

# Cabo Verde FCTC Investment Case: Economic Model Base Model (Status Quo) + Policy/Intervention Models Results

January 25, 2019

## Overview of Key Model Results: At A Glance

The model results presented in the table below are intended to provide a quick, high-level, overview of the Cabo Verde FCTC Investment Case Economic Model results. Please note that many of these model results are presented in greater detail later in this summary document and are also presented in the separate Excel model results summary document.

All model results presented in the table below are point values. Variance estimates (lower and upper bounds) for each estimate can be found in the full model results Excel summary document.

### Cabo Verde FCTC Investment Case Economic Model: Key Model Results

<b>Current Burden (Health and Economic Costs) of Tobacco Use</b>	
<b>Description</b>	<b>Value</b>
<b>Premature Mortality</b>	
Annual Deaths Attributable to Tobacco Use (Smoking + SHS Exposure)	104
Percent of Tobacco-Attributable Deaths Under age 70	60%
Economic costs of premature mortality from tobacco use	CVE 433.5 million
<b>Smoking-Attributable Healthcare Expenditures</b>	
Total Smoking-Attributable Healthcare Expenditures	CVE 122.4 million
Government Healthcare Expenditures	CVE 86.7 million
Private Insurance Expenditures	CVE 3.4 million
Household Out-of-Pocket Healthcare Expenditures	CVE 31.7 million
Other Healthcare Expenditures	CVE 0.5 million
<b>Workplace Smoking Costs</b>	
Number of Employed Current Smokers	20,919
Economic Cost of Excess Presenteeism	CVE 520.5 million
Economic Cost of Excess Absenteeism	CVE 173.2 million
Economic Cost of Excess/Unsanctioned Smoking Breaks	CVE 368.7 million
<b>Total Economic Costs</b>	
Total Economic Cost	CVE 1.62 billion
Total Economic Cost as a % of Gross Domestic Product (GDP)	1.06%
Direct Economic Costs	CVE 122.4 million
Indirect Economic Costs	CVE 1.50 billion

## Cabo Verde FCTC Investment Case Economic Model: Key Model Results (continued)

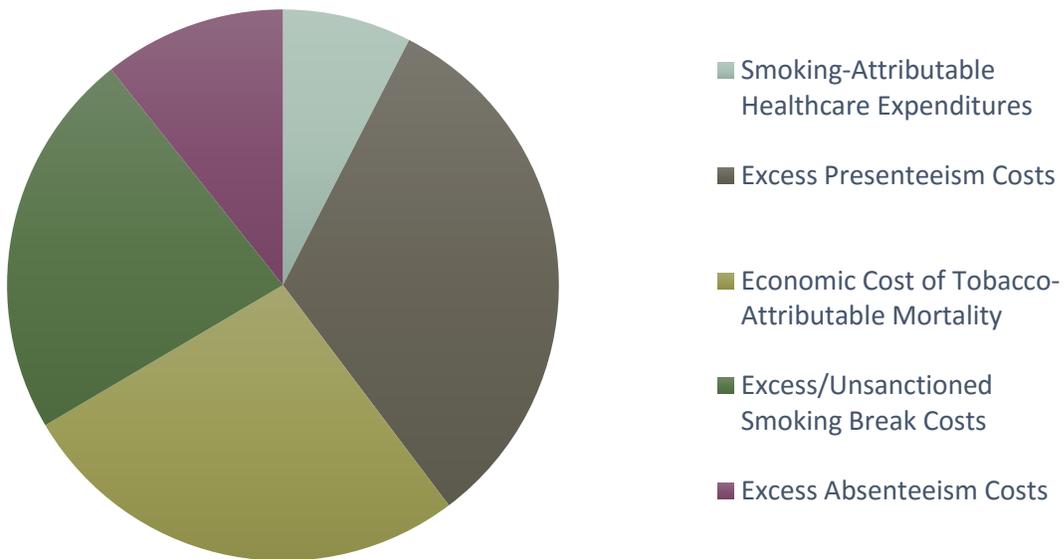
<b>Health Benefits of Tobacco Policies/Interventions: Lives Saved</b>	
<b>Description</b>	<b>Value</b>
15-Year Relative Reduction in Smoking Prevalence	63.2%
Number of Lives Saved Over 15 Years	574
Number of Lives Saved Annually	38
<b>Economic Benefits of Tobacco Policies/Interventions</b>	
<b>Description</b>	<b>Output</b>
<b>Tobacco-related economic losses over 15 years: What happens if Cabo Verde does nothing extra (maintains the status quo), versus if the government implements additional tobacco policies/interventions to reduce demand for smoking?</b>	
Total Economic Costs: Status Quo	CVE 19.76 billion
Total Economic Costs: With Tobacco Policy/Intervention Package	CVE 12.86 billion
Total Cost Savings (Tobacco Package Compared to Status Quo)	CVE 6.90 billion
Annual Cost Savings (Tobacco Package Compared to Status Quo)	CVE 0.46 billion
Total Cost Savings as a Percent of Total Economic Costs Under Status Quo	35%
<b>Annual Direct and Indirect Economic Cost Savings from Implementing Tobacco Policy Package</b>	
<b>Savings: Total Economic Costs</b>	<b>CVE 459.9 million</b>
Savings: Mortality Avoided	CVE 120.8 million
Savings: Reduced Presenteeism	CVE 149.0 million
Savings: Reduced Number of Smoking Breaks	CVE 105.5 million
Savings: Avoided Healthcare Expenditures	CVE 35.0 million
Savings: Reduced Absenteeism	CVE 49.6 million
<b>Smoking-Attributable Healthcare Expenditures</b>	
Annual Total Health Expenditures	CVE 8.16 billion
Smoking-Attributable Fraction (SAF) of Total Health Expenditures	1.50
Total Averted Smoking-Attributable Healthcare Expenditures	CVE 525.5 million
Average Annual Averted Smoking-Attributable Healthcare Expenditures	CVE 35.0 million
Breakdown of Total Health Expenditures: % Government	71%
Breakdown of Total Health Expenditures: % Out-of-Pocket	26%
Savings in Smoking-Attributable Government Healthcare Expenditures	CVE 372.4 million

Note: model results on the financial costs of implementing the standard tobacco policies/interventions modeled and the return on investment (ROI) for each policy, as well as the policy package as a whole, are presented at the end of this summary document. ROI results are also presented in greater detail in the Excel model results summary document.

# Current Burden of Tobacco Use in Cabo Verde

## Total Economic Costs of Tobacco Use

Cost Type	Cost Amount	Percent of Total Costs
<b>Total Costs</b>	CVE 1.62 billion [CVE 0.59 billion - CVE 3.36 billion]	100.0% [100.0% - 100.0%]
<b>Direct Costs</b>	CVE 122.4 million [CVE 32.6 million - CVE 301.9 million]	7.6% [5.5% - 9.0%]
Smoking-Attributable Healthcare Expenditures	CVE 0.1 billion [CVE 0.0 billion - CVE 0.3 billion]	7.6% [5.5% - 9.0%]
<b>Indirect Costs</b>	CVE 1.50 billion [CVE 0.56 billion - CVE 3.06 billion]	92.4% [94.5% - 91.0%]
Economic Cost of Tobacco-Attributable Mortality	CVE 433.50 million [CVE 171.9 million - CVE 750.96 million]	26.8% [29.1% - 22.3%]
Workplace Smoking Costs	CVE 1.06 billion [CVE 0.4 billion - CVE 2.31 billion]	65.6% [65.4% - 68.7%]

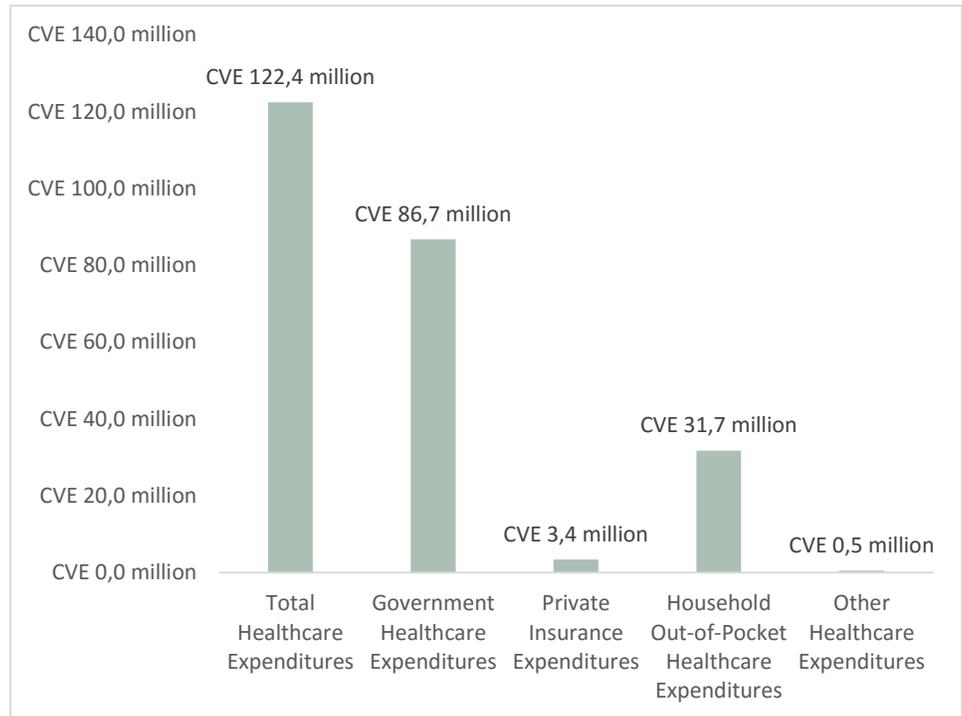
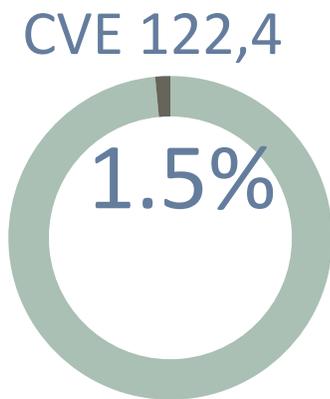


## Total Economic Costs of Tobacco Use as a Percent of GDP

Gross Domestic Product (GDP)	Total Economic Costs of Tobacco Use	Total Economic Costs of Tobacco Use as a Percent of GDP
CVE 152.79 billion	CVE 1.62 billion [CVE 591.48 million - CVE 3.36 billion]	1.06% [0.39% - 2.20%]

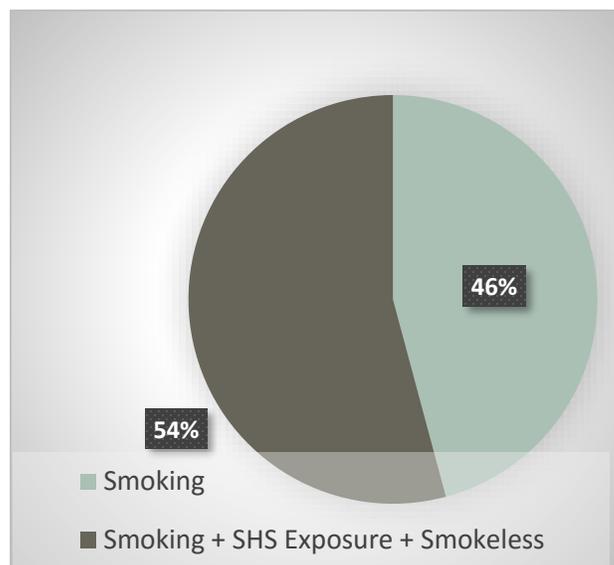
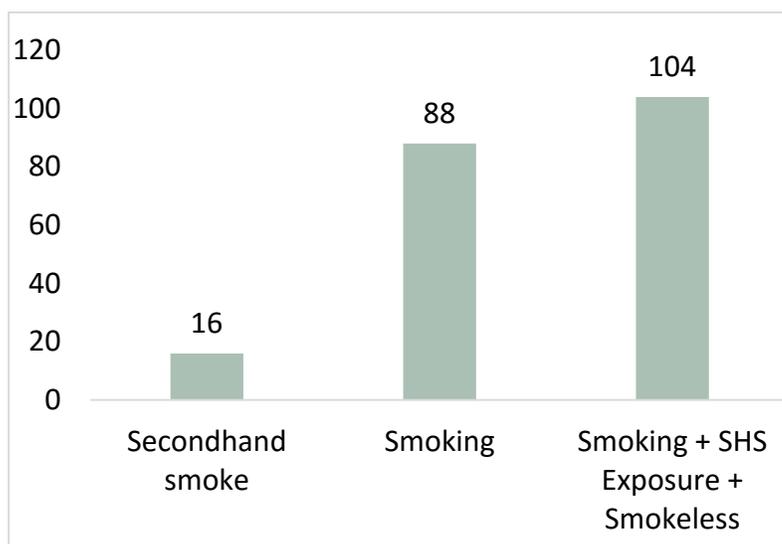
## Smoking-Attributable Healthcare Expenditures

Expenditure Type	Total Healthcare Expenditures	Smoking-Attributable Fraction (SAF) of Total Healthcare Expenditures	Smoking-Attributable Healthcare Expenditures (SAE)
<b>Total Healthcare Expenditures</b>	CVE 8.16 billion	1.50% [0.40% - 3.70%]	CVE 122.4 million [CVE 32.6 million - CVE 301.9 million]
Government Healthcare Expenditures	CVE 5.78 billion	1.50% [0.40% - 3.70%]	CVE 86.7 million [CVE 23.1 million - CVE 214.0 million]
Household Out-of-Pocket Healthcare Expenditures	CVE 2.11 billion	1.50% [0.40% - 3.70%]	CVE 31.7 million [CVE 8.5 million - CVE 78.2 million]
Other Healthcare Expenditures	CVE 33.8 million	1.50% [0.40% - 3.70%]	CVE 0.5 million [CVE 0.1 million - CVE 1.3 million]
Private Insurance Expenditures	CVE 228.8 million	1.50% [0.40% - 3.70%]	CVE 3.4 million [CVE 0.9 million - CVE 8.5 million]



## Tobacco-Attributable Mortality and Morbidity

Risk Factor	Risk Factor Attributable Deaths	Risk Factor Attributable Years of Life Lost (YLL)	Risk Factor Attributable Years Lived with Disability (YLD)	Risk Factor Attributable Disability-Adjusted Life Years (DALY)
Smoking + SHS Exposure + Smokeless	104 [41 - 192]	2,015 [758 - 3,662]	597 [272 - 1,060]	2,612 [1,030 - 4,722]
Smoking	88 [41 - 151]	1,799 [758 - 2,990]	386 [202 - 658]	2,185 [960 - 3,648]
Secondhand smoke	16 [0 - 41]	216 [0 - 672]	211 [71 - 402]	427 [71 - 1,074]



## Economic Cost of Tobacco-Attributable Mortality

Risk Factor	Risk Factor Attributable Deaths (Ages 30+)	Economic Cost of Tobacco-Attributable Mortality
Smoking + SHS Exposure + Smokeless	104 [41 - 192]	CVE 433.50 million [CVE 171.87 million - CVE 750.96 million]
Smoking	88 [41 - 151]	CVE 392.92 million [CVE 171.87 million - CVE 620.98 million]
Secondhand smoke	16 [0 - 41]	CVE 40.6 million [CVE 0.00 - CVE 129.98 million]

## Tobacco-Attributable Mortality and Morbidity by Disease

The table below presents risk factor attributable mortality and morbidity measures, by disease, for Smoking + Secondhand Smoke. The table shows the top 9 diseases in the model (based on the number of risk factor attributable deaths), along with the remaining diseases in the model grouped into an “Other” category. Results for the individual diseases included in the Other category, as well as model results for the other tobacco risk factors (smoking, secondhand smoke, and occupational exposure to secondhand smoke) are included in the Excel model results summary file.

Disease	Risk Factor Attributable Deaths	Risk Factor Attributable Years of Life Lost (YLL)	Risk Factor Attributable Years Lived with Disability (YLD)	Risk Factor Attributable Disability-Adjusted Life Years (DALY)
<b>Total</b>	<b>104</b> [41 - 192]	<b>2,015</b> [758 - 3,662]	<b>597</b> [272 - 1,060]	<b>2,612</b> [1,030 - 4,722]
Ischemic heart disease	41 [16 - 67]	807 [322 - 1,392]	44 [23 - 71]	851 [345 - 1,463]
Lower respiratory infections	16 [6 - 36]	297 [95 - 630]	3 [1 - 6]	300 [96 - 636]
Tracheal, bronchus, and lung cancer	13 [8 - 22]	202 [125 - 336]	3 [1 - 6]	205 [126 - 342]
Esophageal cancer	9 [4 - 12]	204 [89 - 255]	2 [1 - 4]	206 [90 - 259]
Chronic obstructive pulmonary disease	8 [3 - 17]	106 [23 - 217]	174 [96 - 280]	280 [119 - 497]
Hemorrhagic stroke	8 [4 - 13]	201 [104 - 305]	22 [11 - 37]	223 [115 - 342]
Stomach cancer	4 [0 - 8]	65 [0 - 135]	1 [0 - 2]	66 [0 - 137]
Tuberculosis	4 [0 - 6]	124 [0 - 200]	12 [5 - 22]	136 [5 - 222]
Diabetes mellitus	1 [0 - 4]	9 [0 - 46]	249 [99 - 462]	258 [99 - 508]
Other diseases	0 [0 - 7]	0 [0 - 146]	88 [35 - 171]	88 [35 - 317]

## Tobacco-Attributable Mortality and Morbidity by Sex and Age Group

Tobacco-attributable mortality and morbidity model results by sex and age group are also presented in the Excel model results summary file.

# Impact of Tobacco Standard Policies/Interventions on the Burden of Tobacco Use in Cabo Verde

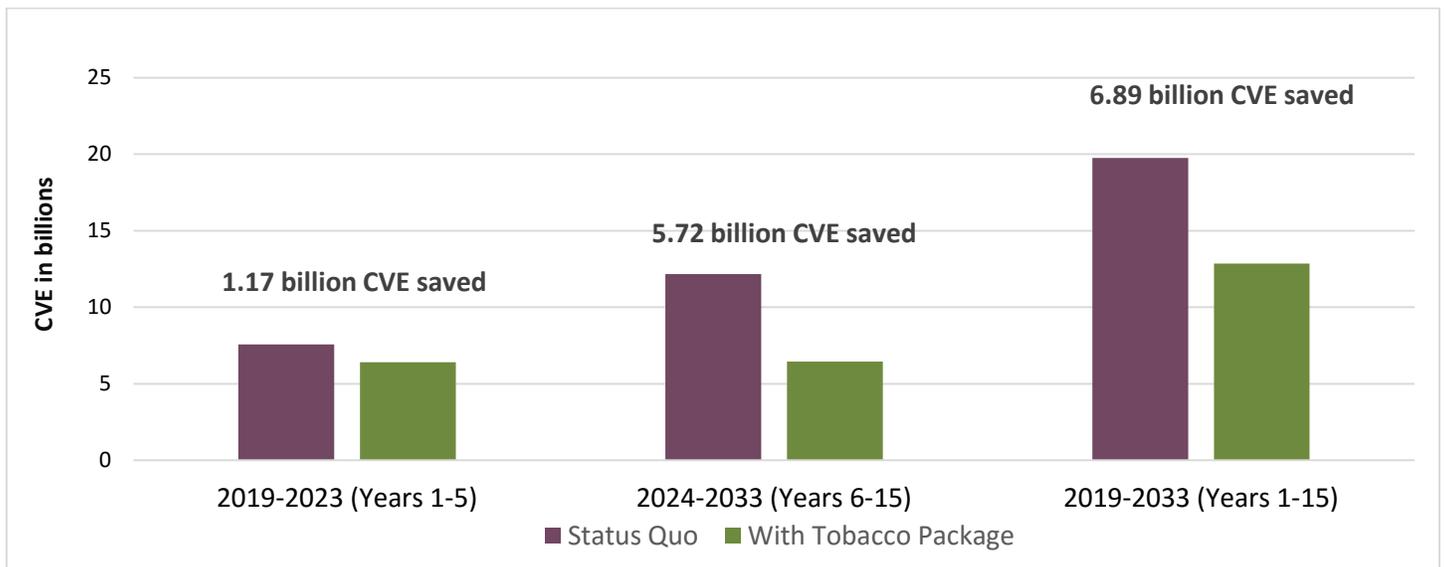
## Standard Tobacco Policies/Interventions Modeled

Policy/Intervention	Relative Change in Smoking Prevalence	Financial Costs of Implementing Policy/Intervention
<b>Package (combined interventions)</b>		
2019-2023 (Years 1-5)	-41.3%	CVE 380.4 million
2019-2033 (Years 1-15)	-63.2%	CVE 840.2 million
<b>Protect people from tobacco smoke</b>		
2019-2023 (Years 1-5)	-9.3%	CVE 72.7 million
2019-2033 (Years 1-15)	-16.1%	CVE 137.6 million
<b>Plain Packaging</b>		
2019-2023 (Years 1-5)	-3.6%	CVE 41.2 million
2019-2033 (Years 1-15)	-6.2%	CVE 79.7 million
<b>Warning Labels</b>		
2019-2023 (Years 1-5)	-9.6%	CVE 41.2 million
2019-2033 (Years 1-15)	-16.6%	CVE 79.7 million
<b>Raise Taxes (cumulative year-over-year)</b>		
2019-2023 (Years 1-5)	-12.0%	CVE 72.5 million
2019-2033 (Years 1-15)	-23.7%	CVE 158.3 million
<b>Mass Media Campaign</b>		
2019-2023 (Years 1-5)	-9.1%	CVE 70.9 million
2019-2033 (Years 1-15)	-15.8%	CVE 205.1 million
<b>Mass Media Campaign</b>		
2019-2023 (Years 1-5)	-7.2%	CVE 41.8 million
2019-2033 (Years 1-15)	-12.5%	CVE 83.6 million

## Savings in Total Economic Costs of Tobacco Use Over 15 Years

Total cost savings for tobacco policies/interventions modeled are calculated by taking the difference in total economic costs between the status quo and the policy/intervention scenario. The figure below presents total economic costs for the status quo, as well as the entire tobacco package (all interventions done simultaneously), for the first 5 years (2019-2023), years 6 through 15 (2024-2033), and the full 15 years (2019-2033). The savings in total economic costs associated with the tobacco policy/intervention package are listed on the chart for each of the three periods presented.

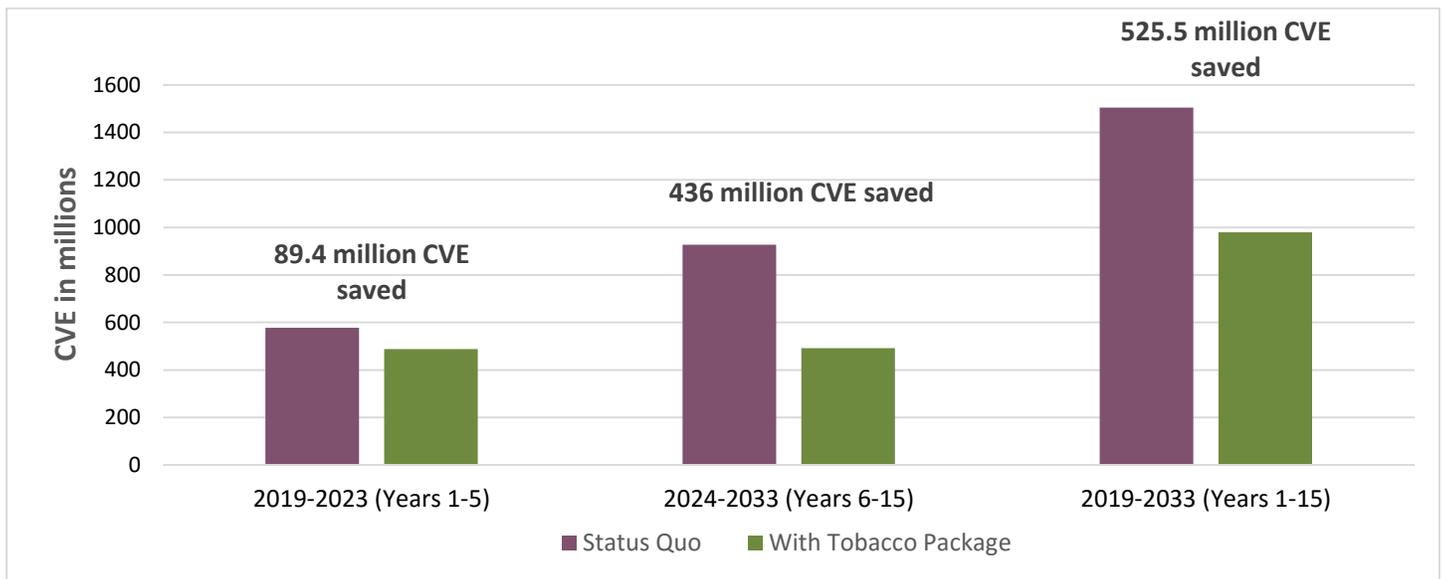
Annual costs and cost savings for the tobacco package, as well as model results for each of the individual policies/interventions modeled are presented in the Excel model results summary file.



## Savings in Smoking-Attributable Healthcare Expenditures Over 15 Years

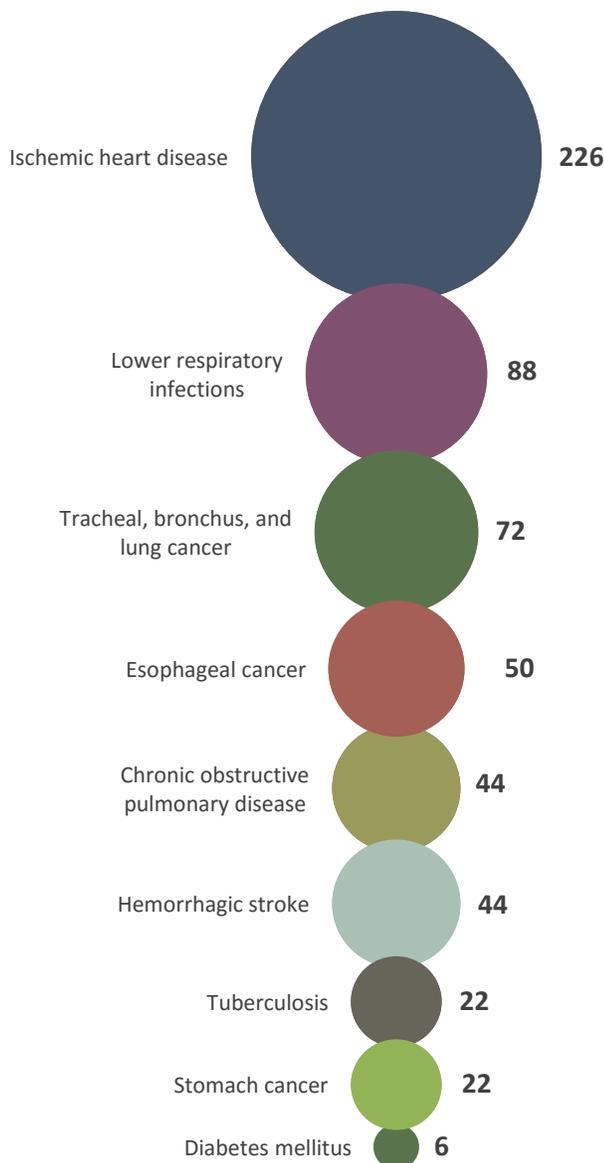
Savings in smoking-attributable healthcare expenditures for the tobacco policies/interventions modeled are calculated by taking the difference in smoking-attributable healthcare expenditures between the status quo and the policy/intervention scenario. The figure below presents smoking-attributable expenditures for the status quo, as well as the entire tobacco package (all interventions done simultaneously), for the first 5 years (2019-2023), years 6 through 15 (2024-2033), and the full 15 years (2019-2033). The savings in smoking-attributable healthcare expenditures associated with the tobacco policy/intervention package are listed on the chart for each of the three periods presented.

Annual costs and cost savings for the tobacco package, as well as model results for each of the individual policies/interventions modeled are presented in the Excel model results summary file.



## Total Number of Tobacco-Attributable Deaths Avoided Over 15 Years with Tobacco Policy/Intervention Package, by Disease

The chart below presents the total number of risk factor attributable deaths averted over 15 years with the tobacco policy/intervention package. Results are for risk factor = Smoking + Secondhand Smoke. Deaths averted represents the difference in the number of risk factor attributable deaths between the status quo and the tobacco package. Ranges for the number of risk factor attributable deaths (lower bound and upper bound) presented in the figure below, deaths averted results for the other tobacco risk factors modeled (smoking, SHS, and occupational exposure to SHS), as well as model results for the other tobacco-attributable mortality and morbidity measures (YLL, YLD, and DALY) are presented in the Excel model results summary file.

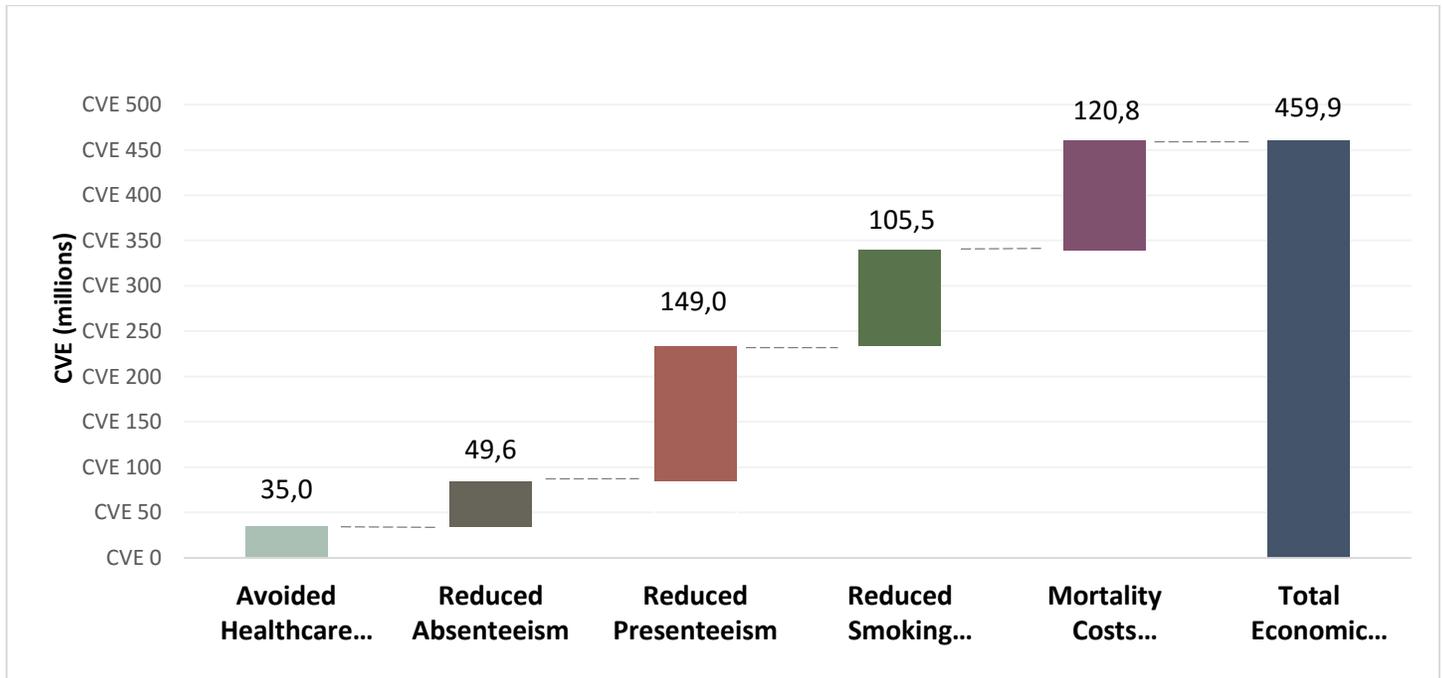


This figure presents the number of risk factor attributable deaths from smoking + secondhand smoke that can be avoided over 15 years with the tobacco policy/intervention package.

Deaths averted represents the difference in risk factor attributable deaths between the status quo and the tobacco policy/intervention package.

## Average Annual Direct and Indirect Cost Savings with Tobacco Policy/Intervention Package

The figure below presents the average annual direct and indirect cost savings associated with the tobacco policy/intervention package over 15 years. Direct costs are smoking-attributable healthcare expenditures. Indirect costs include the economic cost of tobacco-attributable mortality and workplace smoking costs. Workplace smoking costs include excess absenteeism, presenteeism, and unsanctioned smoking breaks. Annual cost savings represent the difference in costs between the status quo and the tobacco policy/intervention package.



## Return on Investment (ROI)

### First 5 Years (2019-2023)

Policy/Intervention	2019-2023 (First 5 Years)		
	Financial Costs of Implementing Policy/Intervention	Savings in Economic Costs of Tobacco Use Compared to Status Quo	Return on Investment (ROI): Savings in Economic Costs of Tobacco Use Per 1 Local Currency Unit Spent on Policy/Intervention
Package (combined interventions)	CVE 380.4 million	CVE 1173.8 million	CVE 3.09
Protect people from tobacco smoke	CVE 72.7 million	CVE 265.4 million	CVE 3.65
Warning Labels	CVE 41.2 million	CVE 273.8 million	CVE 6.65
Mass Media Campaign	CVE 70.9 million	CVE 260.4 million	CVE 3.67
Bans on advertising	CVE 41.8 million	CVE 206.4 million	CVE 4.94
Plain Packaging	CVE 41.2 million	CVE 104.0 million	CVE 2.53
Raise Taxes (cumulative year-over-year)	CVE 72.5 million	CVE 364.2 million	CVE 5.02

### After 15 Years (2019-2033)

Policy/Intervention	2019-2033 (All 15 Years)		
	Financial Costs of Implementing Policy/Intervention	Savings in Economic Costs of Tobacco Use Compared to Status Quo	Return on Investment (ROI): Savings in Economic Costs of Tobacco Use Per 1 Local Currency Unit Spent on Policy/Intervention
Package (combined interventions)	CVE 840.2 million	CVE 6.90 billion	CVE 8.21
Protect people from tobacco smoke	CVE 137.6 million	CVE 2.03 billion	CVE 14.75
Warning Labels	CVE 79.7 million	CVE 2.09 billion	CVE 26.23
Mass Media Campaign	CVE 205.1 million	CVE 1.99 billion	CVE 9.72
Bans on advertising	CVE 83.6 million	CVE 1.59 billion	CVE 19.02
Plain Packaging	CVE 79.7 million	CVE 0.81 billion	CVE 10.20
Raise Taxes (cumulative year-over-year)	CVE 158.3 million	CVE 2.55 billion	CVE 16.10