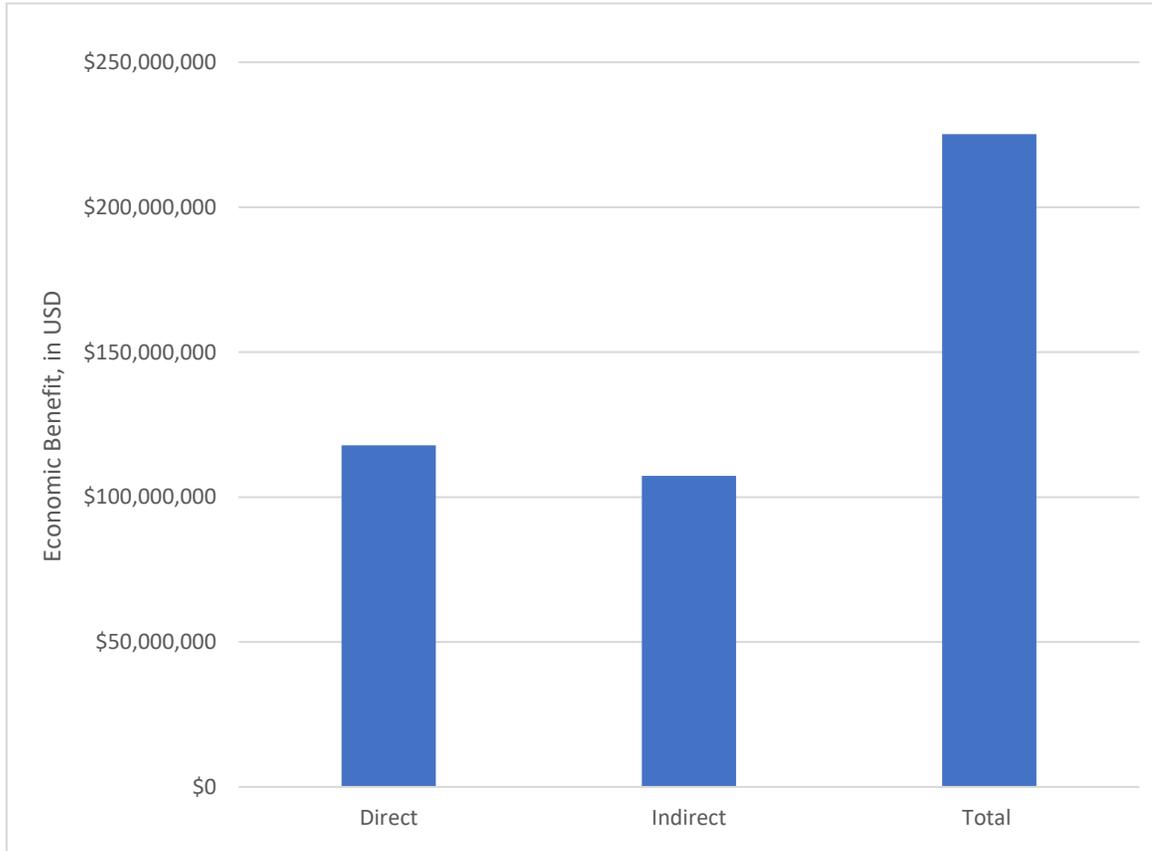


Notes:

Estimated using the Kansas IMPLAN (Impact Analysis for Planning) model [15].

The horizontal axis shows the direct, indirect and total economic impact, the vertical axis shows the economic benefit.

Figure 5. Added economic benefit for covering four quit attempts for the state of Kansas



Notes:

Estimated using the Kansas IMPLAN (Impact Analysis for Planning) model [15].

The horizontal axis shows the direct, indirect and total economic impact, the vertical axis shows the economic benefit.

References

1. National Center for Chronic Disease, P., S. Health Promotion Office on, and Health, *Reports of the Surgeon General*, in *The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General*. 2014, Centers for Disease Control and Prevention (US): Atlanta (GA).
2. *Adult Tobacco Use in Kansas*. Kansas Department of Health and Environment. 2020; Available from: http://www.kdheks.gov/tobacco/download/Adult_Tobacco_Use_in_KS.pdf.
3. Xu, X., et al., *Annual healthcare spending attributable to cigarette smoking: an update*. American journal of preventive medicine, 2015. **48**(3): p. 326-333.
4. *The Toll of Tobacco in Kansas*. January 31, 2020 [cited 2020 March 24]; Available from: <https://www.tobaccofreekids.org/problem/toll-us/kansas>.
5. Maciosek, M.V., et al., *Smoking-attributable medical expenditures by age, sex, and smoking status estimated using a relative risk approach*. Preventive medicine, 2015. **77**: p. 162-167.
6. Curry, S.J., et al., *Use and cost effectiveness of smoking-cessation services under four insurance plans in a health maintenance organization*. New England Journal of Medicine, 1998. **339**(10): p. 673-679.
7. Kofman, M., K. Dunton, and M.B. Senkowicz, *Implementation of tobacco cessation coverage under the Affordable Care Act: understanding how private health insurance policies cover tobacco cessation treatments*. 2012: Georgetown University. Health Policy Institute.
8. Jamal, A., et al., *Current cigarette smoking among adults—United States, 2005–2015*. Morbidity and Mortality Weekly Report, 2016. **65**(44): p. 1205-1211.
9. Babb, S., *Quitting smoking among adults—United States, 2000–2015*. MMWR. Morbidity and mortality weekly report, 2017. **65**.
10. Baker, C.L., et al., *A cost–benefit analysis of smoking cessation prescription coverage from a US payer perspective*. ClinicoEconomics and outcomes research: CEOR, 2018. **10**: p. 359.
11. Nicoletti, B. *Smoking Cessation Coding, 99406 and 99407*. March 18,2020 [cited 2020 March 24]; Available from: <https://codingintel.com/a2-smoking-cessation/>.
12. Stead, L.F., et al., *Combined pharmacotherapy and behavioural interventions for smoking cessation*. Cochrane Database of Systematic Reviews, 2016(3).
13. Foulds, J., et al., *Advances in pharmacotherapy for tobacco dependence*. Expert opinion on emerging drugs, 2004. **9**(1): p. 39-53.
14. Wetter, D.W., et al., *Late relapse/sustained abstinence among former smokers: a longitudinal study*. Preventive medicine, 2004. **39**(6): p. 1156-1163.
15. IMPLAN. *IMPLAN make an Impact*. 2016 [cited 2016 December 14]; Available from: <http://www.implan.com/>.