

Lung Cancer-Related Clinical and Economic Impacts of Achieving a 5% Smoking Rate by 2035 In Canada

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Objective:

Smoking is responsible for approximately 30% of all cancer-related deaths and nearly 85% of lung cancer cases. Canada has set an ambitious target to reduce the smoking rate from 18% to 5% by 2035. OncoSim was used to show the impact of achieving this goal on lung cancer outcomes and costs.

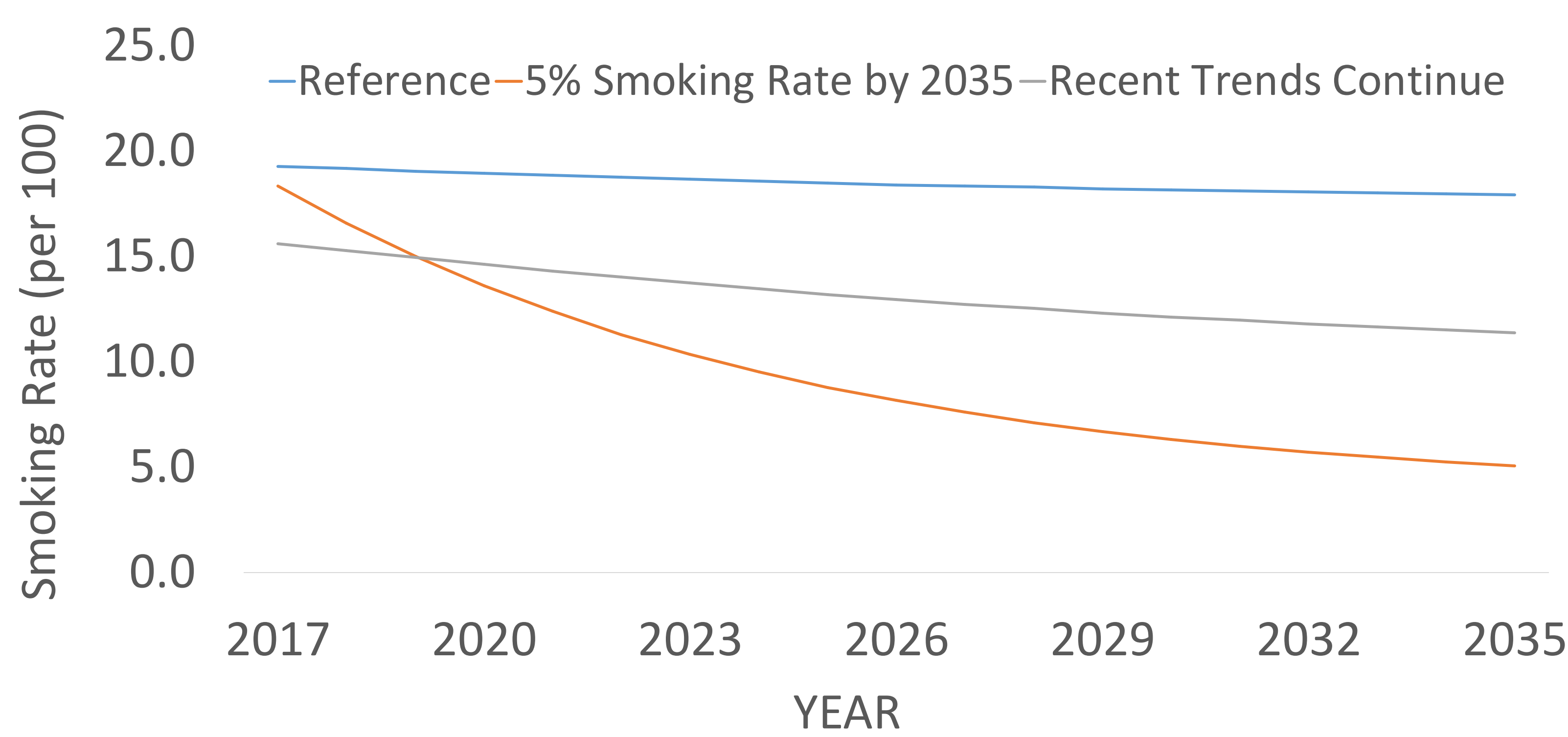
OncoSim:

OncoSim-Lung (version 2.5) is a microsimulation model that incorporates Canadian demographics, risk factors, registry data, resource utilization and other data to project clinical and economic impacts of cancer control measures

Methods:

Smoking cessation parameters were modified to reduce the current smoking rate in OncoSim (19%) over time to 5% in 2035. Impacts were compared to those in a reference scenario, which maintained constant trends in smoking cessation. Outputs of interest included lung cancer incidence, mortality, treatment costs, and quality-adjusted life-years (QALYs). Costs and QALYs were undiscounted. Costs are reported in 2016 Canadian dollars.

Assumed Smoking Rates:



Results:

Over 2017-2035, achieving a 5% smoking rate by 2035 would result in a cumulative total of 31,000 fewer lung cancer cases and 21,000 fewer lung cancer-related deaths. All-cause mortality would decline by 85,000 and 457,000 additional QALYs would be gained compared to projections based on current smoking trends. Furthermore, treatment-related costs would be reduced by \$680 million dollars, cumulatively. By 2035, there would be 4,500 fewer lung cancer cases, 3,500 fewer lung-cancer related deaths, 7,400 fewer all-cause related deaths and \$104 million in cost savings annually.

Conclusions:

Based on the OncoSim-Lung model, reducing Canada's smoking rate to 5% by 2035 would result in a significant reduction in lung cancer cases, deaths and treatment costs. Averted treatment costs could be used to offset costs of comprehensive smoking prevention and cessation programs or be redirected to other healthcare services.

Limitations:

Assumptions:

- A high quit rate
- Some provinces had the same quit rate, whereas some provinces may require a higher quit rate than others.
- Quitters quit for life, whereas multiple attempts may be necessary

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www.oncosim.ca/ARCC-CAHSPR2018
www.oncosim.ca/ARCC-CAHSPR2018-fr

Figure 1. Lung cancer cases averted, 2017-2035

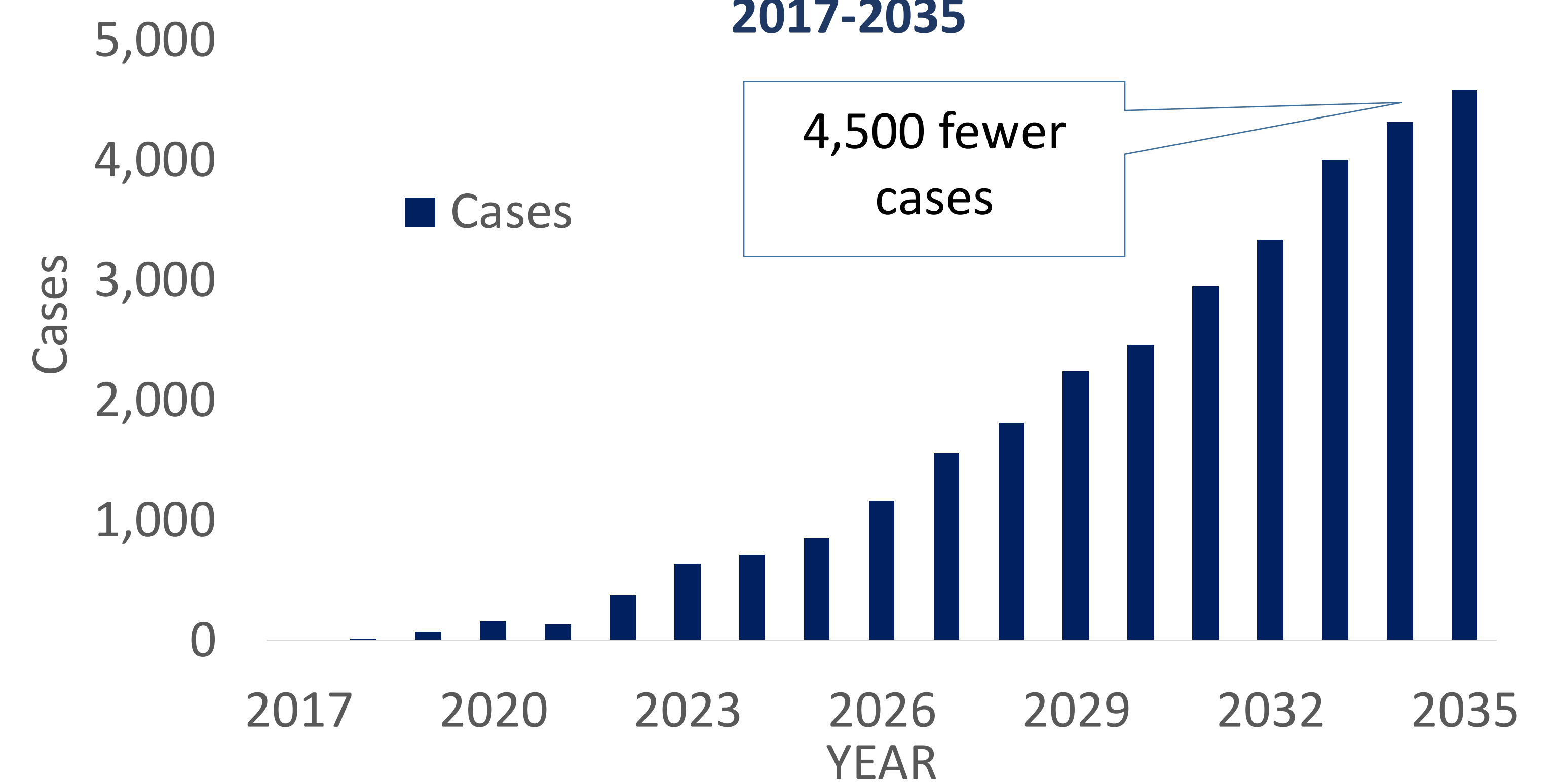


Figure 2. Lung cancer-related and all-cause related deaths averted, 2017-2035

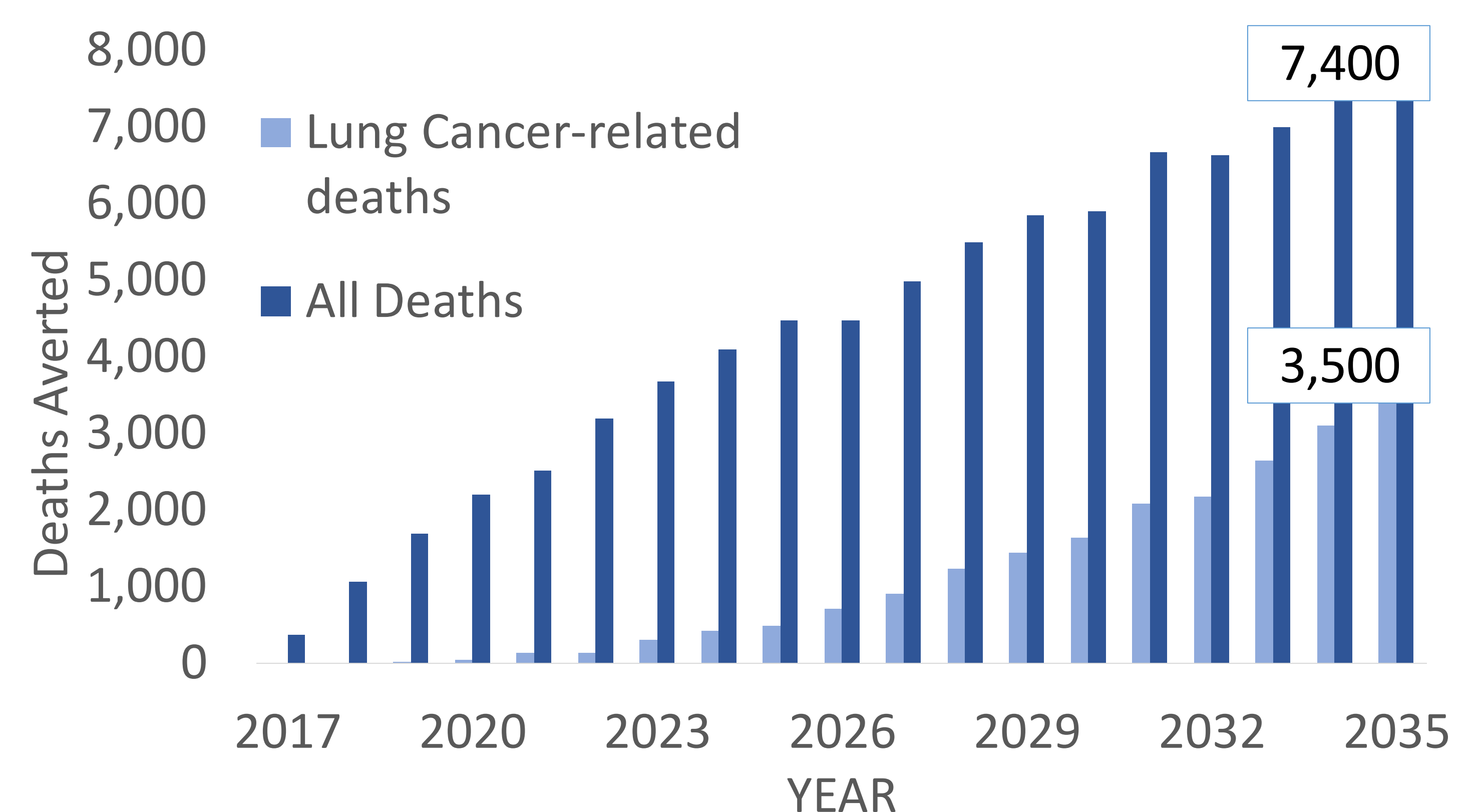


Figure 3. Quality Adjusted Life Years Gained, 2017-2035

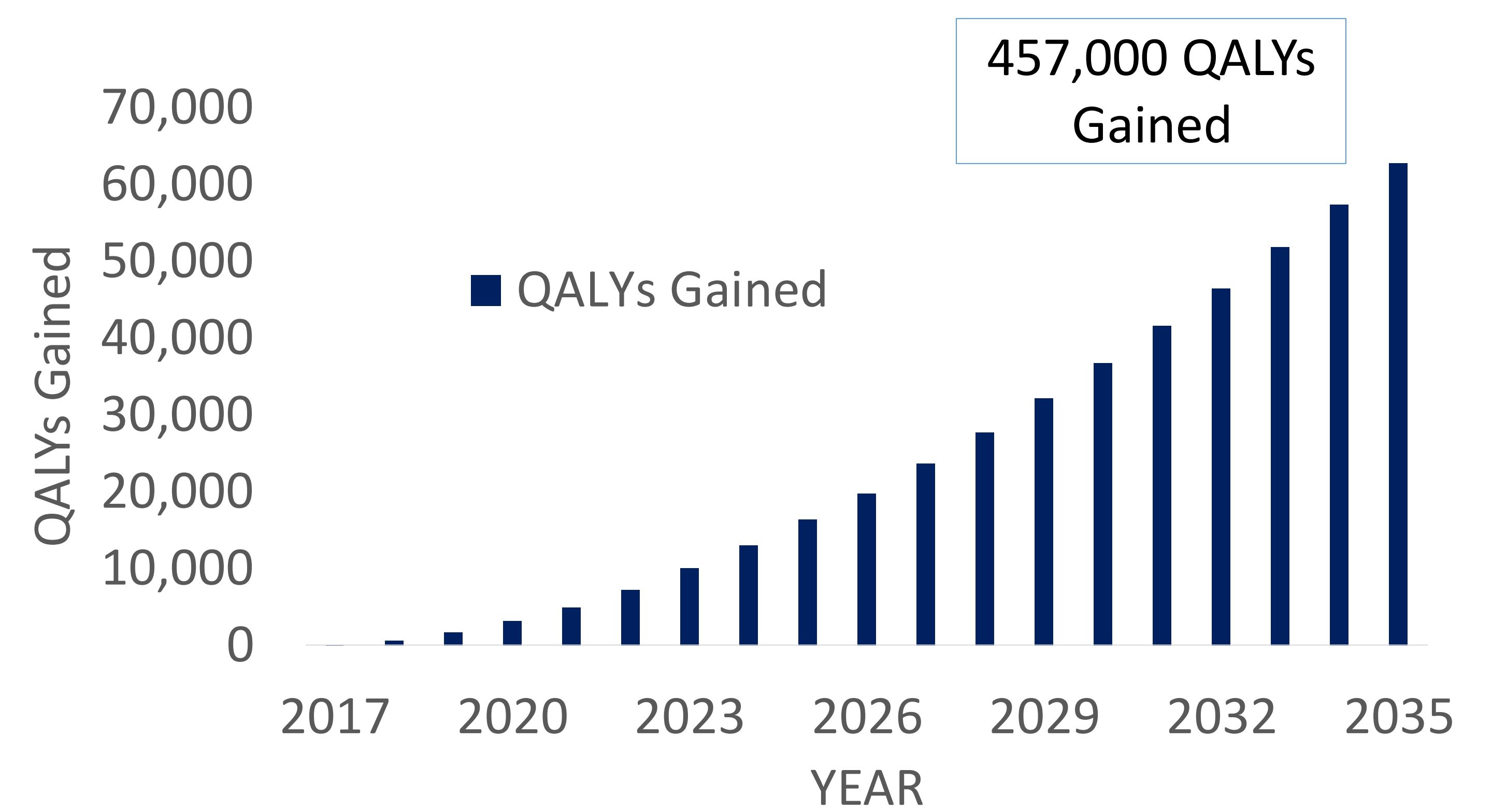


Figure 4. Lung cancer treatment-related costs, 2017-2035

