



2018 ARCC CONFERENCE ABSTRACT

Abstract ID: 76

Lung Cancer-Related Clinical and Economic impacts of Achieving a 5% Smoking Prevalence by 2035

Presented by: **Selena Hussain**, Canadian Partnership Against Cancer

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 smoking prevalence from 18% to 5% by 2035. OncoSim was used to show the impact of achieving this goal on lung cancer outcomes and costs.

Approach: OncoSim-Lung (version 2.5) (developed by the Canadian Partnership Against Cancer and Statistics Canada) 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. Smoking cessation parameters were modified to reduce the current smoking prevalence (17.9%) over time to 5% in 2035. Impacts were compared to those in a reference scenario, which maintained the current prevalence rate. Outputs of interest included lung cancer incidence, mortality, treatment costs, and quality-adjusted life-years (QALYs). Costs and QALYs were not discounted. Costs are reported in 2016 Canadian dollars.

Results: Achieving a 5% smoking rate by 2035 would result in a 2017-2035 cumulative total of 31,000 fewer lung cancer cases, 21,000 fewer lung cancer-related deaths, and 457,000 additional QALYs compared to projections based on current smoking trends. When stratified by sex, there would be 15,600 and 15,700 fewer lung cancer diagnoses and 11,000 and 10,000 fewer lung cancer-related deaths for males and females respectively. Furthermore, treatment-related costs would be reduced by \$680 million dollars. On average there would be 4,500 fewer lung cancer cases, 3,500 fewer deaths, and \$35 million in cost savings annually. If a 5% smoking rate is sustained, then there would be a 15% reduction in lung cancer cases and a 13% reduction in deaths from 2017-2050.

Conclusions: Based on the OncoSim-Lung model, reducing Canada's smoking prevalence 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 aggressive smoking prevention and cessation programs or be redirected to other healthcare services.

All Authors: John Goffin, Juravinski Cancer Centre; Anthony B. Miller, University of Toronto; Selena Hussain, Canadian Partnership Against Cancer; SAIMA MEMON, Canadian Partnership Against Cancer; Natalie Fitzgerald, Canadian Partnership Against Cancer; Cindy Gauvreau, Canadian Partnership Against Cancer; William Flanagan, Statistics Canada; William (Bill) Evans, Cancer Care Ontario