



## ROUGH FORMULA FOR ESTIMATING FUTURE STATE TOBACCO CONTROL SAVINGS FROM ADULT SMOKING DECLINES

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### STARTING ASSUMPTION:

This cost-savings formula assumes that a statewide tobacco control program will produce a five percentage point decline in the percentage of adult smokers in the state over the first four years of the program. This five percentage point drop assumption is based on the experience of the statewide tobacco prevention program in California, where adult smoking levels declined from 23.9% to 18.6% from 1989 to 1992. Although assuming a five percentage point reduction in adult smoking prevalence might seem ambitious, there is no reason to believe that other states will not do as well as California did, and they could easily do much better if:

- They spend more than CA did (e.g., in its best year, CA spent less than 75% of the low recommendation by the U.S. Centers for Disease Control and Prevention (CDC) of how much the state should spend each year to run an effective statewide tobacco control program).
- They start with a more severe tobacco use problem than CA had (measured by youth and adult prevalence rates), because the bigger the problem is to start, the larger the likely reductions. When California started its statewide tobacco prevention program, 23.9% of California adults smoked, as did roughly 12% of California 8<sup>th</sup> graders and 18% of 10<sup>th</sup> graders.

Massachusetts' statewide tobacco program (which annually spent about 85% of the low CDC recommendation) has produced similar adult prevalence declines as California did, and the results from other states are extremely encouraging.<sup>1</sup>

**STEP ONE: Calculate the current and projected number of adult smokers in your state given a five percentage point decline in smoking rates.** Needed data: Adult population and Adult smoking prevalence (see the attached table). To calculate the current number of adult smokers in your state, multiply the adult population of your state by the current adult prevalence:

$$\text{Current Adult Smokers} = (\text{adult population}) \times (\text{adult prevalence})$$

To calculate the projected number of adult smokers in your state assuming a 5 percentage point decline in smoking rates, multiply the adult population of your state by the current adult prevalence minus five:

$$\text{Projected Adult Smokers} = (\text{adult population}) \times (\text{adult prevalence}-5)$$

**STEP TWO: The projected reduction: fewer smokers due to decreased prevalence.** Now calculate how many fewer adult smokers there will be due to the 5 percentage point reduction in prevalence:

$$\text{Fewer Adult Smokers} = (\text{Current Adult Smokers}) - (\text{Projected Adult Smokers})$$

This is the estimated number of adult smokers who will stop because of the new tobacco control efforts.

**STEP THREE: Lives saved.** One-third of the number of fewer adult smokers roughly equals the number of lives the tobacco control program will save (since one-third of smokers die from tobacco-related causes -- based on CDC data calculations):

$$\text{Adult Lives Saved} = (\text{Fewer Smokers}) \text{ divided by } 3$$

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<sup>1</sup> See, e.g., Campaign for Tobacco-Free Kids (CFTFK) Factsheets, *Comprehensive Statewide Programs Reduce Tobacco Use and Comprehensive State Tobacco-Control Programs Save Money* at [http://www.tobaccofreekids.org/facts\\_issues/fact\\_sheets/policies/prevention\\_us\\_state/save\\_lives\\_money/](http://www.tobaccofreekids.org/facts_issues/fact_sheets/policies/prevention_us_state/save_lives_money/).

**STEP FOUR: Direct total medical savings.** Multiply the number of fewer adult smokers from Step Two by \$9,500 to get the direct total medical cost savings. [On average, smokers have \$17,500 higher lifetime medical costs than smokers with adult quitters having \$9,500 lower lifetime health costs. Hodgson, TA, "Cigarette Smoking and Lifetime Medical Expenditures," *The Milbank Quarterly* 70(1), 1992, with the study's amounts adjusted to account for subsequent inflation based on consumer price index for medical care. See, also, CFTFK Factsheet at <http://www.tobaccofreekids.org/research/factsheets/pdf/0327.pdf>.]:

$$\text{Direct Total Medical Savings} = (\text{Fewer Adult Smokers}) \times (\$9,500)$$

**STEP FIVE: Total Medicaid expenditures estimate.** Information needed: Percentage of total smoking-caused healthcare costs that are Medicaid costs (as calculated in Miller et al., "State Estimates of Total Medical Expenditures Attributable to Smoking, 1993" *Public Health Reports*, September/October 1998; see attached table). To figure out how much of the total medical cost savings estimate might be Medicaid expenditures, multiply the total cost savings figure by the percentage of smoking-caused health care costs in your state that are Medicaid costs:

$$\text{Total Medicaid Expenditures} = (\text{Direct Total Medical Savings}) \times (\% \text{ of costs that are Medicaid})$$

**STEP SIX: State Medicaid savings.** Information needed: Percentage of state Medicaid expenditures covered by state after federal reimbursements (These state percentages, calculated each year by the Secretary of Health and Human Services and available at <http://aspe.hhs.gov/health/fmap.htm>, are included in the attached table.) Each state gets reimbursed from the Federal government for 50% or more of their Medicaid expenditures, so the Medicaid number you have at the end of the last step is an estimate of total Medicaid savings – state and federal. To figure out your state government's actual estimated Medicaid savings (SMS) after fully accounting for federal reimbursements, multiply the amount in Step Five (ME) by the percentage of state Medicaid expenditures the state actually ends up paying for after receiving federal reimbursements:

$$\text{State Medicaid Savings} = (\text{Total Medicaid Expenditures}) \times (\text{Medicaid \% covered by your state})$$

#### NOTES ON THE ESTIMATION

The final, rough cost-savings estimates from the formulas presented here are conservative because they do not include any saved lives or healthcare cost savings from:

- Reductions in youth smoking, which will certainly occur under any statewide tobacco control program. Future savings from youth smoking declines can be calculated using a parallel process.
- Reductions in health care costs among those who keep smoking but reduce the amounts they smoke.
- Reductions in pregnant women smoking or being exposed to second hand smoke during pregnancy, which causes birth complications, health problems among newborns, and continuing developmental problems. [Treating these problems currently costs at least \$2 billion per year, nationwide.]
- Reductions in parental smoking, which causes considerable harm to children (currently costing as much as \$2 billion in health care per year), or other reductions to secondhand smoke exposure.

Nor do the cost-savings estimates include such non-health costs caused by tobacco use as: a) reduced property losses from the reductions in the number of smoking caused fires caused by reduce adult and youth smoking (such costs total roughly \$500 million per year, nationwide); b) savings from reduced cleaning and maintenance costs caused by reduced smoking and other tobacco use (such costs currently total as much as \$4+ billion per year nationwide); or c) savings from reduced absences from work caused by tobacco-related health problems, or from increased productivity from fewer cigarette breaks by workers (these smoking-caused productivity losses, alone, total roughly \$40 to \$80 billion per year).

Rough Formula for Estimating Future State Tobacco Control Savings / 3

<b>States</b>	<b>STEP ONE Adult Smoking %</b>	<b>STEP ONE Adult Population</b>	<b>STEP FIVE Medicaid Share of State Smoking Costs</b>	<b>STEP SIX State Share of Medicaid (After Fed Reimbursement)</b>
Alabama	22.5%	3,579,844	13.4%	31.5%
Alaska	20.6%	514,927	15.4%	50.0%
Arizona	16.1%	4,863,759	13.9%	34.2%
Arkansas	21.5%	2,179,482	13.0%	28.6%
California	12.9%	27,525,982	19.9%	50.0%
Colorado	17.1%	3,796,985	16.1%	50.0%
Connecticut	15.4%	2,710,303	15.2%	50.0%
Delaware	18.3%	678,129	10.2%	46.9%
Washington, DC	15.3%	485,621	11.4%	30.0%
Florida	17.1%	14,480,196	11.2%	44.6%
Georgia	17.7%	7,245,419	14.8%	34.7%
Hawaii	15.4%	1,004,817	13.4%	48.2%
Idaho	16.3%	1,126,611	14.1%	31.2%
Illinois	18.6%	9,733,032	18.9%	49.8%
Indiana	23.1%	4,833,748	16.3%	33.5%
Iowa	17.2%	2,294,701	12.9%	37.4%
Kansas	17.8%	2,113,796	11.4%	41.0%
Kentucky	25.6%	3,299,790	19.6%	28.5%
Louisiana	22.1%	3,368,690	36.4%	36.4%
Maine	17.3%	1,047,125	28.4%	36.2%
Maryland	15.2%	4,347,543	15.4%	50.0%
Massachusetts	15.0%	5,160,585	16.5%	50.0%
Michigan	19.6%	7,619,835	20.6%	34.2%
Minnesota	16.8%	4,005,417	15.4%	50.0%
Mississippi	23.3%	2,184,254	20.3%	25.3%
Missouri	23.1%	4,556,242	13.8%	36.7%
Montana	16.8%	755,161	13.7%	33.2%
Nebraska	16.7%	1,344,978	11.0%	41.6%
Nevada	22.0%	1,962,052	12.0%	48.4%
New Hampshire	15.8%	1,035,504	27.2%	50.0%
New Jersey	15.8%	6,661,891	21.1%	50.0%
New Mexico	17.9%	1,499,433	13.2%	30.2%
New York	18.0%	15,117,370	27.8%	50.0%
North Carolina	20.3%	7,102,917	12.3%	35.3%
North Dakota	18.6%	502,873	10.6%	37.0%
Ohio	20.3%	8,828,304	17.7%	36.3%
Oklahoma	25.5%	2,768,201	11.6%	35.1%
Oregon	17.9%	2,952,846	12.3%	37.2%
Pennsylvania	20.2%	9,829,635	15.1%	44.4%
Rhode Island	15.1%	826,384	27.8%	47.0%
South Carolina	20.4%	3,480,510	18.5%	30.0%
South Dakota	17.5%	612,767	11.9%	38.8%
Tennessee	22.0%	4,803,002	21.6%	34.2%
Texas	17.9%	17,886,333	13.6%	39.4%
Utah	9.8%	1,915,748	16.3%	28.9%
Vermont	17.1%	495,485	19.9%	41.3%
Virginia	19.0%	6,035,408	12.1%	50.0%
Washington	14.9%	5,094,603	17.8%	50.0%
West Virginia	25.6%	1,433,328	24.2%	26.8%
Wisconsin	18.8%	4,344,524	14.4%	39.8%
Wyoming	19.9%	412,245	14.4%	50.0%

Adult population data as of 7/09 (most recent available from U.S. Census). Adult smoking data from 2009 BRFSS.