A $4.9 Billion Decrease in Health Care Expenditure:

The Ten-Year Impact of Improving Smoking, Alcohol, Diet and Physical Activity in Ontario

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uOttawa

ICES

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Acknowledgments

About the Organizations Involved in this Report

The Institute for Clinical Evaluative Sciences

The Institute for Clinical Evaluative Sciences (ICES) is an independent, non-profit organization that uses population-based health information to produce knowledge on a broad range of health care issues. ICES' unbiased evidence provides measures of health system performance a, a cleaner understanding of the shifting health care needs of Ontarians, and a stimulus for discussion of practical solutions to optimize scarce resources.

Key to ICES' work is its ability to link population-based health information, at the patient level, in a way that ensures the privacy and confidentiality of personal health information. Linked databases reflecting 13 million of 34 million Canadians allow researchers to follow patient populations through diagnosis and treatment, and to evaluate outcomes.

ICES receives core funding from the Ontario Ministry of Health and Long-Term Care. In addition, ICES scientists and staff compete for peer-reviewed grants from federal funding agencies, such as the Canadian Institutes of Health Research, and receive project-specific funds from provincial and national organizations. ICES' knowledge is highly regarded in Canada and abroad, and is widely used by government, hospital, planners, and practitioners to make decision about health care delivery and to develop policy.

The Ottawa Hospital Research Institute

The Ottawa Hospital Research Institute is the research arm of The Ottawa Hospital and an affiliated institute of the University of Ottawa, closely associated with the university's Faculties of Medicine and Health Sciences. OHRI includes more than 1,700 scientists, clinical investigators, graduate students, postdoctoral fellows and staff conducting research to improve the understanding, prevention, diagnosis and treatment of human disease.

List of Exhibits

Background

Smoking, unhealthy alcohol consumption, poor diet and physical inactivity play an important role in overall health. Previously, our research team at the Institute for Clinical Evaluative Sciences (ICES) examined the impact of these four health behaviours on hospitalization costs. The *900,000 Days in Hospital report* demonstrated that 32% of hospital bed-days between 2001 and 2012 were attributable to these behaviours.[1]

Ontario policy makers and public health practitioners are interested in the broader impact of health behaviours on health care use—the focus of this report. This study is in response to requests[a] to provide further insights into the health care system and both the potential economic and health equity impacts of preventive strategies.

Breaking New Ground

The study uses unique Canadian data that individually link respondents from a large population health survey, the Canadian Community Health Survey, to a wide range of health care data in Ontario. These data provide the largest and most complete examination of the relationship between health behaviours and health care costs. To our knowledge, this study is the first to directly measure how changes in health behaviours have resulted in increased or decreased health care use. We examined the following questions:

1. What are the direct health care costs associated with smoking, unhealthy alcohol consumption, poor diet and physical inactivity?

2. What has been the change in direct health care costs as a consequence of recent improvements in or worsening of health behaviours?

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a   Requests for information submitted through the Applied Health Research Question (AHRQ) initiative of the Ontario Ministry of Health and Long-Term Care by a health-system policy maker or care provider seeking research evidence that will inform planning, policy and program development for the benefit the entire Ontario health system.

3. What are the direct health care costs associated with socioeconomic position (i.e., education, family income, home ownership and neighbourhood deprivation)

4. What is the health care cost for Ontarians who have healthy versus unhealthy behaviours and high versus low socioeconomic position?

Measurements of Health Care Costs

Our study examined a cohort of individuals surveyed between 2003 and 2008. We followed each individual for four years between 2004 and 2013 to examine his or her total health care costs, as well as health care costs across three sectors:

- **Hospital care.** We combined costs from inpatient hospitalizations, same-day surgeries, emergency department visits, and stays in rehabilitation hospitals and complex continuing care centres.

- **Drugs.** For Ontarians aged 65 and older, Ontario Drug Benefit costs were captured.

- **Community care.** We combined costs from primary care billings, specialist billings, laboratory billings, capitation services and home care services.

Methods

Data Sources

We examined the relationship between behavioural risks and health care costs using the Ontario sample of three population health surveys: the Canadian Community Health Survey (CCHS) cycles 2.1, 3.1 and 4.1 (conducted in 2003, 2005 and 2007–2008, respectively). The CCHS is a cross-sectional survey conducted by Statistics Canada that collects data related to health determinants, health status and health care use. The survey employs a complex, multistage sampling strategy to randomly select households in each health region. Individuals in each household are automatically selected to participate in the survey using various selection probabilities based on age and household composition. A weight is assigned to each respondent signifying the number of individuals the respondent represents in the target population. The target population includes individuals aged 12 and older living in Canada's ten provinces and three territories. Individuals living on First Nations reserves, institutionalized residents, full-time members of the Canadian Forces and residents of certain remote areas are excluded from the survey's coverage.

The Ontario sample of the three CCHS cycles conducted between 2003 and 2008 provided 128,501 valid interviews. Of these respondents, a subset agreed to share and link their interview information. In total, 101,506 respondents were successfully linked to their Ontario Health Insurance Plan (OHIP) number using a deterministic and probabilistic algorithm. For our study, respondents were included if they were eligible for publicly funded health care from OHIP, not pregnant at the time of survey administration, and aged 25 and older. For individuals with multiple interviews, only the earliest interview was included. We excluded respondents who were lost to follow-up in the first year following their interview (i.e., they were not available at the beginning of the study). This resulted in a final cohort of 80,749 unique Ontario respondents (**Exhibit A-1** in the Appendix). These individuals were followed for up to four years beginning one year after survey administration.

Direct health care cost data at ICES

The CCHS respondents were individually linked to all records of health care use that was paid for by the Ministry of Health and Long-Term Care (MOHLTC). The cost associated with each record was estimated using costing methods developed for health administrative data.[2] Briefly, a payer (the MOHLTC) costing perspective was taken, using person-level health care utilization data and per-use fee information or budgetary data. Cost information for sectors (i.e., acute hospitalization, same-day surgery, emergency department, inpatient rehabilitation and complex continuing care) that are funded using global budgets (e.g., by institution) are determined using a top-down approach through case-mix methodology. Sectors that have fee payments associated with each use (e.g., prescription drugs, physician services and home care) have costs estimated directly. All costs were expressed in 2014 Canadian dollars; we inflated past costs using the annual general Consumer Price Index reported by Statistics Canada.

Behavioural and other risk factors for health care use

Exhibit 1 and Exhibit A-2 in the Appendix present the health behaviours (smoking, alcohol consumption, diet and physical activity) and other risks that were examined for their association with health care use.

Other risks include age, sex, stress, preventive health behaviour (flu vaccination), sociodemographic factors (immigrant status, education level, urban dwelling, neighbourhood deprivation, household income, home ownership, marital status), health status indicators (body mass index, hypertension, diabetes, heart disease, cancer, history of stroke, dementia, and extent of difficulty in performing basic tasks or participating in activities).

Public health care spending data

A number of health care costs were not included in our primary analysis. In addition to the costs that were excluded either by design (e.g., long-term care and mental health care costs) or due to limitations with the data (e.g., outpatient clinic visits in hospital settings), expenditures[b] to operate the health care system (e.g., MOHLTC administration) and capital costs for large-scale projects (e.g., building new hospitals) are not reflected in the person-level costs. To account for these exclusions in our cost analysis, we obtained annual total health care costs from publicly available Ontario Ministry of Finance records from 2003/04 to 2013/14.[3-15] The costs from each year were divided into our three health care sectors; costs that did not align with any of the three sectors were assigned to an 'other' category.

Not included in this study are costs incurred outside of the health care system, such as lost productivity, wages and income related to illness associated with

unhealthy living, or costs borne by individuals to care for their illness (referred to as indirect costs). Also not included are costs for health care beyond those paid by the MOHLTC (e.g., employee health plans).

Analyses

Development of multivariable risk models

CCHS respondents were tracked for their health care use over a four-year follow-up period starting one year after survey administration. For acute care and rehabilitation hospitalizations that extended beyond the follow-up period, a proportion of the costs were included based on the length of stay that fell within the follow-up period.

We developed multivariable models to estimate the effect of health behaviours on health care costs. When building the models, we sought to address three main considerations in attributing health behaviours to health care:

- First, appropriate adjustment for other risk factors for increased costs, such as age and sociodemographic factors that are correlated with health behaviours.

- Second, consideration of the role of factors such as body mass index, blood pressure and health

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b   In this case, expenditure by the health care system is defined as the cost to the system of the inputs required to treat, for example, a smoking-related disease. Thus, we use the terms cost and expenditure interchangeably.

behaviour–related disorders that may mediate the relationship between health behaviours and health care costs. The concern was that including these risks in a multivariable model may inappropriately attenuate (lower) the risk from health behaviours.

- Third, consideration of pre-existing illness that may have led to health behaviour changes. For example, as people become ill and frail, they may become less physically active. In such a situation, physical inactivity may be associated with increased health care cost that is more appropriately identified as illness-associated inactivity.

We created separate, sex-specific, generalized linear models with a negative binomial distribution for each of the health care sectors: hospital care, drugs and community care. The models employed an offset to adjust for differences in follow-up between respondents. The models were created using a prespecified, stepwise approach that started with a *health behaviour model* followed by a basic *sociodemographic model,* a *primary attribution model* that adjusted for additional sociodemographic factors, a *distal mediator model* that included health status indicators, and a *proximal mediator model* that included a measure of fragility (**Exhibit A-2** in the Appendix). This stepwise analysis resulted in 15 models for each sex (**Exhibits A-12** to **A-17** in the Appendix).

Population attributable fractions of cost to health behaviours and socioeconomic position

The proportion of the health care cost burden that can be attributed to health behaviours—the population attributable fraction (PAF)—was calculated from 2003/04 to 2013/14 for each health care sector.

Annual PAFs were estimated using the corresponding CCHS cycle or, for years between CCHS cycles, by averaging the PAFs from the preceding and succeeding years. PAF calculations were performed using a risk factor–deleted approach. In the first step, the expected annual health care costs of the population for a specific sector were estimated by applying the corresponding sector-specific primary attribution models to the weighted CCHS cycle. In the second step, the calculation was repeated after recoding each respondent's health behaviour to the counterfactual reference or "no exposure" category. For example, we first estimated the hospital costs of the weighted cohort for all smoking exposures (i.e., current, former and non-smokers), and then re-estimated the hospital costs of the weighted cohort assuming all current and former smokers were non-smokers. The difference between the two calculations created an estimate of the annual contribution of smoking to hospital costs. In the final step, this difference was divided by the original population estimate (from the first step) to produce a population attributable fraction. In our example, this would be the PAF of hospital costs to smoking. Health sector specific PAFs were calculated for each health behaviour, and the combination of health behaviours.

The same analysis was performed for different socioeconomic groups defined by education level, family income, home ownership and neighbourhood deprivation. The equity gap in health care use was defined as the difference in cost between socioeconomic groups. Meaning, we calculated expected health care costs if all Ontarians were at the socioeconomic category with the lowest health care costs (e.g., the cost for people with post-secondary education or the highest family income).

Costs attributable to individuals with different health behaviours and socioeconomic position

We estimated health care costs for an average individual with different health behaviours and socioeconomic positions. The annual sector-specific costs for an average individual were calculated by taking the primary attribution model estimates of the 2013/14 CCHS population and dividing by the number of individuals aged 25 and older in the CCHS cycle. This calculation was repeated using counterfactual 2013/14 CCHS population estimates where all individuals had been recoded to alternate exposures of health behaviours (all healthy or all unhealthy), or socioeconomic position (all high or all low), or combinations of both (all healthy and high socioeconomic position or all unhealthy and low socioeconomic position). To provide estimates calibrated to 2013/14 health care spending, the relative difference in sector-specific individual costs obtained in the counterfactual scenarios were centred around actual 2013/14 per capita estimates of sector-specific costs.

The burden of health care costs attributable to health behaviours and socioeconomic position

Total health care sector costs for individuals aged 25 and older were estimated by comparing ICES estimates of population health care spending to public accounts. For each fiscal year, sector-specific adjustment was performed to account for the underestimation of health care costs calculated at ICES. The result was sector-specific health care costs for each fiscal year that reflected actual government spending. For the 'other' category, health care costs associated with individuals aged 25 and older were estimated using the distribution of health care spending by age within the health care sector costs calculated at ICES. Annual estimates of attributable costs to health behaviours were calculated from 2003/04 to 2013/14 by combining these annual estimates of health care sector costs with their corresponding sector-specific PAFs and summing the results of the health care sectors together.

Estimating costs attributable to changes in health behaviours

The change in health care costs attributable to the change in health behaviours was estimated for 2004/05 to 2013/14. A baseline PAF for total health care costs to all health behaviours was estimated for 2003/04 using the previously derived PAFs and attributable costs. The overall health care budget was estimated over the subsequent decade assuming that health behaviours in 2003–2004 remained constant (e.g., the baseline PAF did not change over time). The difference between this counterfactual health care budget and the actual health care budget in each year provided an annual estimate of the change in health care costs attributable to the change in health behaviours.

Because of study limitations, we were not able to estimate attributable cost according to change in socioeconomic position.

Sensitivity analysis

We performed three sets of sensitivity analyses. First, we assessed health care costs and burden estimates by considering progressively more adjustment with risk factors other than age, sex and health behaviours (Model 1), basic sociodemographic characteristics (Model 2), additional sociodemographic characteristics (Model 3), health status mediators (Model 4) and fragility (Model 5). The estimate derived from Model 3 was assumed to be the most accurate and appropriate estimate of the attributable burden due to health behaviours. The estimates derived from Model 1 (simply age and behaviours) and Model 5 (the over-adjusted model) were used as upper and lower bounds of uncertainty. Second, we compared the age-standardized cost ratios after excluding the top 5% of health care users. Lastly, we used an alternative estimation approach, inverse propensity-weighted analyses, to assess the robustness of our health care cost ratios attributable to smoking derived from our main analyses. The inverse propensity-weighted analyses included several covariates (**Exhibits A-18** to **A-33** in the Appendix), in addition to the original set used in the multivariate approach. The robustness of the health care cost ratios attributable to smoking was also evaluated by repeating these two methodologies across different smoking exposure classifications (**Exhibits A-34** and **A-35**).

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

METHODS

Online Calculator

We created an online calculator that estimates health care costs for individuals based on their customizable health profiles (available at **www.projectbiglife.ca**). The purpose of the calculator is to provide users with an interactive tool to further explore the factors that contribute to health care costs. The calculator uses Model 5, which contains all predictors including health mediators and fragility. This model allowed for the greatest discrimination, defined as the ability to differentiate between individuals at high risk and those at low risk.[16] This model was not developed for causal or attributable uses. Accordingly, the proportion of health care costs that is attributable to health behaviours cannot be directly obtained from this model. Importantly, the calculator estimates the average health care costs for the entered health profile; the actual costs are wide ranging.

Limitations and Interpretive Cautions

In general, our study approach will underestimate the actual burden of health care costs attributable to the four health behaviours in Ontario. We note several limitations and cautions in interpreting the findings.

Children and adolescents were excluded

The study excluded individuals younger than 25 years of age. In general, health care costs for this age group are low. That said, alcohol burden for young people is a notable omission. Alcohol use is an important attribution of injury, suicide and other social burdens that occur disproportionately among the young.

Health risks were likely under-reported

The study used self-reported exposure to health risks, which generally results in an underestimation of risk burden, especially for diet and alcohol.[17-20] Survey respondents tend to over-report what they perceive as healthy behaviour and under-report unhealthy behaviour—this is referred to as social desirability bias.[21] For example, in Ontario the sum of self-reported alcohol consumption is about half the volume of alcohol sold.[22] Reporting accuracy affects all risks examined in this study. Estimates of burden are most affected when people report they are in the healthiest category (e.g., non-smoker or moderate drinker) when they are actually in an unhealthy category.

Similarly, respondents were asked brief questions about risks that may not capture the full spectrum of behaviour. For example, the study's measure of physical activity considered only leisure time physical activity; not included were active transportation (such as walking and bicycling to work), activity at work and sedentary time (time spent sitting). Our measure of diet was based on fruit and vegetable consumption

without specifically ascertaining the intake of sodium, trans fats and calories, and other aspects of healthy and unhealthy eating. In the case of trans fats, Canadian average intake was estimated to have reduced by 60% from the mid-1990s to 2008.[23]

Furthermore, we used respondents' answers to health behaviours and other risks that correspond to their health behaviour at the time of the survey. Studies that consider lifetime changes in risks generate higher burden estimates. An exception is the burden estimates for physical activity, which may be overestimated due to reverse causality; that is, ill health is the cause of reduced physical activity.

Other health care costs were estimated indirectly

Costs associated with outpatient clinic visits in hospital settings (e.g., ambulatory orthopaedic or ophthalmology clinic visits) were not included in the ICES health care cost data. Prior to 2006, these exclusions also included dialysis and oncology outpatient visits. These clinic visits account for an average of 15%–17% of all acute care costs. Health care system operating costs and capital costs are also not included in the ICES health care cost data; however, as previously outlined, the final cost analyses were adjusted to consider these costs.

Findings

The population attributable fractions for the four behavioural risks were calculated using responses from 80,749 Ontarians surveyed between 2003 and 2008. In total, there were 312,952 person-years of follow-up (Exhibit A-3 in the Appendix). After adjusting for age, we observed increased health care cost ratios for all health behaviours (smoking, unhealthy alcohol consumption, poor diet and physical inactivity). With the exception of heavy alcohol consumption, the increase was observed in both sexes across all three health care sectors examined: hospital care, drugs and community care (Exhibits A-4 to A-11).

The Evidence

Health care use for Ontarians with different levels of risk exposure

Exhibit 2 shows health care expenditure in 2013 for Ontarians with exposure to unhealthy behaviours (heavy smoking, heavy drinking, very poor diet and physically inactive) compared to those with healthy behaviours (no smoking, moderate drinking, adequate diet and physically active), Ontarians with low socioeconomic position (less than high school completion, a household income of $29,999 or less, no home ownership and high neighbourhood

deprivation) compared to high socioeconomic position (post-secondary school graduate, household income of $80,000 or more, a residence owned by a household member and low neighbourhood deprivation), and Ontarians with both unhealthy behaviours and low socioeconomic position compared to those with healthy behaviours and high socioeconomic position.

Hospital care costs showed the widest variation, followed by community care costs; there was minimal variation for drug costs. Individuals with exposure to all health behaviour and socioeconomic position risks had annual hospital care costs that were more than 400% higher than those of individuals with healthy behaviours and high socioeconomic position ($5,796 versus $1,152).

There was a consistent dose-response such that individuals with poor health profiles had higher health care costs. For example, current heavy smokers (one or more packs of cigarettes per day) had the highest level of health care costs followed by former heavy smokers, light smokers, former light smokers and non-smokers. The three other risk factors—alcohol, diet and physical activity—showed similar dose-response relationships. Furthermore, people with multiple health behaviour risks had higher health care use than people with one health behaviour risk. Previous research focused on high health care users; our research looked at the total population and then at the population with high health care users excluded. We found a gradient for higher health care use for those with worse health behaviours in both groups i.e., irrespective of whether they were a high health care user or not (**Exhibits A-4** to **A-11** in the Appendix).

Health care use attributed to health behaviours

Exhibit 3 shows that from 2004 to 2013, 22% of Ontario's health care costs could be attributed to the four health behaviour risk factors. Physical activity had the largest attribution (13%), followed by smoking (10%). However, there was notable uncertainty in the burden estimates for physical activity and diet, with the potential for overestimation for physical activity and underestimation for diet. Alcohol-attributable health care costs were also likely underestimated (see the **Limitations** section).

Exhibit 4 shows the growth in annual health care expenditure from 2004 to 2013 for all of Ontario and for Ontarians aged 25 and older (the focus of this study). In 2013, health care costs for Ontarians aged 25 and older totalled $44.2 billion (89% of the total $49.9 billion expenditure). During the 10-year period from 2004 to 2013, $89.4 billion in health care costs were attributable to health behaviours (**Exhibit 5**). In that same period, the costs attributable to health behaviours improved by nearly 2% (from 23.3% in 2004 to 21.4% in 2013). If the proportion of health care expenditure that can be attributed to health behaviours (the population-attributable fraction) had remained at 23.3%, use of health care would have been $4.9 billion greater (what we term the avoided cost).

Population health impact of behavioural risks

Exhibit 6 presents the burden of health behaviours related to health care costs ($89.4 billion) and the costs avoided by the adoption of healthy behaviours ($4.9 billion). Physical inactivity and smoking contributed the largest proportion of the burden (53% and 41%, respectively). However, a decline in smoking between 2004 and 2013 was responsible for 84% of the avoided costs. Exhibit 7 presents health behaviour–attributable costs by health care sector. Costs related to hospital care account for the largest portion of the burden at 46%, community care costs account for 22% and drug costs for 11%; the remaining 21% is accounted for by other health care costs.

The three scenarios from our sensitivity analysis demonstrate results that are similar to our main analysis. As previously indicated, excluding high-cost health care users demonstrated slightly attenuated cost ratios for men and women (**Exhibits A-4** to **A-11** in the Appendix). Not unexpectedly, the attribution of health care costs to health behaviours decreased as we increased the number of risk factors adjusted for in the model (**Exhibits A-12** to **A-17**). The inverse propensity-weighted model, which adjusted for additional variables, had similar cost ratios to the base health behaviour multivariable model (**Exhibits A-34** and **A-35**).

Health care use attributed to socioeconomic position

Between 2004 and 2013, $60.7 billion in health care costs were attributable to low socioeconomic position (**Exhibit 8**). When health behaviours and socioeconomic position are considered jointly, the health care cost burden was $134 billion. **Exhibit 9** presents the burden associated with socioeconomic position by health care sector. Compared to the health behaviour analysis, a larger portion of the burden is due to hospital care costs (54%); community care costs account for 19% of the burden, drug costs account for 9%, and the remaining 18% is accounted for by other health care costs.

The Study in Context

Several studies have evaluated the economic burden of individual behavioural risk factors, but very few have evaluated the simultaneous impact of multiple risk factors. These latter studies have used traditional population attributable fraction methods to estimate economic burden.[24-27] Briefly, these methods identify diseases where health behaviours are risk factors, estimate the health care costs of these diseases, calculate the proportion of the disease that can be attributed to the risk factors (based on relative risk of disease from an external source and prevalence of exposure in the population of interest), and apply these population attributable fractions to the cost data. There are limitations associated with these methods that stem from combining ecological summary measures of exposure, outcome and hazards across different sources of data.[28]

The use of multivariable algorithms and the direct attribution of health behaviours to health care costs offer several advantages over analyses that have been performed to date. These include controlling for confounders, accounting for complexities in the relationship between multiple exposures and covariates, using consistent definitions of exposure, and using specific measures of risk derived internally from the study population. Additionally, to our knowledge, this is this first study to examine health care costs using both multivariable and propensity-weighted approaches.

Discussion

This study shows that a considerable reduction in health care expenditure in Ontario has been achieved through changes in health behaviours. The premium derived from improved health behaviours equates to a 1.9% reduction in health care expenditure over the 10-year period from 2004 to 2013. At first glance, a 1.9% improvement may seem small; however, given the magnitude of the province's health care expenditure, it amounts to a not-insignificant $4.9 billion. We are not aware of other health interventions or strategies that have led to as large a reduction in expenditure as those reported in this study.

In total, we found that 22% of Ontario's health care costs could be attributed to health behaviours. This equates to more than $89.4 billion over the 10-year period from 2004 to 2013. Socioeconomic position contributed 15%, or $60.7 billon, to the province's health care costs. Taken together, health behaviours and socioeconomic position contributed to a burden of $134 billion in health care costs. These calculations are likely conservative or underestimated due to study limitations (for examples, refer to earlier comments related to the assessment of healthy eating and the exclusion of data on youth alcohol use). The large remaining burden from health behaviours and social inequalities suggests that there are significant opportunities to further reduce health care expenditures through population health strategies.

This study confirms our previous analyses, which showed that health behaviours are an important contributor to poor health.[1,29] As with our previous study, we found that most costs are associated with hospital care, which, for the most part, seeks to maintain or restore health to people with significant illness or disability. Therefore, in addition to the benefit of cost savings, preventing hospital use can be equated with preventing health-limiting illness or disability.

There is mounting discourse about health system sustainability in the face of rising health care costs; missing from the debate is a discussion about contributors to reduced health care expenditures. For example, each year the Canadian Institute for Health Information publishes a report on health care expenditure trends. The report includes analyses and a discussion on what is responsible for increasing expenditures but does not include a counterview on what is responsible for decreasing them. References

to the "aging crisis" and the "silver tsunami" are common examples of the pessimistic outlook regarding health system sustainability; 61% of Canadians doubt that "the country's hospitals and long-term care facilities will be able to meet the demands of Canada's relentlessly aging population."[30,31] Our study provides a more optimistic outlook. In the 10-year period coinciding with our investigation, population aging resulted in a 0.9% annual increase in health care expenditure with a modest projected annual increase of 1.1% to 2030.[14,32] Viewed comparatively, over the study period there was a 9% increase in health care expenditure due to population aging and a 1.9% decrease in expenditure from improving health behaviours. In other words, for every $1 increase in health care expenditure due to aging, there was a 21¢ reduction in expenditure from improving health behaviours. (Again, due to study limitations the reduction is likely conservative and does not include reductions due to change in socioeconomic position).

Another notable point about aging and health behaviours: while aging is inevitable, health behaviours (and social inequities) are modifiable. Reduced smoking was the main contributor to avoided health care costs from health behaviours (accounting for 88% of the 1.9% cost reduction, or 1.7% in total). This large cost reduction is a reflection of Ontario's successful smoking prevention strategy. To date, improved diet and physical activity have made only small contributions to reduced costs, reflecting little improvement in these health behaviours in Ontario and the lack of a comprehensive strategy such as Smoke-Free Ontario.

In our 2009 ICES report, *What Does It Take to Make a Healthy Province?*, we recommended that

Ontario adopt health behaviour targets that were at least as ambitious as British Columbia's.[33] We also outlined recommendations on how to achieve those targets. Separately, we estimated that achieving British Columbia's health behaviour targets would result in an Ontario life expectancy increase of three years.[29] The savings to the Ontario health care system would be similarly large.

Our study shows the importance of integrating public health programming and prevention efforts within the health care system—a key feature of the current health strategy in the *Patients First* initiative, which emphasizes better coordinated delivery of health care within the province's 14 Local Health Integration Networks.[34,35] A greater investment in disease prevention and population health could help increase the sustainability of health care by reducing spending on illness, in particular with respect to hospital care. Combining this effort with strategies that address social determinants of health can reap further benefits.

Indeed, our study suggests that interventions outside the health care system, such as improving levels of income and education and other factors that influence socioeconomic position, will reduce health care expenditures. It has been recognized that the health system is but one determinant of population health and that more attention must be paid to the needs of disadvantaged individuals, populations and communities in order to avoid increasing health disparities.[37] While health inequities play a significant role in health system costs, estimating the cost of the gap in health care as a result of socioeconomic position can be difficult because of the complexity of the problem. Our study is one of the few that has

been able to translate this gap into a dollar figure. In building a disparities perspective into our examination of the contribution of health behaviours and other risks to health care costs, we have advanced a more comprehensive approach to reducing health inequities. With direct health care spending/costs/expenditures in Canada growing, there is potential to negatively impact investment in other areas that are critical to improving health (e.g., education, public housing, income security[36]), especially for those who are most marginalized.

Amid concerns over rising health care costs, attention has focused on high-cost users of health care.[37-39] Our study shows the wide variation in health care costs for individuals with favourable versus unfavourable health behaviours and socioeconomic profiles. Better health and well-being is the primary goal of improving health behaviours and reducing social inequity. However, it is important to recognize that the existing investment in public health also results in a large reduction in expenditure in the acute care sector, particularly hospital care. The health premium of prevention and social equity is an overlooked opportunity for a sustainable health care system.

Exhibits

EXHIBIT 1 Definitions of behavioural health risks

Behaviour	Category*	Definition
Smoking	**Heavy smoker**	**Current daily smoker (≥ 20 cigarettes/day)**
	Light smoker	Current daily smoker (< 20 cigarettes/day) or current occasional smoker with ≥ 100 lifetime cigarettes
	Former heavy smoker	Former daily smoker (≥ 20 cigarettes/day)
	Former light smoker	Former daily smoker (< 20 cigarettes/day) or former occasional smoker with ≥ 100 lifetime cigarettes
	Non-smoker	*Never smoker or occasional smoker <100 lifetime cigarettes*
Alcohol	**Heavy drinker**	**Bingeing‡ or > 21 (men) or > 14 (women) drinks/week**
	Moderate drinker	≤ 21 (men) or ≤ 14 (women) drinks/week with no bingeing‡
	Current non-drinker	No alcohol consumption in the last 12 months
Diet	**Very poor diet**	**Index score 0 to < 2.5**
	Fair diet	Index score 2.5 to < 5
	Adequate diet	*Index score 5 to 10*
Physical activity	**Inactive**	**0 to < 1.5 METs/day**
	Moderately active	1.5 to < 3 METs/day
	Active	*≥ 3 METs/day*

*Highest risk levels are in boldface and lowest risk levels (reference group) are in italic.
‡Bingeing was defined as ≥ 5 drinks/day on any day in the previous week or weekly bingeing behaviour in the previous month.

Index score = the healthiness of a diet based on consumption of fruit and vegetables. Individuals start with 2 points and are given up to 8 additional points for each average daily serving of fruits and vegetables (maximum score = 10). Points are deducted for daily fruit juice servings exceeding 1 (−2 points), no carrot consumption (−2 points), or daily potato consumption exceeding 1 serving for males and 0.7 servings for females (−2 points). Scores that result in negative values after deductions are recoded to zero, resulting in a final range of 0 to 10 for the index.

MET = metabolic equivalent of task, a measure of calories burned by type, duration and frequency of physical activity.

EXHIBIT 2 Annual health care costs for Ontarians aged 25 and older: unhealthy behaviour and low socioeconomic position versus healthy behaviour and high socioeconomic position, 2013

Key finding

- Compared to those with healthy behaviours and high socioeconomic position, Ontarians with all four behavioural risks and low socioeconomic position had annual hospital costs that were 400% higher ($900 versus $4,500).

Health care cost for individual with unhealthy behaviour/low SEP

Average health care cost

Health care cost for individual with healthy behaviour/high SEP
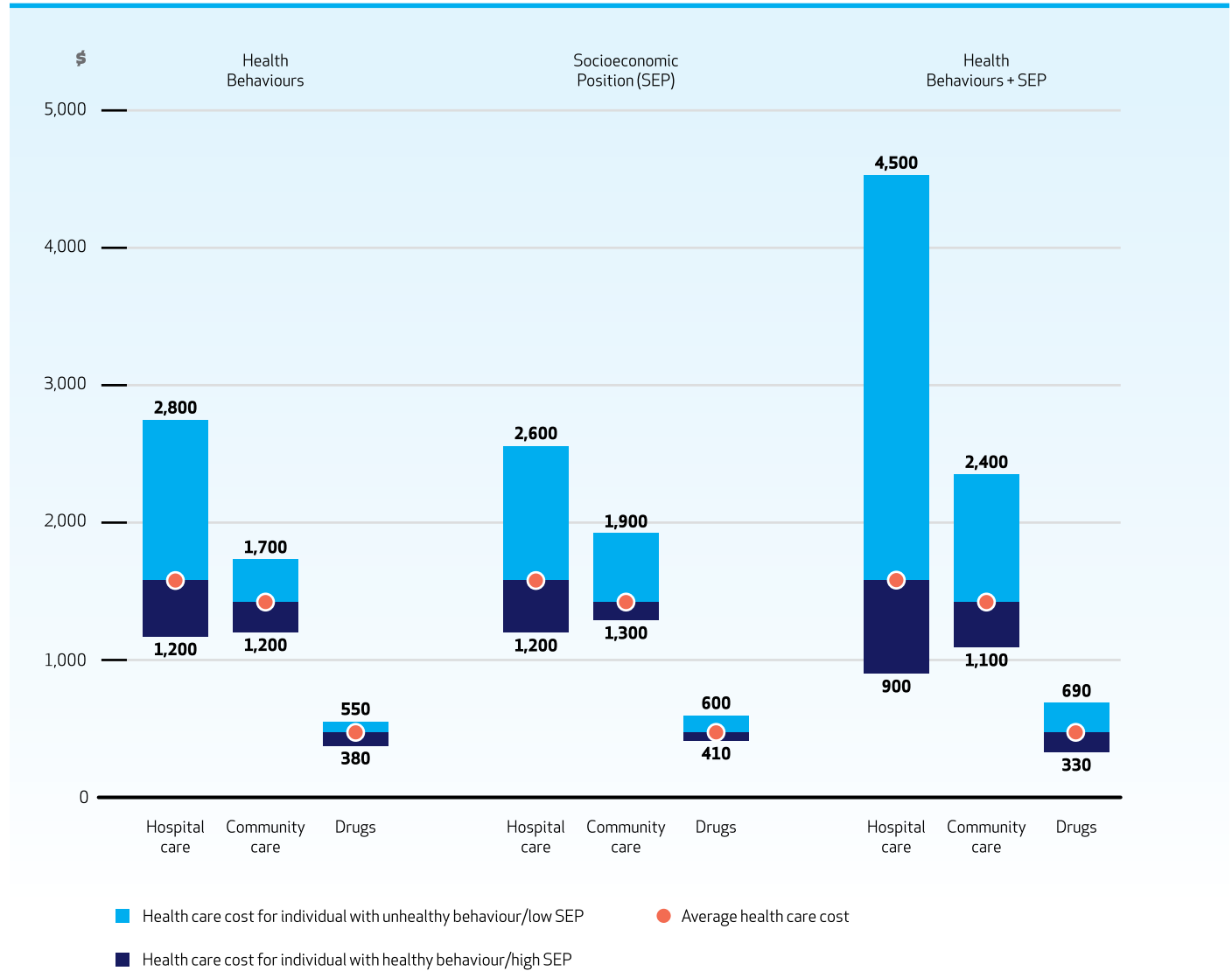
EXHIBIT 3 Proportion of health care costs attributed to selected health behaviour risk factors for Ontarians aged 25 and older, 2004 to 2013*

Key findings

- The four behaviour risk factors combined accounted for 22% of health care costs.

- Physical activity and smoking accounted for the largest proportion of total health care costs at 13% and 10%, respectively.
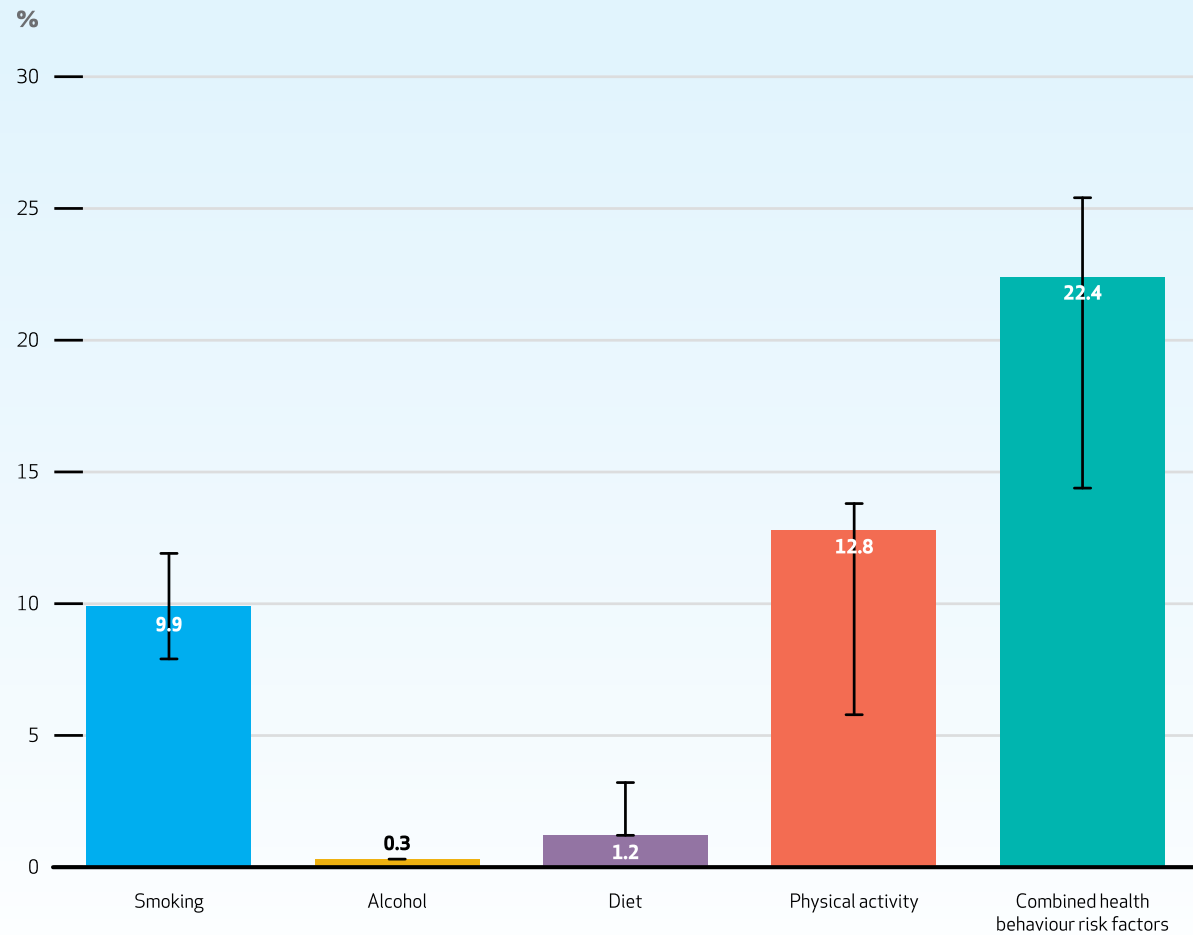
*Error bars represent high and low boundaries on burden estimates.

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

EXHIBITS

EXHIBIT 4 Annual health care costs for Ontario, 2004 to 2013*

Key findings

- Annual health care costs are large.

- Annual health care costs increased rapidly until 2009, after which inflation-adjusted costs stabilized.

- This study included 88% of total costs, reflecting health care for individuals aged 25 and older.

$ billion

Age ≥ 25
All ages

*Constant 2014 Canadian dollars

EXHIBITS

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO
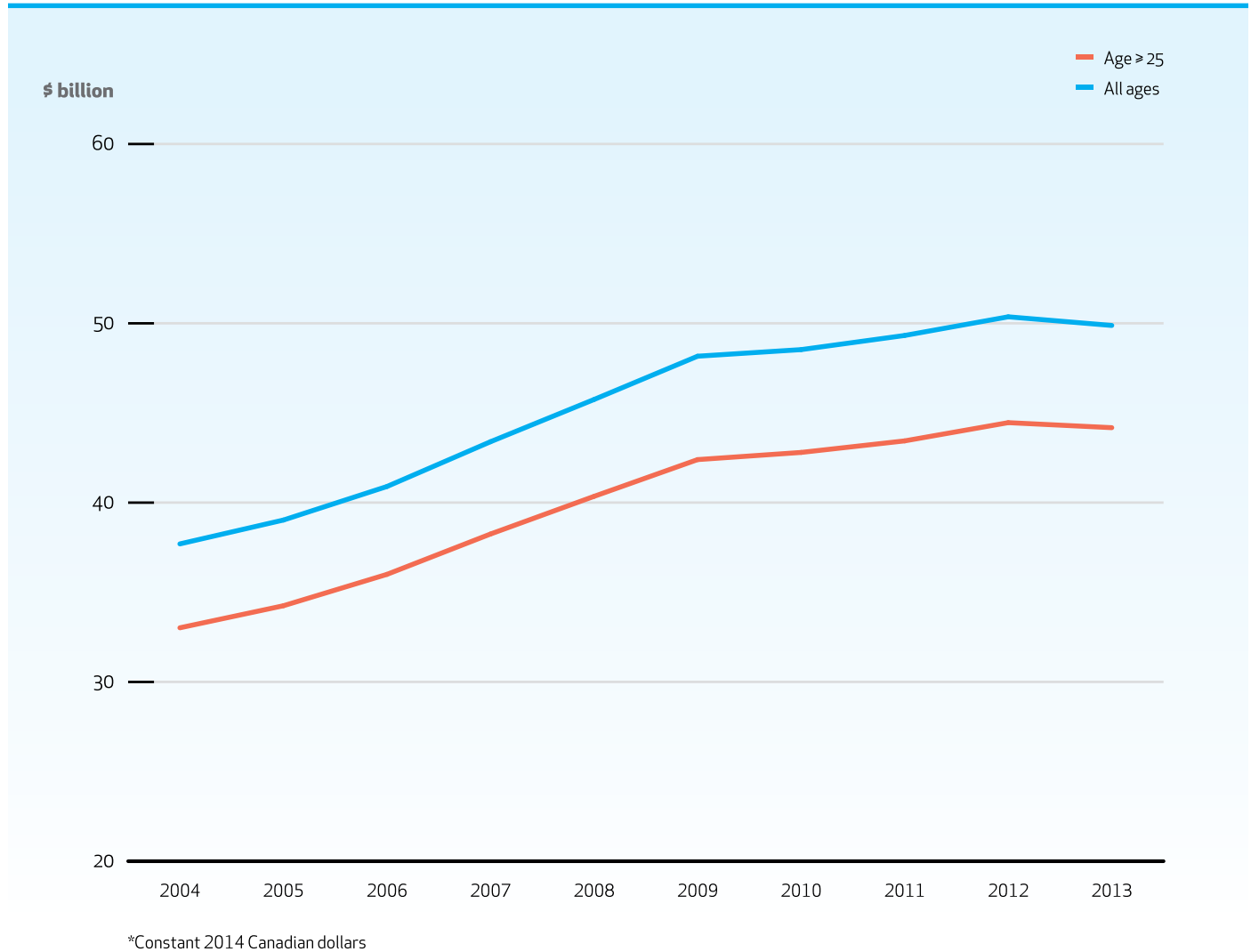
EXHIBIT 5 Burden of health behaviour risk factors on health care costs for Ontarians aged 25 and older, 2004 to 2013*

Key findings

- Overall, $89.4 billion in health care costs from 2004 to 2013 could be attributed to health behaviours.

- Health behaviour–attributable use of health care improved over the 10-year period, declining from 23.3% to 21.4%. This improvement equates to a cumulative reduction in use that is equivalent to $4.9 billion in health care costs.

%

$4.9 billion

$89.4 billion

Health care savings attributable to improving health behaviours

Health care costs attributable to health behaviours

Projection of health behaviour attribution from 2003

Health behaviour attribution over time

*Constant Canadian dollars
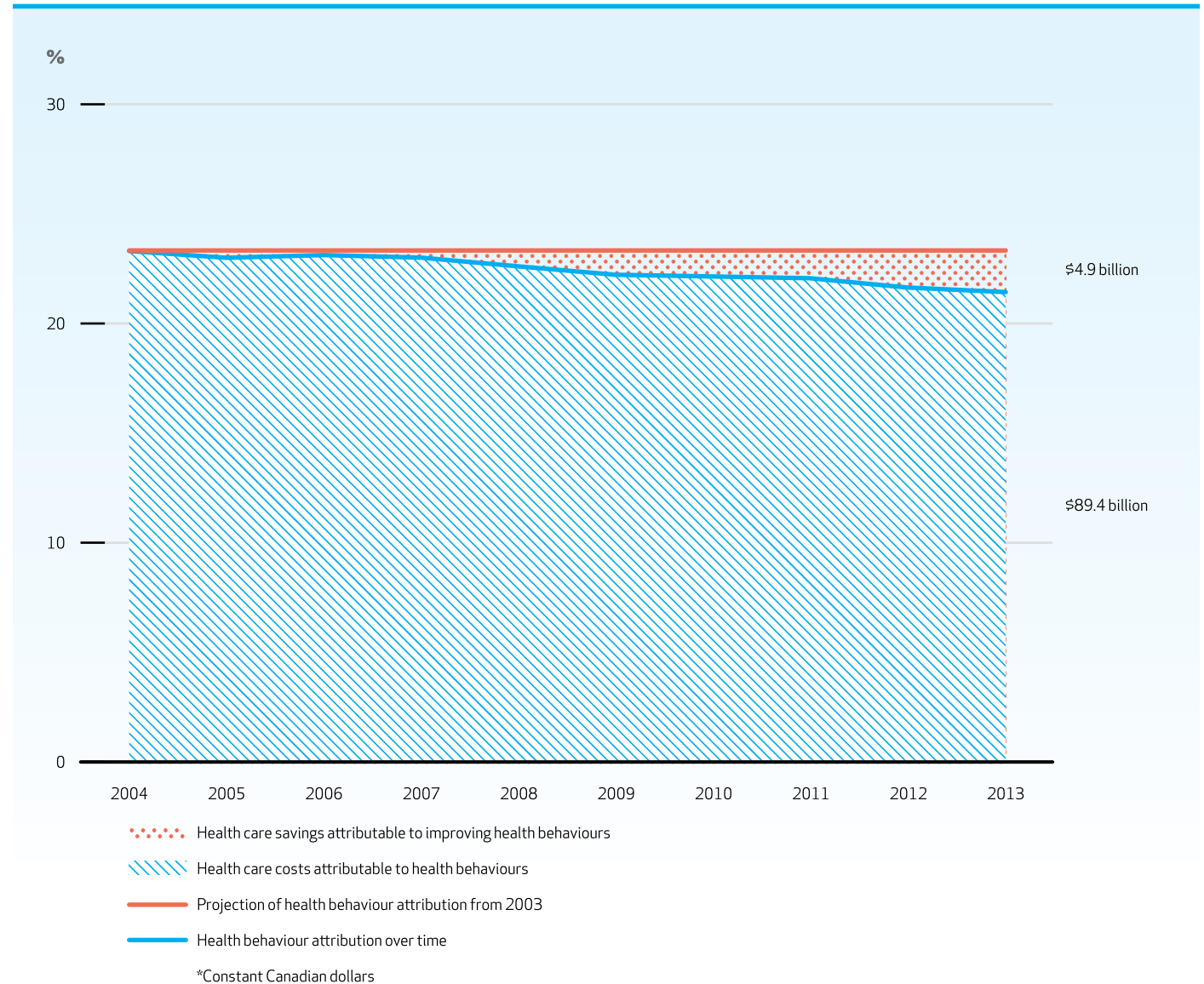
EXHIBIT 6 Health care attributable and avoided costs by health behaviour risk factor for Ontarians aged 25 and older, 2004 to 2013

Key findings

- Physical activity and smoking were the leading health behaviours for attributable health care costs in Ontario between 2004 and 2013.

- The cost savings realized between 2004 and 2013 were primarily achieved through improvement in smoking-attributable costs.

Attributable Costs

Alcohol 1%
Diet 5%
Smoking 41%
$89.4 billion
Physical activity 53%

Avoided Costs

Diet 5%
Physical activity 11%
Smoking 84%
$4.9 billion
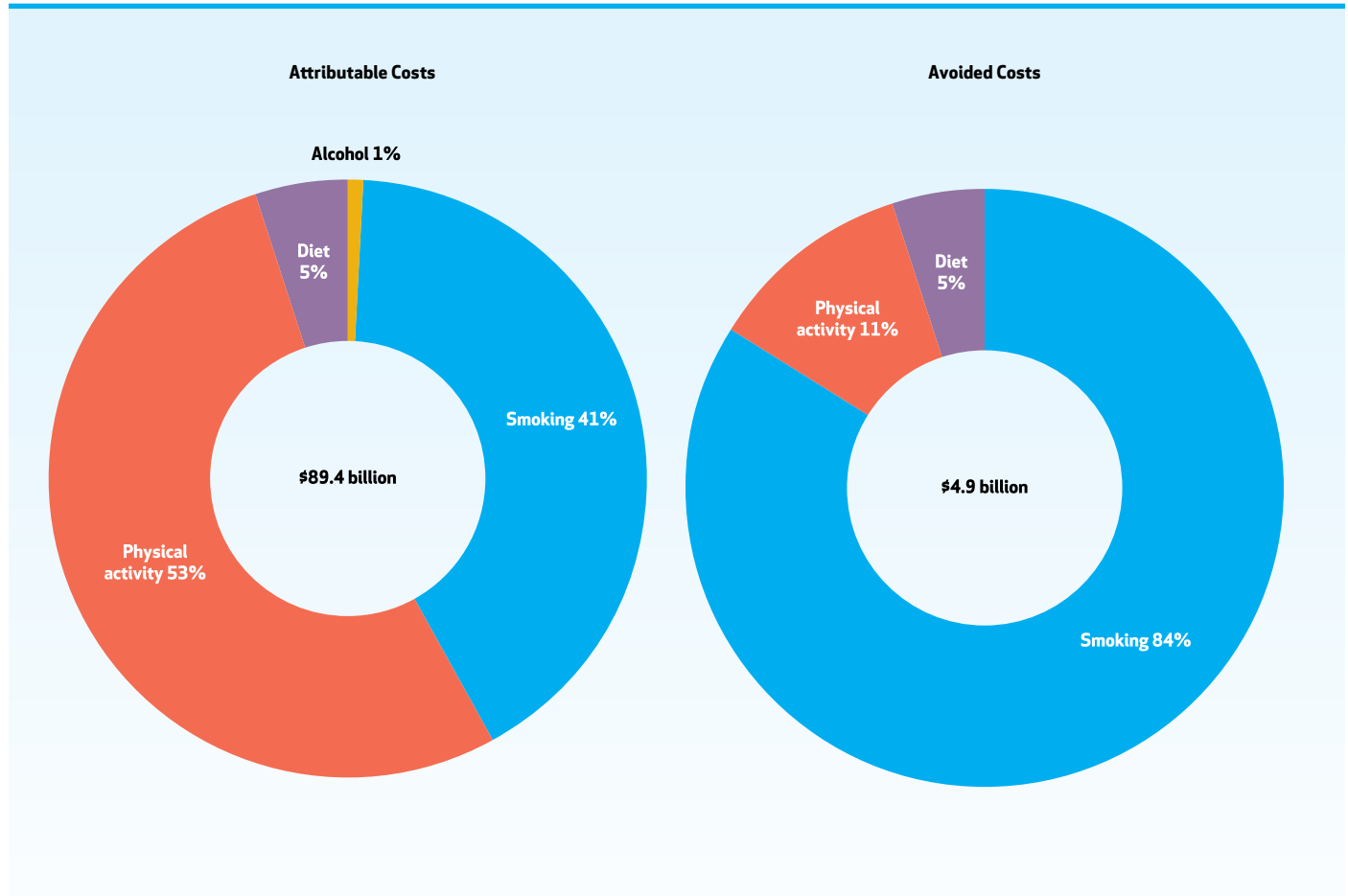
EXHIBIT 7 Health behaviour–attributable health care costs by sector for Ontarians aged 25 and older, 2004 to 2013

Key finding

- Hospital care accounted for almost half of health behaviour–attributable health care costs between 2004 and 2013

Other 21%

Community care 22%

Drugs 11%

$89.4 billion

Hospital care 46%

$4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO
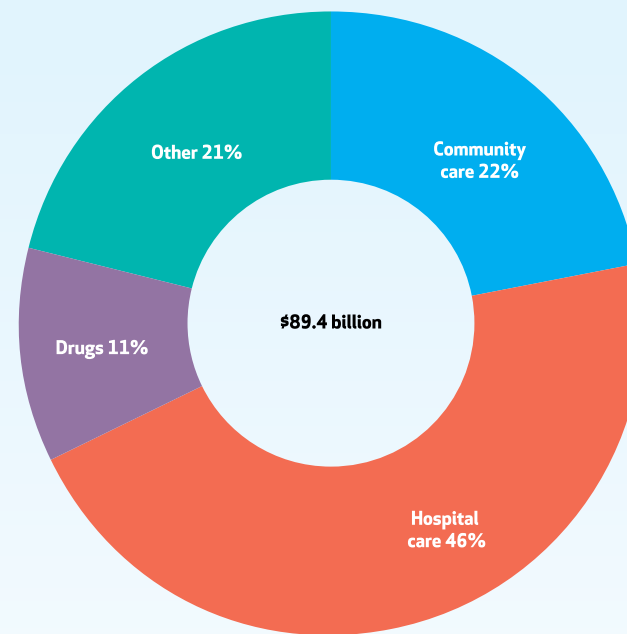
EXHIBITS

EXHIBIT 8 Health behaviour risk factors and socioeconomic position attribution to health care costs for Ontarians aged 25 and older, 2004 to 2013

Key findings

- From 2004 to 2013, $60.7 billion in health care costs were attributed to low socioeconomic position.

- Over the same period, $134 billion in health care costs were attributed to the combined impact of health behaviours and low socioeconomic position.

$ billion

Health behaviour risk factors	Socioeconomic position	Combined health behaviour risk factors and socioeconomic position
$89.4 billion	$60.7 billion	$134 billion
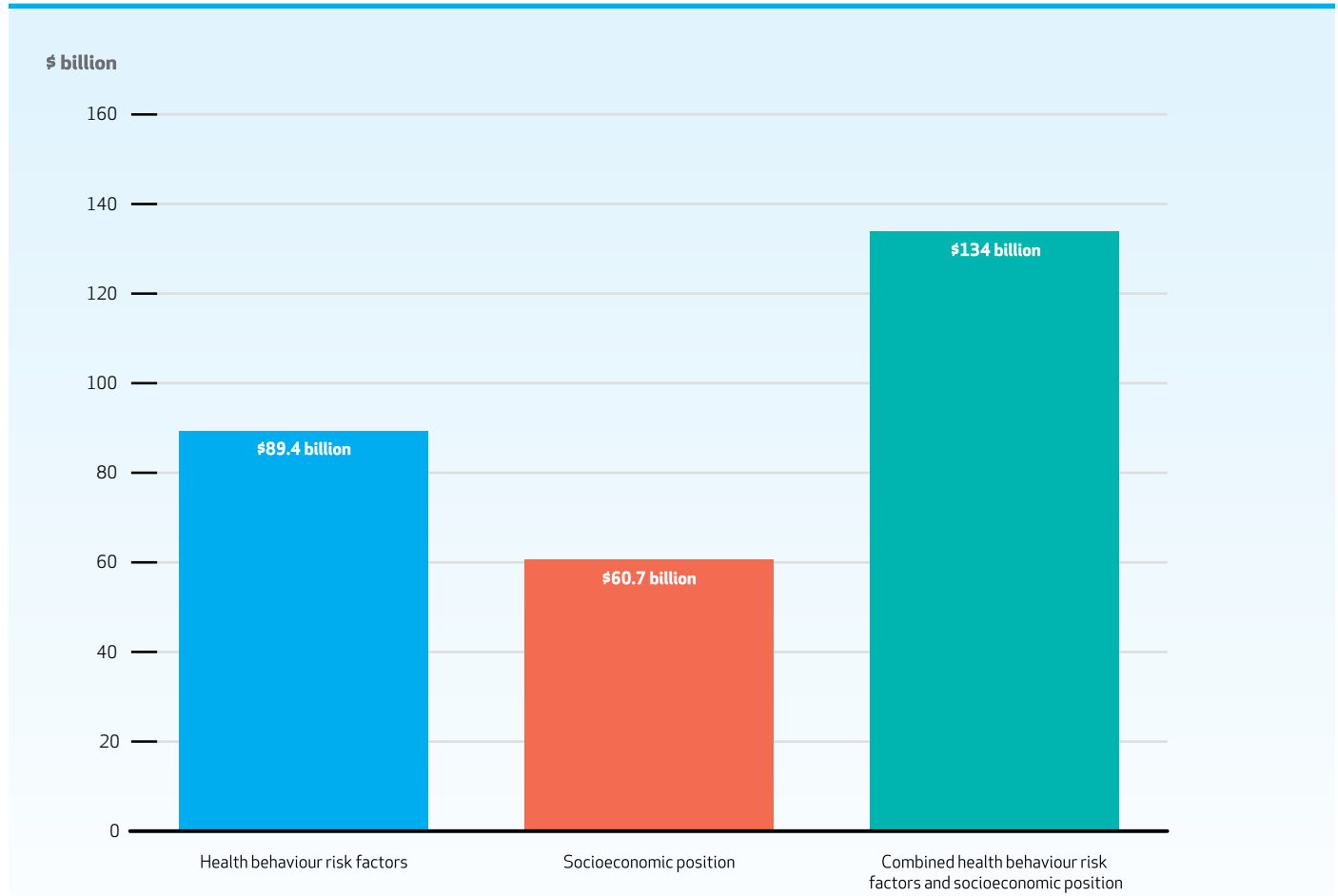
EXHIBIT 9 Socioeconomic position attribution to health care costs for Ontarians aged 25 and older, by sector, 2004 to 2013

Key finding

- Hospital care accounted for more than half of the health care costs attributable to low socioeconomic position.

Other 18%

Community care 19%

Drugs 9%

$60.7 billion

Hospital care 54%
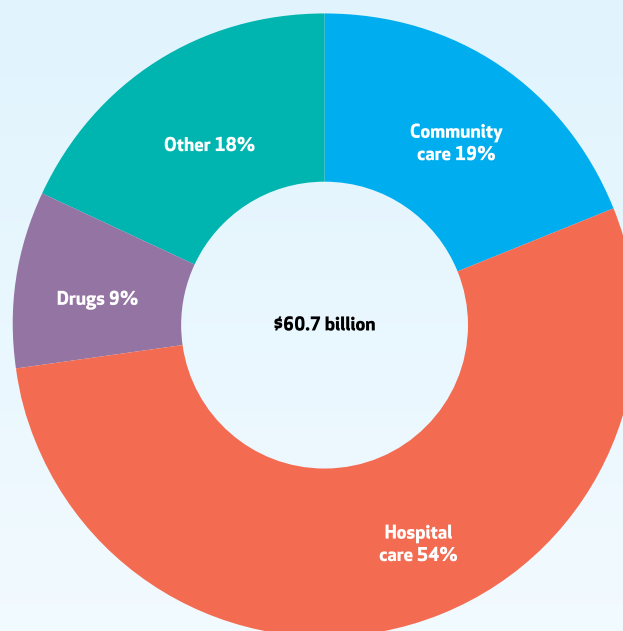
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Appendix

APPENDIX

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

List of Exhibits

EXHIBIT A-25 Inverse propensity-weighted comparison of non-smokers and former light smokers in the female cohort

EXHIBIT A-26 Inverse propensity-weighted comparison of non-smokers and heavy smokers aged 65 and older in the male cohort

EXHIBIT A-27 Inverse propensity-weighted comparison of non-smokers and heavy smokers aged 65 and older in the female cohort

EXHIBIT A-28 Inverse propensity-weighted comparison of non-smokers and light smokers aged 65 and older in the male cohort

EXHIBIT A-29 Inverse propensity-weighted comparison of non-smokers and light smokers aged 65 and older in the female cohort

EXHIBIT A-30 Inverse propensity-weighted comparison of non-smokers and former heavy smokers aged 65 and older in the male cohort

EXHIBIT A-31 Inverse propensity-weighted comparison of non-smokers and former heavy smokers aged 65 and older in the female cohort

EXHIBIT A-32 Inverse propensity-weighted comparison of non-smokers and former light smokers aged 65 and older in the male cohort

EXHIBIT A-33 Inverse propensity-weighted comparison of non-smokers and former light smokers aged 65 and older in the female cohort

EXHIBIT A-34 Health care cost ratios — comparison of multivariable and inverse propensity-weighted models by cohort sex

EXHIBIT A-35 Health care cost ratios — comparison of multivariable and inverse propensity-weighted models by cohort sex, sensitivity analysis

APPENDIX

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

EXHIBIT A-1 Creation of Ontario study cohort

CCHS 2.1 Public file, 2003
n = 42,777

CCHS 3.1 public file, 2005
n = 41,766

CCHS 4.1 public file, 2007–2008
n = 43,958

Agreed to share
n = 40,507 (94.7%)

Agreed to share
n = 39,486 (94.5%)

Agreed to share
n = 41,800 (95.1%)

Linkage: agreed and successful
n = 33,679 (78.7%)

Linkage: agreed and successful
n = 33,402 (80.0%)

Linkage: agreed and successful
n = 34,638 (78.8%)

DATA CLEANING

Combined CCHS cycles
n = 101,506* (79.0%)

Respondents ≥ 25 years
n = 83,235 (82.0%)

Age < 25 years
n = 18,271 (18.0%)

Non-pregnant respondents
n = 82,401 (81.2%)

Pregnant at survey date
n = 834 (0.8%)

Unique respondents
n = 81,950 (80.7%)

Duplicate respondents
n = 451 (0.4%)

OHIP-eligible respondents
n = 81,715 (80.5%)

OHIP-ineligible at survey date
n = 235 (0.2%)

Loss to follow-up prior to study start date
n = 966 (1.0%)

Final cohort
n = 80,749 (79.6%)

*Denominator for the percentages displayed below.
CCHS = Canadian Community Health Survey

EXHIBIT A-2 Stepped approach to model building — consideration of factors leading to health care use and costs

Health behaviour model (Model 1)	Sociodemographic model (Model 2)	Primary attribution model (Model 3)	Distal mediator model (Model 4)	Proximal mediator model (Model 5)
Health Behaviours of Interest	**Basic Sociodemographic and Other Health Behaviour Predictors**	**Additional (Household) Sociodemographic Predictors**	**Health Status Predictors**	**Fragility**
• smoking • physical activity • diet • alcohol	• ethnicity • immigrant status • education • urban dweller • neighbourhood deprivation • stress • flu vaccination	• household income • home ownership • marital status	• body mass index • hypertension • diabetes • heart disease • cancer • history of stroke • dementia	• extent of difficulty in performing basic tasks or participating in activities

EXHIBIT A-3 Baseline description of the study cohort by sex, 2003 to 2007

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Age Group, years						
25–29	7.4	10,668	9.1	7.3	12,642	8.8
30–34	9.0	13,001	10.0	8.5	14,714	9.1
35–39	10.3	14,957	11.5	9.1	15,888	11.5
40–44	11.1	16,183	14.5	8.8	15,326	12.5
45–49	9.0	13,059	11.5	8.1	14,149	11.6
50–54	9.6	13,847	10.2	9.4	16,256	10.2
55–59	10.0	14,420	9.6	10.3	17,760	9.1
60–64	9.0	12,897	7.2	9.0	15,451	7.2
65–69	7.9	11,152	5.6	8.0	13,568	6.2
70–74	6.8	9,408	4.6	7.5	12,650	5.0
75–79	5.3	7,004	3.4	6.5	10,654	4.2
80–84	3.1	3,907	2.0	4.8	7,575	2.8
85–89	1.2	1,356	0.7	2.1	3,257	1.3
≥ 90	0.3	320	0.2	0.7	883	0.4
Health Behaviours						
Smoking status						
Heavy smoker	10.7	15,116	9.2	5.8	9,828	4.8
Light smoker	14.5	20,642	15.4	14.8	25,234	13.8
Former heavy smoker	20.0	27,998	16.0	9.5	16,010	7.7
Former light smoker	17.4	24,531	16.8	18.0	30,678	16.3
Non-smoker	36.5	52,432	41.8	51.0	87,361	56.6
Missing	1.1	1,460	0.9	1.0	1,661	0.8
Alcohol consumption						
Heavy drinker	12.3	17,695	10.9	3.4	5,762	3.3
Moderate drinker	70.7	100,787	71.8	72.2	124,162	70.0
Non-drinker	15.1	20,940	15.3	23.3	38,974	25.6
Missing	2.0	2,758	2.0	1.1	1,876	1.1
Physical activity						
Inactive	46.5	65,794	47.8	52.8	89,455	54.3
Moderately active	25.2	36,032	24.3	25.6	44,103	24.5
Active	26.1	37,473	25.1	20.8	35,913	19.7
Missing	2.2	2,880	2.8	0.9	1,302	1.5

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EXHIBIT A-3 *continued*

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Diet						
Poor diet	15.0	21,400	14.2	8.6	14,632	8.3
Fair diet	41.7	59,340	40.3	30.0	50,933	29.2
Adequate diet	38.6	55,167	40.7	58.2	99,981	59.0
Missing	4.7	6,272	4.8	3.3	5,227	3.6
Sociodemographic Indicators						
Immigrant status						
Immigrant	21.8	30,837	33.5	21.5	36,779	33.9
Non-immigrant	78.1	111,177	66.2	78.3	133,765	65.8
Missing	0.1	165	0.3	0.1	228	0.4
Ethnicity						
White	88.9	126,274	78.9	89.7	152,990	79.3
Non-white	10.7	15,357	20.5	10.0	17,183	20.1
Missing	0.4	548	0.6	0.4	600	0.5
Marital status						
Married or common-law	67.8	96,810	76.8	57.7	99,508	68.8
Other	32.2	45,306	23.2	42.3	71,197	31.2
Missing	0.0	64	0.0	0.0	68	0.0
Household type						
Unattached individual	24.1	33,780	11.2	31.0	52,031	14.5
Living with spouse or partner	37.8	53,425	29.4	31.7	54,391	26.6
Living with spouse or partner and children	25.2	2,340	39.3	21.8	10,914	34.7
Single parent living with children	1.7	36,547	1.7	6.4	37,853	7.3
Other	11.0	15,798	18.1	8.7	14,851	16.3
Missing	0.2	289	0.3	0.4	733	0.7
Residence owned by a household member						
Yes	79.3	113,229	79.9	75.9	130,283	77.8
No	20.5	28,730	19.7	23.9	40,246	21.9
Missing	0.2	221	0.3	0.1	244	0.3
Highest level of personal education						
Less than high school completion	18.9	25,984	14.8	20.2	33,702	16.5
High school graduate	22.7	32,530	22.2	25.0	42,730	24.9
Post-secondary graduate	57.5	82,404	61.8	54.1	93,212	57.7
Missing	0.9	1,262	1.2	0.7	1,129	0.9

EXHIBIT A-3 *continued*

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Highest level of education in household						
Less than high school graduate	10.8	14,697	6.4	14.1	23,464	8.4
High school graduate	17.7	25,210	15.3	18.4	31,264	16.0
Post-secondary graduate	67.4	96,507	72.7	64.6	111,163	71.0
Missing	4.1	5,765	5.6	2.9	4,881	4.7
Main source of household income						
Employment insurance, worker's compensation, welfare	3.1	4,399	2.2	3.4	5,741	2.6
Senior benefits	25.1	34,196	15.5	31.0	51,654	19.8
Wages and salaries⁺	65.7	95,103	76.6	57.5	99,747	70.0
Other	3.9	5,361	3.0	4.8	8,130	3.8
Missing	2.3	3,120	2.7	3.3	5,501	3.9
Household income, $						
≤ 29,999	16.6	22,903	11.0	25.9	43,299	16.4
30,000–79,999	45.5	64,687	40.1	41.6	71,561	39.3
≥ 80,000	32.2	46,643	40.3	23.5	40,774	31.0
Missing	5.7	7,946	8.6	9.0	15,140	13.3
Labour force participation						
Typically works < 5 hours/week	22.5	31,696	17.3	32.9	56,279	30.3
Permanently unable to work	3.7	5,023	2.6	3.6	6,073	3.1
Typically works ≥ 5 hours/week	64.6	93,719	73.9	50.4	87,561	58.2
Not applicable (age > 75 years)	8.7	10,908	5.5	12.7	20,077	7.8
Missing	0.6	835	0.8	0.5	784	0.7
Use of Preventive Health Care						
Flu vaccination						
Yes	61.6	87,077	58.0	68.6	116,714	63.4
No	36.0	51,907	38.9	30.5	52,701	35.0
Missing	2.5	3,195	3.1	0.9	1,358	1.5
Mammogram						
Yes				61.0	103,860	54.6
No				22.3	38,130	25.9
Not applicable (age < 35 years)				15.8	27,355	18.0
Missing				1.0	1,428	1.6

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EXHIBIT A-3 *continued*

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Pap test						
Yes				92.7	158,807	90.0
No				6.1	10,148	8.0
Missing				1.2	1,818	2.0
Geographic Indicators						
Urban dweller						
Yes	77.7	110,471	85.1	79.0	134,684	85.7
No	22.3	31,709	14.9	21.0	36,089	14.3
Neighbourhood deprivation						
High	15.1	21,394	11.8	16.3	27,519	12.6
Moderate	62.3	88,446	60.8	62.3	106,413	61.2
Low	20.6	29,532	25.3	19.3	33,198	24.2
Missing	2.0	2,807	2.1	2.2	3,643	2.0
Local Health Integration Network						
Erie St. Clair	7.0	9,892	5.1	7.1	12,015	5.1
South West	12.6	17,875	7.4	12.5	21,533	7.4
Waterloo Wellington	5.9	8,420	5.5	5.9	10,049	5.3
Hamilton Niagara Haldimand Brant	12.6	17,970	11.0	12.6	21,373	11.0
Central West	3.4	4,860	6.2	3.2	5,427	6.1
Mississauga Halton	4.9	6,934	8.5	4.6	7,851	8.6
Toronto Central	3.8	5,452	9.4	3.7	6,428	9.2
Central	5.7	8,221	12.4	5.5	9,553	12.2
Central East	9.6	13,647	11.6	9.8	16,701	12.2
South East	6.2	8,750	3.9	6.6	11,144	3.9
Champlain	9.2	12,986	9.3	9.6	16,418	9.4
North Simcoe Muskoka	4.5	6,388	3.4	4.3	7,471	3.4
North East	10.2	14,506	4.6	10.3	17,624	4.6
North West	4.4	6,239	1.8	4.2	7,158	1.7
Missing	0.0	40	0.0	0.0	28	0.0
General Indicators of Health						
Self-perceived health						
Poor	4.1	5,180	3.2	4.2	6,699	3.8
Fair	10.9	14,979	8.6	11.8	19,566	10.3

EXHIBIT A-3 *continued*

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Good	30.2	42,962	30.1	28.9	49,425	29.2
Very good	36.0	51,778	37.1	35.6	61,486	35.7
Excellent	18.8	27,176	21.0	19.3	33,468	20.8
Missing	0.1	105	0.1	0.1	129	0.1
Self-perceived stress						
Quite a bit or extremely stressful	20.2	28,881	23.0	21.5	36,892	24.4
At most, a bit stressful	79.5	112,917	76.7	78.2	133,339	75.4
Missing	0.3	382	0.3	0.3	542	0.3
Sense of belonging to the community						
Very weak	18.8	26,602	16.9	20.5	35,036	17.5
Neither very strong nor very weak	69.5	99,450	70.2	69.2	118,608	69.4
Very strong	8.6	12,021	9.2	8.4	14,249	10.6
Missing	3.1	4,106	3.8	1.8	2,880	2.6
Body mass index						
Underweight	0.7	926	0.8	2.7	4,428	3.2
Normal	43.5	62,221	43.3	29.9	51,187	28.3
Overweight	15.6	22,224	13.9	12.5	21,474	10.9
Obese	4.8	6,884	4.0	6.3	10,740	5.3
Morbidly obese	34.2	48,428	36.5	45.5	77,566	48.5
Missing	1.2	1,497	1.5	3.2	5,378	3.9
Indicators of Illness						
Hypertension						
Yes	22.7	31,629	18.9	25.7	43,146	20.5
No	77.0	110,133	80.8	74.2	127,408	79.4
Missing	0.3	417	0.3	0.1	218	0.1
Diabetes						
Yes	8.7	11,757	7.2	7.5	12,319	6.2
No	91.3	130,305	92.7	92.5	158,364	93.8
Missing	0.1	118	0.1	0.1	90	0.0
Heart disease						
Yes	9.4	12,559	6.8	7.9	12,819	5.5
No	90.4	129,348	93.0	91.9	157,654	94.3
Missing	0.2	272	0.1	0.2	299	0.2

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EXHIBIT A-3 *continued*

	Male Cohort			Female Cohort		
	Survey sample,* % (n=36,807)	Person-years	Represented population,‡ % (N=3,962,088)	Survey sample,* % (n=43,942)	Person-years	Represented population,‡ % (N=4,131,570)
Cancer						
Yes	2.9	3,754	2.1	2.6	4,199	2.0
No	97.0	138,284	97.9	97.3	166,374	97.9
Missing	0.1	141	0.1	0.1	200	0.1
Stroke						
Yes	2.0	2,552	1.4	1.8	2,796	1.4
No	98.0	139,540	98.6	98.1	167,826	98.6
Missing	0.1	88	0.1	0.1	151	0.0
Dementia						
Yes	0.6	645	0.5	0.4	629	0.5
No	99.4	141,440	99.5	99.5	170,034	99.4
Missing	0.1	94	0.1	0.1	109	0.1
Fragility						
Needs help with basic tasks	6.6	8,570	5.4	13.6	22,096	11.4
Limited due to health condition	21.7	30,749	18.8	20.3	34,852	17.8
No limitations	71.4	102,527	75.5	65.8	113,449	70.6
Missing	0.3	334	0.3	0.2	376	0.2

*Data source: Canadian Community Health Survey (CCHS) 2.1, 3.1 and 4.1 (2003, 2005 and 2007–2008).

‡Population estimated using the CCHS sampling weights.

†Includes self-employment.

EXHIBIT A-4 Age-adjusted total health care cost ratios for Ontario men in a four-year period from 2004 to 2013*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	428,000,000	3,010	2,260		
Health Behaviours					
Smoking status					
Heavy smoker	41,500,000	2,740	2,930	1.93 (1.88, 1.98)	1.64 (1.59, 1.69)
Light smoker	46,200,000	2,240	2,760	1.64 (1.59, 1.69)	1.25 (1.20, 1.30)
Former heavy smoker	130,000,000	4,640	2,460	1.40 (1.35, 1.45)	1.33 (1.29, 1.37)
Former light smoker	86,900,000	3,540	2,070	1.24 (1.19, 1.29)	1.17 (1.13, 1.21)
Non-smoker	114,000,000	2,170	1,890	Reference	Reference
Missing	9,800,000	6,710	2,920	2.03 (1.88, 2.18)	1.28 (1.13, 1.43)
Alcohol consumption					
Heavy drinker	39,200,000	2,220	2,500	1.34 (1.29, 1.39)	1.16 (1.11, 1.21)
Moderate drinker	275,000,000	2,730	2,070	Reference	Reference
Non-drinker	102,000,000	4,870	2,960	1.68 (1.64, 1.72)	1.36 (1.32, 1.40)
Missing	11,600,000	4,210	2,330	1.36 (1.25, 1.47)	0.92 (0.81, 1.03)
Physical activity					
Inactive	223,000,000	3,390	2,510	1.33 (1.29, 1.37)	1.13 (1.09, 1.17)
Moderately active	95,400,000	2,650	2,030	1.11 (1.07, 1.15)	1.02 (0.98, 1.06)
Active	84,600,000	2,260	1,840	Reference	Reference
Missing	24,600,000	8,540	3,900	2.11 (2.00, 2.22)	1.74 (1.63, 1.85)
Diet					
Poor diet	61,500,000	2,870	2,700	1.40 (1.35, 1.45)	1.22 (1.17, 1.27)
Fair diet	168,000,000	2,830	2,240	1.13 (1.09, 1.17)	1.04 (1.01, 1.07)
Adequate diet	160,000,000	2,900	2,030	Reference	Reference
Missing	38,600,000	6,160	3,000	1.50 (1.42, 1.58)	1.31 (1.23, 1.39)
Sociodemographic Indicators					
Immigrant status					
Immigrant	105,000,000	3,420	2,040	0.82 (0.78, 0.86)	0.91 (0.87, 0.95)
Non-immigrant	322,000,000	2,900	2,320	Reference	Reference
Missing	596,000	3,620	1,570	0.62 (0.17, 1.07)	0.60 (0.16, 1.04)
Ethnicity					
White	396,000,000	3,140	2,260	Reference	Reference
Non-white	29,000,000	1,890	2,060	1.07 (1.02, 1.12)	0.94 (0.89, 0.99)
Missing	2,590,000	4,730	2,640	1.27 (1.02, 1.52)	0.99 (0.75, 1.23)
Marital status					
Married or common-law	282,000,000	2,910	2,110	Reference	Reference
Other	146,000,000	3,230	2,610	1.42 (1.39, 1.45)	1.22 (1.19, 1.25)
Missing	88,100	1,380	1,110	0.72 (-0.03, 1.47)	0.91 (0.22, 1.60)

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EXHIBIT A-4 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	129,000,000	3,830	2,610	1.48 (1.43, 1.53)	1.19 (1.15, 1.23)
Living with spouse or partner	217,000,000	4,060	2,120	1.10 (1.05, 1.15)	1.04 (1.00, 1.08)
Living with spouse or partner and children	45,100,000	1,230	2,000	Reference	Reference
Single parent living with children	7,180,000	3,070	2,770	1.47 (1.35, 1.59)	1.30 (1.18, 1.42)
Other	29,000,000	1,840	2,380	1.50 (1.44, 1.56)	1.28 (1.23, 1.33)
Missing	274,000	948	861	0.57 (0.22, 0.92)	0.75 (0.43, 1.07)
Residence owned by a household member					
Yes	332,000,000	2,930	2,100	Reference	Reference
No	95,300,000	3,320	3,000	1.74 (1.70, 1.78)	1.38 (1.34, 1.42)
Missing	874,000	3,960	1,870	0.93 (0.54, 1.32)	0.97 (0.59, 1.35)
Highest level of personal education					
Less than high school completion	139,000,000	5,360	2,820	1.52 (1.48, 1.56)	1.32 (1.28, 1.36)
High school graduate	83,400,000	2,560	2,210	1.13 (1.09, 1.17)	1.09 (1.05, 1.13)
Post-secondary graduate	200,000,000	2,430	2,090	Reference	Reference
Missing	5,400,000	4,280	2,380	1.36 (1.19, 1.53)	0.95 (0.79, 1.11)
Highest level of education in household					
Less than high school completion	90,100,000	6,130	2,990	1.55 (1.50, 1.60)	1.33 (1.28, 1.38)
High school graduate	78,600,000	3,120	2,360	1.30 (1.26, 1.34)	1.18 (1.14, 1.22)
Post-secondary graduate	240,000,000	2,490	2,120	Reference	Reference
Missing	19,100,000	3,310	2,490	1.15 (1.07, 1.23)	1.09 (1.01, 1.17)
Main source of household income					
Employment insurance, worker's compensation, welfare	19,200,000	4,370	4,440	3.40 (3.31, 3.49)	2.51 (2.42, 2.60)
Senior benefits	234,000,000	6,860	3,290	1.57 (1.52, 1.62)	1.25 (1.20, 1.30)
Wages and salaries+	131,000,000	1,370	1,970	Reference	Reference
Other	27,500,000	5,140	2,670	1.56 (1.48, 1.64)	1.46 (1.38, 1.54)
Missing	15,900,000	5,090	2,190	1.55 (1.44, 1.66)	1.44 (1.33, 1.55)
Household income, $					
≤ 29,999	127,000,000	5,530	3,160	2.14 (2.09, 2.19)	1.57 (1.52, 1.62)
30,000–79,999	197,000,000	3,050	2,200	1.37 (1.33, 1.41)	1.17 (1.14, 1.20)
≥ 80,000	69,800,000	1,500	1,790	Reference	Reference
Missing	34,200,000	4,300	2,340	1.66 (1.59, 1.73)	1.50 (1.43, 1.57)
Labour force participation					
Typically works < 5 hours/week	151,000,000	4,760	2,410	1.77 (1.72, 1.82)	1.44 (1.39, 1.49)
Permanently unable to work	35,800,000	7,130	4,990	4.39 (4.31, 4.47)	3.04 (2.96, 3.12)

EXHIBIT A-4 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Typically works ≥ 5 hours/week	122,000,000	1,300	1,480	Reference	Reference
Not applicable (age > 75 years)	117,000,000	10,700	587	2.24 (2.08, 2.40)	1.45 (1.29, 1.61)
Missing	1,890,000	2,260	1,530	1.82 (1.62, 2.02)	2.46 (2.27, 2.65)
Use of Preventive Health Care					
Flu vaccination					
Yes	324,000,000	3,720	2,380	Reference	Reference
No	79,400,000	1,530	1,840	0.73 (0.70, 0.76)	0.75 (0.72, 0.78)
Missing	24,500,000	7,670	3,600	1.50 (1.40, 1.60)	1.40 (1.30, 1.50)
Geographic Indicators					
Urban dweller					
Yes	331,000,000	2,990	2,280	Reference	Reference
No	97,200,000	3,060	2,160	0.97 (0.93, 1.01)	0.97 (0.93, 1.01)
Neighbourhood deprivation					
High	73,400,000	3,430	2,670	1.52 (1.47, 1.57)	1.25 (1.20, 1.30)
Moderate	269,000,000	3,040	2,260	1.24 (1.20, 1.28)	1.13 (1.09, 1.17)
Low	76,000,000	2,570	1,950	Reference	Reference
Missing	9,210,000	3,280	2,320	1.30 (1.18, 1.42)	1.09 (0.98, 1.20)
Local Health Integration Network					
Erie St. Clair	31,000,000	3,130	2,410	1.10 (1.00, 1.20)	1.02 (0.93, 1.11)
South West	55,200,000	3,090	2,200	0.98 (0.89, 1.07)	0.89 (0.80, 0.98)
Waterloo Wellington	20,700,000	2,460	1,930	0.80 (0.70, 0.90)	0.82 (0.72, 0.92)
Hamilton Niagara Haldimand Brant	54,000,000	3,010	2,170	1.07 (0.98, 1.16)	0.92 (0.83, 1.01)
Central West	11,800,000	2,430	2,360	1.05 (0.93, 1.17)	1.12 (1.01, 1.23)
Mississauga Halton	16,600,000	2,400	2,010	0.88 (0.77, 0.99)	0.84 (0.74, 0.94)
Toronto Central	12,000,000	2,200	2,070	Reference	Reference
Central	23,300,000	2,830	2,310	1.12 (1.02, 1.22)	0.83 (0.73, 0.93)
Central East	44,300,000	3,250	2,370	1.11 (1.02, 1.20)	1.05 (0.96, 1.14)
South East	29,100,000	3,320	2,300	1.08 (0.98, 1.18)	1.02 (0.92, 1.12)
Champlain	40,500,000	3,120	2,340	1.12 (1.02, 1.22)	0.99 (0.90, 1.08)
North Simcoe Muskoka	18,100,000	2,830	2,030	0.89 (0.78, 1.00)	0.88 (0.78, 0.98)
North East	51,200,000	3,530	2,580	1.26 (1.17, 1.35)	0.96 (0.87, 1.05)
North West	20,100,000	3,220	2,390	1.11 (1.00, 1.22)	0.91 (0.81, 1.01)
Missing	38,500	962	466	0.39 (-0.56, 1.34)	0.52 (-0.35, 1.39)
General Indicators of Health					
Self-perceived health					
Poor	54,800,000	10,600	6,360	6.01 (5.93, 6.09)	5.40 (5.31, 5.49)

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APPENDIX

EXHIBIT A-4 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Fair	95,000,000	6,340	3,670	2.85 (2.79, 2.91)	2.38 (2.32, 2.44)
Good	138,000,000	3,210	2,330	1.69 (1.64, 1.74)	1.62 (1.58, 1.66)
Very good	100,000,000	1,930	1,640	1.06 (1.02, 1.10)	1.22 (1.18, 1.26)
Excellent	39,100,000	1,440	1,360	Reference	Reference
Missing	958,000	9,120	2,470	4.22 (3.68, 4.76)	1.43 (0.88, 1.98)
Self-perceived stress					
Quite a bit or extremely stressful	76,100,000	2,640	3,050	1.35 (1.31, 1.39)	1.29 (1.25, 1.33)
At most, a bit stressful	350,000,000	3,100	2,140	Reference	Reference
Missing	2,090,000	5,470	2,250	1.08 (0.79, 1.37)	1.13 (0.85, 1.41)
Sense of belonging to the community					
Very weak	100,000,000	3,770	2,250	0.77 (0.71, 0.83)	0.81 (0.75, 0.87)
Neither very strong nor very weak	258,000,000	2,590	2,140	0.75 (0.69, 0.81)	0.79 (0.74, 0.84)
Very strong	40,000,000	3,330	2,790	Reference	Reference
Missing	29,500,000	7,180	3,290	1.15 (1.05, 1.25)	1.13 (1.03, 1.23)
Body mass index					
Underweight	4,550,000	4,910	3,640	2.21 (2.02, 2.40)	1.96 (1.78, 2.14)
Normal	139,000,000	2,870	2,100	Reference	Reference
Overweight	175,000,000	2,810	2,080	0.87 (0.83, 0.91)	0.95 (0.92, 0.98)
Obese	70,600,000	3,180	2,530	1.11 (1.06, 1.16)	1.17 (1.12, 1.22)
Morbidly obese	26,900,000	3,900	3,880	1.74 (1.66, 1.82)	1.47 (1.40, 1.54)
Missing	11,800,000	7,870	4,040	1.85 (1.70, 2.00)	1.63 (1.48, 1.78)
Indicators of Illness					
Hypertension					
Yes	178,000,000	5,620	3,050	1.48 (1.44, 1.52)	1.33 (1.29, 1.37)
No	249,000,000	2,260	2,010	Reference	Reference
Missing	1,440,000	3,440	2,360	1.31 (1.03, 1.59)	0.86 (0.59, 1.13)
Diabetes					
Yes	92,200,000	7,840	4,560	2.26 (2.20, 2.32)	1.91 (1.85, 1.97)
No	335,000,000	2,570	2,050	Reference	Reference
Missing	338,000	2,880	2,100	0.87 (0.33, 1.41)	1.09 (0.57, 1.61)
Heart disease					
Yes	106,000,000	8,420	4,330	2.00 (1.94, 2.06)	1.72 (1.66, 1.78)
No	320,000,000	2,480	2,060	Reference	Reference
Missing	1,830,000	6,730	2,510	1.34 (0.99, 1.69)	1.43 (1.09, 1.77)
Cancer					
Yes	34,200,000	9,120	4,710	2.27 (2.18, 2.36)	2.32 (2.23, 2.41)

EXHIBIT A-4 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
No	393,000,000	2,840	2,190	Reference	Reference
Missing	899,000	6,360	3,600	2.46 (1.98, 2.94)	0.71 (0.23, 1.19)
Stroke					
Yes	27,400,000	10,800	5,290	2.00 (1.89, 2.11)	1.53 (1.41, 1.65)
No	400,000,000	2,860	2,200	Reference	Reference
Missing	711,000	8,090	9,670	2.97 (2.36, 3.58)	1.26 (0.67, 1.85)
Dementia					
Yes	9,440,000	14,600	7,000	2.57 (2.36, 2.78)	1.89 (1.67, 2.11)
No	418,000,000	2,950	2,230	Reference	Reference
Missing	587,000	6,250	2,720	1.44 (0.87, 2.01)	1.93 (1.37, 2.49)
Fragility					
Needs help with basic tasks	83,600,000	9,760	5,470	3.84 (3.78, 3.09)	3.28 (3.22, 3.34)
Limited due to health condition	123,000,000	4,010	2,780	1.78 (1.74, 1.82)	1.66 (1.62, 1.70)
No limitations	219,000,000	2,140	1,760	Reference	Reference
Missing	2,110,000	6,310	3,320	2.04 (1.73, 2.35)	1.41 (1.11, 1.71)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

*Includes self-employment.

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

APPENDIX

EXHIBIT A-5 Age-adjusted total health care cost ratios for Ontario women in a four-year period from 2004 to 2013*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	573,000,000	3,360	2,750		
Health Behaviours					
Smoking status					
Heavy smoker	33,400,000	3,400	3,910	1.63 (1.58, 1.68)	1.49 (1.44, 1.54)
Light smoker	68,500,000	2,710	3,170	1.25 (1.21, 1.29)	1.14 (1.11, 1.17)
Former heavy smoker	72,900,000	4,550	3,340	1.44 (1.40, 1.48)	1.30 (1.26, 1.34)
Former light smoker	106,000,000	3,460	2,710	1.09 (1.06, 1.12)	1.09 (1.06, 1.12)
Non-smoker	284,000,000	3,250	2,480	Reference	Reference
Missing	8,750,000	5,270	2,620	0.93 (0.81, 1.05)	0.99 (0.87, 1.11)
Alcohol consumption					
Heavy drinker	11,700,000	2,030	2,480	0.99 (0.92, 1.06)	1.10 (1.04, 1.16)
Moderate drinker	348,000,000	2,810	2,520	Reference	Reference
Non-drinker	208,000,000	5,330	3,430	1.44 (1.41, 1.47)	1.32 (1.29, 1.35)
Missing	5,820,000	3,100	2,200	0.89 (0.77, 1.01)	1.07 (0.96, 1.18)
Physical activity					
Inactive	367,000,000	4,100	3,050	1.43 (1.40, 1.46)	1.28 (1.25, 1.31)
Moderately active	115,000,000	2,600	2,350	1.16 (1.12, 1.20)	1.09 (1.06, 1.12)
Active	77,000,000	2,140	2,160	Reference	Reference
Missing	15,100,000	11,600	4,140	2.70 (2.57, 2.83)	2.41 (2.27, 2.55)
Diet					
Poor diet	54,400,000	3,720	3,340	1.34 (1.29, 1.39)	1.25 (1.21, 1.29)
Fair diet	184,000,000	3,620	2,920	1.13 (1.10, 1.16)	1.06 (1.03, 1.09)
Adequate diet	298,000,000	2,980	2,520	Reference	Reference
Missing	37,100,000	7,090	3,710	1.53 (1.46, 1.60)	1.41 (1.34, 1.48)
Sociodemographic Indicators					
Immigrant status					
Immigrant	131,000,000	3,570	2,580	0.87 (0.84, 0.90)	0.95 (0.92, 0.98)
Non-immigrant	441,000,000	3,300	2,790	Reference	Reference
Missing	1,140,000	5,000	3,320	1.03 (0.70, 1.36)	1.15 (0.83, 1.47)
Ethnicity					
White	533,000,000	3,480	2,750	Reference	Reference
Non-white	38,400,000	2,240	2,750	0.99 (0.95, 1.03)	1.01 (0.97, 1.05)
Missing	2,170,000	3,610	2,850	0.90 (0.69, 1.11)	1.04 (0.84, 1.24)
Marital status					
Married or common-law	242,000,000	2,430	2,610	Reference	Reference
Other	331,000,000	4,650	3,000	1.22 (1.19, 1.25)	1.10 (1.08, 1.12)
Missing	116,000	1,710	884	0.47 (-0.16, 1.10)	0.62 (0.04, 1.20)

EXHIBIT A-5 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	279,000,000	5,360	2,980	1.41 (1.37, 1.45)	1.23 (1.19, 1.27)
Living with spouse or partner	173,000,000	3,180	2,740	1.20 (1.16, 1.24)	1.21 (1.17, 1.25)
Living with spouse or partner and children	50,500,000	1,330	3,270	Reference	Reference
Single parent living with children	29,800,000	2,730	3,000	1.42 (1.36, 1.48)	1.31 (1.26, 1.36)
Other	40,300,000	2,710	3,130	1.34 (1.29, 1.39)	1.21 (1.16, 1.26)
Missing	1,140,000	1,550	2,610	1.07 (0.88, 1.26)	1.09 (0.91, 1.27)
Residence owned by a household member					
Yes	396,000,000	3,040	2,570	Reference	Reference
No	177,000,000	4,410	3,450	1.41 (1.38, 1.44)	1.22 (1.19, 1.25)
Missing	498,000	2,040	1,700	1.76 (1.43, 2.09)	2.64 (2.34, 2.94)
Highest level of personal education					
Less than high school completion	204,000,000	6,050	3,250	1.24 (1.21, 1.27)	1.17 (1.14, 1.20)
High school graduate	134,000,000	3,130	2,560	1.00 (0.97, 1.03)	0.95 (0.92, 0.98)
Post-secondary graduate	230,000,000	2,470	2,590	Reference	Reference
Missing	5,730,000	5,080	3,180	1.25 (1.10, 1.40)	1.12 (0.97, 1.27)
Highest level of education in household					
Less than high school completion	157,000,000	6,690	3,410	1.25 (1.21, 1.29)	1.15 (1.11, 1.19)
High school graduate	114,000,000	3,630	2,700	1.05 (1.02, 1.08)	0.94 (0.91, 0.97)
Post-secondary graduate	286,000,000	2,580	2,610	Reference	Reference
Missing	16,400,000	3,370	2,780	1.07 (1.00, 1.14)	1.02 (0.95, 1.09)
Main source of household income					
Employment insurance, worker's compensation, welfare	22,700,000	3,960	4,560	2.34 (2.27, 2.41)	1.80 (1.73, 1.87)
Senior benefits	327,000,000	6,330	3,020	1.34 (1.30, 1.38)	1.17 (1.13, 1.21)
Wages and salaries[+]	157,000,000	1,580	2,610	Reference	Reference
Other	35,800,000	4,400	3,060	1.33 (1.27, 1.39)	1.21 (1.15, 1.27)
Missing	30,500,000	5,550	2,800	1.31 (1.24, 1.38)	1.08 (1.01, 1.15)
Household income, $					
≤ 29,999	244,000,000	5,640	3,440	1.67 (1.63, 1.71)	1.36 (1.32, 1.40)
30,000–79,999	193,000,000	2,700	2,500	1.13 (1.10, 1.16)	1.10 (1.07, 1.13)
≥ 80,000	65,900,000	1,620	2,360	Reference	Reference
Missing	69,800,000	4,610	2,720	1.19 (1.14, 1.24)	1.06 (1.01, 1.11)
Labour force participation					
Typically works < 5 hours/week	212,000,000	3,770	2,330	1.44 (1.41, 1.47)	1.30 (1.27, 1.33)

EXHIBIT A-5 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Permanently unable to work	42,000,000	6,920	5,310	3.24 (3.17, 3.31)	2.48 (2.41, 2.55)
Typically works ≥ 5 hours/week	125,000,000	1,430	1,800	Reference	Reference
Not applicable (age > 75 years)	192,000,000	9,590	838	1.88 (1.76, 2.00)	1.58 (1.46, 1.70)
Missing	1,740,000	2,220	1,760	1.30 (1.12, 1.48)	1.23 (1.06, 1.40)
Use of Preventive Health Care					
Flu vaccination					
Yes	458,000,000	3,920	2,880	Reference	Reference
No	100,000,000	1,900	2,270	0.76 (0.73, 0.79)	0.77 (0.74, 0.80)
Missing	15,400,000	11,400	4,210	1.95 (1.82, 2.08)	1.92 (1.79, 2.05)
Mammogram					
Yes	422,000,000	4,060	2,370	Reference	Reference
No	96,800,000	2,540	2,510	0.90 (0.86, 0.94)	0.78 (0.75, 0.81)
Not applicable (age < 35 years)	38,400,000	1,400	382	§	§
Missing	16,400,000	11,500	3,860	1.95 (1.82, 2.08)	1.85 (1.72, 1.98)
Pap test					
Yes	502,000,000	3,160	2,710	Reference	Reference
No	52,700,000	5,190	2,870	1.04 (0.99, 1.09)	0.95 (0.90, 1.00)
Missing	18,700,000	10,300	3,890	1.79 (1.68, 1.90)	1.70 (1.58, 1.82)
Geographic Indicators					
Urban dweller					
Yes	461,000,000	3,430	2,770	Reference	Reference
No	112,000,000	3,110	2,670	0.96 (0.93, 0.99)	0.93 (0.90, 0.96)
Neighbourhood deprivation					
High	114,000,000	4,150	3,260	1.41 (1.37, 1.45)	1.27 (1.23, 1.31)
Moderate	360,000,000	3,380	2,730	1.17 (1.14, 1.20)	1.05 (1.02, 1.08)
Low	85,600,000	2,580	2,410	Reference	Reference
Missing	14,100,000	3,860	2,530	1.26 (1.17, 1.35)	1.35 (1.27, 1.43)
Local Health Integration Network					
Erie St. Clair	44,600,000	3,720	2,880	0.98 (0.90, 1.06)	1.10 (1.03, 1.17)
South West	75,200,000	3,490	2,720	0.93 (0.86, 1.00)	1.00 (0.93, 1.07)
Waterloo Wellington	27,600,000	2,740	2,330	0.79 (0.71, 0.87)	0.92 (0.84, 1.00)
Hamilton Niagara Haldimand Brant	69,800,000	3,270	2,560	0.88 (0.81, 0.95)	0.98 (0.91, 1.05)
Central West	15,000,000	2,760	2,620	1.23 (1.14, 1.32)	1.39 (1.30, 1.48)
Mississauga Halton	20,500,000	2,610	2,460	0.83 (0.74, 0.92)	0.98 (0.90, 1.06)
Toronto Central	21,600,000	3,360	3,060	Reference	Reference
Central	29,400,000	3,080	2,690	0.84 (0.76, 0.92)	0.97 (0.89, 1.05)

EXHIBIT A-5 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Central East	57,000,000	3,420	2,830	1.05 (0.97, 1.13)	1.20 (1.13, 1.27)
South East	38,000,000	3,410	2,750	0.94 (0.86, 1.02)	1.04 (0.96, 1.12)
Champlain	53,100,000	3,230	2,740	0.91 (0.83, 0.99)	1.01 (0.94, 1.08)
North Simcoe Muskoka	25,300,000	3,390	2,600	0.83 (0.74, 0.92)	0.93 (0.85, 1.01)
North East	68,000,000	3,860	3,120	1.11 (1.04, 1.18)	1.11 (1.04, 1.18)
North West	28,300,000	3,950	2,990	1.01 (0.92, 1.10)	1.16 (1.08, 1.24)
Missing	75,100	2,680	938	0.44 (-0.54, 1.42)	0.77 (-0.13, 1.67)
General Indicators of Health					
Self-perceived health					
Poor	72,500,000	10,800	7,630	5.49 (5.43, 5.55)	4.55 (4.48, 4.62)
Fair	129,400,000	6,620	4,380	2.99 (2.95, 3.03)	2.47 (2.43, 2.51)
Good	177,000,000	3,580	2,730	1.69 (1.65, 1.73)	1.63 (1.60, 1.66)
Very good	139,000,000	2,260	2,090	1.23 (1.20, 1.26)	1.23 (1.20, 1.26)
Excellent	54,100,000	1,620	1,720	Reference	Reference
Missing	1,080,000	8,370	6,640	3.36 (2.93, 3.79)	1.83 (1.39, 2.27)
Self-perceived stress					
Quite a bit or extremely stressful	108,000,000	2,920	3,460	1.29 (1.26, 1.32)	1.30 (1.27, 1.33)
At most, a bit stressful	462,000,000	3,460	2,620	Reference	Reference
Missing	4,320,000	7,970	3,690	1.44 (1.22, 1.66)	1.10 (0.88, 1.32)
Sense of belonging to the community					
Very weak	137,000,000	3,920	2,640	0.78 (0.73, 0.83)	0.80 (0.75, 0.85)
Neither very strong nor very weak	354,000,000	2,980	2,670	0.76 (0.72, 0.80)	0.84 (0.80, 0.88)
Very strong	58,300,000	4,090	3,460	Reference	Reference
Missing	24,300,000	8,430	3,900	1.24 (1.14, 1.34)	1.20 (1.10, 1.30)
Body mass index					
Underweight	21,300,000	4,810	3,900	1.65 (1.57, 1.73)	1.40 (1.33, 1.47)
Normal	223,000,000	2,880	2,440	Reference	Reference
Overweight	175,000,000	3,420	2,630	1.04 (1.01, 1.07)	1.05 (1.02, 1.08)
Obese	83,600,000	3,890	3,150	1.22 (1.18, 1.26)	1.14 (1.10, 1.18)
Morbidly obese	45,900,000	4,270	4,120	1.66 (1.61, 1.71)	1.48 (1.43, 1.53)
Missing	24,500,000	4,560	3,460	1.60 (1.53, 1.67)	1.60 (1.53, 1.67)
Indicators of Illness					
Hypertension					
Yes	257,000,000	5,970	3,630	1.43 (1.40, 1.46)	1.39 (1.36, 1.42)
No	315,000,000	2,470	2,510	Reference	Reference
Missing	1,050,000	4,790	2,900	1.10 (0.76, 1.44)	1.04 (0.71, 1.37)

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APPENDIX

EXHIBIT A-5 *continued*

	Total Health Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡][§]	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Diabetes					
Yes	99,500,000	8,080	4,920	2.30 (2.25, 2.35)	2.06 (2.01, 2.11)
No	474,000,000	2,990	2,550	Reference	Reference
Missing	258,000	2,870	1,840	0.89 (0.36, 1.42)	1.18 (0.69, 1.67)
Heart disease					
Yes	117,000,000	9,150	5,820	1.88 (1.83, 1.93)	1.69 (1.64, 1.74)
No	454,000,000	2,880	2,550	Reference	Reference
Missing	2,280,000	7,630	5,030	1.59 (1.30, 1.88)	1.38 (1.09, 1.67)
Cancer					
Yes	30,200,000	7,190	4,850	2.50 (2.42, 2.58)	2.36 (2.28, 2.44)
No	542,000,000	3,260	2,700	Reference	Reference
Missing	955,000	4,770	4,050	2.64 (2.28, 3.00)	1.69 (1.35, 2.03)
Stroke					
Yes	32,400,000	11,600	5,910	2.34 (2.25, 2.43)	1.93 (1.83, 2.03)
No	540,000,000	3,220	2,690	Reference	Reference
Missing	1,060,000	7,050	3,390	1.40 (0.99, 1.81)	1.83 (1.43, 2.23)
Dementia					
Yes	8,600,000	13,700	5,200	2.03 (1.84, 2.22)	2.11 (1.91, 2.31)
No	564,000,000	3,320	2,730	Reference	Reference
Missing	615,000	5,620	3,580	1.02 (0.54, 1.50)	1.22 (0.77, 1.67)
Fragility					
Needs help with basic tasks	191,000,000	8,640	5,400	3.09 (3.05, 3.13)	2.54 (2.50, 2.58)
Limited due to health condition	126,000,000	3,610	2,980	1.46 (1.43, 1.49)	1.40 (1.37, 1.43)
No limitations	254,000,000	2,240	2,090	Reference	Reference
Missing	2,930,000	7,810	3,770	2.56 (2.31, 2.81)	2.55 (2.31, 2.79)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

†Includes self-employment.

§Cost ratios could not be obtained because the majority of the cohort were aged 35 and older.

EXHIBIT A-6 Age-adjusted hospital care cost ratios for Ontario men in a four-year period from 2004 to 2013*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	234,000,000	1,640	1,230		
Health Behaviours					
Smoking status					
Heavy smoker	25,300,000	1,670	1,720	2.40 (2.30, 2.50)	2.11 (2.01, 2.21)
Light smoker	27,600,000	1,340	1,700	2.08 (1.99, 2.17)	1.45 (1.36, 1.54)
Former heavy smoker	70,700,000	2,520	1,330	1.57 (1.49, 1.65)	1.47 (1.39, 1.55)
Former light smoker	46,500,000	1,900	1,090	1.36 (1.28, 1.44)	1.24 (1.16, 1.32)
Non-smoker	58,200,000	1,110	961	Reference	Reference
Missing	5,380,000	3,690	1,620	2.35 (2.08, 2.62)	1.36 (1.07, 1.65)
Alcohol consumption					
Heavy drinker	23,500,000	1,330	1,490	1.58 (1.49, 1.67)	1.33 (1.24, 1.42)
Moderate drinker	147,000,000	1,460	1,100	Reference	Reference
Non-drinker	56,500,000	2,700	1,640	1.82 (1.74, 1.90)	1.39 (1.31, 1.47)
Missing	6,840,000	2,480	1,360	1.59 (1.39, 1.79)	0.87 (0.66, 1.08)
Physical activity					
Inactive	125,000,000	1,890	1,380	1.37 (1.30, 1.44)	1.08 (1.01, 1.15)
Moderately active	51,200,000	1,420	1,100	1.15 (1.07, 1.23)	1.00 (0.92, 1.08)
Active	44,100,000	1,180	973	Reference	Reference
Missing	13,800,000	4,790	2,310	2.23 (2.03, 2.43)	1.82 (1.61, 2.03)
Diet					
Poor diet	36,300,000	1,700	1,580	1.53 (1.44, 1.62)	1.33 (1.24, 1.42)
Fair diet	91,700,000	1,550	1,220	1.17 (1.11, 1.23)	1.05 (0.99, 1.11)
Adequate diet	84,300,000	1,530	1,060	Reference	Reference
Missing	21,500,000	3,420	1,690	1.57 (1.43, 1.71)	1.38 (1.24, 1.52)
Sociodemographic Indicators					
Immigrant status					
Immigrant	54,800,000	1,780	1,030	0.73 (0.66, 0.80)	0.81 (0.74, 0.88)
Non-immigrant	179,000,000	1,610	1,280	Reference	Reference
Missing	293,000	1,780	751	0.48 (-0.33, 1.29)	0.46 (-0.37, 1.29)
Ethnicity					
White	218,000,000	1,730	1,240	Reference	Reference
Non-white	14,100,000	917	1,010	1.02 (0.93, 1.11)	0.77 (0.68, 0.86)
Missing	1,700,000	3,100	1,650	1.38 (0.93, 1.83)	1.01 (0.56, 1.46)
Marital status					
Married or common-law	149,000,000	1,540	1,120	Reference	Reference
Other	84,500,000	1,870	1,500	1.59 (1.53, 1.65)	1.33 (1.27, 1.39)
Missing	44,000	687	642	0.87 (-0.48, 2.22)	1.13 (-0.18, 2.44)

EXHIBIT A-6 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age-Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	75,600,000	2,240	1,500	1.67 (1.59, 1.75)	1.26 (1.18, 1.34)
Living with spouse or partner	115,000,000	2,150	1,120	1.11 (1.03, 1.19)	0.99 (0.91, 1.07)
Living with spouse or partner and children	23,300,000	639	1,040	Reference	Reference
Single parent living with children	4,080,000	1,740	1,560	1.55 (1.33, 1.77)	1.35 (1.13, 1.57)
Other	15,700,000	992	1,290	1.63 (1.53, 1.73)	1.35 (1.25, 1.45)
Missing	128,000	444	400	0.46 (-0.17, 1.09)	0.70 (0.09, 1.31)
Residence owned by a household member					
Yes	178,000,000	1,580	1,120	Reference	Reference
No	54,900,000	1,910	1,730	2.04 (1.97, 2.11)	1.52 (1.45, 1.59)
Missing	500,000	2,270	944	0.85 (0.15, 1.55)	0.88 (0.16, 1.60)
Highest level of personal education					
Less than high school completion	79,300,000	3,050	1,650	1.72 (1.64, 1.80)	1.48 (1.40, 1.56)
High school graduate	45,100,000	1,390	1,190	1.21 (1.14, 1.28)	1.21 (1.14, 1.28)
Post-secondary graduate	106,000,000	1,290	1,100	Reference	Reference
Missing	3,100,000	2,460	1,370	1.63 (1.33, 1.93)	0.93 (0.63, 1.23)
Highest level of education in household					
Less than high school completion	51,900,000	3,530	1,810	1.78 (1.69, 1.87)	1.50 (1.40, 1.60)
High school graduate	43,000,000	1,710	1,310	1.47 (1.39, 1.55)	1.35 (1.27, 1.43)
Post-secondary graduate	128,000,000	1,330	1,120	Reference	Reference
Missing	10,900,000	1,890	1,390	1.18 (1.04, 1.32)	1.08 (0.94, 1.22)
Main source of household income					
Employment insurance, worker's compensation, welfare	11,900,000	2,700	2,560	4.15 (3.99, 4.31)	2.97 (2.80, 3.14)
Senior benefits	128,000,000	3,750	1,950	1.69 (1.60, 1.78)	1.27 (1.17, 1.37)
Wages and salaries+	70,500,000	742	1,030	Reference	Reference
Other	14,800,000	2,760	1,410	1.56 (1.41, 1.71)	1.47 (1.31, 1.63)
Missing	8,230,000	2,640	1,100	1.62 (1.42, 1.82)	1.58 (1.37, 1.79)
Household income, $					
≤ 29,999	73,100,000	3,190	1,850	2.57 (2.48, 2.66)	1.73 (1.64, 1.82)
30,000–79,999	107,000,000	1,650	1,200	1.53 (1.46, 1.60)	1.22 (1.15, 1.29)
≥ 80,000	35,600,000	764	900	Reference	Reference
Missing	18,300,000	2,300	1,220	1.79 (1.66, 1.92)	1.67 (1.54, 1.80)
Labour force participation					
Typically works < 5 hours/week	79,000,000	2,490	1,320	1.95 (1.86, 2.04)	1.51 (1.42, 1.60)

EXHIBIT A-6 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡][$]	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Permanently unable to work	21,600,000	4,300	2,980	5.16 (5.01, 5.31)	3.46 (3.30, 3.62)
Typically works ≥ 5 hours/week	65,500,000	699	755	Reference	Reference
Not applicable (age > 75 years)	66,600,000	6,110	335	2.56 (2.27, 2.85)	1.44 (1.13, 1.75)
Missing	996,000	1,190	801	2.19 (1.82, 2.56)	3.54 (3.17, 3.91)
Use of Preventive Health Care					
Flu vaccination					
Yes	175,000,000	2,010	1,280	Reference	Reference
No	45,300,000	872	1,060	0.76 (0.70, 0.82)	0.76 (0.70, 0.82)
Missing	13,600,000	4,260	2,090	1.53 (1.35, 1.71)	1.46 (1.27, 1.65)
Geographic Indicators					
Urban dweller					
Yes	179,000,000	1,620	1,230	Reference	Reference
No	54,700,000	1,720	1,230	1.05 (0.98, 1.12)	1.07 (1.00, 1.14)
Neighbourhood deprivation					
High	41,700,000	1,950	1,520	1.74 (1.64, 1.84)	1.39 (1.29, 1.49)
Moderate	148,000,000	1,670	1,240	1.36 (1.29, 1.43)	1.24 (1.17, 1.31)
Low	38,800,000	1,320	992	Reference	Reference
Missing	5,080,000	1,810	1,290	1.45 (1.24, 1.66)	1.10 (0.89, 1.31)
Local Health Integration Network					
Erie St. Clair	17,300,000	1,750	1,330	1.28 (1.10, 1.46)	1.22 (1.04, 1.40)
South West	30,100,000	1,680	1,190	1.17 (1.01, 1.33)	1.07 (0.91, 1.23)
Waterloo Wellington	10,900,000	1,290	1,010	0.86 (0.68, 1.04)	0.93 (0.75, 1.11)
Hamilton Niagara Haldimand Brant	29,600,000	1,650	1,210	1.34 (1.18, 1.50)	1.15 (0.99, 1.31)
Central West	6,010,000	1,240	1,250	1.12 (0.91, 1.33)	1.38 (1.17, 1.59)
Mississauga Halton	8,500,000	1,230	1,030	0.92 (0.73, 1.11)	0.81 (0.62, 1.00)
Toronto Central	5,410,000	992	941	Reference	Reference
Central	11,700,000	1,430	1,160	1.26 (1.07, 1.45)	0.74 (0.56, 0.92)
Central East	23,000,000	1,680	1,210	1.22 (1.05, 1.39)	1.19 (1.02, 1.36)
South East	16,000,000	1,830	1,280	1.31 (1.13, 1.49)	1.30 (1.12, 1.48)
Champlain	23,000,000	1,770	1,310	1.38 (1.21, 1.55)	1.21 (1.04, 1.38)
North Simcoe Muskoka	9,590,000	1,500	1,070	1.03 (0.83, 1.23)	1.07 (0.87, 1.27)
North East	30,200,000	2,080	1,540	1.72 (1.55, 1.89)	1.25 (1.08, 1.42)
North West	12,600,000	2,010	1,500	1.47 (1.27, 1.67)	1.29 (1.09, 1.49)
Missing	10,700	267	113	0.23 (-1.48, 1.94)	0.35 (-1.32, 2.02)

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EXHIBIT A-6 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
General Indicators of Health					
Self-perceived health					
Poor	32,300,000	6,230	3,710	6.96 (6.81, 7.11)	6.74 (6.58, 6.90)
Fair	53,400,000	3,560	2,060	3.03 (2.92, 3.14)	2.49 (2.38, 2.60)
Good	75,200,000	1,750	1,270	1.76 (1.68, 1.84)	1.67 (1.59, 1.75)
Very good	51,500,000	994	845	0.98 (0.90, 1.06)	1.24 (1.16, 1.32)
Excellent	20,900,000	769	720	Reference	Reference
Missing	535,000	5,100	1,220	5.15 (4.17, 6.13)	0.9 (-0.16, 1.96)
Self-perceived stress					
Quite a bit or extremely stressful	42,500,000	1,470	1,690	1.36 (1.29, 1.43)	1.27 (1.20, 1.34)
At most, a bit stressful	190,000,000	1,680	1,160	Reference	Reference
Missing	1,180,000	3,090	1,220	0.91 (0.39, 1.43)	0.79 (0.26, 1.32)
Sense of belonging to the community					
Very weak	56,000,000	2,110	1,250	0.77 (0.65, 0.89)	0.80 (0.68, 0.92)
Neither very strong nor very weak	138,000,000	1,390	1,150	0.74 (0.64, 0.84)	0.76 (0.66, 0.86)
Very strong	22,700,000	1,890	1,570	Reference	Reference
Missing	16,600,000	4,040	1,900	1.15 (0.96, 1.34)	1.15 (0.96, 1.34)
Body mass index					
Underweight	2,790,000	3,010	2,290	2.52 (2.18, 2.86)	2.33 (1.98, 2.68)
Normal	76,600,000	1,580	1,150	Reference	Reference
Overweight	94,400,000	1,520	1,120	0.81 (0.75, 0.87)	0.91 (0.85, 0.97)
Obese	38,300,000	1,720	1,350	1.04 (0.95, 1.13)	1.15 (1.06, 1.24)
Morbidly obese	15,600,000	2,270	2,380	1.84 (1.70, 1.98)	1.45 (1.31, 1.59)
Missing	6,070,000	4,060	2,160	1.72 (1.46, 1.98)	1.72 (1.44, 2.00)
Indicators of Illness					
Hypertension					
Yes	95,900,000	3,030	1,650	1.45 (1.38, 1.52)	1.24 (1.17, 1.31)
No	137,000,000	1,250	1,100	Reference	Reference
Missing	715,000	1,710	1,200	1.00 (0.49, 1.51)	0.82 (0.31, 1.33)
Diabetes					
Yes	50,300,000	4,280	2,680	2.38 (2.28, 2.48)	1.96 (1.85, 2.07)
No	183,000,000	1,410	1,120	Reference	Reference
Missing	142,000	1,210	955	0.72 (-0.26, 1.70)	1.12 (0.13, 2.11)
Heart disease					
Yes	59,200,000	4,720	2,540	2.14 (2.04, 2.24)	1.80 (1.69, 1.91)
No	174,000,000	1,340	1,110	Reference	Reference
Missing	911,000	3,340	1,300	1.30 (0.67, 1.93)	1.49 (0.84, 2.14)

EXHIBIT A-6 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Cancer					
Yes	18,400,000	4,910	2,750	2.30 (2.13, 2.47)	2.38 (2.20, 2.56)
No	215,000,000	1,550	1,190	Reference	Reference
Missing	619,000	4,380	2,390	2.96 (2.10, 3.82)	0.63 (-0.29, 1.55)
Stroke					
Yes	15,600,000	6,120	2,970	2.06 (1.86, 2.26)	1.57 (1.34, 1.80)
No	218,000,000	1,560	1,190	Reference	Reference
Missing	395,000	4,490	5,930	3.22 (2.12, 4.32)	1.27 (0.15, 2.39)
Dementia					
Yes	5,770,000	8,940	4,610	2.92 (2.55, 3.29)	2.15 (1.72, 2.58)
No	228,000,000	1,610	1,210	Reference	Reference
Missing	290,000	3,100	1,380	0.92 (-0.10, 1.94)	1.14 (0.07, 2.21)
Fragility					
Needs help with basic tasks	48,300,000	5,640	3,100	4.23 (4.12, 4.34)	3.85 (3.73, 3.97)
Limited due to health condition	67,900,000	2,210	1,520	1.86 (1.79, 1.93)	1.74 (1.67, 1.81)
No limitations	116,000,000	1,140	935	Reference	Reference
Missing	1,080,000	3,230	1,700	1.64 (1.08, 2.20)	1.29 (0.71, 1.87)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

*Includes self-employment.

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EXHIBIT A-7 Age-adjusted hospital care cost ratios for Ontario women in a four-year period from 2004 to 2013*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	282,000,000	1,650	1,350		
Health Behaviours					
Smoking status					
Heavy smoker	18,900,000	1,920	2,300	2.00 (1.90, 2.10)	1.81 (1.70, 1.92)
Light smoker	35,500,000	1,410	1,620	1.37 (1.30, 1.44)	1.24 (1.17, 1.31)
Former heavy smoker	37,200,000	2,320	1,690	1.56 (1.48, 1.64)	1.40 (1.31, 1.49)
Former light smoker	51,800,000	1,690	1,330	1.15 (1.09, 1.21)	1.17 (1.10, 1.24)
Non-smoker	135,000,000	1,540	1,160	Reference	Reference
Missing	4,140,000	2,490	1,190	0.84 (0.60, 1.08)	0.95 (0.70, 1.20)
Alcohol consumption					
Heavy drinker	5,840,000	1,010	1,250	1.04 (0.91, 1.17)	1.24 (1.11, 1.37)
Moderate drinker	167,000,000	1,350	1,210	Reference	Reference
Non-drinker	106,000,000	2,730	1,720	1.52 (1.46, 1.58)	1.39 (1.33, 1.45)
Missing	2,680,000	1,430	1,020	0.85 (0.62, 1.08)	1.18 (0.95, 1.41)
Physical activity					
Inactive	185,000,000	2,060	1,520	1.52 (1.46, 1.58)	1.28 (1.22, 1.34)
Moderately active	54,000,000	1,230	1,110	1.21 (1.14, 1.28)	1.09 (1.02, 1.16)
Active	35,500,000	989	1,010	Reference	Reference
Missing	8,050,000	6,180	2,240	3.14 (2.88, 3.4)	2.63 (2.34, 2.92)
Diet					
Poor diet	28,100,000	1,920	1,710	1.45 (1.36, 1.54)	1.34 (1.25, 1.43)
Fair diet	93,400,000	1,830	1,470	1.17 (1.12, 1.22)	1.07 (1.02, 1.12)
Adequate diet	141,000,000	1,410	1,200	Reference	Reference
Missing	19,500,000	3,730	1,940	1.66 (1.52, 1.80)	1.5 (1.36, 1.64)
Sociodemographic Indicators					
Immigrant status					
Immigrant	62,600,000	1,700	1,200	0.80 (0.74, 0.86)	0.90 (0.84, 0.96)
Non-immigrant	219,000,000	1,640	1,380	Reference	Reference
Missing	459,000	2,010	1,320	0.85 (0.22, 1.48)	1.03 (0.37, 1.69)
Ethnicity					
White	264,000,000	1,730	1,360	Reference	Reference
Non-white	17,300,000	1,010	1,280	0.91 (0.83, 0.99)	0.91 (0.83, 0.99)
Missing	931,000	1,550	1,210	0.72 (0.32, 1.12)	0.85 (0.45, 1.25)
Marital status					
Married or common-law	114,000,000	1,150	1,270	Reference	Reference
Other	168,000,000	2,360	1,490	1.29 (1.24, 1.34)	1.12 (1.07, 1.17)
Missing	35,400	520	233	0.25 (-0.95, 1.45)	0.39 (-0.79, 1.57)

EXHIBIT A-7 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	142,000,000	2,720	1,480	1.50 (1.42, 1.58)	1.28 (1.2, 1.36)
Living with spouse or partner	81,800,000	1,500	1,340	1.21 (1.14, 1.28)	1.27 (1.2, 1.34)
Living with spouse or partner and children	23,400,000	618	1,820	Reference	Reference
Single parent living with children	14,600,000	1,340	1,490	1.55 (1.44, 1.66)	1.39 (1.28, 1.50)
Other	20,400,000	1,370	1,580	1.43 (1.33, 1.53)	1.23 (1.13, 1.33)
Missing	466,000	636	861	1.02 (0.65, 1.39)	1.05 (0.69, 1.41)
Residence owned by a household member					
Yes	190,000,000	1,460	1,240	Reference	Reference
No	91,500,000	2,270	1,760	1.52 (1.46, 1.58)	1.24 (1.18, 1.30)
Missing	196,000	805	662	2.04 (1.41, 2.67)	3.73 (3.11, 4.35)
Highest level of personal education					
Less than high school completion	105,000,000	3,100	1,660	1.29 (1.22, 1.36)	1.21 (1.14, 1.28)
High school graduate	65,800,000	1,540	1,250	1.02 (0.96, 1.08)	0.93 (0.87, 0.99)
Post-secondary graduate	109,00,000	1,170	1,230	Reference	Reference
Missing	2,560,000	2,270	1,520	1.28 (0.99, 1.57)	1.25 (0.95, 1.55)
Highest level of education in household					
Less than high school completion	81,000,000	3,450	1,780	1.31 (1.24, 1.38)	1.19 (1.11, 1.27)
High school graduate	57,100,000	1,830	1,350	1.09 (1.03, 1.15)	0.92 (0.86, 0.98)
Post-secondary graduate	136,000,000	1,220	1,250	Reference	Reference
Missing	7,980,000	1,640	1,360	1.09 (0.95, 1.23)	1.05 (0.91, 1.19)
Main source of household income					
Employment insurance, worker's compensation, welfare	12,543,000	2,180	2,400	2.73 (2.60, 2.86)	2.00 (1.87, 2.13)
Senior benefits	163,459,000	3,160	1,460	1.41 (1.33, 1.49)	1.21 (1.12, 1.30)
Wages and salaries⁺	73,609,000	738	1,230	Reference	Reference
Other	17,504,000	2,150	1,510	1.33 (1.21, 1.45)	1.19 (1.07, 1.31)
Missing	15,093,000	2,740	1,350	1.37 (1.23, 1.51)	1.03 (0.88, 1.18)
Household income, $					
≤ 29,999	125,000,000	2,900	1,750	1.90 (1.83, 1.97)	1.48 (1.41, 1.55)
30,000–79,999	92,400,000	1,290	1,200	1.18 (1.12, 1.24)	1.16 (1.10, 1.22)
≥ 80,000	29,600,000	725	1,060	Reference	Reference
Missing	34,800,000	2,300	1,330	1.21 (1.11, 1.31)	1.04 (0.94, 1.14)
Labour force participation					
Typically works < 5 hours/week	101,000,000	1,790	1,130	1.55 (1.49, 1.61)	1.39 (1.32, 1.46)

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EXHIBIT A-7 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Permanently unable to work	21,700,000	3,570	2,630	3.50 (3.37, 3.63)	2.70 (2.56, 2.84)
Typically works ≥ 5 hours/week	58,300,000	666	839	Reference	Reference
Not applicable (age > 75 years)	101,000,000	5,010	438	2.20 (1.97, 2.43)	1.80 (1.56, 2.04)
Missing	828,000	1,060	807	1.28 (0.93, 1.63)	1.18 (0.83, 1.53)
Use of Preventive Health Care					
Flu vaccination					
Yes	224,000,000	1,920	1,400	Reference	Reference
No	49,600,000	941	1,140	0.77 (0.72, 0.82)	0.79 (0.74, 0.84)
Missing	8,250,000	6,070	2,190	2.15 (1.90, 2.40)	2.05 (1.78, 2.32)
Mammogram					
Yes	203,000,000	1,950	1,120	Reference	Reference
No	51,200,000	1,340	1,390	0.97 (0.90, 1.04)	0.82 (0.75, 0.89)
Not applicable (age < 35 years)	19,200,000	700	197	§	§
Missing	8,830,000	6,180	2,020	2.18 (1.94, 2.42)	2.01 (1.74, 2.28)
Pap test					
Yes	245,000,000	1,540	1,320	Reference	Reference
No	27,800,000	2,740	1,440	1.07 (0.97, 1.17)	0.95 (0.85, 1.05)
Missing	9,850,000	5,420	2,060	1.96 (1.74, 2.18)	1.81 (1.57, 2.05)
Geographic Indicators					
Urban dweller					
Yes	226,000,000	1,680	1,350	Reference	Reference
No	56,100,000	1,550	1,350	1.01 (0.95, 1.07)	0.99 (0.93, 1.05)
Neighbourhood deprivation					
High	58,600,000	2,130	1,660	1.56 (1.48, 1.64)	1.37 (1.29, 1.45)
Moderate	177,000,000	1,670	1,340	1.26 (1.20, 1.32)	1.08 (1.02, 1.14)
Low	39,000,000	1,170	1,110	Reference	Reference
Missing	7,220,000	1,980	1,260	1.49 (1.32, 1.66)	1.76 (1.59, 1.93)
Local Health Integration Network					
Erie St. Clair	22,100,000	1,840	1,410	1.13 (0.98, 1.28)	1.45 (1.30, 1.60)
South West	36,400,000	1,690	1,310	1.07 (0.93, 1.21)	1.31 (1.17, 1.45)
Waterloo Wellington	13,000,000	1,290	1,090	0.88 (0.72, 1.04)	1.22 (1.06, 1.38)
Hamilton Niagara Haldimand Brant	34,800,000	1,630	1,270	1.03 (0.89, 1.17)	1.35 (1.21, 1.49)
Central West	6,360,000	1,170	1,120	1.54 (1.36, 1.72)	2.09 (1.91, 2.27)
Mississauga Halton	8,770,000	1,120	1,050	0.86 (0.70, 1.02)	1.13 (0.97, 1.29)
Toronto Central	10,100,000	1,560	1,410	Reference	Reference
Central	13,300,000	1,390	1,200	0.83 (0.67, 0.99)	1.07 (0.91, 1.23)

EXHIBIT A-7 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Central East	27,100,000	1,620	1,340	1.24 (1.10, 1.38)	1.70 (1.55, 1.85)
South East	18,600,000	1,670	1,360	1.13 (0.98, 1.28)	1.49 (1.34, 1.64)
Champlain	25,900,000	1,580	1,330	1.02 (0.88, 1.16)	1.30 (1.15, 1.45)
North Simcoe Muskoka	12,300,000	1,650	1,260	0.95 (0.78, 1.12)	1.21 (1.04, 1.38)
North East	37,300,000	2,110	1,720	1.50 (1.36, 1.64)	1.72 (1.58, 1.86)
North West	16,300,000	2,280	1,710	1.35 (1.18, 1.52)	2.00 (1.83, 2.17)
Missing	50,100	1,790	624	0.53 (-1.34, 2.40)	1.46 (-0.38, 3.30)
General Indicators of Health					
Self-perceived health					
Poor	39,800,000	5,940	4,140	6.68 (6.55, 6.81)	5.51 (5.37, 5.65)
Fair	65,400,000	3,340	2,180	3.41 (3.32, 3.50)	2.75 (2.66, 2.84)
Good	85,400,000	1,730	1,310	1.80 (1.73, 1.87)	1.74 (1.67, 1.81)
Very good	65,900,000	1,070	987	1.26 (1.19, 1.33)	1.26 (1.19, 1.33)
Excellent	25,300,000	756	814	Reference	Reference
Missing	495,000	3,850	3,150	3.09 (2.25, 3.93)	1.55 (0.62, 2.48)
Self-perceived stress					
Quite a bit or extremely stressful	51,900,000	1,410	1,680	1.26 (1.20, 1.32)	1.30 (1.24, 1.36)
At most, a bit stressful	228,000,000	1,710	1,290	Reference	Reference
Missing	2,080,000	3,830	1,740	1.39 (0.98, 1.80)	1.05 (0.59, 1.51)
Sense of belonging to the community					
Very weak	68,400,000	1,950	1,300	0.78 (0.68, 0.88)	0.83 (0.73, 0.93)
Neither very strong nor very weak	171,000,000	1,440	1,290	0.74 (0.65, 0.83)	0.87 (0.78, 0.96)
Very strong	29,700,000	2,090	1,750	Reference	Reference
Missing	13,100,000	4,550	2,030	1.28 (1.09, 1.47)	1.25 (1.04, 1.46)
Body mass index					
Underweight	12,600,000	2,850	2,260	1.91 (1.76, 2.06)	1.64 (1.49, 1.79)
Normal	109,000,000	1,400	1,170	Reference	Reference
Overweight	82,900,000	1,620	1,250	1.03 (0.97, 1.09)	1.05 (0.99, 1.11)
Obese	41,200,000	1,920	1,550	1.25 (1.17, 1.33)	1.10 (1.02, 1.18)
Morbidly obese	23,800,000	2,210	2,120	1.75 (1.65, 1.85)	1.53 (1.43, 1.63)
Missing	12,900,000	2,400	1,820	1.87 (1.73, 2.01)	2.03 (1.89, 2.17)
Indicators of Illness					
Hypertension					
Yes	128,000,000	2,970	1,820	1.48 (1.42, 1.54)	1.41 (1.35, 1.47)
No	153,000,000	1,200	1,230	Reference	Reference
Missing	575,000	2,630	1,480	0.98 (0.33, 1.63)	0.92 (0.25, 1.59)

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APPENDIX

EXHIBIT A-7 *continued*

	Hospital Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Diabetes					
Yes	50,000,000	4,060	2,530	2.64 (2.55, 2.73)	2.40 (2.30, 2.05)
No	232,000,000	1,470	1,240	Reference	Reference
Missing	73,400	816	512	0.50 (-0.53, 1.53)	0.72 (-0.29, 1.73)
Heart disease					
Yes	61,000,000	4,760	3,130	2.01 (1.92, 2.10)	1.76 (1.66, 1.86)
No	220,000,000	1,400	1,230	Reference	Reference
Missing	1,110,000	3,700	2,920	1.69 (1.13, 2.25)	1.12 (0.53, 1.71)
Cancer					
Yes	15,300,000	3,640	2,530	2.77 (2.62, 2.92)	2.51 (2.35, 2.67)
No	267,000,000	1,600	1,320	Reference	Reference
Missing	430,000	2,150	1,720	2.43 (1.75, 3.11)	1.45 (0.76, 2.14)
Stroke					
Yes	16,800,000	6,000	3,160	2.51 (2.33, 2.69)	2.09 (1.89, 2.29)
No	265,000,000	1,580	1,310	Reference	Reference
Missing	602,000	3,990	1,830	1.32 (0.54, 2.10)	1.97 (1.15, 2.79)
Dementia					
Yes	4,260,000	6,780	2,680	2.05 (1.69, 2.41)	2.11 (1.71, 2.51)
No	278,000,000	1,630	1,340	Reference	Reference
Missing	263,000	2,410	1,570	0.86 (-0.06, 1.78)	1.04 (0.12, 1.96)
Fragility					
Needs help with basic tasks	98,700,000	4,470	2,740	3.47 (3.40, 3.54)	2.83 (2.75, 2.91)
Limited due to health condition	61,000,000	1,750	1,440	1.47 (1.41, 1.53)	1.36 (1.30, 1.42)
No limitations	121,000,000	1,070	1,010	Reference	Reference
Missing	1,650,000	4,400	2,000	3.03 (2.55, 3.51)	3.33 (2.83, 3.83)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

†Includes self-employment.

§Cost ratios could not be obtained because the majority of the cohort were aged 35 and older.

EXHIBIT A-8 Age-adjusted drug cost ratios for Ontario men aged 65 and older in a five-year period from 2004 to 2013*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	52,100,000	367	235		
Health Behaviours					
Smoking status					
Heavy smoker	2,250,000	149	269	1.27 (1.13, 1.41)	1.24 (1.09, 1.39)
Light smoker	3,390,000	164	248	1.19 (1.08, 1.30)	1.27 (1.14, 1.40)
Former heavy smoker	19,100,000	683	260	1.22 (1.15, 1.29)	1.30 (1.23, 1.37)
Former light smoker	12,300,000	499	223	1.06 (0.99, 1.13)	1.08 (1.00, 1.16)
Non-smoker	13,500,000	258	209	Reference	Reference
Missing	1,610,000	1,110	267	1.25 (1.08, 1.42)	1.29 (1.11, 1.47)
Alcohol consumption					
Heavy drinker	2,780,000	157	221	0.99 (0.87, 1.11)	1.04 (0.91, 1.17)
Moderate drinker	34,500,000	342	224	Reference	Reference
Non-drinker	13,500,000	645	280	1.28 (1.22, 1.34)	1.21 (1.14, 1.28)
Missing	1,410,000	511	206	0.93 (0.77, 1.09)	0.96 (0.79, 1.13)
Physical activity					
Inactive	25,500,000	388	256	1.33 (1.26, 1.40)	1.26 (1.19, 1.33)
Moderately active	12,300,000	340	219	1.12 (1.04, 1.20)	1.14 (1.06, 1.22)
Active	10,800,000	289	197	Reference	Reference
Missing	3,570,000	1,240	324	1.75 (1.62, 1.88)	1.64 (1.50, 1.78)
Diet					
Poor diet	5,310,000	248	242	1.10 (1.01, 1.19)	1.07 (0.97, 1.17)
Fair diet	20,200,000	340	238	1.08 (1.02, 1.14)	1.06 (1.00, 1.12)
Adequate diet	21,000,000	381	221	Reference	Reference
Missing	5,650,000	901	293	1.39 (1.29, 1.49)	1.31 (1.20, 1.42)
Sociodemographic Indicators					
Immigrant status					
Immigrant	14,500,000	469	219	0.91 (0.85, 0.97)	0.92 (0.86, 0.98)
Non-immigrant	37,600,000	338	242	Reference	Reference
Missing	120,000	727	233	1.52 (0.86, 2.18)	1.26 (0.52, 2.00)
Ethnicity					
White	49,300,000	390	236	Reference	Reference
Non-white	2,640,000	172	225	0.95 (0.83, 1.07)	0.99 (0.86, 1.12)
Missing	233,000	426	202	0.96 (0.58, 1.34)	0.98 (0.56, 1.40)
Marital status					
Married or common-law	36,800,000	380	233	Reference	Reference
Other	15,300,000	338	244	1.04 (0.98, 1.10)	0.99 (0.92, 1.06)
Missing	10,000	157	103	1.58 (-0.96, 4.12)	1.91 (-0.65, 4.47)

EXHIBIT A-8 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	14,400,000	425	240	0.99 (0.85, 1.13)	0.94 (0.79, 1.09)
Living with spouse or partner	32,900,000	615	234	0.97 (0.83, 1.11)	0.96 (0.81, 1.11)
Living with spouse or partner and children	2,080,000	57	226	Reference	Reference
Single parent living with children	728,000	311	265	1.08 (0.80, 1.36)	1.08 (0.77, 1.39)
Other	2,080,000	132	240	1.04 (0.85, 1.23)	0.96 (0.76, 1.16)
Missing	19,600	68	78	2.50 (-0.04, 5.04)	2.78 (0.22, 5.34)
Residence owned by a household member					
Yes	42,300,000	374	227	Reference	Reference
No	9,740,000	339	283	1.25 (1.18, 1.32)	1.22 (1.14, 1.30)
Missing	110,000	499	196	1.22 (0.64, 1.80)	1.02 (0.36, 1.68)
Highest level of personal education					
Less than high school completion	19,500,000	752	250	1.13 (1.07, 1.19)	1.17 (1.10, 1.24)
High school graduate	9,450,000	291	240	1.09 (1.02, 1.16)	1.11 (1.03, 1.19)
Post-secondary graduate	22,400,000	272	224	Reference	Reference
Missing	707,000	561	228	1.06 (0.83, 1.29)	1.17 (0.92, 1.42)
Highest level of education in household					
Less than high school completion	12,900,000	879	245	1.08 (1.01, 1.15)	1.14 (1.07, 1.21)
High school graduate	9,750,000	387	242	1.07 (1.00, 1.14)	1.10 (1.02, 1.18)
Post-secondary graduate	27,300,000	283	229	Reference	Reference
Missing	2,170,000	377	235	1.05 (0.92, 1.18)	1.07 (0.92, 1.22)
Main source of household income					
Employment insurance, worker's compensation, welfare	369,000	84	253	1.19 (0.86, 1.52)	1.35 (0.98, 1.72)
Senior benefits	40,600,000	1,190	241	1.16 (1.07, 1.25)	1.12 (1.03, 1.21)
Wages and salaries⁺	4,640,000	49	212	Reference	Reference
Other	4,050,000	755	235	1.15 (1.02, 1.28)	1.20 (1.06, 1.34)
Missing	2,540,000	813	229	1.12 (0.97, 1.27)	1.12 (0.96, 1.28)
Household income, $					
≤ 29,999	16,800,000	732	256	1.21 (1.12, 1.30)	1.19 (1.09, 1.29)
30,000–79,999	25,500,000	395	232	1.09 (1.00, 1.18)	1.07 (0.98, 1.16)
≥ 80,000	5,120,000	110	211	Reference	Reference
Missing	4,730,000	595	226	1.10 (0.98, 1.22)	1.07 (0.94, 1.20)
Labour force participation					
Typically works < 5 hours/week	25,300,000	800	189	1.33 (1.24, 1.42)	1.31 (1.22, 1.40)
Permanently unable to work	2,180,000	434	276	1.85 (1.68, 2.02)	1.74 (1.55, 1.93)

EXHIBIT A-8 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Typically works ⩾ 5 hours/week	4,480,000	48	144	Reference	Reference
Not applicable (age > 75 years)	20,000,000	1,830	99	1.55 (1.39, 1.71)	1.35 (1.18, 1.52)
Missing	171,000	205	109	0.98 (0.56, 1.40)	1.20 (0.76, 1.64)
Use of Preventive Health Care					
Flu vaccination					
Yes	44,000,000	506	245	Reference	Reference
No	4,550,000	88	154	0.61 (0.53, 0.69)	0.60 (0.52, 0.68)
Missing	3,580,000	1,120	319	1.37 (1.25, 1.49)	1.31 (1.18, 1.44)
Geographic Indicators					
Urban dweller					
Yes	40,300,000	364	240	Reference	Reference
No	11,900,000	375	221	0.91 (0.85, 0.97)	0.94 (0.87, 1.01)
Neighbourhood deprivation					
High	7,940,000	371	248	1.17 (1.08, 1.26)	1.14 (1.04, 1.24)
Moderate	33,300,000	376	239	1.13 (1.06, 1.20)	1.10 (1.03, 1.17)
Low	9,660,000	327	214	Reference	Reference
Missing	1,280,000	457	264	1.29 (1.10, 1.48)	1.42 (1.22, 1.62)
Local Health Integration Network					
Erie St. Clair	3,480,000	352	236	1.00 (0.81, 1.19)	1.04 (0.83, 1.25)
South West	6,760,000	378	227	0.98 (0.80, 1.16)	0.99 (0.80, 1.18)
Waterloo Wellington	2,730,000	325	216	0.96 (0.76, 1.16)	0.99 (0.78, 1.20)
Hamilton Niagara Haldimand Brant	7,320,000	407	240	1.06 (0.88, 1.24)	1.03 (0.84, 1.22)
Central West	1,280,000	263	246	1.11 (0.87, 1.35)	1.05 (0.80, 1.30)
Mississauga Halton	2,060,000	297	220	0.98 (0.77, 1.19)	1.08 (0.86, 1.30)
Toronto Central	1,410,000	258	240	Reference	Reference
Central	2,590,000	315	228	1.05 (0.85, 1.25)	1.04 (0.82, 1.26)
Central East	5,450,000	400	245	1.10 (0.92, 1.28)	1.10 (0.90, 1.30)
South East	3,760,000	429	236	1.09 (0.90, 1.28)	1.16 (0.95, 1.37)
Champlain	4,910,000	378	254	1.09 (0.90, 1.28)	1.08 (0.88, 1.28)
North Simcoe Muskoka	2,360,000	370	220	0.95 (0.75, 1.15)	1.01 (0.79, 1.23)
North East	6,120,000	422	258	1.14 (0.96, 1.32)	1.06 (0.86, 1.26)
North West	1,920,000	307	194	0.85 (0.64, 1.06)	0.87 (0.65, 1.09)
Missing	6,100	152	80	0.54 (-1.26, 2.34)	0.68 (-1.13, 2.49)
General Indicators of Health					
Self-perceived health					
Poor	5,950,000	1,150	449	3.77 (3.65, 3.89)	3.32 (3.18, 3.46)
Fair	13,000,000	870	342	2.81 (2.72, 2.90)	2.65 (2.55, 2.75)

EXHIBIT A-8 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Good	17,500,000	407	242	1.98 (1.89, 2.07)	1.95 (1.86, 2.04)
Very good	12,000,000	232	179	1.44 (1.35, 1.53)	1.46 (1.37, 1.55)
Excellent	3,500,000	129	122	Reference	Reference
Missing	187,000	1,780	408	4.91 (4.29, 5.53)	3.22 (2.46, 3.98)
Self-perceived stress					
Quite a bit or extremely stressful	5,780,000	200	315	1.42 (1.33, 1.51)	1.36 (1.25, 1.47)
At most, a bit stressful	46,100,000	408	228	Reference	Reference
Missing	297,000	777	242	1.10 (0.76, 1.44)	1.20 (0.83, 1.57)
Sense of belonging to the community					
Very weak	13,200,000	495	220	0.81 (0.70, 0.92)	0.91 (0.79, 1.03)
Neither very strong nor very weak	30,500,000	306	231	0.84 (0.74, 0.94)	0.93 (0.81, 1.05)
Very strong	4,180,000	348	272	Reference	Reference
Missing	4,320,000	1,050	301	1.14 (1.00, 1.28)	1.21 (1.05, 1.37)
Body mass index					
Underweight	464,000	501	269	1.56 (1.28, 1.84)	1.36 (1.04, 1.68)
Normal	17,100,000	354	213	Reference	Reference
Overweight	22,400,000	360	227	1.06 (1.00, 1.12)	1.08 (1.01, 1.15)
Obese	8,260,000	372	275	1.30 (1.21, 1.39)	1.35 (1.26, 1.44)
Morbidly obese	2,150,000	312	308	1.47 (1.31, 1.63)	1.45 (1.27, 1.63)
Missing	1,780,000	1,190	373	1.78 (1.61, 1.95)	1.64 (1.44, 1.84)
Indicators of Illness					
Hypertension					
Yes	27,000,000	852	291	1.44 (1.39, 1.49)	1.55 (1.49, 1.61)
No	25,100,000	228	195	Reference	Reference
Missing	125,000	300	198	1.20 (0.67, 1.73)	1.48 (0.93, 2.03)
Diabetes					
Yes	14,300,000	1,210	383	1.84 (1.77, 1.91)	1.97 (1.89, 2.05)
No	37,800,000	290	205	Reference	Reference
Missing	61,500	523	274	1.42 (0.59, 2.25)	1.11 (0.16, 2.06)
Heart disease					
Yes	16,000,000	1,270	321	1.48 (1.42, 1.54)	1.57 (1.50, 1.64)
No	35,800,000	277	211	Reference	Reference
Missing	318,000	1,170	305	1.46 (1.07, 1.85)	1.43 (0.99, 1.87)
Cancer					
Yes	5,780,000	1,540	354	1.71 (1.61, 1.81)	1.46 (1.34, 1.58)
No	46,300,000	335	226	Reference	Reference
Missing	54,000	382	139	0.69 (0.08, 1.30)	0.51 (-0.20, 1.22)

EXHIBIT A-8 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Stroke					
Yes	3,990,000	1,560	368	1.60 (1.48, 1.72)	1.59 (1.45, 1.73)
No	48,100,000	345	229	Reference	Reference
Missing	87,200	992	442	1.91 (1.07, 2.75)	2.28 (1.38, 3.18)
Dementia					
Yes	1,200,000	1,860	415	1.70 (1.50, 1.90)	1.97 (1.72, 2.22)
No	50,900,000	360	233	Reference	Reference
Missing	53,400	569	207	0.92 (0.22, 1.62)	0.97 (0.12, 1.82)
Fragility					
Needs help with basic tasks	9,460,000	1,100	409	2.05 (1.97, 2.13)	1.84 (1.74, 1.94)
Limited due to health condition	15,200,000	493	278	1.45 (1.39, 1.51)	1.43 (1.36, 1.50)
No limitations	27,300,000	266	194	Reference	Reference
Missing	240,000	719	244	1.32 (0.94, 1.70)	1.33 (0.91, 1.75)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

*Includes self-employment.

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EXHIBIT A-9 Age-adjusted drug cost ratios for Ontario women aged 65 and older in a five-year period from 2004 to 2013*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	76,400,000	448	311		
Health Behaviours					
Smoking status					
Heavy smoker	2,300,000	234	339	1.31 (1.19, 1.43)	1.32 (1.19, 1.45)
Light smoker	6,110,000	242	332	1.24 (1.16, 1.32)	1.18 (1.10, 1.26)
Former heavy smoker	10,100,000	631	382	1.37 (1.30, 1.44)	1.35 (1.28, 1.42)
Former light smoker	15,400,000	503	316	1.13 (1.08, 1.18)	1.13 (1.07, 1.19)
Non-smoker	40,900,000	468	286	Reference	Reference
Missing	1,590,000	954	356	1.25 (1.10, 1.40)	1.17 (1.01, 1.33)
Alcohol consumption					
Heavy drinker	850,000	148	253	0.96 (0.79, 1.13)	1.00 (0.82, 1.18)
Moderate drinker	44,000,000	354	286	Reference	Reference
Non-drinker	30,700,000	788	364	1.26 (1.22, 1.30)	1.23 (1.18, 1.28)
Missing	874,000	466	241	0.85 (0.69, 1.01)	0.84 (0.67, 1.01)
Physical activity					
Inactive	51,000,000	570	345	1.50 (1.44, 1.56)	1.45 (1.39, 1.51)
Moderately active	14,900,000	339	269	1.16 (1.09, 1.23)	1.16 (1.09, 1.23)
Active	8,470,000	236	237	Reference	Reference
Missing	2,020,000	1,550	403	1.85 (1.71, 1.99)	2.04 (1.88, 2.20)
Diet					
Poor diet	6,210,000	424	367	1.26 (1.18, 1.34)	1.17 (1.08, 1.26)
Fair diet	24,400,000	479	329	1.12 (1.07, 1.17)	1.09 (1.04, 1.14)
Adequate diet	40,500,000	406	292	Reference	Reference
Missing	5,270,000	1,010	344	1.22 (1.14, 1.30)	1.27 (1.18, 1.36)
Sociodemographic Indicators					
Immigrant status					
Immigrant	18,600,000	507	288	0.90 (0.85, 0.95)	0.91 (0.86, 0.96)
Non-immigrant	57,600,000	431	318	Reference	Reference
Missing	180,000	787	392	1.11 (0.67, 1.55)	1.06 (0.56, 1.56)
Ethnicity					
White	72,800,000	476	310	Reference	Reference
Non-white	3,240,000	189	316	1.00 (0.90, 1.10)	1.08 (0.97, 1.19)
Missing	373,000	623	407	1.22 (0.90, 1.54)	1.29 (0.94, 1.64)
Marital status					
Married or common-law	26,400,000	266	290	Reference	Reference
Other	50,000,000	702	327	1.13 (1.09, 1.17)	1.08 (1.03, 1.13)
Missing	23,000	339	90	0.49 (-0.32, 1.30)	0.58 (-0.22, 1.38)

EXHIBIT A-9 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	45,000,000	865	324	1.07 (0.91, 1.23)	0.94 (0.78, 1.10)
Living with spouse or partner	23,700,000	436	291	0.96 (0.80, 1.12)	0.87 (0.71, 1.03)
Living with spouse or partner and children	1,200,000	32	306	Reference	Reference
Single parent living with children	2,900,000	265	324	1.09 (0.90, 1.28)	0.97 (0.77, 1.17)
Other	3,540,000	239	342	1.15 (0.97, 1.33)	1.05 (0.86, 1.24)
Missing	42,500	58	261	2.40 (1.08, 3.72)	2.31 (0.04, 4.58)
Residence owned by a household member					
Yes	52,800,000	405	294	Reference	Reference
No	23,600,000	586	364	1.23 (1.18, 1.28)	1.23 (1.18, 1.28)
Missing	75,600	310	198	0.73 (0.16, 1.30)	0.85 (0.28, 1.42)
Highest level of personal education					
Less than high school completion	34,500,000	1,020	346	1.24 (1.19, 1.29)	1.20 (1.15, 1.25)
High school graduate	17,900,000	419	298	1.06 (1.01, 1.11)	1.02 (0.96, 1.08)
Post-secondary graduate	23,100,000	247	280	Reference	Reference
Missing	993,000	880	331	1.26 (1.08, 1.44)	1.23 (1.03, 1.43)
Highest level of education in household					
Less than high school completion	27,600,000	1,180	354	1.24 (1.19, 1.29)	1.18 (1.13, 1.23)
High school graduate	16,200,000	518	307	1.06 (1.01, 1.11)	1.02 (0.96, 1.08)
Post-secondary graduate	30,400,000	274	284	Reference	Reference
Missing	2,180,000	447	312	1.11 (0.99, 1.23)	1.12 (0.99, 1.25)
Main source of household income					
Employment insurance, worker's compensation, welfare	621,000	108	389	1.53 (1.27, 1.79)	1.41 (1.13, 1.69)
Senior benefits	61,100,000	1,180	318	1.16 (1.08, 1.24)	1.15 (1.07, 1.23)
Wages and salaries[+]	4,360,000	44	290	Reference	Reference
Other	4,840,000	596	258	0.96 (0.85, 1.07)	0.94 (0.83, 1.05)
Missing	5,520,000	1,000	323	1.19 (1.08, 1.30)	1.19 (1.08, 1.30)
Household income, $					
≤ 29,999	38,300,000	884	343	1.29 (1.20, 1.38)	1.25 (1.15, 1.35)
30,000–79,999	23,400,000	327	280	1.05 (0.96, 1.14)	1.05 (0.95, 1.15)
≥ 80,000	3,450,000	85	278	Reference	Reference
Missing	11,300,000	748	303	1.15 (1.05, 1.25)	1.13 (1.02, 1.24)
Labour force participation					
Typically works < 5 hours/week	35,300,000	627	217	1.58 (1.48, 1.68)	1.49 (1.39, 1.59)

EXHIBIT A-9 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Permanently unable to work	3,620,000	596	360	2.77 (2.62, 2.92)	2.36 (2.20, 2.52)
Typically works ≥ 5 hours/week	2,040,000	23	170	Reference	Reference
Not applicable (age > 75 years)	35,300,000	1,760	151	1.77 (1.63, 1.91)	1.67 (1.52, 1.82)
Missing	138,000	176	149	1.46 (1.01, 1.91)	1.18 (0.71, 1.65)
Use of Preventive Health Care					
Flu vaccination					
Yes	67,100,000	575	325	Reference	Reference
No	7,200,000	137	217	0.68 (0.62, 0.74)	0.67 (0.61, 0.73)
Missing	2,120,000	1,560	416	1.33 (1.20, 1.46)	1.50 (1.35, 1.65)
Mammogram					
Yes	65,500,000	630	315	Reference	Reference
No	8,730,000	229	267	0.86 (0.80, 0.92)	0.87 (0.80, 0.94)
Missing	2,210,000	1,550	401	1.31 (1.18, 1.44)	1.46 (1.31, 1.61)
Missing	8,830,000	6,180	2,020	2.18 (1.94, 2.42)	2.01 (1.74, 2.28)
Pap test					
Yes	66,100,000	416	309	Reference	Reference
No	7,620,000	751	307	0.99 (0.92, 1.06)	1.02 (0.95, 1.09)
Missing	2,730,000	1,500	384	1.31 (1.19, 1.43)	1.44 (1.31, 1.57)
Geographic Indicators					
Urban dweller					
Yes	61,900,000	459	311	Reference	Reference
No	14,500,000	403	308	0.99 (0.94, 1.04)	0.97 (0.92, 1.02)
Neighbourhood deprivation					
High	15,300,000	555	362	1.37 (1.30, 1.44)	1.31 (1.24, 1.38)
Moderate	48,400,000	455	308	1.15 (1.09, 1.21)	1.12 (1.06, 1.18)
Low	10,600,000	321	272	Reference	Reference
Missing	2,110,000	579	292	1.13 (1.00, 1.26)	1.16 (1.02, 1.30)
Local Health Integration Network					
Erie St. Clair	6,090,000	507	324	0.99 (0.85, 1.13)	1.05 (0.90, 1.20)
South West	10,800,000	501	316	0.99 (0.86, 1.12)	1.00 (0.86, 1.14)
Waterloo Wellington	3,810,000	379	281	0.88 (0.74, 1.02)	0.89 (0.74, 1.04)
Hamilton Niagara Haldimand Brant	9,660,000	452	291	0.92 (0.79, 1.05)	0.95 (0.81, 1.09)
Central West	1,880,000	347	320	0.97 (0.80, 1.14)	1.03 (0.84, 1.22)
Mississauga Halton	2,650,000	337	298	0.92 (0.77, 1.07)	0.93 (0.76, 1.10)
Toronto Central	2,360,000	367	313	Reference	Reference
Central	3,520,000	368	291	0.90 (0.75, 1.05)	0.92 (0.76, 1.08)

EXHIBIT A-9 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Central East	7,740,000	464	329	1.02 (0.89, 1.15)	1.05 (0.91, 1.19)
South East	5,300,000	476	309	0.99 (0.85, 1.13)	0.99 (0.84, 1.14)
Champlain	7,060,000	430	318	0.99 (0.86, 1.12)	0.95 (0.81, 1.09)
North East	8,720,000	495	334	1.05 (0.92, 1.18)	1.04 (0.90, 1.18)
North Simcoe Muskoka	3,670,000	491	298	0.96 (0.81, 1.11)	1.01 (0.85, 1.17)
North West	3,190,000	445	291	0.92 (0.77, 1.07)	0.93 (0.77, 1.09)
Missing	3,860	138	49	0.29 (-1.32, 1.90)	0.36 (-1.25, 1.97)
General Indicators of Health					
Self-perceived health					
Poor	8,190,000	1,220	578	3.64 (3.55, 3.73)	3.47 (3.36, 3.58)
Fair	19,400,000	993	461	2.86 (2.79, 2.93)	2.71 (2.63, 2.79)
Good	26,700,000	540	322	2.04 (1.98, 2.10)	2.00 (1.93, 2.07)
Very good	17,000,000	277	230	1.43 (1.36, 1.50)	1.47 (1.40, 1.54)
Excellent	4,900,000	146	166	Reference	Reference
Missing	164,000	1,280	501	3.36 (2.84, 3.88)	3.04 (2.43, 3.65)
Self-perceived stress					
Quite a bit or extremely stressful	8,950,000	243	382	1.26 (1.19, 1.33)	1.26 (1.19, 1.33)
At most, a bit stressful	66,900,000	501	303	Reference	Reference
Missing	606,000	1,120	400	1.29 (1.04, 1.54)	1.19 (0.89, 1.49)
Sense of belonging to the community					
Very weak	20,500,000	585	286	0.75 (0.67, 0.83)	0.72 (0.63, 0.81)
Neither very strong nor very weak	45,800,000	386	313	0.82 (0.74, 0.90)	0.80 (0.72, 0.88)
Very strong	6,980,000	490	372	Reference	Reference
Missing	3,170,000	1,100	353	0.97 (0.85, 1.09)	1.02 (0.88, 1.16)
Body mass index					
Underweight	1,780,000	403	271	1.07 (0.95, 1.19)	1.12 (0.98, 1.26)
Normal	28,500,000	367	271	Reference	Reference
Overweight	26,800,000	524	313	1.16 (1.11, 1.21)	1.18 (1.13, 1.23)
Obese	12,000,000	558	375	1.39 (1.33, 1.45)	1.43 (1.36, 1.50)
Morbidly obese	4,490,000	418	426	1.58 (1.48, 1.68)	1.53 (1.42, 1.64)
Missing	2,840,000	528	346	1.28 (1.17, 1.39)	1.34 (1.22, 1.46)
Indicators of Illness					
Hypertension					
Yes	46,300,000	1,070	377	1.51 (1.47, 1.55)	1.62 (1.58, 1.66)
No	30,000,000	235	247	Reference	Reference
Missing	123,000	564	284	1.14 (0.67, 1.61)	1.23 (0.73, 1.73)

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

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EXHIBIT A-9 *continued*

	Drug Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Diabetes					
Yes	17,700,000	1,440	545	2.01 (1.95, 2.07)	1.99 (1.92, 2.06)
No	58,700,000	371	275	Reference	Reference
Missing	60,800	676	351	1.59 (0.75, 2.43)	1.89 (1.05, 2.73)
Heart disease					
Yes	20,100,000	1,570	447	1.56 (1.51, 1.61)	1.59 (1.53, 1.65)
No	55,900,000	355	281	Reference	Reference
Missing	369,000	1,230	492	1.73 (1.37, 2.09)	1.83 (1.42, 2.24)
Cancer					
Yes	4,050,000	964	400	1.31 (1.21, 1.41)	1.18 (1.07, 1.29)
No	72,300,000	435	307	Reference	Reference
Missing	77,900	389	318	1.13 (0.47, 1.79)	1.34 (0.69, 1.99)
Stroke					
Yes	5,000,000	1,790	545	1.67 (1.57, 1.77)	1.68 (1.56, 1.80)
No	71,300,000	425	302	Reference	Reference
Missing	162,000	1,070	394	1.51 (1.00, 2.02)	1.71 (1.13, 2.29)
Dementia					
Yes	1,170,000	1,860	424	1.56 (1.37, 1.75)	1.81 (1.59, 2.03)
No	75,100,000	442	309	Reference	Reference
Missing	121,000	1,110	385	1.42 (0.81, 2.03)	1.64 (1.01, 2.27)
Fragility					
Needs help with basic tasks	25,400,000	1,150	483	1.91 (1.86, 1.96)	1.78 (1.72, 1.84)
Limited due to health condition	17,800,000	511	342	1.44 (1.39, 1.49)	1.37 (1.32, 1.42)
No limitations	32,800,000	289	242	Reference	Reference
Missing	425,000	1,130	361	1.68 (1.40, 1.96)	1.81 (1.50, 2.12)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

†Includes self-employment.

EXHIBIT A-10 Age-adjusted community care cost ratios for Ontario men in a five-year period from 2004 to 2013*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	142,000,000	998	793		
Health Behaviours					
Smoking status					
Heavy smoker	13,900,000	919	944	1.45 (1.40, 1.50)	1.29 (1.24, 1.34)
Light smoker	15,100,000	733	812	1.21 (1.17, 1.25)	1.10 (1.06, 1.14)
Former heavy smoker	40,100,000	1,430	869	1.23 (1.19, 1.27)	1.20 (1.16, 1.24)
Former light smoker	28,100,000	1,150	756	1.11 (1.07, 1.15)	1.11 (1.07, 1.15)
Non-smoker	42,000,000	800	720	Reference	Reference
Missing	2,800,000	1,920	1,030	1.66 (1.53, 1.79)	1.28 (1.14, 1.42)
Alcohol consumption					
Heavy drinker	12,900,000	730	794	1.06 (1.02, 1.10)	1.00 (0.96, 1.04)
Moderate drinker	93,700,000	930	746	Reference	Reference
Non-drinker	31,900,000	1,530	1,040	1.47 (1.43, 1.51)	1.31 (1.27, 1.35)
Missing	3,350,000	1,220	763	1.10 (1.00, 1.20)	0.96 (0.86, 1.06)
Physical activity					
Inactive	73,100,000	1,110	870	1.27 (1.24, 1.30)	1.17 (1.14, 1.20)
Moderately active	31,900,000	886	713	1.06 (1.02, 1.10)	1.03 (0.99, 1.07)
Active	29,700,000	792	674	Reference	Reference
Missing	7,220,000	2,510	1,260	2.08 (1.98, 2.18)	1.80 (1.70, 1.90)
Diet					
Poor diet	19,800,000	927	878	1.23 (1.19, 1.27)	1.13 (1.09, 1.17)
Fair diet	56,100,000	945	781	1.08 (1.05, 1.11)	1.04 (1.01, 1.07)
Adequate diet	54,500,000	989	746	Reference	Reference
Missing	11,500,000	1,830	1,020	1.47 (1.40, 1.54)	1.31 (1.24, 1.38)
Sociodemographic Indicators					
Immigrant status					
Immigrant	36,000,000	1,170	786	0.96 (0.93, 0.99)	1.01 (0.98, 1.04)
Non-immigrant	106,000,000	951	793	Reference	Reference
Missing	184,000	1,110	586	0.81 (0.42, 1.20)	0.74 (0.35, 1.13)
Ethnicity					
White	129,000,000	1,020	786	Reference	Reference
Non-white	12,300,000	798	828	1.14 (1.10, 1.18)	1.10 (1.06, 1.14)
Missing	660,000	1,200	793	1.05 (0.83, 1.27)	0.99 (0.78, 1.20)
Marital status					
Married or common-law	95,600,000	987	759	Reference	Reference
Other	46,300,000	1,020	872	1.22 (1.19, 1.25)	1.11 (1.08, 1.14)
Missing	34,100	532	361	0.65 (0.00, 1.30)	0.78 (0.16, 1.40)

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

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EXHIBIT A-10 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	39,500,000	1,170	863	1.23 (1.19, 1.27)	1.12 (1.08, 1.16)
Living with spouse or partner	69,000,000	1,290	765	1.08 (1.04, 1.12)	1.07 (1.03, 1.11)
Living with spouse or partner and children	19,700,000	538	736	Reference	Reference
Single parent living with children	2,370,000	1,010	944	1.42 (1.31, 1.53)	1.31 (1.20, 1.42)
Other	11,300,000	713	854	1.36 (1.31, 1.41)	1.24 (1.19, 1.29)
Missing	126,000	437	383	0.68 (0.38, 0.98)	0.78 (0.49, 1.07)
Residence owned by a household member					
Yes	111,000,000	980	751	Reference	Reference
No	30,700,000	1,070	989	1.41 (1.38, 1.44)	1.25 (1.22, 1.28)
Missing	264,000	1,200	730	1.00 (0.66, 1.34)	1.07 (0.73, 1.41)
Highest level of personal education					
Less than high school completion	40,300,000	1,550	925	1.28 (1.24, 1.32)	1.17 (1.13, 1.21)
High school graduate	28,800,000	887	776	1.03 (1.00, 1.06)	1.00 (0.97, 1.03)
Post-secondary graduate	71,200,000	864	761	Reference	Reference
Missing	1,590,000	1,260	776	1.07 (0.93, 1.21)	0.97 (0.83, 1.11)
Highest level of education in household					
Less than high school completion	25,200,000	1,720	937	1.28 (1.23, 1.33)	1.17 (1.12, 1.22)
High school graduate	25,800,000	1,030	804	1.12 (1.08, 1.16)	1.05 (1.01, 1.09)
Post-secondary graduate	84,900,000	879	769	Reference	Reference
Missing	6,010,000	1,040	857	1.11 (1.04, 1.18)	1.09 (1.02, 1.16)
Main source of household income					
Employment insurance, worker's compensation, welfare	6,970,000	1,590	1,630	2.55 (2.47, 2.63)	2.10 (2.02, 2.18)
Senior benefits	65,600,000	1,920	1,100	1.40 (1.35, 1.45)	1.21 (1.16, 1.26)
Wages and salaries[+]	55,600,000	585	728	Reference	Reference
Other	8,690,000	1,620	1,030	1.57 (1.50, 1.64)	1.48 (1.41, 1.55)
Missing	5,120,000	1,640	860	1.48 (1.38, 1.58)	1.36 (1.26, 1.46)
Household income, $					
≤ 29,999	36,800,000	1,610	1,060	1.66 (1.62, 1.70)	1.39 (1.35, 1.43)
30,000–79,999	64,800,000	1,000	771	1.20 (1.17, 1.23)	1.11 (1.08, 1.14)
≥ 80,000	29,100,000	624	681	Reference	Reference
Missing	11,200,000	1,400	901	1.52 (1.46, 1.58)	1.35 (1.29, 1.41)
Labour force participation					
Typically works < 5 hours/week	46,500,000	1,470	905	1.56 (1.52, 1.60)	1.35 (1.31, 1.39)
Permanently unable to work	12,000,000	2,400	1,740	3.50 (3.43, 3.57)	2.67 (2.60, 2.74)

EXHIBIT A-10 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Typically works ≥ 5 hours/week	52,200,000	557	586	Reference	Reference
Not applicable (age > 75 years)	30,500,000	2,800	153	1.87 (1.73, 2.01)	1.49 (1.34, 1.64)
Missing	721,000	863	617	1.21 (1.03, 1.39)	1.31 (1.14, 1.48)
Use of Preventive Health Care					
Flu vaccination					
Yes	105,000,000	1,210	858	Reference	Reference
No	29,600,000	571	633	0.71 (0.68, 0.74)	0.74 (0.71, 0.77)
Missing	7,310,000	2,290	1,190	1.57 (1.48, 1.66)	1.45 (1.36, 1.54)
Geographic Indicators					
Urban dweller					
Yes	111,000,000	1,010	814	Reference	Reference
No	30,600,000	965	715	0.87 (0.84, 0.90)	0.88 (0.85, 0.91)
Neighbourhood deprivation					
High	23,700,000	1,110	908	1.27 (1.22, 1.32)	1.12 (1.07, 1.17)
Moderate	87,900,000	994	784	1.09 (1.06, 1.12)	1.05 (1.02, 1.08)
Low	27,500,000	930	748	Reference	Reference
Missing	2,850,000	1,020	758	1.08 (0.98, 1.18)	1.06 (0.96, 1.16)
Local Health Integration Network					
Erie St. Clair	10,200,000	1,030	844	0.93 (0.84, 1.02)	0.90 (0.82, 0.98)
South West	18,300,000	1,030	780	0.83 (0.75, 0.91)	0.77 (0.69, 0.85)
Waterloo Wellington	7,060,000	838	704	0.75 (0.66, 0.84)	0.76 (0.67, 0.85)
Hamilton Niagara Haldimand Brant	17,100,000	950	727	0.82 (0.74, 0.90)	0.78 (0.70, 0.86)
Central West	4,510,000	927	858	0.98 (0.88, 1.08)	0.98 (0.88, 1.08)
Mississauga Halton	6,070,000	875	760	0.85 (0.76, 0.94)	0.86 (0.77, 0.95)
Toronto Central	5,170,000	948	886	Reference	Reference
Central	8,970,000	1,090	918	1.02 (0.93, 1.11)	0.92 (0.83, 1.01)
Central East	15,900,000	1,170	915	1.04 (0.96, 1.12)	0.97 (0.89, 1.05)
South East	9,360,000	1,070	790	0.89 (0.80, 0.98)	0.83 (0.74, 0.92)
Champlain	12,600,000	970	776	0.86 (0.78, 0.94)	0.83 (0.75, 0.91)
North Simcoe Muskoka	6,140,000	961	732	0.77 (0.68, 0.86)	0.77 (0.68, 0.86)
North East	14,900,000	1,030	782	0.86 (0.78, 0.94)	0.78 (0.70, 0.86)
North West	5,600,000	897	700	0.77 (0.67, 0.87)	0.65 (0.56, 0.74)
Missing	21,700	543	273	0.54 (-0.29, 1.37)	0.64 (-0.15, 1.43)
General Indicators of Health					
Self-perceived health					
Poor	16,600,000	3,210	2,200	4.76 (4.69, 4.83)	4.17 (4.09, 4.25)
Fair	28,600,000	1,910	1,270	2.54 (2.49, 2.59)	2.20 (2.15, 2.25)

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

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EXHIBIT A-10 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Good	45,300,000	1,050	816	1.57 (1.53, 1.61)	1.52 (1.48, 1.56)
Very good	36,500,000	704	621	1.15 (1.11, 1.19)	1.18 (1.14, 1.22)
Excellent	14,700,000	543	515	Reference	Reference
Missing	235,000	2,240	844	3.07 (2.60, 3.54)	1.71 (1.21, 2.21)
Self-perceived stress					
Quite a bit or extremely stressful	27,800,000	963	1,040	1.35 (1.32, 1.38)	1.31 (1.28, 1.34)
At most, a bit stressful	114,000,000	1,010	749	Reference	Reference
Missing	611,000	1,600	790	1.34 (1.09, 1.59)	1.50 (1.25, 1.75)
Sense of belonging to the community					
Very weak	31,200,000	1,170	782	0.78 (0.72, 0.84)	0.82 (0.76, 0.88)
Neither very strong nor very weak	89,000,000	895	764	0.76 (0.71, 0.81)	0.81 (0.76, 0.86)
Very strong	13,100,000	1,090	947	Reference	Reference
Missing	8,600,000	2,090	1,090	1.20 (1.11, 1.29)	1.18 (1.09, 1.27)
Body mass index					
Underweight	1,290,000	1,390	1,070	1.73 (1.57, 1.89)	1.57 (1.41, 1.73)
Normal	45,200,000	933	735	Reference	Reference
Overweight	58,300,000	938	737	0.95 (0.92, 0.98)	0.99 (0.96, 1.02)
Obese	24,100,000	1,080	901	1.18 (1.14, 1.22)	1.18 (1.14, 1.22)
Morbidly obese	9,120,000	1,320	1,190	1.65 (1.58, 1.72)	1.48 (1.41, 1.55)
Missing	3,930,000	2,630	1,500	2.22 (2.09, 2.35)	1.67 (1.54, 1.80)
Indicators of Illness					
Hypertension					
Yes	54,800,000	1,730	1,110	1.50 (1.47, 1.53)	1.38 (1.35, 1.41)
No	86,500,000	785	714	Reference	Reference
Missing	596,000	1,430	966	1.81 (1.56, 2.06)	0.92 (0.68, 1.16)
Diabetes					
Yes	27,600,000	2,350	1,500	2.07 (2.02, 2.12)	1.77 (1.72, 1.82)
No	114,000,000	876	733	Reference	Reference
Missing	135,000	1,150	871	1.05 (0.58, 1.52)	1.08 (0.61, 1.55)
Heart disease					
Yes	30,600,000	2,430	1,460	1.80 (1.75, 1.85)	1.63 (1.58, 1.68)
No	111,000,000	856	737	Reference	Reference
Missing	604,000	2,220	907	1.49 (1.19, 1.79)	1.43 (1.12, 1.74)
Cancer					
Yes	10,000,000	2,670	1,610	2.26 (2.18, 2.34)	2.25 (2.16, 2.34)
No	132,000,000	952	775	Reference	Reference
Missing	226,000	1,600	1,070	1.75 (1.33, 2.17)	0.80 (0.37, 1.23)

EXHIBIT A-10 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Stroke					
Yes	7,830,000	3,070	1,950	1.96 (1.86, 2.06)	1.57 (1.46, 1.68)
No	134,000,000	959	775	Reference	Reference
Missing	229,000	2,610	3,300	2.64 (2.11, 3.17)	1.25 (0.72, 1.78)
Dementia					
Yes	2,460,000	3,820	1,980	2.06 (1.88, 2.24)	1.59 (1.39, 1.79)
No	139,000,000	984	787	Reference	Reference
Missing	243,000	2,590	1,130	2.57 (2.08, 3.06)	3.17 (2.66, 3.68)
Fragility					
Needs help with basic tasks	25,800,000	3,010	1,960	3.43 (3.38, 3.48)	2.85 (2.79, 2.91)
Limited due to health condition	40,200,000	1,310	990	1.65 (1.62, 1.68)	1.54 (1.51, 1.57)
No limitations	75,100,000	733	626	Reference	Reference
Missing	789,000	2,370	1,370	2.68 (2.41, 2.95)	1.52 (1.25, 1.79)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

*Includes self-employment.

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EXHIBIT A-11 Age-adjusted community care cost ratios for Ontario women in a five-year period from 2004 to 2013*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Overall	215,000,000	1,260	1,090		
Health Behaviours					
Smoking status					
Heavy smoker	12,300,000	1,250	1,280	1.30 (1.25, 1.35)	1.25 (1.20, 1.30)
Light smoker	26,900,000	1,060	1,220	1.13 (1.10, 1.16)	1.07 (1.04, 1.10)
Former heavy smoker	25,600,000	1,600	1,270	1.31 (1.27, 1.35)	1.22 (1.18, 1.26)
Former light smoker	39,000,000	1,270	1,060	1.03 (1.00, 1.06)	1.03 (1.00, 1.06)
Non-smoker	108,000,000	1,240	1,030	Reference	Reference
Missing	3,020,000	1,820	1,070	1.05 (0.94, 1.16)	1.04 (0.93, 1.15)
Alcohol consumption					
Heavy drinker	5,010,000	870	973	0.94 (0.88, 1.00)	1.00 (0.94, 1.06)
Moderate drinker	137,000,000	1,100	1,020	Reference	Reference
Non-drinker	70,600,000	1,810	1,340	1.36 (1.33, 1.39)	1.28 (1.25, 1.31)
Missing	2,260,000	1,210	938	0.99 (0.89, 1.09)	1.09 (0.99, 1.19)
Physical activity					
Inactive	131,000,000	1,460	1,190	1.34 (1.31, 1.37)	1.26 (1.23, 1.29)
Moderately active	45,900,000	1,040	976	1.10 (1.07, 1.13)	1.08 (1.05, 1.11)
Active	33,000,000	919	914	Reference	Reference
Missing	5,030,000	3,860	1,490	2.47 (2.35, 2.59)	2.33 (2.21, 2.45)
Diet					
Poor diet	20,100,000	1,370	1,270	1.24 (1.20, 1.28)	1.19 (1.15, 1.23)
Fair diet	66,600,000	1,310	1,120	1.09 (1.07, 1.11)	1.06 (1.04, 1.08)
Adequate diet	116,000,000	1,160	1,030	Reference	Reference
Missing	12,300,000	2,360	1,420	1.45 (1.39, 1.51)	1.36 (1.30, 1.42)
Sociodemographic Indicators					
Immigrant status					
Immigrant	49,900,000	1,360	1,100	0.97 (0.94, 1.00)	1.00 (0.97, 1.03)
Non-immigrant	165,000,000	1,230	1,090	Reference	Reference
Missing	504,000	2,200	1,600	1.26 (0.97, 1.55)	1.17 (0.89, 1.45)
Ethnicity					
White	196,000,000	1,280	1,090	Reference	Reference
Non-white	17,900,000	1,040	1,160	1.09 (1.05, 1.13)	1.09 (1.06, 1.12)
Missing	861,000	1,440	1,240	1.09 (0.91, 1.27)	1.13 (0.96, 1.30)
Marital status					
Married or common-law	101,000,000	1,020	1,050	Reference	Reference
Other	114,000,000	1,600	1,190	1.15 (1.13, 1.17)	1.08 (1.06, 1.10)
Missing	58,100	854	561	0.69 (0.15, 1.23)	0.82 (0.31, 1.33)

EXHIBIT A-11 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,[‡] $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Household type					
Unattached individual	92,500,000	1,780	1,180	1.30 (1.27, 1.33)	1.19 (1.16, 1.22)
Living with spouse or partner	67,300,000	1,240	1,110	1.19 (1.16, 1.22)	1.16 (1.13, 1.19)
Living with spouse or partner and children	25,900,000	684	1,140	Reference	Reference
Single parent living with children	12,300,000	1,120	1,190	1.31 (1.26, 1.36)	1.25 (1.20, 1.30)
Other	16,300,000	1,100	1,210	1.25 (1.21, 1.29)	1.18 (1.14, 1.22)
Missing	626,000	854	1,490	1.16 (0.99, 1.33)	1.12 (0.96, 1.28)
Residence owned by a household member					
Yes	152,000,000	1,170	1,040	Reference	Reference
No	62,300,000	1,550	1,320	1.28 (1.25, 1.31)	1.18 (1.16, 1.20)
Missing	226,000	925	839	1.38 (1.10, 1.66)	1.75 (1.48, 2.02)
Highest level of personal education					
Less than high school completion	64,800,000	1,920	1,240	1.19 (1.16, 1.22)	1.12 (1.09, 1.15)
High school graduate	49,900,000	1,170	1,010	0.98 (0.95, 1.01)	0.97 (0.95, 0.99)
Post-secondary graduate	98,000,000	1,050	1,080	Reference	Reference
Missing	2,180,000	1,930	1,330	1.24 (1.11, 1.37)	1.06 (0.93, 1.19)
Highest level of education in household					
Less than high school completion	48,400,000	2,060	1,280	1.16 (1.13, 1.19)	1.09 (1.06, 1.12)
High school graduate	40,300,000	1,290	1,040	1.00 (0.97, 1.03)	0.97 (0.94, 1.00)
Post-secondary graduate	120,000,000	1,080	1,080	Reference	Reference
Missing	6,280,000	1,290	1,110	1.04 (0.98, 1.10)	1.01 (0.95, 1.07)
Main source of household income					
Employment insurance, worker's compensation, welfare	9,540,000	1,660	1,780	1.96 (1.90, 2.02)	1.63 (1.57, 1.69)
Senior benefits	102,000,000	1,980	1,240	1.24 (1.20, 1.28)	1.14 (1.10, 1.18)
Wages and salaries[+]	79,500,000	797	1,090	Reference	Reference
Other	13,400,000	1,650	1,290	1.36 (1.31, 1.41)	1.27 (1.22, 1.32)
Missing	9,930,000	1,800	1,130	1.22 (1.16, 1.28)	1.11 (1.05, 1.17)
Household income, $					
≤ 29,999	80,700,000	1,860	1,340	1.44 (1.41, 1.47)	1.25 (1.22, 1.28)
30,000–79,999	77,700,000	1,090	1,020	1.10 (1.07, 1.13)	1.06 (1.03, 1.09)
≥ 80,000	32,900,000	807	1,030	Reference	Reference
Missing	23,600,000	1,560	1,090	1.17 (1.13, 1.21)	1.08 (1.04, 1.12)
Labour force participation					
Typically works < 5 hours/week	75,900,000	1,350	988	1.31 (1.28, 1.34)	1.22 (1.19, 1.25)

EXHIBIT A-11 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Permanently unable to work	16,800,000	2,760	2,320	3.08 (3.02, 3.14)	2.36 (2.30, 2.42)
Typically works ≥ 5 hours/week	65,000,000	742	787	Reference	Reference
Not applicable (age > 75 years)	56,500,000	2,810	249	1.56 (1.46, 1.66)	1.40 (1.30, 1.50)
Missing	770,000	983	806	1.27 (1.11, 1.43)	1.24 (1.09, 1.39)
Use of Preventive Health Care					
Flu vaccination					
Yes	167,000,000	1,430	1,160	Reference	Reference
No	43,300,000	822	917	0.76 (0.74, 0.78)	0.77 (0.75, 0.79)
Missing	5,060,000	3,720	1,610	1.88 (1.77, 1.99)	1.88 (1.76, 2.00)
Mammogram					
Yes	153,000,000	1,480	936	Reference	Reference
No	36,900,000	968	857	0.84 (0.81, 0.87)	0.77 (0.74, 0.80)
Not applicable (age < 35 years)	19,200,000	703	191	-	-
Missing	5,410,000	3,790	1,440	1.86 (1.75, 1.97)	1.80 (1.69, 1.91)
Pap test					
Yes	191,000,000	1,210	1,080	Reference	Reference
No	17,200,000	1,700	1,120	1.02 (0.97, 1.07)	0.99 (0.95, 1.03)
Missing	6,130,000	3,370	1,450	1.72 (1.62, 1.82)	1.68 (1.58, 1.78)
Geographic Indicators					
Urban dweller					
Yes	173,000,000	1,290	1,110	Reference	Reference
No	41,400,000	1,150	1,020	0.91 (0.88, 0.94)	0.89 (0.86, 0.92)
Neighbourhood deprivation					
High	40,500,000	1,470	1,240	1.28 (1.24, 1.32)	1.18 (1.15, 1.21)
Moderate	134,000,000	1,260	1,080	1.10 (1.07, 1.13)	1.02 (0.99, 1.05)
Low	36,000,000	1,080	1,030	Reference	Reference
Missing	4,720,000	1,300	984	0.99 (0.91, 1.07)	1.01 (0.94, 1.08)
Local Health Integration Network					
Erie St. Clair	16,500,000	1,370	1,140	0.88 (0.81, 0.95)	0.93 (0.86, 1.00)
South West	28,000,000	1,300	1,090	0.81 (0.75, 0.87)	0.83 (0.77, 0.89)
Waterloo Wellington	10,800,000	1,070	958	0.72 (0.65, 0.79)	0.76 (0.69, 0.83)
Hamilton Niagara Haldimand Brant	25,400,000	1,190	995	0.76 (0.70, 0.82)	0.79 (0.73, 0.85)
Central West	6,720,000	1,240	1,190	0.98 (0.90, 1.06)	1.02 (0.94, 1.10)
Mississauga Halton	9,040,000	1,150	1,100	0.80 (0.73, 0.87)	0.90 (0.83, 0.97)
Toronto Central	9,150,000	1,420	1,350	Reference	Reference
Central	12,600,000	1,320	1,200	0.87 (0.80, 0.94)	0.92 (0.85, 0.99)

EXHIBIT A-11 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Central East	22,200,000	1,330	1,160	0.91 (0.85, 0.97)	0.96 (0.90, 1.02)
South East	14,100,000	1,270	1,080	0.79 (0.72, 0.86)	0.80 (0.73, 0.87)
Champlain	20,100,000	1,220	1,100	0.83 (0.77, 0.89)	0.87 (0.81, 0.93)
North Simcoe Muskoka	9,320,000	1,250	1,050	0.74 (0.66, 0.82)	0.78 (0.71, 0.85)
North East	22,000,000	1,250	1,070	0.80 (0.74, 0.86)	0.79 (0.73, 0.85)
North West	8,780,000	1,230	989	0.72 (0.64, 0.80)	0.71 (0.64, 0.78)
Missing	21,100	753	266	0.43 (-0.41, 1.27)	0.56 (-0.23, 1.35)
General Indicators of Health					
Self-perceived health					
Poor	24,500,000	3,660	2,950	4.45 (4.39, 4.51)	3.81 (3.75, 3.87)
Fair	44,600,000	2,280	1,740	2.55 (2.51, 2.59)	2.18 (2.14, 2.22)
Good	65,000,000	1,320	1,100	1.54 (1.51, 1.57)	1.49 (1.46, 1.52)
Very good	56,300,000	916	870	1.18 (1.15, 1.21)	1.18 (1.15, 1.21)
Excellent	23,900,000	715	737	Reference	Reference
Missing	416,000	3,240	2,980	3.48 (3.11, 3.85)	1.82 (1.43, 2.21)
Self-perceived stress					
Quite a bit or extremely stressful	46,800,000	1,270	1,390	1.34 (1.31, 1.37)	1.30 (1.27, 1.33)
At most, a bit stressful	166,000,000	1,250	1,030	Reference	Reference
Missing	1,640,000	3,020	1,550	1.69 (1.50, 1.88)	1.17 (0.97, 1.37)
Sense of belonging to the community					
Very weak	48,300,000	1,380	1,050	0.77 (0.73, 0.81)	0.80 (0.76, 0.84)
Neither very strong nor very weak	137,000,000	1,150	1,060	0.78 (0.74, 0.82)	0.83 (0.79, 0.87)
Very strong	21,600,000	1,510	1,340	Reference	Reference
Missing	8,000,000	2,780	1,510	1.24 (1.15, 1.33)	1.23 (1.14, 1.32)
Body mass index					
Underweight	6,900,000	1,560	1,370	1.37 (1.30, 1.44)	1.24 (1.17, 1.31)
Normal	86,100,000	1,110	994	Reference	Reference
Overweight	65,200,000	1,270	1,060	1.03 (1.00, 1.06)	1.02 (1.00, 1.04)
Obese	30,300,000	1,410	1,220	1.17 (1.14, 1.20)	1.14 (1.11, 1.17)
Morbidly obese	17,600,000	1,640	1,570	1.54 (1.49, 1.59)	1.40 (1.36, 1.44)
Missing	8,780,000	1,630	1,290	1.35 (1.29, 1.41)	1.26 (1.20, 1.32)
Indicators of Illness					
Hypertension					
Yes	82,900,000	1,920	1,440	1.30 (1.27, 1.33)	1.26 (1.23, 1.29)
No	132,000,000	1,030	1,030	Reference	Reference
Missing	349,000	1,600	1,170	1.21 (0.91, 1.51)	1.13 (0.84, 1.42)

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

APPENDIX

EXHIBIT A-11 *continued*

	Community Care Costs, $	Crude Rate, $	Age- Standardized Rate,‡ $	Cost Ratio (95% CI)	Cost Ratio, Top 5% Excluded (95% CI)
Diabetes					
Yes	31,800,000	2,590	1,850	1.92 (1.88, 1.96)	1.65 (1.61, 1.69)
No	183,000,000	1,150	1,040	Reference	Reference
Missing	124,000	1,380	977	1.25 (0.79, 1.71)	1.49 (1.06, 1.92)
Heart disease					
Yes	36,200,000	2,830	2,240	1.72 (1.68, 1.76)	1.55 (1.51, 1.59)
No	178,000,000	1,130	1,040	Reference	Reference
Missing	809,000	2,700	1,610	1.56 (1.31, 1.81)	1.51 (1.26, 1.76)
Cancer					
Yes	10,900,000	2,590	1,920	2.28 (2.21, 2.35)	2.33 (2.26, 2.40)
No	204,000,000	1,220	1,070	Reference	Reference
Missing	447,000	2,230	2,020	2.83 (2.52, 3.14)	1.86 (1.57, 2.15)
Stroke					
Yes	10,600,000	3,800	2,210	2.18 (2.10, 2.26)	1.82 (1.73, 1.91)
No	204,000,000	1,220	1,070	Reference	Reference
Missing	301,000	1,990	1,170	1.52 (1.17, 1.87)	1.94 (1.59, 2.29)
Dementia					
Yes	3,160,000	5,020	2,090	2.26 (2.10, 2.42)	2.11 (1.94, 2.28)
No	211,000,000	1,240	1,090	Reference	Reference
Missing	230,000	2,100	1,620	1.20 (0.79, 1.61)	1.36 (0.96, 1.76)
Fragility					
Needs help with basic tasks	66,700,000	3,020	2,180	2.78 (2.75, 2.81)	2.31 (2.28, 2.34)
Limited due to health condition	47,100,000	1,350	1,200	1.44 (1.41, 1.47)	1.41 (1.38, 1.44)
No limitations	100,000,000	883	840	Reference	Reference
Missing	856,000	2,280	1,410	1.95 (1.74, 2.16)	1.87 (1.66, 2.08)

*Follow-up years two to five for respondents to the Canadian Community Health Surveys conducted in 2003, 2005 and 2007–2008.

‡Health care costs per person-year, age-adjusted using the 1991 Canadian standard population.

†Includes self-employment.

EXHIBIT A-12 Hospital care cost ratios for the male cohort, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	1.12 (1.05, 1.19)	1.12 (1.05, 1.19)	1.08 (1.01, 1.15)	1.12 (1.05, 1.19)	1.12 (1.05, 1.19)
CCHS 3.1 (2005)	0.96 (0.89, 1.03)	0.96 (0.89, 1.03)	0.95 (0.88, 1.02)	1.02 (0.95, 1.09)	1.01 (0.94, 1.08)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
25–29	0.02 (-0.15, 0.19)	0.02 (-0.16, 0.20)	0.02 (-0.16, 0.20)	0.03 (-0.15, 0.21)	0.03 (-0.15, 0.21)
30–34	0.03 (-0.13, 0.19)	0.04 (-0.13, 0.21)	0.04 (-0.13, 0.21)	0.05 (-0.12, 0.22)	0.05 (-0.12, 0.22)
35–39	0.03 (-0.13, 0.19)	0.04 (-0.13, 0.21)	0.04 (-0.13, 0.21)	0.05 (-0.12, 0.22)	0.05 (-0.12, 0.22)
40–44	0.05 (-0.11, 0.21)	0.05 (-0.11, 0.21)	0.06 (-0.10, 0.22)	0.07 (-0.10, 0.24)	0.07 (-0.09, 0.23)
45–49	0.07 (-0.09, 0.23)	0.07 (-0.10, 0.24)	0.07 (-0.10, 0.24)	0.09 (-0.08, 0.26)	0.09 (-0.08, 0.26)
50–54	0.09 (-0.07, 0.25)	0.10 (-0.06, 0.26)	0.11 (-0.05, 0.27)	0.12 (-0.04, 0.28)	0.13 (-0.03, 0.29)
55–59	0.15 (-0.01, 0.31)	0.17 (0.01, 0.33)	0.18 (0.02, 0.34)	0.19 (0.03, 0.35)	0.20 (0.04, 0.36)
60–64	0.21 (0.05, 0.37)	0.22 (0.06, 0.38)	0.23 (0.07, 0.39)	0.24 (0.08, 0.40)	0.25 (0.09, 0.41)
65–69	0.32 (0.16, 0.48)	0.33 (0.17, 0.49)	0.33 (0.17, 0.49)	0.32 (0.16, 0.48)	0.36 (0.20, 0.52)
70–74	0.48 (0.31, 0.65)	0.49 (0.32, 0.66)	0.49 (0.32, 0.66)	0.50 (0.33, 0.67)	0.53 (0.36, 0.70)
75–79	0.66 (0.48, 0.84)	0.67 (0.49, 0.85)	0.66 (0.48, 0.84)	0.64 (0.46, 0.82)	0.69 (0.51, 0.87)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	2.10 (2.00, 2.20)	1.91 (1.81, 2.01)	1.73 (1.63, 1.83)	1.73 (1.63, 1.83)	1.65 (1.55, 1.75)
Light smoker	1.97 (1.88, 2.06)	1.84 (1.75, 1.93)	1.64 (1.55, 1.73)	1.62 (1.53, 1.71)	1.56 (1.47, 1.65)
Former heavy smoker	1.52 (1.44, 1.60)	1.47 (1.39, 1.55)	1.42 (1.34, 1.50)	1.35 (1.27, 1.43)	1.26 (1.18, 1.34)
Former light smoker	1.35 (1.27, 1.43)	1.37 (1.29, 1.45)	1.34 (1.26, 1.42)	1.37 (1.29, 1.45)	1.31 (1.23, 1.39)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	2.14 (1.86, 2.42)	1.98 (1.70, 2.26)	1.82 (1.54, 2.10)	1.97 (1.69, 2.25)	1.78 (1.50, 2.06)
Alcohol consumption					
Heavy drinker	1.35 (1.26, 1.44)	1.36 (1.27, 1.45)	1.33 (1.24, 1.42)	1.35 (1.26, 1.44)	1.37 (1.28, 1.46)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.68 (1.60, 1.76)	1.54 (1.46, 1.62)	1.43 (1.35, 1.51)	1.32 (1.24, 1.40)	1.25 (1.17, 1.33)
Missing	1.25 (1.05, 1.45)	1.21 (1.00, 1.42)	1.18 (0.97, 1.39)	1.25 (1.04, 1.46)	1.26 (1.05, 1.47)
Physical activity					
Inactive	1.25 (1.18, 1.32)	1.27 (1.20, 1.34)	1.26 (1.19, 1.33)	1.16 (1.09, 1.23)	1.12 (1.05, 1.19)
Moderately active	1.05 (0.97, 1.13)	1.05 (0.97, 1.13)	1.03 (0.95, 1.11)	0.99 (0.91, 1.07)	0.99 (0.91, 1.07)
Active	Reference	Reference	Reference	Reference	Reference
Missing	2.45 (2.19, 2.71)	5.04 (4.48, 5.60)	4.85 (4.30, 5.40)	3.26 (2.71, 3.81)	2.80 (2.28, 3.32)

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EXHIBIT A-12 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Diet					
Poor diet	1.32 (1.23, 1.41)	1.22 (1.13, 1.31)	1.11 (1.02, 1.20)	1.13 (1.04, 1.22)	1.11 (1.02, 1.20)
Fair diet	1.08 (1.02, 1.14)	1.02 (0.96, 1.08)	0.99 (0.93, 1.05)	0.99 (0.93, 1.05)	1.02 (0.96, 1.08)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	0.92 (0.74, 1.10)	0.90 (0.71, 1.09)	0.85 (0.66, 1.04)	0.83 (0.64, 1.02)	0.84 (0.66, 1.02)
Immigrant status					
Immigrant		0.79 (0.72, 0.86)	0.80 (0.73, 0.87)	0.84 (0.77, 0.91)	0.87 (0.80, 0.94)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		0.24 (-0.64, 1.12)	0.24 (-0.78, 1.26)	0.21 (-0.78, 1.20)	0.19 (-0.80, 1.18)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		1.02 (0.92, 1.12)	0.95 (0.85, 1.05)	0.97 (0.87, 1.07)	1.03 (0.93, 1.13)
Missing		2.43 (1.95, 2.91)	1.92 (1.44, 2.40)	2.37 (1.88, 2.86)	2.30 (1.81, 2.79)
Highest level of personal education					
Less than high school completion		1.36 (1.28, 1.44)	1.24 (1.16, 1.32)	1.21 (1.13, 1.29)	1.24 (1.16, 1.32)
High school graduate		1.05 (0.98, 1.12)	1.02 (0.95, 1.09)	0.97 (0.90, 1.04)	0.98 (0.91, 1.05)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		1.21 (0.91, 1.51)	1.09 (0.78, 1.40)	1.10 (0.79, 1.41)	1.00 (0.70, 1.30)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		1.03 (0.96, 1.10)	1.07 (1.00, 1.14)	1.06 (0.99, 1.13)	1.09 (1.02, 1.16)
Neighbourhood deprivation					
High		1.31 (1.21, 1.41)	1.04 (0.94, 1.14)	1.00 (0.90, 1.10)	0.98 (0.88, 1.08)
Moderate		1.18 (1.11, 1.25)	1.06 (0.99, 1.13)	1.04 (0.97, 1.11)	1.04 (0.97, 1.11)
Low		Reference	Reference	Reference	Reference
Missing		1.42 (1.21, 1.63)	1.19 (0.98, 1.40)	1.16 (0.95, 1.37)	1.15 (0.94, 1.36)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.74 (0.68, 0.80)	0.75 (0.69, 0.81)	0.83 (0.77, 0.89)	0.89 (0.83, 0.95)
Missing		0.41 (-0.12, 0.94)	0.46 (-0.06, 0.98)	0.48 (-0.02, 0.98)	0.43 (-0.04, 0.90)
Self-perceived stress					
Quite a bit or extremely stressful		1.36 (1.28, 1.44)	1.24 (1.16, 1.32)	1.21 (1.13, 1.29)	1.24 (1.16, 1.32)
At most, a bit stressful		1.05 (0.98, 1.12)	1.02 (0.95, 1.09)	0.97 (0.90, 1.04)	0.98 (0.91, 1.05)
Missing		Reference	Reference	Reference	Reference

EXHIBIT A-12 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			1.18 (1.11, 1.25)	1.22 (1.15, 1.29)	1.18 (1.11, 1.25)
Missing			0.47 (-0.86, 1.80)	0.55 (-0.77, 1.87)	0.62 (-0.70, 1.94)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.37 (1.29, 1.45)	1.32 (1.24, 1.40)	1.31 (1.23, 1.39)
Missing			1.36 (0.51, 2.21)	1.30 (0.49, 2.11)	1.33 (0.54, 2.12)
Household income, $					
≤ 29,999			1.43 (1.32, 1.54)	1.32 (1.21, 1.43)	1.20 (1.09, 1.31)
30,000–79,999			1.20 (1.13, 1.27)	1.16 (1.09, 1.23)	1.11 (1.04, 1.18)
≥ 80,000			Reference	Reference	Reference
Missing			1.22 (1.08, 1.36)	1.19 (1.05, 1.33)	1.13 (0.99, 1.27)
Body mass index					
Underweight				2.38 (2.04, 2.72)	2.02 (1.68, 2.36)
Normal				Reference	Reference
Overweight				0.94 (0.87, 1.01)	0.97 (0.90, 1.04)
Obese				1.09 (1.00, 1.18)	1.09 (1.00, 1.18)
Morbidly obese				1.46 (1.32, 1.60)	1.46 (1.32, 1.60)
Missing				1.35 (1.07, 1.63)	1.38 (1.10, 1.66)
Hypertension					
Yes				1.19 (1.12, 1.26)	1.17 (1.10, 1.24)
No				Reference	Reference
Missing				0.78 (0.27, 1.29)	0.91 (0.40, 1.42)
Diabetes					
Yes				1.69 (1.59, 1.79)	1.62 (1.52, 1.72)
No				Reference	Reference
Missing				0.52 (-0.45, 1.49)	0.51 (-0.47, 1.49)
Heart disease					
Yes				1.67 (1.57, 1.77)	1.53 (1.43, 1.63)
No				Reference	Reference
Missing				0.95 (0.31, 1.59)	0.98 (0.34, 1.62)

EXHIBIT A-12 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Cancer					
Yes				2.17 (2.00, 2.34)	1.93 (1.76, 2.10)
No				Reference	Reference
Missing				1.86 (0.98, 2.74)	1.39 (0.51, 2.27)
Stroke					
Yes				1.25 (1.05, 1.45)	1.03 (0.82, 1.24)
No				Reference	Reference
Missing				1.61 (0.50, 2.72)	1.57 (0.45, 2.69)
Dementia					
Yes				1.84 (1.45, 2.23)	1.44 (1.05, 1.83)
No				Reference	Reference
Missing				0.47 (-0.57, 1.51)	0.48 (-0.56, 1.52)
Fragility					
Needs help with basic tasks					2.53 (2.41, 2.65)
Limited due to health condition					1.46 (1.39, 1.53)
No limitations					Reference
Missing					1.25 (0.68, 1.82)

CCHS = Canadian Community Health Survey

EXHIBIT A-13 Hospital care cost ratios for the female cohort, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	1.05 (0.99, 1.11)	1.06 (1.00, 1.12)	1.05 (0.99, 1.11)	1.06 (1.00, 1.12)	1.05 (0.99, 1.11)
CCHS 3.1 (2005)	1.03 (0.97, 1.09)	1.03 (0.97, 1.09)	1.04 (0.98, 1.10)	1.06 (1.00, 1.12)	1.05 (0.99, 1.11)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
25–29	0.10 (-0.03, 0.23)	0.11 (-0.02, 0.24)	0.13 (-0.01, 0.27)	0.17 (0.03, 0.31)	0.19 (0.05, 0.33)
30–34	0.09 (-0.03, 0.21)	0.09 (-0.04, 0.22)	0.11 (-0.02, 0.24)	0.14 (0.00, 0.28)	0.15 (0.01, 0.29)
35–39	0.06 (-0.06, 0.18)	0.07 (-0.06, 0.20)	0.08 (-0.05, 0.21)	0.10 (-0.03, 0.23)	0.11 (-0.02, 0.24)
40–44	0.07 (-0.05, 0.19)	0.07 (-0.06, 0.20)	0.08 (-0.05, 0.21)	0.10 (-0.03, 0.23)	0.11 (-0.02, 0.24)
45–49	0.10 (-0.02, 0.22)	0.10 (-0.03, 0.23)	0.11 (-0.02, 0.24)	0.14 (0.01, 0.27)	0.14 (0.01, 0.27)
50–54	0.14 (0.02, 0.26)	0.15 (0.03, 0.27)	0.18 (0.05, 0.31)	0.18 (0.05, 0.31)	0.18 (0.05, 0.31)
55–59	0.19 (0.08, 0.30)	0.19 (0.07, 0.31)	0.21 (0.09, 0.33)	0.23 (0.11, 0.35)	0.24 (0.12, 0.36)
60–64	0.23 (0.11, 0.35)	0.24 (0.12, 0.36)	0.27 (0.15, 0.39)	0.28 (0.16, 0.40)	0.30 (0.18, 0.42)
65–69	0.37 (0.25, 0.49)	0.37 (0.25, 0.49)	0.39 (0.27, 0.51)	0.40 (0.28, 0.52)	0.45 (0.33, 0.57)
70–74	0.42 (0.30, 0.54)	0.42 (0.30, 0.54)	0.45 (0.33, 0.57)	0.45 (0.33, 0.57)	0.50 (0.38, 0.62)
75–79	0.63 (0.50, 0.76)	0.64 (0.51, 0.77)	0.65 (0.52, 0.78)	0.66 (0.53, 0.79)	0.69 (0.56, 0.82)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	1.90 (1.79, 2.01)	1.77 (1.66, 1.88)	1.68 (1.57, 1.79)	1.64 (1.53, 1.75)	1.53 (1.42, 1.64)
Light smoker	1.36 (1.29, 1.43)	1.34 (1.27, 1.41)	1.25 (1.18, 1.32)	1.31 (1.24, 1.38)	1.29 (1.22, 1.36)
Former heavy smoker	1.59 (1.51, 1.67)	1.53 (1.44, 1.62)	1.50 (1.41, 1.59)	1.41 (1.33, 1.49)	1.35 (1.27, 1.43)
Former light smoker	1.24 (1.17, 1.31)	1.19 (1.12, 1.26)	1.18 (1.11, 1.25)	1.13 (1.06, 1.20)	1.11 (1.04, 1.18)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	0.85 (0.61, 1.09)	0.82 (0.58, 1.06)	0.82 (0.58, 1.06)	0.82 (0.58, 1.06)	0.81 (0.57, 1.05)
Alcohol consumption					
Heavy drinker	0.91 (0.78, 1.04)	0.92 (0.79, 1.05)	0.96 (0.83, 1.09)	1.00 (0.87, 1.13)	1.08 (0.95, 1.21)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.47 (1.41, 1.53)	1.48 (1.42, 1.54)	1.40 (1.34, 1.46)	1.26 (1.20, 1.32)	1.18 (1.12, 1.24)
Missing	0.86 (0.63, 1.09)	0.90 (0.67, 1.13)	0.94 (0.71, 1.17)	0.97 (0.74, 1.20)	0.98 (0.75, 1.21)
Physical activity					
Inactive	1.37 (1.31, 1.43)	1.36 (1.30, 1.42)	1.35 (1.29, 1.41)	1.19 (1.13, 1.25)	1.11 (1.05, 1.17)
Moderately active	1.23 (1.16, 1.30)	1.23 (1.16, 1.30)	1.24 (1.17, 1.31)	1.11 (1.04, 1.18)	1.09 (1.02, 1.16)
Active	Reference	Reference	Reference	Reference	Reference
Missing	2.47 (2.17, 2.77)	2.37 (1.28, 3.46)	2.48 (1.40, 3.56)	1.98 (0.90, 3.06)	1.45 (0.45, 2.45)

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EXHIBIT A-13 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Diet					
Poor diet	1.29 (1.20, 1.38)	1.24 (1.15, 1.33)	1.21 (1.12, 1.30)	1.21 (1.12, 1.30)	1.19 (1.10, 1.28)
Fair diet	1.05 (1.00, 1.10)	1.05 (1.00, 1.10)	1.03 (0.98, 1.08)	1.05 (1.00, 1.10)	1.05 (1.00, 1.10)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	1.21 (1.05, 1.37)	1.20 (1.04, 1.36)	1.17 (1.01, 1.33)	1.23 (1.07, 1.39)	1.22 (1.06, 1.38)
Immigrant status					
Immigrant		0.84 (0.78, 0.90)	0.85 (0.79, 0.91)	0.91 (0.85, 0.97)	0.96 (0.90, 1.02)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		1.13 (0.45, 1.81)	1.15 (0.48, 1.82)	1.31 (0.65, 1.97)	1.45 (0.79, 2.11)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		0.95 (0.86, 1.04)	0.91 (0.82, 1.00)	0.87 (0.78, 0.96)	0.87 (0.78, 0.96)
Missing		0.71 (0.28, 1.14)	0.70 (0.28, 1.12)	0.68 (0.26, 1.10)	0.71 (0.29, 1.13)
Highest level of personal education					
Less than high school completion		1.02 (0.95, 1.09)	0.97 (0.90, 1.04)	0.94 (0.87, 1.01)	0.97 (0.90, 1.04)
High school graduate		0.91 (0.85, 0.97)	0.89 (0.83, 0.95)	0.91 (0.85, 0.97)	0.93 (0.87, 0.99)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		1.28 (0.99, 1.57)	1.29 (1.00, 1.58)	1.25 (0.96, 1.54)	1.30 (1.01, 1.59)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		1.03 (0.96, 1.10)	1.07 (1.00, 1.14)	1.06 (0.99, 1.13)	1.09 (1.02, 1.16)
Neighbourhood deprivation					
High		1.31 (1.23, 1.39)	1.15 (1.06, 1.24)	1.17 (1.09, 1.25)	1.20 (1.12, 1.28)
Moderate		1.14 (1.08, 1.20)	1.07 (1.01, 1.13)	1.11 (1.05, 1.17)	1.13 (1.07, 1.19)
Low		Reference	Reference	Reference	Reference
Missing		1.50 (1.33, 1.67)	1.38 (1.20, 1.56)	1.51 (1.33, 1.69)	1.66 (1.48, 1.84)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.74 (0.69, 0.79)	0.75 (0.70, 0.80)	0.81 (0.76, 0.86)	0.82 (0.77, 0.87)
Missing		0.99 (-0.07, 2.05)	1.04 (-0.01, 2.09)	0.93 (-0.11, 1.97)	0.83 (-0.14, 1.80)
Self-perceived stress					
Quite a bit or extremely stressful		1.15 (1.09, 1.21)	1.15 (1.09, 1.21)	1.03 (0.97, 1.09)	0.98 (0.92, 1.04)
At most, a bit stressful		Reference	Reference	Reference	Reference
Missing		1.17 (0.76, 1.58)	1.28 (0.87, 1.69)	1.11 (0.69, 1.53)	0.95 (0.53, 1.37)

EXHIBIT A-13 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			1.04 (0.98, 1.10)	1.03 (0.97, 1.09)	1.03 (0.97, 1.09)
Missing			0.20 (-0.99, 1.39)	0.20 (-0.98, 1.38)	0.20 (-0.99, 1.39)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.14 (1.08, 1.20)	1.15 (1.09, 1.21)	1.12 (1.06, 1.18)
Missing			1.43 (0.79, 2.07)	1.56 (0.92, 2.20)	1.21 (0.58, 1.84)
Household income, $					
≤ 29,999			1.43 (1.34, 1.52)	1.30 (1.21, 1.39)	1.20 (1.11, 1.29)
30,000–79,999			1.05 (0.98, 1.12)	1.01 (0.94, 1.08)	0.99 (0.92, 1.06)
≥ 80,000			Reference	Reference	Reference
Missing			1.08 (0.98, 1.18)	1.03 (0.93, 1.13)	1.01 (0.91, 1.11)
Body mass index					
Underweight				1.67 (1.52, 1.82)	1.52 (1.37, 1.67)
Normal				Reference	Reference
Overweight				1.00 (0.94, 1.06)	0.97 (0.91, 1.03)
Obese				1.04 (0.96, 1.12)	1.00 (0.92, 1.08)
Morbidly obese				1.28 (1.18, 1.38)	1.19 (1.09, 1.29)
Missing				1.65 (1.51, 1.79)	1.59 (1.45, 1.73)
Hypertension					
Yes				1.20 (1.14, 1.26)	1.13 (1.07, 1.19)
No				Reference	Reference
Missing				0.65 (-0.03, 1.33)	0.66 (-0.03, 1.35)
Diabetes					
Yes				2.01 (1.92, 2.10)	1.76 (1.67, 1.85)
No				Reference	Reference
Missing				0.24 (-1.23, 1.71)	0.25 (-1.40, 1.90)
Heart disease					
Yes				1.52 (1.43, 1.61)	1.36 (1.27, 1.45)
No				Reference	Reference
Missing				1.12 (0.54, 1.70)	0.99 (0.39, 1.59)
Cancer					
Yes				2.61 (2.46, 2.76)	2.22 (2.07, 2.37)
No				Reference	Reference
Missing				2.30 (1.51, 3.09)	2.16 (1.34, 2.98)

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EXHIBIT A-13 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Stroke					
Yes				1.68 (1.50, 1.86)	1.30 (1.12, 1.48)
No				Reference	Reference
Missing				1.36 (0.38, 2.34)	1.19 (0.16, 2.22)
Dementia					
Yes				1.31 (0.94, 1.68)	1.06 (0.69, 1.43)
No				Reference	Reference
Missing				0.77 (-0.50, 2.04)	0.87 (-0.53, 2.27)
Fragility					
Needs help with basic tasks					2.31 (2.23, 2.39)
Limited due to health condition					1.25 (1.19, 1.31)
No limitations					Reference
Missing					1.75 (1.27, 2.23)

CCHS = Canadian Community Health Survey

EXHIBIT A-14 Drug cost ratios for the male cohort aged 65 and older, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	0.98 (0.92, 1.04)	0.99 (0.93, 1.05)	0.99 (0.93, 1.05)	1.03 (0.97, 1.09)	1.04 (0.98, 1.10)
CCHS 3.1 (2005)	1.06 (1.00, 1.12)	1.07 (1.01, 1.13)	1.07 (1.01, 1.13)	1.11 (1.05, 1.17)	1.13 (1.07, 1.19)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
65–69	0.79 (0.71, 0.87)	0.81 (0.73, 0.89)	0.81 (0.73, 0.89)	0.77 (0.69, 0.85)	0.81 (0.73, 0.89)
70–74	0.89 (0.81, 0.97)	0.90 (0.82, 0.98)	0.90 (0.82, 0.98)	0.87 (0.79, 0.95)	0.90 (0.82, 0.98)
75–79	1.05 (0.97, 1.13)	1.04 (0.96, 1.12)	1.04 (0.96, 1.12)	0.98 (0.90, 1.06)	1.02 (0.94, 1.10)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	1.25 (1.11, 1.39)	1.26 (1.12, 1.40)	1.23 (1.09, 1.37)	1.20 (1.06, 1.34)	1.18 (1.04, 1.32)
Light smoker	1.17 (1.06, 1.28)	1.16 (1.05, 1.27)	1.14 (1.03, 1.25)	1.20 (1.09, 1.31)	1.18 (1.07, 1.29)
Former heavy smoker	1.24 (1.17, 1.31)	1.22 (1.15, 1.29)	1.21 (1.14, 1.28)	1.14 (1.07, 1.21)	1.14 (1.07, 1.21)
Former light smoker	1.09 (1.02, 1.16)	1.08 (1.01, 1.15)	1.07 (1.00, 1.14)	1.05 (0.98, 1.12)	1.06 (0.99, 1.13)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	1.14 (0.97, 1.31)	1.14 (0.97, 1.31)	1.13 (0.96, 1.30)	1.10 (0.93, 1.27)	1.12 (0.96, 1.28)
Alcohol consumption					
Heavy drinker	0.91 (0.79, 1.03)	0.94 (0.82, 1.06)	0.93 (0.81, 1.05)	0.98 (0.87, 1.09)	0.99 (0.88, 1.10)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.24 (1.17, 1.31)	1.21 (1.14, 1.28)	1.19 (1.12, 1.26)	1.12 (1.06, 1.18)	1.10 (1.04, 1.16)
Missing	0.94 (0.78, 1.10)	0.93 (0.77, 1.09)	0.94 (0.78, 1.10)	1.00 (0.84, 1.16)	1.01 (0.85, 1.17)
Physical activity					
Inactive	1.29 (1.22, 1.36)	1.27 (1.20, 1.34)	1.25 (1.18, 1.32)	1.15 (1.08, 1.22)	1.09 (1.02, 1.16)
Moderately active	1.12 (1.04, 1.20)	1.10 (1.02, 1.18)	1.10 (1.02, 1.18)	1.04 (0.97, 1.11)	1.02 (0.95, 1.09)
Active	Reference	Reference	Reference	Reference	Reference
Missing	1.51 (1.33, 1.69)	2.46 (1.57, 3.35)	2.37 (1.48, 3.26)	1.73 (0.89, 2.57)	1.56 (0.78, 2.34)
Diet					
Poor diet	1.05 (0.96, 1.14)	1.04 (0.95, 1.13)	1.03 (0.94, 1.12)	1.06 (0.97, 1.15)	1.03 (0.94, 1.12)
Fair diet	1.04 (0.98, 1.10)	1.03 (0.97, 1.09)	1.03 (0.97, 1.09)	1.04 (0.98, 1.10)	1.04 (0.98, 1.10)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	1.14 (1.00, 1.28)	1.14 (1.00, 1.28)	1.14 (1.00, 1.28)	1.13 (0.99, 1.27)	1.14 (1.00, 1.28)
Immigrant status					
Immigrant		0.95 (0.89, 1.01)	0.95 (0.89, 1.01)	0.95 (0.89, 1.01)	0.97 (0.91, 1.03)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		1.95 (1.23, 2.67)	2.15 (1.34, 2.96)	1.82 (1.05, 2.59)	1.47 (0.70, 2.24)

EXHIBIT A-14 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		1.00 (0.88, 1.12)	0.98 (0.86, 1.10)	0.96 (0.84, 1.08)	0.97 (0.85, 1.09)
Missing		0.83 (0.42, 1.24)	0.82 (0.41, 1.23)	0.85 (0.44, 1.26)	0.93 (0.52, 1.34)
Highest level of personal education					
Less than high school completion		1.05 (0.99, 1.11)	1.03 (0.97, 1.09)	1.02 (0.96, 1.08)	1.04 (0.98, 1.10)
High school graduate		1.03 (0.96, 1.10)	1.03 (0.96, 1.10)	1.03 (0.96, 1.10)	1.04 (0.97, 1.11)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		0.97 (0.74, 1.20)	0.96 (0.73, 1.19)	0.95 (0.73, 1.17)	1.00 (0.78, 1.22)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		0.91 (0.85, 0.97)	0.92 (0.86, 0.98)	0.91 (0.85, 0.97)	0.92 (0.86, 0.98)
Neighbourhood deprivation					
High		1.03 (0.94, 1.12)	0.98 (0.89, 1.07)	0.92 (0.83, 1.01)	0.91 (0.82, 1.00)
Moderate		1.07 (1.00, 1.14)	1.05 (0.98, 1.12)	1.03 (0.96, 1.10)	1.02 (0.95, 1.09)
Low		Reference	Reference	Reference	Reference
Missing		1.22 (1.03, 1.41)	1.18 (0.99, 1.37)	1.18 (1.00, 1.36)	1.17 (0.99, 1.35)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.62 (0.54, 0.70)	0.61 (0.53, 0.69)	0.66 (0.58, 0.74)	0.67 (0.59, 0.75)
Missing		0.56 (-0.32, 1.44)	0.58 (-0.30, 1.46)	0.58 (-0.25, 1.41)	0.56 (-0.22, 1.34)
Self-perceived stress					
Quite a bit or extremely stressful		1.31 (1.22, 1.40)	1.31 (1.22, 1.40)	1.21 (1.12, 1.30)	1.09 (1.00, 1.18)
At most, a bit stressful		Reference	Reference	Reference	Reference
Missing		1.01 (0.67, 1.35)	1.03 (0.69, 1.37)	1.06 (0.73, 1.39)	1.09 (0.76, 1.42)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			0.98 (0.92, 1.04)	0.98 (0.92, 1.04)	0.98 (0.92, 1.04)
Missing			1.62 (-0.88, 4.12)	1.82 (-0.61, 4.25)	2.02 (-0.39, 4.43)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.16 (1.08, 1.24)	1.12 (1.04, 1.20)	1.13 (1.05, 1.21)
Missing			0.93 (0.25, 1.61)	0.95 (0.31, 1.59)	0.95 (0.33, 1.57)

EXHIBIT A-14 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Household income, $					
≤ 29,999			1.10 (1.00, 1.20)	1.03 (0.93, 1.13)	1.03 (0.93, 1.13)
30,000–79,999			1.03 (0.94, 1.12)	0.96 (0.87, 1.05)	0.96 (0.87, 1.05)
≥ 80,000			Reference	Reference	Reference
Missing			1.01 (0.89, 1.13)	0.95 (0.83, 1.07)	0.97 (0.85, 1.09)
Body mass index					
Underweight				1.28 (1.01, 1.55)	1.17 (0.90, 1.44)
Normal				Reference	Reference
Overweight				1.00 (0.94, 1.06)	1.01 (0.95, 1.07)
Obese				1.11 (1.03, 1.19)	1.08 (1.00, 1.16)
Morbidly obese				1.16 (1.01, 1.31)	1.13 (0.98, 1.28)
Missing				1.40 (1.20, 1.60)	1.39 (1.20, 1.58)
Hypertension					
Yes				1.35 (1.30, 1.40)	1.37 (1.32, 1.42)
No				Reference	Reference
Missing				0.90 (0.39, 1.41)	0.87 (0.36, 1.38)
Diabetes					
Yes				1.64 (1.57, 1.71)	1.63 (1.56, 1.70)
No				Reference	Reference
Missing				1.37 (0.56, 2.18)	1.37 (0.56, 2.18)
Heart disease					
Yes				1.34 (1.28, 1.40)	1.28 (1.22, 1.34)
No				Reference	Reference
Missing				1.29 (0.91, 1.67)	1.25 (0.87, 1.63)
Cancer					
Yes				1.72 (1.62, 1.82)	1.64 (1.54, 1.74)
No				Reference	Reference
Missing				0.65 (0.06, 1.24)	0.64 (0.05, 1.23)
Stroke					
Yes				1.27 (1.15, 1.39)	1.16 (1.04, 1.28)
No				Reference	Reference
Missing				1.47 (0.66, 2.28)	1.37 (0.56, 2.18)
Dementia					
Yes				1.42 (1.22, 1.62)	1.29 (1.09, 1.49)
No				Reference	Reference
Missing				0.86 (0.18, 1.54)	0.86 (0.19, 1.53)

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EXHIBIT A-14 continued

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Fragility					
Needs help with basic tasks					1.61 (1.52, 1.70)
Limited due to health condition					1.29 (1.23, 1.35)
No limitations					Reference
Missing					0.96 (0.59, 1.33)

CCHS = Canadian Community Health Survey

EXHIBIT A-15 Drug cost ratios for the female cohort aged 65 and older, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	0.99 (0.94, 1.04)	1.00 (0.95, 1.05)	0.99 (0.94, 1.04)	1.03 (0.98, 1.08)	1.03 (0.98, 1.08)
CCHS 3.1 (2005)	1.03 (0.98, 1.08)	1.03 (0.98, 1.08)	1.02 (0.97, 1.07)	1.05 (1.00, 1.10)	1.07 (1.02, 1.12)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
65–69	0.76 (0.70, 0.82)	0.78 (0.72, 0.84)	0.81 (0.75, 0.87)	0.78 (0.72, 0.84)	0.81 (0.75, 0.87)
70–74	0.90 (0.84, 0.96)	0.90 (0.84, 0.96)	0.93 (0.87, 0.99)	0.88 (0.82, 0.94)	0.92 (0.86, 0.98)
75–79	0.92 (0.86, 0.98)	0.94 (0.88, 1.00)	0.95 (0.89, 1.01)	0.92 (0.86, 0.98)	0.95 (0.89, 1.01)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	1.23 (1.11, 1.35)	1.18 (1.06, 1.30)	1.15 (1.03, 1.27)	1.16 (1.04, 1.28)	1.14 (1.02, 1.26)
Light smoker	1.21 (1.13, 1.29)	1.18 (1.10, 1.26)	1.15 (1.07, 1.23)	1.22 (1.14, 1.30)	1.19 (1.11, 1.27)
Former heavy smoker	1.38 (1.31, 1.45)	1.35 (1.28, 1.42)	1.33 (1.26, 1.40)	1.30 (1.24, 1.36)	1.26 (1.20, 1.32)
Former light smoker	1.16 (1.11, 1.21)	1.15 (1.10, 1.20)	1.15 (1.10, 1.20)	1.16 (1.11, 1.21)	1.14 (1.09, 1.19)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	1.23 (1.08, 1.38)	1.24 (1.09, 1.39)	1.23 (1.08, 1.38)	1.2 (1.06, 1.34)	1.17 (1.03, 1.31)
Alcohol consumption					
Heavy drinker	0.85 (0.68, 1.02)	0.85 (0.68, 1.02)	0.87 (0.70, 1.04)	0.93 (0.76, 1.10)	0.90 (0.73, 1.07)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.24 (1.20, 1.28)	1.21 (1.17, 1.25)	1.19 (1.15, 1.23)	1.12 (1.08, 1.16)	1.09 (1.05, 1.13)
Missing	0.84 (0.68, 1.00)	0.85 (0.69, 1.01)	0.85 (0.69, 1.01)	0.91 (0.75, 1.07)	0.92 (0.76, 1.08)
Physical activity					
Inactive	1.43 (1.37, 1.49)	1.39 (1.33, 1.45)	1.38 (1.32, 1.44)	1.26 (1.20, 1.32)	1.18 (1.12, 1.24)
Moderately active	1.15 (1.08, 1.22)	1.14 (1.07, 1.21)	1.14 (1.07, 1.21)	1.12 (1.06, 1.18)	1.10 (1.04, 1.16)
Active	Reference	Reference	Reference	Reference	Reference
Missing	1.72 (1.55, 1.89)	1.03 (0.48, 1.58)	1.09 (0.54, 1.64)	0.94 (0.39, 1.49)	0.83 (0.31, 1.35)
Diet					
Poor diet	1.16 (1.08, 1.24)	1.13 (1.05, 1.21)	1.12 (1.04, 1.20)	1.16 (1.08, 1.24)	1.14 (1.06, 1.22)
Fair diet	1.04 (0.99, 1.09)	1.02 (0.97, 1.07)	1.01 (0.96, 1.06)	1.04 (1.00, 1.08)	1.04 (1.00, 1.08)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	1.03 (0.93, 1.13)	1.02 (0.92, 1.12)	1.00 (0.90, 1.10)	1.01 (0.91, 1.11)	1.03 (0.93, 1.13)
Immigrant status					
Immigrant		0.94 (0.89, 0.99)	0.94 (0.89, 0.99)	0.93 (0.88, 0.98)	0.93 (0.89, 0.97)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		0.91 (0.48, 1.34)	0.93 (0.49, 1.37)	0.92 (0.50, 1.34)	0.96 (0.54, 1.38)

EXHIBIT A-15 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		1.01 (0.91, 1.11)	1.00 (0.90, 1.10)	0.96 (0.86, 1.06)	0.96 (0.86, 1.06)
Missing		1.24 (0.92, 1.56)	1.22 (0.90, 1.54)	1.10 (0.79, 1.41)	1.09 (0.78, 1.40)
Highest level of personal education					
Less than high school completion		1.15 (1.10, 1.20)	1.12 (1.07, 1.17)	1.08 (1.03, 1.13)	1.10 (1.05, 1.15)
High school graduate		1.03 (0.98, 1.08)	1.03 (0.98, 1.08)	1.03 (0.98, 1.08)	1.05 (1.00, 1.10)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		1.13 (0.95, 1.31)	1.11 (0.93, 1.29)	1.07 (0.89, 1.25)	1.10 (0.92, 1.28)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		1.03 (0.98, 1.08)	1.05 (1.00, 1.10)	1.01 (0.96, 1.06)	1.01 (0.96, 1.06)
Neighbourhood deprivation					
High		1.27 (1.20, 1.34)	1.20 (1.13, 1.27)	1.13 (1.06, 1.20)	1.11 (1.04, 1.18)
Moderate		1.09 (1.03, 1.15)	1.06 (1.00, 1.12)	1.02 (0.97, 1.07)	1.01 (0.96, 1.06)
Low		Reference	Reference	Reference	Reference
Missing		1.07 (0.94, 1.20)	1.01 (0.88, 1.14)	1.01 (0.88, 1.14)	0.99 (0.86, 1.12)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.67 (0.61, 0.73)	0.66 (0.6, 0.72)	0.71 (0.65, 0.77)	0.73 (0.67, 0.79)
Missing		1.52 (0.98, 2.06)	1.54 (1.00, 2.08)	1.53 (0.99, 2.07)	1.48 (0.97, 1.99)
Self-perceived stress					
Quite a bit or extremely stressful		1.22 (1.15, 1.29)	1.22 (1.15, 1.29)	1.16 (1.10, 1.22)	1.08 (1.02, 1.14)
At most, a bit stressful		Reference	Reference	Reference	Reference
Missing		1.15 (0.90, 1.40)	1.13 (0.88, 1.38)	1.02 (0.78, 1.26)	1.02 (0.78, 1.26)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			1.04 (0.99, 1.09)	1.05 (1.01, 1.09)	1.04 (1.00, 1.08)
Missing			0.48 (-0.31, 1.27)	0.52 (-0.24, 1.28)	0.50 (-0.26, 1.26)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.09 (1.04, 1.14)	1.09 (1.04, 1.14)	1.08 (1.03, 1.13)
Missing			0.74 (0.18, 1.30)	0.83 (0.29, 1.37)	0.80 (0.26, 1.34)

EXHIBIT A-15 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Household income, $					
≤ 29,999			1.12 (1.02, 1.22)	1.05 (0.96, 1.14)	1.05 (0.96, 1.14)
30,000–79,999			1.01 (0.92, 1.10)	0.98 (0.89, 1.07)	0.98 (0.89, 1.07)
≥ 80,000			Reference	Reference	Reference
Missing			1.09 (0.99, 1.19)	1.06 (0.96, 1.16)	1.08 (0.98, 1.18)
Body mass index					
Underweight				1.03 (0.91, 1.15)	0.95 (0.83, 1.07)
Normal				Reference	Reference
Overweight				1.06 (1.02, 1.10)	1.02 (0.98, 1.06)
Obese				1.08 (1.02, 1.14)	1.01 (0.95, 1.07)
Morbidly obese				1.05 (0.95, 1.15)	0.96 (0.86, 1.06)
Missing				1.09 (0.98, 1.20)	1.04 (0.93, 1.15)
Hypertension					
Yes				1.35 (1.31, 1.39)	1.35 (1.31, 1.39)
No				Reference	Reference
Missing				0.78 (0.32, 1.24)	0.85 (0.40, 1.3)
Diabetes					
Yes				1.67 (1.61, 1.73)	1.66 (1.60, 1.72)
No				Reference	Reference
Missing				1.11 (0.19, 2.03)	0.96 (0.05, 1.87)
Heart disease					
Yes				1.32 (1.27, 1.37)	1.25 (1.20, 1.30)
No				Reference	Reference
Missing				1.57 (1.23, 1.91)	1.51 (1.17, 1.85)
Cancer					
Yes				1.25 (1.16, 1.34)	1.22 (1.13, 1.31)
No				Reference	Reference
Missing				0.88 (0.18, 1.58)	0.98 (0.29, 1.67)
Stroke					
Yes				1.29 (1.19, 1.39)	1.16 (1.06, 1.26)
No				Reference	Reference
Missing				1.38 (0.88, 1.88)	1.31 (0.81, 1.81)
Dementia					
Yes				1.31 (1.12, 1.50)	1.22 (1.03, 1.41)
No				Reference	Reference
Missing				1.20 (0.60, 1.80)	1.19 (0.59, 1.79)

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EXHIBIT A-15 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Fragility					
Needs help with basic tasks					1.52 (1.47, 1.57)
Limited due to health condition					1.30 (1.25, 1.35)
No limitations					Reference
Missing					1.28 (1.00, 1.56)

CCHS = Canadian Community Health Survey

EXHIBIT A-16 Community care cost ratios for the male cohort, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	0.94 (0.91, 0.97)	0.96 (0.93, 0.99)	0.95 (0.92, 0.98)	0.98 (0.95, 1.01)	0.99 (0.96, 1.02)
CCHS 3.1 (2005)	0.97 (0.94, 1.00)	0.98 (0.95, 1.01)	0.97 (0.94, 1.00)	1.01 (0.98, 1.04)	1.01 (0.98, 1.04)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
25–29	0.09 (0.01, 0.17)	0.09 (0.00, 0.18)	0.10 (0.01, 0.19)	0.12 (0.03, 0.21)	0.14 (0.05, 0.23)
30–34	0.09 (0.01, 0.17)	0.10 (0.02, 0.18)	0.11 (0.03, 0.19)	0.14 (0.06, 0.22)	0.15 (0.07, 0.23)
35–39	0.11 (0.03, 0.19)	0.12 (0.04, 0.20)	0.13 (0.05, 0.21)	0.16 (0.08, 0.24)	0.17 (0.09, 0.25)
40–44	0.14 (0.06, 0.22)	0.15 (0.07, 0.23)	0.16 (0.08, 0.24)	0.19 (0.11, 0.27)	0.20 (0.12, 0.28)
45–49	0.18 (0.10, 0.26)	0.20 (0.12, 0.28)	0.21 (0.13, 0.29)	0.24 (0.16, 0.32)	0.25 (0.17, 0.33)
50–54	0.22 (0.14, 0.30)	0.24 (0.16, 0.32)	0.25 (0.17, 0.33)	0.28 (0.20, 0.36)	0.29 (0.21, 0.37)
55–59	0.32 (0.24, 0.40)	0.34 (0.26, 0.42)	0.36 (0.28, 0.44)	0.37 (0.29, 0.45)	0.38 (0.30, 0.46)
60–64	0.39 (0.31, 0.47)	0.41 (0.33, 0.49)	0.42 (0.34, 0.50)	0.42 (0.34, 0.50)	0.45 (0.37, 0.53)
65–69	0.50 (0.42, 0.58)	0.52 (0.44, 0.60)	0.52 (0.44, 0.60)	0.52 (0.44, 0.60)	0.58 (0.50, 0.66)
70–74	0.64 (0.56, 0.72)	0.66 (0.58, 0.74)	0.66 (0.58, 0.74)	0.66 (0.58, 0.74)	0.72 (0.64, 0.80)
75–79	0.84 (0.75, 0.93)	0.84 (0.75, 0.93)	0.85 (0.76, 0.94)	0.80 (0.72, 0.88)	0.87 (0.79, 0.95)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	1.38 (1.33, 1.43)	1.32 (1.27, 1.37)	1.26 (1.21, 1.31)	1.26 (1.21, 1.31)	1.19 (1.14, 1.24)
Light smoker	1.20 (1.16, 1.24)	1.17 (1.13, 1.21)	1.13 (1.09, 1.17)	1.14 (1.10, 1.18)	1.10 (1.06, 1.14)
Former heavy smoker	1.25 (1.21, 1.29)	1.23 (1.19, 1.27)	1.22 (1.18, 1.26)	1.16 (1.12, 1.20)	1.13 (1.09, 1.17)
Former light smoker	1.13 (1.09, 1.17)	1.11 (1.07, 1.15)	1.11 (1.07, 1.15)	1.11 (1.07, 1.15)	1.07 (1.03, 1.11)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	1.49 (1.36, 1.62)	1.47 (1.34, 1.60)	1.43 (1.30, 1.56)	1.43 (1.30, 1.56)	1.38 (1.25, 1.51)
Alcohol consumption					
Heavy drinker	0.99 (0.95, 1.03)	1.01 (0.97, 1.05)	1.01 (0.97, 1.05)	1.03 (0.99, 1.07)	1.04 (1.00, 1.08)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.41 (1.37, 1.45)	1.34 (1.30, 1.38)	1.27 (1.23, 1.31)	1.20 (1.16, 1.24)	1.14 (1.10, 1.18)
Missing	1.04 (0.94, 1.14)	1.07 (0.97, 1.17)	1.05 (0.95, 1.15)	1.09 (0.99, 1.19)	1.12 (1.02, 1.22)
Physical activity					
Inactive	1.21 (1.18, 1.24)	1.18 (1.15, 1.21)	1.17 (1.14, 1.20)	1.10 (1.07, 1.13)	1.04 (1.01, 1.07)
Moderately active	1.04 (1.00, 1.08)	1.03 (0.99, 1.07)	1.03 (0.99, 1.07)	0.99 (0.95, 1.03)	0.97 (0.93, 1.01)
Active	Reference	Reference	Reference	Reference	Reference
Missing	1.98 (1.85, 2.11)	2.36 (2.08, 2.64)	2.49 (2.21, 2.77)	1.75 (1.47, 2.03)	1.41 (1.15, 1.67)

EXHIBIT A-16 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Diet					
Poor diet	1.13 (1.09, 1.17)	1.12 (1.08, 1.16)	1.08 (1.04, 1.12)	1.07 (1.03, 1.11)	1.04 (1.00, 1.08)
Fair diet	1.03 (1.00, 1.06)	1.02 (0.99, 1.05)	1.01 (0.98, 1.04)	1.01 (0.98, 1.04)	1.02 (0.99, 1.05)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	0.97 (0.88, 1.06)	0.96 (0.87, 1.05)	0.91 (0.82, 1.00)	0.90 (0.81, 0.99)	0.90 (0.81, 0.99)
Immigrant status					
Immigrant		0.96 (0.92, 1.00)	0.95 (0.91, 0.99)	0.99 (0.95, 1.03)	1.02 (0.98, 1.06)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		0.79 (0.37, 1.21)	0.75 (0.29, 1.21)	0.70 (0.26, 1.14)	0.63 (0.20, 1.06)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		1.12 (1.07, 1.17)	1.09 (1.04, 1.14)	1.08 (1.03, 1.13)	1.12 (1.07, 1.17)
Missing		1.10 (0.87, 1.33)	1.01 (0.78, 1.24)	1.12 (0.89, 1.35)	1.16 (0.93, 1.39)
Highest level of personal education					
Less than high school completion		1.17 (1.13, 1.21)	1.10 (1.06, 1.14)	1.07 (1.03, 1.11)	1.08 (1.04, 1.12)
High school graduate		0.98 (0.95, 1.01)	0.96 (0.93, 0.99)	0.94 (0.91, 0.97)	0.95 (0.92, 0.98)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		0.96 (0.82, 1.10)	0.92 (0.78, 1.06)	0.93 (0.79, 1.07)	0.93 (0.79, 1.07)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		0.88 (0.85, 0.91)	0.90 (0.87, 0.93)	0.90 (0.87, 0.93)	0.91 (0.88, 0.94)
Neighbourhood deprivation					
High		1.09 (1.04, 1.14)	0.98 (0.93, 1.03)	0.95 (0.90, 1.00)	0.93 (0.88, 0.98)
Moderate		1.03 (1.00, 1.06)	0.98 (0.95, 1.01)	0.97 (0.94, 1.00)	0.97 (0.94, 1.00)
Low		Reference	Reference	Reference	Reference
Missing		1.04 (0.94, 1.14)	0.97 (0.87, 1.07)	0.97 (0.87, 1.07)	0.94 (0.84, 1.04)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.72 (0.69, 0.75)	0.72 (0.69, 0.75)	0.77 (0.74, 0.80)	0.81 (0.78, 0.84)
Missing		0.75 (0.49, 1.01)	0.74 (0.48, 1.00)	0.76 (0.51, 1.01)	0.74 (0.50, 0.98)
Self-perceived stress					
Quite a bit or extremely stressful		1.26 (1.23, 1.29)	1.25 (1.22, 1.28)	1.19 (1.16, 1.22)	1.11 (1.08, 1.14)
At most, a bit stressful		Reference	Reference	Reference	Reference
Missing		1.12 (0.87, 1.37)	1.12 (0.87, 1.37)	1.24 (1.00, 1.48)	1.09 (0.85, 1.33)

EXHIBIT A-16 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			1.05 (1.02, 1.08)	1.06 (1.03, 1.09)	1.03 (1.00, 1.06)
Missing			0.52 (-0.12, 1.16)	0.58 (-0.05, 1.21)	0.58 (-0.04, 1.2)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.15 (1.11, 1.19)	1.13 (1.09, 1.17)	1.12 (1.08, 1.16)
Missing			1.04 (0.66, 1.42)	1.09 (0.73, 1.45)	1.11 (0.76, 1.46)
Household income, $					
≤ 29,999			1.31 (1.26, 1.36)	1.22 (1.17, 1.27)	1.11 (1.06, 1.16)
30,000–79,999			1.09 (1.06, 1.12)	1.05 (1.02, 1.08)	1.03 (1.00, 1.06)
≥ 80,000			Reference	Reference	Reference
Missing			1.30 (1.24, 1.36)	1.21 (1.15, 1.27)	1.18 (1.12, 1.24)
Body mass index					
Underweight				1.58 (1.42, 1.74)	1.34 (1.18, 1.50)
Normal				Reference	Reference
Overweight				0.98 (0.95, 1.01)	1.00 (0.97, 1.03)
Obese				1.11 (1.07, 1.15)	1.10 (1.06, 1.14)
Morbidly obese				1.32 (1.25, 1.39)	1.27 (1.21, 1.33)
Missing				1.42 (1.28, 1.56)	1.37 (1.23, 1.51)
Hypertension					
Yes				1.23 (1.20, 1.26)	1.20 (1.17, 1.23)
No				Reference	Reference
Missing				1.06 (0.82, 1.30)	1.12 (0.88, 1.36)
Diabetes					
Yes				1.57 (1.52, 1.62)	1.50 (1.45, 1.55)
No				Reference	Reference
Missing				0.86 (0.40, 1.32)	0.84 (0.38, 1.30)
Heart disease					
Yes				1.49 (1.44, 1.54)	1.36 (1.31, 1.41)
No				Reference	Reference
Missing				1.14 (0.84, 1.44)	1.10 (0.81, 1.39)
Cancer					
Yes				2.11 (2.03, 2.19)	1.90 (1.82, 1.98)
No				Reference	Reference
Missing				0.96 (0.55, 1.37)	0.88 (0.48, 1.28)

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EXHIBIT A-16 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Stroke					
Yes				1.34 (1.24, 1.44)	1.11 (1.01, 1.21)
No				Reference	Reference
Missing				1.09 (0.57, 1.61)	0.98 (0.47, 1.49)
Dementia					
Yes				1.27 (1.09, 1.45)	1.07 (0.89, 1.25)
No				Reference	Reference
Missing				2.38 (1.90, 2.86)	2.25 (1.78, 2.72)
Fragility					
Needs help with basic tasks					2.40 (2.34, 2.46)
Limited due to health condition					1.44 (1.41, 1.47)
No limitations					Reference
Missing					1.69 (1.42, 1.96)

CCHS = Canadian Community Health Survey

EXHIBIT A-17 Community care cost ratios for the female cohort, by model

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Survey cycle					
CCHS 2.1 (2003)	0.96 (0.93, 0.99)	0.97 (0.94, 1.00)	0.97 (0.94, 1.00)	0.98 (0.95, 1.01)	0.98 (0.96, 1.00)
CCHS 3.1 (2005)	1.01 (0.98, 1.04)	1.01 (0.98, 1.04)	1.01 (0.98, 1.04)	1.02 (0.99, 1.05)	1.03 (1.01, 1.05)
CCHS 4.1 (2007–2008)	Reference	Reference	Reference	Reference	Reference
Age group, years					
25–29	0.23 (0.17, 0.29)	0.24 (0.18, 0.30)	0.26 (0.20, 0.32)	0.31 (0.25, 0.37)	0.36 (0.30, 0.42)
30–34	0.21 (0.16, 0.26)	0.22 (0.16, 0.28)	0.23 (0.17, 0.29)	0.28 (0.22, 0.34)	0.32 (0.26, 0.38)
35–39	0.20 (0.15, 0.25)	0.21 (0.15, 0.27)	0.22 (0.16, 0.28)	0.26 (0.20, 0.32)	0.29 (0.23, 0.35)
40–44	0.22 (0.17, 0.27)	0.22 (0.16, 0.28)	0.24 (0.18, 0.30)	0.27 (0.21, 0.33)	0.31 (0.25, 0.37)
45–49	0.26 (0.21, 0.31)	0.26 (0.20, 0.32)	0.28 (0.22, 0.34)	0.32 (0.26, 0.38)	0.34 (0.28, 0.40)
50–54	0.30 (0.25, 0.35)	0.30 (0.25, 0.35)	0.33 (0.27, 0.39)	0.36 (0.30, 0.42)	0.38 (0.32, 0.44)
55–59	0.36 (0.31, 0.41)	0.36 (0.31, 0.41)	0.38 (0.33, 0.43)	0.41 (0.36, 0.46)	0.44 (0.39, 0.49)
60–64	0.40 (0.35, 0.45)	0.41 (0.36, 0.46)	0.43 (0.38, 0.48)	0.45 (0.40, 0.50)	0.50 (0.45, 0.55)
65–69	0.55 (0.50, 0.60)	0.55 (0.50, 0.60)	0.57 (0.52, 0.62)	0.57 (0.52, 0.62)	0.64 (0.59, 0.69)
70–74	0.63 (0.58, 0.68)	0.62 (0.57, 0.67)	0.64 (0.59, 0.69)	0.64 (0.59, 0.69)	0.71 (0.66, 0.76)
75–79	0.75 (0.69, 0.81)	0.74 (0.68, 0.80)	0.75 (0.69, 0.81)	0.75 (0.69, 0.81)	0.81 (0.76, 0.86)
≥ 80	Reference	Reference	Reference	Reference	Reference
Smoking status					
Heavy smoker	1.26 (1.21, 1.31)	1.22 (1.17, 1.27)	1.18 (1.13, 1.23)	1.17 (1.12, 1.22)	1.12 (1.07, 1.17)
Light smoker	1.13 (1.10, 1.16)	1.13 (1.10, 1.16)	1.10 (1.07, 1.13)	1.11 (1.08, 1.14)	1.07 (1.04, 1.10)
Former heavy smoker	1.33 (1.29, 1.37)	1.31 (1.27, 1.35)	1.30 (1.26, 1.34)	1.24 (1.20, 1.28)	1.17 (1.13, 1.21)
Former light smoker	1.08 (1.05, 1.11)	1.07 (1.04, 1.10)	1.07 (1.04, 1.10)	1.07 (1.04, 1.10)	1.04 (1.01, 1.07)
Non-smoker	Reference	Reference	Reference	Reference	Reference
Missing	1.01 (0.90, 1.12)	0.98 (0.87, 1.09)	0.98 (0.87, 1.09)	0.95 (0.85, 1.05)	0.91 (0.81, 1.01)
Alcohol consumption					
Heavy drinker	0.88 (0.82, 0.94)	0.88 (0.82, 0.94)	0.89 (0.83, 0.95)	0.91 (0.85, 0.97)	0.94 (0.88, 1.00)
Moderate drinker	Reference	Reference	Reference	Reference	Reference
Non-drinker	1.33 (1.30, 1.36)	1.30 (1.27, 1.33)	1.27 (1.24, 1.30)	1.19 (1.16, 1.22)	1.13 (1.10, 1.16)
Missing	0.99 (0.89, 1.09)	1.00 (0.90, 1.10)	1.01 (0.91, 1.11)	1.04 (0.94, 1.14)	1.07 (0.97, 1.17)
Physical activity					
Inactive	1.27 (1.24, 1.30)	1.25 (1.22, 1.28)	1.24 (1.21, 1.27)	1.17 (1.14, 1.20)	1.10 (1.07, 1.13)
Moderately active	1.10 (1.07, 1.13)	1.09 (1.06, 1.12)	1.09 (1.06, 1.12)	1.06 (1.03, 1.09)	1.06 (1.03, 1.09)
Active	Reference	Reference	Reference	Reference	Reference
Missing	2.17 (2.04, 2.30)	1.80 (1.41, 2.19)	1.90 (1.51, 2.29)	1.52 (1.14, 1.90)	1.29 (0.94, 1.64)

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EXHIBIT A-17 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Diet					
Poor diet	1.14 (1.10, 1.18)	1.11 (1.07, 1.15)	1.09 (1.05, 1.13)	1.09 (1.05, 1.13)	1.07 (1.03, 1.11)
Fair diet	1.03 (1.01, 1.05)	1.02 (1.00, 1.04)	1.01 (0.99, 1.03)	1.02 (1.00, 1.04)	1.02 (1.00, 1.04)
Adequate diet	Reference	Reference	Reference	Reference	Reference
Missing	1.12 (1.05, 1.19)	1.09 (1.02, 1.16)	1.07 (1.00, 1.14)	1.10 (1.03, 1.17)	1.10 (1.03, 1.17)
Immigrant status					
Immigrant		0.96 (0.93, 0.99)	0.96 (0.93, 0.99)	0.99 (0.96, 1.02)	1.02 (0.99, 1.05)
Non-immigrant		Reference	Reference	Reference	Reference
Missing		1.26 (0.96, 1.56)	1.23 (0.93, 1.53)	1.19 (0.90, 1.48)	1.22 (0.93, 1.51)
Ethnicity					
White		Reference	Reference	Reference	Reference
Non-white		1.02 (0.98, 1.06)	1.01 (0.97, 1.05)	1.01 (0.97, 1.05)	1.02 (0.98, 1.06)
Missing		1.01 (0.82, 1.20)	1.01 (0.82, 1.20)	1.01 (0.82, 1.20)	1.00 (0.82, 1.18)
Highest level of personal education					
Less than high school completion		1.04 (1.01, 1.07)	1.00 (0.97, 1.03)	0.98 (0.95, 1.01)	0.99 (0.96, 1.02)
High school graduate		0.93 (0.90, 0.96)	0.91 (0.88, 0.94)	0.92 (0.89, 0.95)	0.93 (0.90, 0.96)
Post-secondary graduate		Reference	Reference	Reference	Reference
Missing		1.11 (0.98, 1.24)	1.08 (0.95, 1.21)	1.08 (0.95, 1.21)	1.11 (0.99, 1.23)
Urban dweller					
Yes		Reference	Reference	Reference	Reference
No		0.93 (0.90, 0.96)	0.94 (0.91, 0.97)	0.93 (0.90, 0.96)	0.92 (0.89, 0.95)
Neighbourhood deprivation					
High		1.14 (1.10, 1.18)	1.06 (1.02, 1.10)	1.02 (0.98, 1.06)	1.02 (0.98, 1.06)
Moderate		1.04 (1.01, 1.07)	1.01 (0.98, 1.04)	1.00 (0.97, 1.03)	1.00 (0.97, 1.03)
Low		Reference	Reference	Reference	Reference
Missing		0.95 (0.87, 1.03)	0.9 (0.82, 0.98)	0.92 (0.85, 0.99)	0.93 (0.86, 1.00)
Flu vaccination					
Yes		Reference	Reference	Reference	Reference
No		0.77 (0.75, 0.79)	0.78 (0.76, 0.80)	0.81 (0.79, 0.83)	0.84 (0.82, 0.86)
Missing		1.12 (0.74, 1.50)	1.15 (0.77, 1.53)	1.06 (0.69, 1.43)	0.92 (0.58, 1.26)
Self-perceived stress					
Quite a bit or extremely stressful		1.27 (1.24, 1.3)	1.26 (1.23, 1.29)	1.21 (1.18, 1.24)	1.11 (1.08, 1.14)
At most, a bit stressful		Reference	Reference	Reference	Reference
Missing		1.42 (1.24, 1.6)	1.43 (1.25, 1.61)	1.34 (1.16, 1.52)	1.21 (1.03, 1.39)

EXHIBIT A-17 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Marital status					
Married or common-law			Reference	Reference	Reference
Other			1.01 (0.98, 1.04)	1.01 (0.99, 1.03)	1.01 (0.99, 1.03)
Missing			0.53 (0.00, 1.06)	0.54 (0.02, 1.06)	0.60 (0.08, 1.12)
Residence owned by a household member					
Yes			Reference	Reference	Reference
No			1.09 (1.06, 1.12)	1.08 (1.05, 1.11)	1.06 (1.03, 1.09)
Missing			1.07 (0.78, 1.36)	1.08 (0.80, 1.36)	1.01 (0.73, 1.29)
Household income, $					
≤ 29,999			1.21 (1.17, 1.25)	1.15 (1.11, 1.19)	1.06 (1.02, 1.10)
30,000–79,999			1.04 (1.01, 1.07)	1.02 (0.99, 1.05)	0.99 (0.96, 1.02)
≥ 80,000			Reference	Reference	Reference
Missing			1.09 (1.05, 1.13)	1.05 (1.01, 1.09)	1.03 (0.99, 1.07)
Body mass index					
Underweight				1.28 (1.22, 1.34)	1.17 (1.11, 1.23)
Normal				Reference	Reference
Overweight				0.98 (0.96, 1.00)	0.97 (0.95, 0.99)
Obese				1.02 (0.99, 1.05)	0.98 (0.95, 1.01)
Morbidly obese				1.19 (1.14, 1.24)	1.09 (1.05, 1.13)
Missing				1.11 (1.05, 1.17)	1.08 (1.02, 1.14)
Hypertension					
Yes				1.08 (1.05, 1.11)	1.06 (1.03, 1.09)
No				Reference	Reference
Missing				0.88 (0.59, 1.17)	0.83 (0.55, 1.11)
Diabetes					
Yes				1.5 (1.46, 1.54)	1.43 (1.39, 1.47)
No				Reference	Reference
Missing				0.62 (0.14, 1.10)	0.70 (0.22, 1.18)
Heart disease					
Yes				1.42 (1.38, 1.46)	1.27 (1.23, 1.31)
No				Reference	Reference
Missing				1.26 (1.01, 1.51)	1.14 (0.90, 1.38)
Cancer					
Yes				2.18 (2.12, 2.24)	1.96 (1.90, 2.02)
No				Reference	Reference
Missing				2.29 (1.98, 2.60)	2.07 (1.76, 2.38)

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EXHIBIT A-17 *continued*

	Model 1 (Health Behaviour)	Model 2 (Sociodemographic)	Model 3 (Primary Attribution)	Model 4 (Distal Mediator)	Model 5 (Proximal Mediator)
Stroke					
Yes				1.59 (1.51, 1.67)	1.31 (1.23, 1.39)
No				Reference	Reference
Missing				1.11 (0.75, 1.47)	0.96 (0.59, 1.33)
Dementia					
Yes				1.63 (1.47, 1.79)	1.33 (1.17, 1.49)
No				Reference	Reference
Missing				0.83 (0.40, 1.26)	0.81 (0.37, 1.25)
Fragility					
Needs help with basic tasks					2.15 (2.12, 2.18)
Limited due to health condition					1.31 (1.28, 1.34)
No limitations					Reference
Missing					1.56 (1.35, 1.77)

CCHS = Canadian Community Health Survey

EXHIBIT A-18 Inverse propensity-weighted comparison of non-smokers and heavy smokers in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Survey cycle			0.0529			0.0338
CCHS 2.1 (2003)	4,404 (32.8)	1,346 (34.3)		2,960 (33.2)	2,757 (32.7)	
CCHS 3.1 (2005)	4,339 (32.3)	1,302 (33.2)		2,930 (32.8)	2,898 (34.4)	
CCHS 4.1 (2007–2008)	4,692 (34.9)	1,272 (32.4)		3,036 (34.0)	2,775 (32.9)	
Age group, years			0.4647			0.0828
25–29	1,246 (9.3)	281 (7.2)		785 (8.8)	742 (8.8)	
30–34	1,661 (12.4)	305 (7.8)		1,003 (11.2)	957 (11.4)	
35–39	1,818 (13.5)	413 (10.5)		1,135 (12.7)	1,013 (12.0)	
40–44	1,759 (13.1)	653 (16.7)		1,222 (13.7)	1,174 (13.9)	
45–49	1,151 (8.6)	593 (15.1)		897 (10.1)	831 (9.9)	
50–54	1,091 (8.1)	533 (13.6)		859 (9.6)	871 (10.3)	
55–59	1,145 (8.5)	440 (11.2)		822 (9.2)	795 (9.4)	
60–64	987 (7.3)	311 (7.9)		681 (7.6)	643 (7.6)	
65–69	803 (6.0)	206 (5.3)		517 (5.8)	476 (5.6)	
70–74	714 (5.3)	105 (2.7)		424 (4.7)	408 (4.8)	
75–79	535 (4.0)	53 (1.4)		299 (3.4)	258 (3.1)	
≥80	525 (3.9)	27 (0.7)		282 (3.2)	264 (3.2)	
Alcohol consumption			0.5745			0.0371
Heavy drinker	954 (7.1)	1,092 (27.9)		1,052 (11.8)	1,048 (12.4)	
Moderate drinker	10,049 (74.8)	2,181 (55.6)		6,265 (70.2)	5,971 (70.8)	
Non-drinker	2,189 (16.3)	594 (15.2)		1,461 (16.4)	1,286 (15.3)	
Missing	243 (1.8)	53 (1.4)		147 (1.7)	125 (1.5)	
Physical activity			0.3653			0.0301
Inactive	5,822 (43.3)	2,385 (60.8)		4,225 (47.3)	4,079 (48.4)	
Moderately active	3,473 (25.9)	772 (19.7)		2,189 (24.5)	2,063 (24.5)	
Active	3,863 (28.8)	691 (17.6)		2,330 (26.1)	2,102 (24.9)	
Missing	277 (2.1)	72 (1.8)		182 (2.0)	187 (2.2)	
Diet			0.5282			0.0429
Poor diet	1,765 (13.1)	1,027 (26.2)		1,456 (16.3)	1,444 (17.1)	
Fair diet	5,366 (39.9)	1,892 (48.3)		3,724 (41.7)	3,620 (42.9)	
Adequate diet	5,747 (42.8)	804 (20.5)		3,342 (37.4)	2,989 (35.5)	
Missing	557 (4.1)	197 (5)		404 (4.5)	376 (4.5)	

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

APPENDIX

EXHIBIT A-18 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Immigrant status			0.3516			0.0166
Immigrant	3,285 (24.5)	439 (11.2)		1,906 (21.4)	1,753 (20.8)	
Non-immigrant	10,133 (75.4)	3,475 (88.6)		7,009 (78.5)	6,669 (79.1)	
Missing	17 (0.1)	6 (0.2)		11 (0.1)	8 (0.1)	
Ethnicity			0.2465			0.0879
White	11,461 (85.3)	3,638 (92.8)		7,773 (87.1)	7,575 (89.9)	
Non-white	1,921 (14.3)	266 (6.8)		1,108 (12.4)	829 (9.8)	
Missing	53 (0.4)	16 (0.4)		44 (0.5)	26 (0.3)	
Marital status			0.3416			0.0613
Married or common-law	9,368 (69.7)	2,094 (53.4)		5,857 (65.6)	5,284 (62.7)	
Other	4,065 (30.3)	1,821 (46.5)		3,065 (34.3)	3,142 (37.3)	
Missing	2 (0)	5 (0.1)		4 (0.0)	3 (0.0)	
Household type			0.3497			0.0534
Unattached individual	2,881 (21.4)	1,331 (34)		2,207 (24.7)	2,208 (26.2)	
Living with spouse or partner	4,444 (33.1)	1,100 (28.1)		2,855 (32.0)	2,537 (30.1)	
Living with spouse or partner and children	4,251 (31.6)	814 (20.8)		2,582 (28.9)	2,391 (28.4)	
Single parent living with children	210 (1.6)	98 (2.5)		160 (1.8)	161 (1.9)	
Other	1,619 (12.1)	567 (14.5)		1,102 (12.3)	1,117 (13.2)	
Missing	30 (0.2)	10 (0.3)		20 (0.2)	17 (0.2)	
Residence owned by a household member			0.425			0.0376
Yes	11,089 (82.5)	2,520 (64.3)		6,952 (77.9)	6,676 (79.2)	
No	2,319 (17.3)	1,395 (35.6)		1,958 (21.9)	1,746 (20.7)	
Missing	27 (0.2)	5 (0.1)		16 (0.2)	8 (0.1)	
Highest level of personal education			0.5416			0.0795
Less than high school completion	1,486 (11.1)	1,090 (27.8)		1,382 (15.5)	1,346 (16.0)	
High school graduate	2,722 (20.3)	1,084 (27.7)		1,982 (22.2)	2,133 (25.3)	
Post-secondary graduate	9,118 (67.9)	1,708 (43.6)		5,487 (61.5)	4,882 (57.9)	
Missing	109 (0.8)	38 (1.0)		75 (0.8)	69 (0.8)	
Highest level of education in household			0.4718			0.0618
Less than high school completion	842 (6.3)	621 (15.8)		782 (8.8)	779 (9.2)	
High school graduate	1,888 (14.1)	946 (24.1)		1,510 (16.9)	1,595 (18.9)	
Post-secondary graduate	10,220 (76.1)	2,149 (54.8)		6,280 (70.4)	5,697 (67.6)	
Missing	485 (3.6)	204 (5.2)		353 (4.0)	359 (4.3)	

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A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

EXHIBIT A-18 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Heavy smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Heavy smokers, n (%)**	**Standardized difference**
Main source of household income			0.295			0.0272
Employment insurance, worker's compensation, welfare	249 (1.9)	304 (7.8)		304 (3.4)	303 (3.6)	
Senior benefits	2,580 (19.2)	574 (14.6)		1,620 (18.1)	1,503 (17.8)	
Wages and salaries⁺	9,884 (73.6)	2,841 (72.5)		6,521 (73.1)	6,201 (73.6)	
Other	452 (3.4)	130 (3.3)		303 (3.4)	251 (3.0)	
Missing	270 (2.0)	71 (1.8)		178 (2.0)	171 (2.0)	
Household income, $			0.4208			0.0298
≤ 29,999	1,635 (12.2)	932 (23.8)		1,354 (15.2)	1,328 (15.7)	
30,000–79,999	5,757 (42.9)	1,888 (48.2)		3,930 (44.0)	3,783 (44.9)	
≥ 80,000	5,339 (39.7)	905 (23.1)		3,174 (35.6)	2,890 (34.3)	
Missing	704 (5.2)	195 (5.0)		467 (5.2)	429 (5.1)	
Labour force participation			0.3704			0.0291
Typically works < 5 hours/week	2,374 (17.7)	788 (20.1)		1,640 (18.4)	1,561 (18.5)	
Permanently unable to work	290 (2.2)	306 (7.8)		328 (3.7)	318 (3.8)	
Typically works ≥ 5 hours/week	9,757 (72.6)	2,741 (69.9)		6,395 (71.7)	6,025 (71.5)	
Not applicable (age > 75 years)	934 (7.0)	66 (1.7)		509 (5.7)	457 (5.4)	
Missing	80 (0.6)	19 (0.5)		53 (0.6)	69 (0.8)	
Flu vaccination			0.1744			0.0258
Yes	7,967 (59.3)	1,994 (50.9)		5,114 (57.3)	4,722 (56.0)	
No	5,165 (38.4)	1,843 (47.0)		3,605 (40.4)	3,503 (41.6)	
Missing	303 (2.3)	83 (2.1)		207 (2.3)	204 (2.4)	
Urban dweller			0.1153			0.0323
Yes	10,707 (79.7)	2,935 (74.9)		7,006 (78.5)	6,503 (77.1)	
No	2,728 (20.3)	985 (25.1)		1,920 (21.5)	1,926 (22.9)	
Neighbourhood deprivation			0.3771			0.0337
High	1,620 (12.1)	910 (23.2)		1,327 (14.9)	1,336 (15.9)	
Moderate	8,357 (62.2)	2,424 (61.8)		5,549 (62.2)	5,227 (62.0)	
Low	3,220 (24.0)	506 (12.9)		1,896 (21.2)	1,741 (20.7)	
Missing	238 (1.8)	80 (2.0)		153 (1.7)	125 (1.5)	
Local Health Integration Network			0.3257			0.0722
Erie St. Clair	921 (6.9)	309 (7.9)		640 (7.2)	663 (7.9)	
South West	1,689 (12.6)	476 (12.1)		1,095 (12.3)	1,017 (12.1)	
Waterloo Wellington	856 (6.4)	226 (5.8)		539 (6.0)	496 (5.9)	

EXHIBIT A-18 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Hamilton Niagara Haldimand Brant	1,680 (12.5)	499 (12.7)		1,145 (12.8)	1,096 (13.0)	
Central West	586 (4.4)	90 (2.3)		344 (3.9)	325 (3.9)	
Mississauga Halton	738 (5.5)	135 (3.4)		446 (5.0)	434 (5.1)	
Toronto Central	646 (4.8)	107 (2.7)		390 (4.4)	292 (3.5)	
Central	918 (6.8)	137 (3.5)		537 (6.0)	467 (5.5)	
Central East	1,285 (9.6)	385 (9.8)		861 (9.6)	737 (8.7)	
South East	746 (5.6)	283 (7.2)		536 (6.0)	535 (6.4)	
Champlain	1,264 (9.4)	322 (8.2)		805 (9.0)	779 (9.2)	
North Simcoe Muskoka	526 (3.9)	197 (5.0)		372 (4.2)	372 (4.4)	
North East	1,096 (8.2)	547 (14.0)		854 (9.6)	850 (10.1)	
North West	478 (3.6)	206 (5.3)		359 (4.0)	366 (4.3)	
Missing	6 (0.0)	1 (0.0)		3 (0.0)	1 (0.0)	
Self-perceived stress			**0.1543**			**0.0196**
Quite a bit or extremely stressful	2754 (20.5)	1060 (27)		1,991 (22.3)	1,856 (22.0)	
At most, a bit stressful	10,648 (79.3)	2,850 (72.7)		6,912 (77.4)	6,560 (77.8)	
Missing	33 (0.2)	10 (0.3)		23 (0.3)	14 (0.2)	
Sense of belonging to the community			**0.1879**			**0.0302**
Very weak	2,588 (19.3)	616 (15.7)		1,649 (18.5)	1,507 (17.9)	
Neither very strong nor very weak	9,490 (70.6)	2,696 (68.8)		6,241 (69.9)	5,996 (71.1)	
Very strong	993 (7.4)	494 (12.6)		790 (8.9)	691 (8.2)	
Missing	364 (2.7)	114 (2.9)		246 (2.8)	235 (2.8)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-19 Inverse propensity-weighted comparison of non-smokers and heavy smokers in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Survey cycle			0.1056			0.0946
CCHS 2.1 (2003)	7,320 (32.7)	924 (36.4)		4,335 (33.0)	3,833 (32.5)	
CCHS 3.1 (2005)	7,206 (32.2)	845 (33.3)		4,254 (32.4)	4,308 (36.5)	
CCHS 4.1 (2007–2008)	7,864 (35.1)	772 (30.4)		4,542 (34.6)	3,658 (31.0)	
Age group, years			0.6489			0.1917
25–29	1,728 (7.7)	124 (4.9)		975 (7.4)	781 (6.6)	
30–34	2,133 (9.5)	149 (5.9)		1,202 (9.2)	895 (7.6)	
35–39	2,190 (9.8)	222 (8.7)		1,262 (9.6)	896 (7.6)	
40–44	1,795 (8.0)	361 (14.2)		1,151 (8.8)	1,035 (8.8)	
45–49	1,522 (6.8)	358 (14.1)		992 (7.6)	875 (7.4)	
50–54	1,803 (8.1)	391 (15.4)		1,158 (8.8)	1,189 (10.1)	
55–59	2,042 (9.1)	319 (12.6)		1,248 (9.5)	1,134 (9.6)	
60–64	1,836 (8.2)	249 (9.8)		1,094 (8.3)	1,167 (9.9)	
65–69	1,759 (7.9)	165 (6.5)		1,013 (7.7)	1,085 (9.2)	
70–74	1,736 (7.8)	106 (4.2)		967 (7.4)	969 (8.2)	
75–79	1,644 (7.3)	64 (2.5)		897 (6.8)	783 (6.6)	
80–84	1,309 (5.8)	27 (1.1)		701 (5.3)	606 (5.1)	
85–89	660 (2.9)	6 (0.2)		350 (2.7)	384 (3.3)	
≥ 90	233 (1.0)	0 (0.0)		122 (0.9)	0 (0.0)	
Alcohol consumption			0.3932			0.0765
Heavy drinker	310 (1.4)	262 (10.3)		321 (2.4)	338 (2.9)	
Moderate drinker	15,521 (69.3)	1,670 (65.7)		9,031 (68.8)	8,400 (71.2)	
Non-drinker	6,345 (28.3)	588 (23.1)		3,656 (27.8)	2,920 (24.7)	
Missing	214 (1.0)	21 (0.8)		123 (0.9)	143 (1.2)	
Physical activity			0.2612			0.0582
Inactive	11,676 (52.1)	1,641 (64.6)		7,023 (53.5)	6,357 (53.9)	
Moderately active	5,777 (25.8)	501 (19.7)		3,313 (25.2)	2,948 (25.0)	
Active	4,705 (21.0)	390 (15.3)		2,668 (20.3)	2,308 (19.6)	
Missing	232 (1.0)	9 (0.4)		127 (1.0)	187 (1.6)	
Diet			0.6233			0.0596
Poor diet	1,615 (7.2)	456 (17.9)		1,098 (8.4)	1,040 (8.8)	
Fair diet	6,051 (27.0)	1,155 (45.5)		3,820 (29.1)	3,653 (31.0)	
Adequate diet	13,953 (62.3)	864 (34.0)		7,773 (59.2)	6,649 (56.3)	
Missing	771 (3.4)	66 (2.6)		441 (3.4)	458 (3.9)	

EXHIBIT A-19 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Immigrant status			0.501			0.0951
Immigrant	6,274 (28.0)	232 (9.1)		3,412 (26.0)	2,589 (21.9)	
Non-immigrant	16,083 (71.8)	2,306 (90.8)		9,700 (73.9)	9,195 (77.9)	
Missing	33 (0.1)	3 (0.1)		19 (0.1)	15 (0.1)	
Ethnicity			0.2857			0.1927
White	19,181 (85.7)	2,393 (94.2)		11,377 (86.6)	10,912 (92.5)	
Non-white	3,123 (13.9)	143 (5.6)		1,707 (13.0)	872 (7.4)	
Missing	86 (0.4)	5 (0.2)		47 (0.4)	16 (0.1)	
Marital status			0.2308			0.0476
Married or common-law	13,387 (59.8)	1,229 (48.4)		7,673 (58.4)	6,639 (56.3)	
Other	8,995 (40.2)	1,311 (51.6)		5,454 (41.5)	5,160 (43.7)	
Missing	8 (0.0)	1 (0.0)		5 (0.0)	1 (0.0)	
Household type			0.2949			0.094
Unattached individual	6,735 (30.1)	875 (34.4)		4,032 (30.7)	3,906 (33.1)	
Living with spouse or partner	7,032 (31.4)	745 (29.3)		4,080 (31.1)	3,878 (32.9)	
Living with spouse or partner and children	5,359 (23.9)	377 (14.8)		3,017 (23.0)	2,383 (20.2)	
Single parent living with children	1,200 (5.4)	248 (9.8)		761 (5.8)	685 (5.8)	
Other	2,002 (8.9)	274 (10.8)		1,198 (9.1)	908 (7.7)	
Missing	62 (0.3)	22 (0.9)		43 (0.3)	40 (0.3)	
Residence owned by a household member			0.4032			0.0353
Yes	17,761 (79.3)	1,558 (61.3)		10,141 (77.2)	9,175 (77.8)	
No	4,598 (20.5)	980 (38.6)		2,973 (22.6)	2,620 (22.2)	
Missing	31 (0.1)	3 (0.1)		18 (0.1)	4 (0.0)	
Highest level of personal education			0.3587			0.1365
Less than high school completion	4,277 (19.1)	713 (28.1)		2,619 (19.9)	2,051 (17.4)	
High school graduate	4,928 (22.0)	775 (30.5)		3,039 (23.1)	3,233 (27.4)	
Post-secondary graduate	13,038 (58.2)	1,032 (40.6)		7,387 (56.3)	6,338 (53.7)	
Missing	147 (0.7)	21 (0.8)		87 (0.7)	178 (1.5)	
Highest level of education in household			0.3355			0.1058
Less than high school completion	3,067 (13.7)	472 (18.6)		1,852 (14.1)	1,477 (12.5)	
High school graduate	3,519 (15.7)	657 (25.9)		2,234 (17.0)	2,473 (21.0)	
Post-secondary graduate	15,212 (67.9)	1,321 (52.0)		8,693 (66.2)	7,516 (63.7)	
Missing	592 (2.6)	91 (3.6)		353 (2.7)	333 (2.8)	

EXHIBIT A-19 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Main source of household income			0.3769			0.0883
Employment insurance, worker's compensation, welfare	511 (2.3)	242 (9.5)		407 (3.1)	381 (3.2)	
Senior benefits	7,232 (32.3)	562 (22.1)		4,094 (31.2)	4,024 (34.1)	
Wages and salaries+	12,838 (57.3)	1,527 (60.1)		7,560 (57.6)	6,625 (56.1)	
Other	1,014 (4.5)	151 (5.9)		621 (4.7)	494 (4.2)	
Missing	795 (3.6)	59 (2.3)		450 (3.4)	276 (2.3)	
Household income, $			0.2692			0.0811
≤ 29,999	5,411 (24.2)	861 (33.9)		3,328 (25.3)	3,357 (28.4)	
30,000–79,999	9,201 (41.1)	1066 (42)		5,394 (41.1)	4,828 (40.9)	
≥ 80,000	5,569 (24.9)	428 (16.8)		3,150 (24.0)	2,533 (21.5)	
Missing	2,209 (9.9)	186 (7.3)		1,260 (9.6)	1,082 (9.2)	
Labour force participation			0.4839			0.0406
Typically works < 5 hours/week	7,195 (32.1)	885 (34.8)		4,242 (32.3)	3,857 (32.7)	
Permanently unable to work	570 (2.5)	208 (8.2)		430 (3.3)	443 (3.8)	
Typically works ≥ 5 hours/week	11,024 (49.2)	1,352 (53.2)		6,519 (49.6)	5,810 (49.2)	
Not applicable (age > 75 years)	3,500 (15.6)	87 (3.4)		1,883 (14.3)	1,659 (14.1)	
Missing	101 (0.5)	9 (0.4)		58 (0.4)	31 (0.3)	
Flu vaccination			0.1117			0.0515
Yes	15,289 (68.3)	1,664 (65.5)		8,927 (68.0)	8,008 (67.9)	
No	6,858 (30.6)	868 (34.2)		4,072 (31.0)	3,604 (30.5)	
Missing	243 (1.1)	9 (0.4)		132 (1.0)	187 (1.6)	
Mammogram			0.2427			0.0867
Yes	13,276 (59.3)	1,504 (59.2)		7,777 (59.2)	7,114 (60.3)	
No	5,000 (22.3)	754 (29.7)		3,038 (23.1)	2,802 (23.7)	
Not applicable (age < 35 years)	3,861 (17.2)	273 (10.7)		2,177 (16.6)	1,676 (14.2)	
Missing	253 (1.1)	10 (0.4)		139 (1.1)	207 (1.8)	
Pap test			0.2273			0.0268
Yes	20,170 (90.1)	2,435 (95.8)		11,906 (90.7)	10,641 (90.2)	
No	1,881 (8.4)	94 (3.7)		1,041 (7.9)	955 (8.1)	
Missing	339 (1.5)	12 (0.5)		185 (1.4)	204 (1.7)	
Urban dweller			0.0796			0.018
Yes	17,899 (79.9)	1,948 (76.7)		10,459 (79.6)	9,483 (80.4)	
No	4,491 (20.1)	593 (23.3)		2,673 (20.4)	2,317 (19.6)	

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

APPENDIX

EXHIBIT A-19 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Neighbourhood deprivation			0.3536			0.091
High	3,147 (14.1)	643 (25.3)		2,024 (15.4)	2,049 (17.4)	
Moderate	13,930 (62.2)	1,547 (60.9)		8,140 (62.0)	7,487 (63.5)	
Low	4,814 (21.5)	300 (11.8)		2,681 (20.4)	2,041 (17.3)	
Missing	499 (2.2)	51 (2.0)		287 (2.2)	222 (1.9)	
Local Health Integration Network			0.3315			0.148
Erie St. Clair	1,579 (7.1)	202 (7.9)		948 (7.2)	820 (6.9)	
South West	2,790 (12.5)	349 (13.7)		1,655 (12.6)	1,595 (13.5)	
Waterloo Wellington	1,425 (6.4)	124 (4.9)		818 (6.2)	612 (5.2)	
Hamilton Niagara Haldimand Brant	2,754 (12.3)	360 (14.2)		1,630 (12.4)	1,381 (11.7)	
Central West	866 (3.9)	62 (2.4)		487 (3.7)	381 (3.2)	
Mississauga Halton	1,195 (5.3)	74 (2.9)		667 (5.1)	761 (6.4)	
Toronto Central	929 (4.1)	54 (2.1)		516 (3.9)	456 (3.9)	
Central	1,516 (6.8)	62 (2.4)		827 (6.3)	454 (3.8)	
Central East	2,209 (9.9)	236 (9.3)		1,286 (9.8)	1,172 (9.9)	
South East	1,310 (5.9)	189 (7.4)		798 (6.1)	739 (6.3)	
Champlain	2,053 (9.2)	264 (10.4)		1,217 (9.3)	1,153 (9.8)	
North Simcoe Muskoka	898 (4.0)	112 (4.4)		533 (4.1)	553 (4.7)	
North East	2,054 (9.2)	336 (13.2)		1,264 (9.6)	1,271 (10.8)	
North West	807 (3.6)	117 (4.6)		483 (3.7)	452 (3.8)	
Missing	5 (0.0)	0 (0.0)		3 (0.0)	0 (0.0)	
Self-perceived stress			0.3029			0.0407
Quite a bit or extremely stressful	4,460 (19.9)	842 (33.1)		2,805 (21.4)	2,586 (21.9)	
At most, a bit stressful	17,856 (79.7)	1,693 (66.6)		10,284 (78.3)	9,198 (78.0)	
Missing	74 (0.3)	6 (0.2)		42 (0.3)	16 (0.1)	
Sense of belonging to the community			0.2815			0.0171
Very weak	4,954 (22.1)	411 (16.2)		2,822 (21.5)	2,519 (21.3)	
Neither very strong nor very weak	15,343 (68.5)	1,715 (67.5)		8,983 (68.4)	8,040 (68.1)	
Very strong	1,639 (7.3)	385 (15.2)		1,074 (8.2)	989 (8.4)	
Missing	454 (2.0)	30 (1.2)		253 (1.9)	252 (2.1)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-20 Inverse propensity-weighted comparison of non-smokers and light smokers in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Survey cycle			0.0368			0.0101
CCHS 2.1 (2003)	4,404 (32.8)	1,735 (32.6)		3,090 (32.8)	3,092 (33.1)	
CCHS 3.1 (2005)	4,339 (32.3)	1,802 (33.9)		3,091 (32.8)	3,077 (33.0)	
CCHS 4.1 (2007–2008)	4,692 (34.9)	1,782 (33.5)		3,238 (34.4)	3,165 (33.9)	
Age group, years			0.3022			0.0368
25–29	1,246 (9.3)	707 (13.3)		983 (10.4)	987 (10.6)	
30–34	1,661 (12.4)	725 (13.6)		1,189 (12.6)	1,169 (12.5)	
35–39	1,818 (13.5)	742 (13.9)		1,279 (13.6)	1,271 (13.6)	
40–44	1,759 (13.1)	714 (13.4)		1,239 (13.2)	1,227 (13.1)	
45–49	1,151 (8.6)	576 (10.8)		872 (9.3)	865 (9.3)	
50–54	1,091 (8.1)	507 (9.5)		808 (8.6)	813 (8.7)	
55–59	1,145 (8.5)	424 (8.0)		788 (8.4)	780 (8.4)	
60–64	987 (7.3)	313 (5.9)		661 (7.0)	663 (7.1)	
65–69	803 (6.0)	280 (5.3)		543 (5.8)	523 (5.6)	
70–74	714 (5.3)	187 (3.5)		456 (4.8)	457 (4.9)	
75–79	535 (4.0)	94 (1.8)		314 (3.3)	303 (3.2)	
80–84	330 (2.5)	38 (0.7)		184 (2.0)	184 (2.0)	
≥85	195 (1.4)	12 (0.2)		104 (1.1)	92 (1.0)	
Alcohol consumption			0.3606			0.0121
Heavy drinker	954 (7.1)	989 (18.6)		989 (10.5)	978 (10.5)	
Moderate drinker	10,049 (74.8)	3,629 (68.2)		6,854 (72.8)	6,754 (72.4)	
Non-drinker	2,189 (16.3)	608 (11.4)		1,410 (15.0)	1,438 (15.4)	
Missing	243 (1.8)	93 (1.7)		167 (1.8)	165 (1.8)	
Physical activity			0.1276			0.0235
Inactive	5,822 (43.3)	2,617 (49.2)		4,247 (45.1)	4,273 (45.8)	
Moderately active	3,473 (25.9)	1,311 (24.6)		2,404 (25.5)	2,339 (25.1)	
Active	3,863 (28.8)	1,313 (24.7)		2,587 (27.5)	2,520 (27.0)	
Missing	277 (2.1)	78 (1.5)		182 (1.9)	203 (2.2)	
Diet			0.3009			0.0237
Poor diet	1,765 (13.1)	1,104 (20.8)		1,459 (15.5)	1,455 (15.6)	
Fair diet	5,366 (39.9)	2,436 (45.8)		3,919 (41.6)	3,970 (42.5)	
Adequate diet	5,747 (42.8)	1,594 (30)		3,666 (38.9)	3,528 (37.8)	
Missing	557 (4.1)	185 (3.5)		375 (4.0)	381 (4.1)	

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EXHIBIT A-20 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Immigrant status			0.1049			0.0131
Immigrant	3,285 (24.5)	1,072 (20.2)		2,188 (23.2)	2,214 (23.7)	
Non-immigrant	10,133 (75.4)	4,243 (79.8)		7,222 (76.7)	7,112 (76.2)	
Missing	17 (0.1)	4 (0.1)		10 (0.1)	9 (0.1)	
Ethnicity			0.0144			0.015
White	11,461 (85.3)	4,529 (85.1)		8,039 (85.3)	7,996 (85.7)	
Non-white	1,921 (14.3)	764 (14.4)		1,341 (14.2)	1,306 (14.0)	
Missing	53 (0.4)	26 (0.5)		40 (0.4)	32 (0.3)	
Marital status			0.2444			0.0181
Married or common-law	9,368 (69.7)	3,093 (58.2)		6,232 (66.2)	6,107 (65.4)	
Other	4,065 (30.3)	2,221 (41.8)		3,183 (33.8)	3,224 (34.5)	
Missing	2 (0.0)	5 (0.1)		5 (0.1)	3 (0.0)	
Household type			0.2478			0.0277
Unattached individual	2,881 (21.4)	1,499 (28.2)		2,227 (23.6)	2,219 (23.8)	
Living with spouse or partner	4,444 (33.1)	1,423 (26.8)		2,943 (31.2)	2,856 (30.6)	
Living with spouse or partner and children	4,251 (31.6)	1,378 (25.9)		2,809 (29.8)	2,750 (29.5)	
Single parent living with children	210 (1.6)	112 (2.1)		160 (1.7)	174 (1.9)	
Other	1,619 (12.1)	895 (16.8)		1,260 (13.4)	1,317 (14.1)	
Missing	30 (0.2)	12 (0.2)		21 (0.2)	18 (0.2)	
Residence owned by a household member			0.3185			0.0102
Yes	11,089 (82.5)	3,680 (69.2)		7,396 (78.5)	7,317 (78.4)	
No	2,319 (17.3)	1,632 (30.7)		2,007 (21.3)	2,004 (21.5)	
Missing	27 (0.2)	7 (0.1)		17 (0.2)	13 (0.1)	
Highest level of personal education			0.3548			0.0149
Less than high school completion	1,486 (11.1)	1,091 (20.5)		1,298 (13.8)	1,249 (13.4)	
High school graduate	2,722 (20.3)	1,450 (27.3)		2,112 (22.4)	2,127 (22.8)	
Post-secondary graduate	9,118 (67.9)	2,742 (51.6)		5,938 (63.0)	5,893 (63.1)	
Missing	109 (0.8)	36 (0.7)		72 (0.8)	66 (0.7)	
Highest level of education in household			0.3142			0.0079
Less than high school completion	842 (6.3)	618 (11.6)		741 (7.9)	717 (7.7)	
High school graduate	1,888 (14.1)	1,147 (21.6)		1,539 (16.3)	1,540 (16.5)	
Post-secondary graduate	10,220 (76.1)	3,295 (61.9)		6,767 (71.8)	6,705 (71.8)	
Missing	485 (3.6)	259 (4.9)		372 (3.9)	372 (4.0)	

EXHIBIT A-20 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Main source of household income			0.2323			0.0136
Employment insurance, worker's compensation, welfare	249 (1.9)	295 (5.5)		276 (2.9)	272 (2.9)	
Senior benefits	2,580 (19.2)	748 (14.1)		1,671 (17.7)	1,609 (17.2)	
Wages and salaries⁺	9,884 (73.6)	4,003 (75.3)		6,971 (74.0)	6,953 (74.5)	
Other	452 (3.4)	171 (3.2)		310 (3.3)	306 (3.3)	
Missing	270 (2.0)	102 (1.9)		192 (2.0)	195 (2.1)	
Household income, $			0.2724			0.0094
≤ 29,999	1,635 (12.2)	1,028 (19.3)		1,355 (14.4)	1,370 (14.7)	
30,000–79,999	5,757 (42.9)	2,477 (46.6)		4,135 (43.9)	4,101 (43.9)	
≥ 80,000	5,339 (39.7)	1,516 (28.5)		3,425 (36.4)	3,364 (36.0)	
Missing	704 (5.2)	298 (5.6)		505 (5.4)	500 (5.4)	
Labour force participation			0.2685			0.008
Typically works < 5 hours/week	2,374 (17.7)	979 (18.4)		1,684 (17.9)	1,651 (17.7)	
Permanently unable to work	290 (2.2)	271 (5.1)		296 (3.1)	290 (3.1)	
Typically works ≥ 5 hours/week	9,757 (72.6)	3,919 (73.7)		6,857 (72.8)	6,826 (73.1)	
Not applicable (age > 75 years)	934 (7.0)	123 (2.3)		529 (5.6)	515 (5.5)	
Missing	80 (0.6)	27 (0.5)		54 (0.6)	52 (0.6)	
Flu vaccination			0.0972			0.0192
Yes	7,967 (59.3)	2,934 (55.2)		5,468 (58.1)	5,349 (57.3)	
No	5,165 (38.4)	2,291 (43.1)		3,746 (39.8)	3,761 (40.3)	
Missing	303 (2.3)	94 (1.8)		206 (2.2)	224 (2.4)	
Urban dweller			0.0122			0.0132
Yes	10,707 (79.7)	4,265 (80.2)		7,512 (79.7)	7,394 (79.2)	
No	2,728 (20.3)	1,054 (19.8)		1,908 (20.3)	1,940 (20.8)	
Neighbourhood deprivation			0.2414			0.0107
High	1,620 (12.1)	1,005 (18.9)		1,337 (14.2)	1,352 (14.5)	
Moderate	8,357 (62.2)	3,325 (62.5)		5,862 (62.2)	5,781 (61.9)	
Low	3,220 (24.0)	882 (16.6)		2,053 (21.8)	2,041 (21.9)	
Missing	238 (1.8)	107 (2.0)		168 (1.8)	159 (1.7)	
Local Health Integration Network			0.1228			0.0326
Erie St. Clair	921 (6.9)	369 (6.9)		654 (6.9)	652 (7.0)	
South West	1,689 (12.6)	643 (12.1)		1,172 (12.4)	1,158 (12.4)	
Waterloo Wellington	856 (6.4)	329 (6.2)		587 (6.2)	550 (5.9)	

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EXHIBIT A-20 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Hamilton Niagara Haldimand Brant	1,680 (12.5)	684 (12.9)		1,196 (12.7)	1,184 (12.7)	
Central West	586 (4.4)	208 (3.9)		395 (4.2)	379 (4.1)	
Mississauga Halton	738 (5.5)	261 (4.9)		497 (5.3)	506 (5.4)	
Toronto Central	646 (4.8)	223 (4.2)		439 (4.7)	434 (4.6)	
Central	918 (6.8)	313 (5.9)		613 (6.5)	590 (6.3)	
Central East	1,285 (9.6)	480 (9.0)		888 (9.4)	900 (9.6)	
South East	746 (5.6)	307 (5.8)		532 (5.6)	534 (5.7)	
Champlain	1,264 (9.4)	466 (8.8)		863 (9.2)	867 (9.3)	
North Simcoe Muskoka	526 (3.9)	230 (4.3)		376 (4.0)	376 (4.0)	
North East	1,096 (8.2)	543 (10.2)		831 (8.8)	832 (8.9)	
North West	478 (3.6)	263 (4.9)		373 (4.0)	373 (4.0)	
Missing	6 (0.0)	0 (0.0)		3 (0.0)	0 (0.0)	
Self-perceived stress			**0.0638**			**0.0029**
Quite a bit or extremely stressful	2,754 (20.5)	1,229 (23.1)		2,002 (21.3)	1,979 (21.2)	
At most, a bit stressful	10,648 (79.3)	4,075 (76.6)		7,392 (78.5)	7,331 (78.5)	
Missing	33 (0.2)	15 (0.3)		26 (0.3)	25 (0.3)	
Sense of belonging to the community			**0.1442**			**0.0146**
Very weak	2,588 (19.3)	827 (15.5)		1,713 (18.2)	1,694 (18.1)	
Neither very strong nor very weak	9,490 (70.6)	3,812 (71.7)		6,669 (70.8)	6,577 (70.5)	
Very strong	993 (7.4)	564 (10.6)		794 (8.4)	802 (8.6)	
Missing	364 (2.7)	116 (2.2)		244 (2.6)	261 (2.8)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-21 Inverse propensity-weighted comparison of non-smokers and light smokers in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Survey cycle			0.0361			0.0185
CCHS 2.1 (2003)	7,320 (32.7)	2,153 (33.2)		4,741 (32.9)	4,766 (33.0)	
CCHS 3.1 (2005)	7,206 (32.2)	2,163 (33.3)		4,691 (32.5)	4,796 (33.2)	
CCHS 4.1 (2007–2008)	7,864 (35.1)	2,170 (33.5)		4,997 (34.6)	4,886 (33.8)	
Age group, years			0.4944			0.0548
25–29	1,728 (7.7)	829 (12.8)		1,267 (8.8)	1,221 (8.5)	
30–34	2,133 (9.5)	705 (10.9)		1,420 (9.8)	1,359 (9.4)	
35–39	2,190 (9.8)	726 (11.2)		1,451 (10.1)	1,349 (9.3)	
40–44	1,795 (8.0)	769 (11.9)		1,280 (8.9)	1,235 (8.5)	
45–49	1,522 (6.8)	689 (10.6)		1,118 (7.7)	1,102 (7.6)	
50–54	1,803 (8.1)	694 (10.7)		1,250 (8.7)	1,278 (8.8)	
55–59	2,042 (9.1)	619 (9.5)		1,334 (9.2)	1,356 (9.4)	
60–64	1,836 (8.2)	453 (7.0)		1,147 (7.9)	1,202 (8.3)	
65–69	1,759 (7.9)	376 (5.8)		1,066 (7.4)	1,049 (7.3)	
70–74	1,736 (7.8)	292 (4.5)		1,011 (7.0)	1,006 (7.0)	
75–79	1,644 (7.3)	193 (3.0)		918 (6.4)	1,026 (7.1)	
80–84	1,309 (5.8)	104 (1.6)		706 (4.9)	746 (5.2)	
≥ 85	839 (3.9)	37 (0.6)		464 (3.2)	520 (3.6)	
Alcohol consumption			0.3691			0.0226
Heavy drinker	310 (1.4)	452 (7.0)		405 (2.8)	385 (2.7)	
Moderate drinker	15,521 (69.3)	4,844 (74.7)		10,152 (70.4)	10,304 (71.3)	
Non-drinker	6,345 (28.3)	1,124 (17.3)		3,730 (25.9)	3,611 (25.0)	
Missing	214 (1.0)	66 (1.0)		142 (1.0)	147 (1.0)	
Physical activity			0.0868			0.0093
Inactive	11,676 (52.1)	3,528 (54.4)		7,612 (52.8)	7,663 (53.0)	
Moderately active	5,777 (25.8)	1,634 (25.2)		3,706 (25.7)	3,683 (25.5)	
Active	4,705 (21.0)	1,299 (20.0)		2,983 (20.7)	2,963 (20.5)	
Missing	232 (1.0)	25 (0.4)		129 (0.9)	138 (1.0)	
Diet			0.3736			0.0235
Poor diet	1,615 (7.2)	868 (13.4)		1,255 (8.7)	1,296 (9.0)	
Fair diet	6,051 (27.0)	2,512 (38.7)		4,300 (29.8)	4,406 (30.5)	
Adequate diet	13,953 (62.3)	2,941 (45.3)		8,407 (58.3)	8,254 (57.1)	
Missing	771 (3.4)	165 (2.5)		467 (3.2)	491 (3.4)	

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EXHIBIT A-21 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Immigrant status			0.3576			0.0214
Immigrant	6,274 (28.0)	892 (13.8)		3,575 (24.8)	3,570 (24.7)	
Non-immigrant	16,083 (71.8)	5,589 (86.2)		10,835 (75.1)	10,868 (75.2)	
Missing	33 (0.1)	5 (0.1)		18 (0.1)	9 (0.1)	
Ethnicity			0.1917			0.0433
White	19,181 (85.7)	5,939 (91.6)		12,574 (87.1)	12,794 (88.6)	
Non-white	3,123 (13.9)	518 (8.0)		1,800 (12.5)	1,604 (11.1)	
Missing	86 (0.4)	29 (0.4)		56 (0.4)	50 (0.3)	
Marital status			0.1422			0.052
Married or common-law	13,387 (59.8)	3,422 (52.8)		8,353 (57.9)	7,994 (55.3)	
Other	8,995 (40.2)	3,062 (47.2)		6,071 (42.1)	6,447 (44.6)	
Missing	8 (0.0)	2 (0.0)		5 (0.0)	7 (0.0)	
Household type			0.2465			0.0564
Unattached individual	6,735 (30.1)	1,883 (29.0)		4,341 (30.1)	4,683 (32.4)	
Living with spouse or partner	7,032 (31.4)	1,674 (25.8)		4,326 (30.0)	4,187 (29.0)	
Living with spouse or partner and children	5,359 (23.9)	1,449 (22.3)		3,387 (23.5)	3,166 (21.9)	
Single parent living with children	1,200 (5.4)	696 (10.7)		946 (6.6)	957 (6.6)	
Other	2,002 (8.9)	726 (11.2)		1,373 (9.5)	1,398 (9.7)	
Missing	62 (0.3)	58 (0.9)		56 (0.4)	57 (0.4)	
Residence owned by a household member			0.2985			0.0105
Yes	17,761 (79.3)	4,293 (66.2)		11,002 (76.3)	11,013 (76.2)	
No	4,598 (20.5)	2,182 (33.6)		3,406 (23.6)	3,419 (23.7)	
Missing	31 (0.1)	11 (0.2)		21 (0.1)	16 (0.1)	
Highest level of personal education			0.2021			0.0366
Less than high school completion	4,277 (19.1)	1,309 (20.2)		2,758 (19.1)	2,583 (17.9)	
High school graduate	4,928 (22.0)	1,946 (30.0)		3,459 (24.0)	3,411 (23.6)	
Post-secondary graduate	13,038 (58.2)	3,190 (49.2)		8,119 (56.3)	8,363 (57.9)	
Missing	147 (0.7)	41 (0.6)		92 (0.6)	90 (0.6)	
Highest level of education in household			0.1994			0.0203
Less than high school completion	3,067 (13.7)	892 (13.8)		1,954 (13.5)	1,872 (13.0)	
High school graduate	3,519 (15.7)	1,487 (22.9)		2,523 (17.5)	2,491 (17.2)	
Post-secondary graduate	15,212 (67.9)	3,882 (59.9)		9,548 (66.2)	9,685 (67.0)	
Missing	592 (2.6)	225 (3.5)		403 (2.8)	400 (2.8)	

EXHIBIT A-21 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Main source of household income			0.3593			0.0407
Employment insurance, worker's compensation, welfare	511 (2.3)	425 (6.6)		465 (3.2)	454 (3.1)	
Senior benefits	7,232 (32.3)	1,253 (19.3)		4,242 (29.4)	4,481 (31.0)	
Wages and salaries⁺	12,838 (57.3)	4,366 (67.3)		8,598 (59.6)	8,408 (58.2)	
Other	1,014 (4.5)	263 (4.1)		642 (4.5)	671 (4.6)	
Missing	795 (3.6)	179 (2.8)		482 (3.3)	434 (3.0)	
Household income, $			0.1712			0.0253
≤ 29,999	5,411 (24.2)	1,926 (29.7)		3,687 (25.5)	3,827 (26.5)	
30,000–79,999	9,201 (41.1)	2,775 (42.8)		5,961 (41.3)	5,830 (40.4)	
≥ 80,000	5,569 (24.9)	1,305 (20.1)		3,432 (23.8)	3,406 (23.6)	
Missing	2,209 (9.9)	480 (7.4)		1,350 (9.4)	1,385 (9.6)	
Labour force participation			0.4208			0.0432
Typically works < 5 hours/week	11,024 (49.2)	3,948 (60.9)		7,489 (51.9)	7,438 (51.5)	
Permanently unable to work	570 (2.5)	334 (5.1)		462 (3.2)	459 (3.2)	
Typically works ≥ 5 hours/week	7,195 (32.1)	1,887 (29.1)		4,519 (31.3)	4,379 (30.3)	
Not applicable (age > 75 years)	3,500 (15.6)	289 (4.5)		1,893 (13.1)	2,100 (14.5)	
Missing	101 (0.5)	28 (0.4)		65 (0.5)	71 (0.5)	
Flu vaccination			0.1536			0.0059
Yes	15,289 (68.3)	4,044 (62.3)		9,656 (66.9)	9,674 (67.0)	
No	6,858 (30.6)	2,413 (37.2)		4,637 (32.1)	4,629 (32.0)	
Missing	243 (1.1)	29 (0.4)		136 (0.9)	144 (1.0)	
Mammogram			0.2164			0.0201
Yes	13,276 (59.3)	3,251 (50.1)		8,260 (57.2)	8,335 (57.7)	
No	5,000 (22.3)	1,672 (25.8)		3,341 (23.2)	3,385 (23.4)	
Not applicable (age < 35 years)	3,861 (17.2)	1,534 (23.7)		2,687 (18.6)	2,580 (17.9)	
Missing	253 (1.1)	29 (0.4)		141 (1.0)	147 (1.0)	
Pap test			0.2173			0.0625
Yes	20,170 (90.1)	6,202 (95.6)		13,169 (91.3)	12,929 (89.5)	
No	1,881 (8.4)	250 (3.9)		1,073 (7.4)	1,321 (9.1)	
Missing	339 (1.5)	34 (0.5)		187 (1.3)	197 (1.4)	
Urban dweller			0.0293			0.0189
No	4,491 (20.1)	1,378 (21.2)		2,939 (20.4)	3,054 (21.1)	
Yes	17,899 (79.9)	5,108 (78.8)		11,490 (79.6)	11,394 (78.9)	

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EXHIBIT A-21 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Neighbourhood deprivation			0.2398			0.0418
High	3,147 (14.1)	1,387 (21.4)		2,289 (15.9)	2,358 (16.3)	
Moderate	13,930 (62.2)	4,024 (62.0)		8,957 (62.1)	8,895 (61.6)	
Low	4,814 (21.5)	951 (14.7)		2,870 (19.9)	2,795 (19.3)	
Missing	499 (2.2)	124 (1.9)		314 (2.2)	400 (2.8)	
Local Health Integration Network			0.1852			0.0578
Erie St. Clair	1,579 (7.1)	467 (7.2)		1,027 (7.1)	1,057 (7.3)	
South West	2,790 (12.5)	800 (12.3)		1,783 (12.4)	1,595 (11.0)	
Waterloo Wellington	1,425 (6.4)	364 (5.6)		891 (6.2)	855 (5.9)	
Hamilton Niagara Haldimand Brant	2,754 (12.3)	824 (12.7)		1,786 (12.4)	1,845 (12.8)	
Central West	866 (3.9)	163 (2.5)		512 (3.5)	522 (3.6)	
Mississauga Halton	1,195 (5.3)	259 (4.0)		726 (5.0)	669 (4.6)	
Toronto Central	929 (4.1)	215 (3.3)		572 (4.0)	552 (3.8)	
Central	1,516 (6.8)	308 (4.7)		908 (6.3)	880 (6.1)	
Central East	2,209 (9.9)	612 (9.4)		1,406 (9.7)	1,418 (9.8)	
South East	1,310 (5.9)	480 (7.4)		907 (6.3)	908 (6.3)	
Champlain	2,053 (9.2)	622 (9.6)		1,336 (9.3)	1,406 (9.7)	
North Simcoe Muskoka	898 (4.0)	305 (4.7)		604 (4.2)	673 (4.7)	
North East	2,054 (9.2)	752 (11.6)		1,413 (9.8)	1,487 (10.3)	
North West	807 (3.6)	313 (4.8)		554 (3.8)	578 (4.0)	
Missing	5 (0.0)	2 (0.0)		4 (0.0)	3 (0.0)	
Self-perceived stress			0.1569			0.0196
Quite a bit or extremely stressful	4,460 (19.9)	1,719 (26.5)		3,098 (21.5)	3,086 (21.4)	
At most, a bit stressful	17,856 (79.7)	4,743 (73.1)		11,282 (78.2)	11,294 (78.2)	
Missing	74 (0.3)	24 (0.4)		49 (0.3)	67 (0.5)	
Sense of belonging to the community			0.192			0.0311
Very weak	4,954 (22.1)	1,067 (16.5)		3,005 (20.8)	2,961 (20.5)	
Neither very strong nor very weak	15,343 (68.5)	4,660 (71.8)		9,986 (69.2)	9,942 (68.8)	
Very strong	1,639 (7.3)	690 (10.6)		1,176 (8.2)	1,226 (8.5)	
Missing	454 (2.0)	69 (1.1)		262 (1.8)	318 (2.2)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-22 Inverse propensity-weighted comparison of non-smokers and former heavy smokers in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Survey cycle			0.0400			0.0055
CCHS 2.1 (2003)	4,404 (32.8)	2520 (34.3)		3494 (33.4)	3425 (33.2)	
CCHS 3.1 (2005)	4,339 (32.3)	2385 (32.5)		3372 (32.2)	3349 (32.5)	
CCHS 4.1 (2007–2008)	4,692 (34.9)	2437 (33.2)		3590 (34.3)	3547 (34.4)	
Age group, years			0.8636			0.0208
25–29	1,246 (9.3)	117 (1.6)		685 (6.5)	675 (6.5)	
30–34	1,661 (12.4)	200 (2.7)		933 (8.9)	872 (8.5)	
35–39	1,818 (13.5)	296 (4.0)		1,061 (10.1)	1,019 (9.9)	
40–44	1,759 (13.1)	419 (5.7)		1,094 (10.5)	1,092 (10.6)	
45–49	1,151 (8.6)	522 (7.1)		840 (8.0)	830 (8.0)	
50–54	1,091 (8.1)	747 (10.2)		923 (8.8)	923 (8.9)	
55–59	1,145 (8.5)	991 (13.5)		1,083 (10.4)	1,077 (10.4)	
60–64	987 (7.3)	1,031 (14.0)		1,017 (9.7)	1,013 (9.8)	
65–69	803 (6.0)	953 (13.0)		880 (8.4)	876 (8.5)	
70–74	714 (5.3)	867 (11.8)		800 (7.7)	795 (7.7)	
75–79	535 (4.0)	695 (9.5)		618 (5.9)	619 (6.0)	
80–84	330 (2.5)	362 (4.9)		352 (3.4)	354 (3.4)	
85–89	150 (1.1)	120 (1.6)		138 (1.3)	141 (1.4)	
⩾ 90	45 (0.3)	22 (0.3)		34 (0.3)	35 (0.3)	
Alcohol consumption			0.1675			0.0168
Heavy drinker	954 (7.1)	855 (11.6)		921 (8.8)	904 (8.8)	
Moderate drinker	10,049 (74.8)	5,070 (69.1)		7,588 (72.6)	7,548 (73.1)	
Non-drinker	2,189 (16.3)	1,253 (17.1)		1,739 (16.6)	1,656 (16.0)	
Missing	243 (1.8)	164 (2.2)		209 (2.0)	214 (2.1)	
Physical activity			0.0775			0.0127
Inactive	5,822 (43.3)	3,363 (45.8)		4,631 (44.3)	4,598 (44.5)	
Moderately active	3,473 (25.9)	1,938 (26.4)		2,718 (26.0)	2,654 (25.7)	
Active	3,863 (28.8)	1,867 (25.4)		2,881 (27.6)	2,862 (27.7)	
Missing	277 (2.1)	174 (2.4)		226 (2.2)	208 (2.0)	
Diet			0.0501			0.0122
Poor diet	1,765 (13.1)	879 (12.0)		1,345 (12.9)	1,342 (13.0)	
Fair diet	5,366 (39.9)	3,015 (41.1)		4,209 (40.3)	4,098 (39.7)	
Adequate diet	5,747 (42.8)	3,094 (42.1)		4,441 (42.5)	4,432 (42.9)	
Missing	557 (4.1)	354 (4.8)		462 (4.4)	450 (4.4)	

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EXHIBIT A-22 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Immigrant status			0.0867			0.0357
Immigrant	3,285 (24.5)	1,529 (20.8)		2,420 (23.1)	2,267 (22.0)	
Non-immigrant	10,133 (75.4)	5,803 (79.0)		8,023 (76.7)	8,031 (77.8)	
Missing	17 (0.1)	10 (0.1)		14 (0.1)	23 (0.2)	
Ethnicity			0.3166			0.0281
White	11,461 (85.3)	6,946 (94.6)		9,269 (88.7)	9,204 (89.2)	
Non-white	1,921 (14.3)	372 (5.1)		1,148 (11.0)	1,067 (10.3)	
Missing	53 (0.4)	24 (0.3)		38 (0.4)	51 (0.5)	
Marital status			0.1098			0.0202
Married or common-law	9,368 (69.7)	5,480 (74.6)		7,479 (71.5)	7,476 (72.4)	
Other	4,065 (30.3)	1,861 (25.3)		2,975 (28.5)	2,843 (27.5)	
Missing	2 (0.0)	1 (0.0)		2 (0.0)	2 (0.0)	
Household type			0.4876			0.023
Unattached individual	2,881 (21.4)	1,667 (22.7)		2,284 (21.8)	2,231 (21.6)	
Living with spouse or partner	4,444 (33.1)	3,890 (53.0)		4,202 (40.2)	4,134 (40.1)	
Living with spouse or partner and children	4,251 (31.6)	1,265 (17.2)		2,783 (26.6)	2,832 (27.4)	
Single parent living with children	210 (1.6)	91 (1.2)		153 (1.5)	153 (1.5)	
Other	1,619 (12.1)	418 (5.7)		1,014 (9.7)	951 (9.2)	
Missing	30 (0.2)	11 (0.1)		20 (0.2)	20 (0.2)	
Residence owned by a household member			0.0609			0.0311
Yes	2,319 (17.3)	1,105 (15.1)		1,728 (16.5)	1,632 (15.8)	
No	11,089 (82.5)	6,225 (84.8)		8,709 (83.3)	8,658 (83.9)	
Missing	27 (0.2)	12 (0.2)		19 (0.2)	32 (0.3)	
Highest level of personal education			0.4064			0.0399
Less than high school completion	1,486 (11.1)	1,857 (25.3)		1,701 (16.3)	1,727 (16.7)	
High school graduate	2,722 (20.3)	1,618 (22.0)		2,207 (21.1)	2,320 (22.5)	
Post-secondary graduate	9,118 (67.9)	3,784 (51.5)		6,452 (61.7)	6,175 (59.8)	
Missing	109 (0.8)	83 (1.1)		96 (0.9)	99 (1.0)	
Highest level of education in household			0.3224			0.0278
Less than high school completion	842 (6.3)	1,059 (14.4)		949 (9.1)	956 (9.3)	
High school graduate	1,888 (14.1)	1,369 (18.6)		1,672 (16)	1,748 (16.9)	
Post-secondary graduate	10,220 (76.1)	4,636 (63.1)		7,448 (71.2)	7,233 (70.1)	
Missing	485 (3.6)	278 (3.8)		386 (3.7)	384 (3.7)	

EXHIBIT A-22 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Main source of household income			0.5325			0.013
Employment insurance, worker's compensation, welfare	249 (1.9)	175 (2.4)		219 (2.1)	215 (2.1)	
Senior benefits	2,580 (19.2)	3,009 (41.0)		2,801 (26.8)	2,794 (27.1)	
Wages and salaries⁺	9,884 (73.6)	3,600 (49.0)		6,786 (64.9)	6,645 (64.4)	
Other	452 (3.4)	353 (4.8)		409 (3.9)	422 (4.1)	
Missing	270 (2.0)	205 (2.8)		241 (2.3)	245 (2.4)	
Household income, $			0.2795			0.0079
⩽ 29,999	1,635 (12.2)	1,353 (18.4)		1,513 (14.5)	1,508 (14.6)	
30,000–79,999	5,757 (42.9)	3,503 (47.7)		4,670 (44.7)	4,615 (44.7)	
⩾ 80,000	5,339 (39.7)	2,025 (27.6)		3,686 (35.3)	3,635 (35.2)	
Missing	704 (5.2)	461 (6.3)		588 (5.6)	563 (5.5)	
Labour force participation			0.5025			0.0121
Typically works < 5 hours/week	2,374 (17.7)	2,388 (32.5)		2,387 (22.8)	2,347 (22.7)	
Permanently unable to work	290 (2.2)	276 (3.8)		295 (2.8)	284 (2.8)	
Typically works ⩾ 5 hours/week	9,757 (72.6)	3,594 (49.0)		6,712 (64.2)	6,612 (64.1)	
Not applicable (age > 75 years)	934 (7.0)	1,036 (14.1)		994 (9.5)	1,004 (9.7)	
Missing	80 (0.6)	48 (0.7)		68 (0.7)	75 (0.7)	
Flu vaccination			0.2529			0.0161
Yes	7,967 (59.3)	5,197 (70.8)		6,600 (63.1)	6,475 (62.7)	
No	5,165 (38.4)	1,960 (26.7)		3,610 (34.5)	3,622 (35.1)	
Missing	303 (2.3)	185 (2.5)		246 (2.4)	224 (2.2)	
Urban dweller			0.1344			0.0005
Yes	10,707 (79.7)	5,436 (74.0)		8,107 (77.5)	8,001 (77.5)	
No	2,728 (20.3)	1,906 (26.0)		2,349 (22.5)	2,320 (22.5)	
Neighbourhood deprivation			0.1266			0.0071
High	1,620 (12.1)	1,098 (15.0)		1,362 (13.0)	1,323 (12.8)	
Moderate	8,357 (62.2)	4,648 (63.3)		6,554 (62.7)	6,498 (63.0)	
Low	3,220 (24.0)	1,438 (19.6)		2,339 (22.4)	2,300 (22.3)	
Missing	238 (1.8)	158 (2.2)		201 (1.9)	200 (1.9)	
Local Health Integration Network			0.2680			0.0247
Erie St. Clair	921 (6.9)	519 (7.1)		736 (7.0)	733 (7.1)	
South West	1,689 (12.6)	972 (13.2)		1,353 (12.9)	1,382 (13.4)	
Waterloo Wellington	856 (6.4)	352 (4.8)		602 (5.8)	588 (5.7)	

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EXHIBIT A-22 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Former heavy smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Former heavy smokers, n (%)**	**Standardized difference**
Hamilton Niagara Haldimand Brant	1,680 (12.5)	921 (12.5)		1,312 (12.5)	1,319 (12.8)	
Central West	586 (4.4)	158 (2.2)		373 (3.6)	351 (3.4)	
Mississauga Halton	738 (5.5)	295 (4.0)		517 (4.9)	499 (4.8)	
Toronto Central	646 (4.8)	207 (2.8)		433 (4.1)	447 (4.3)	
Central	918 (6.8)	341 (4.6)		628 (6.0)	608 (5.9)	
Central East	1,285 (9.6)	714 (9.7)		999 (9.6)	966 (9.4)	
South East	746 (5.6)	549 (7.5)		647 (6.2)	640 (6.2)	
Champlain	1,264 (9.4)	703 (9.6)		984 (9.4)	940 (9.1)	
North Simcoe Muskoka	526 (3.9)	377 (5.1)		449 (4.3)	432 (4.2)	
North East	1,096 (8.2)	885 (12.1)		997 (9.5)	985 (9.5)	
North West	478 (3.6)	347 (4.7)		423 (4.0)	427 (4.1)	
Missing	6 (0.0)	2 (0.0)		4 (0.0)	4 (0.0)	
Self-perceived stress			0.1131			0.0145
Quite a bit or extremely stressful	2,754 (20.5)	1,185 (16.1)		2,000 (19.1)	2,032 (19.7)	
At most, a bit stressful	10,648 (79.3)	6,135 (83.6)		8,428 (80.6)	8,264 (80.1)	
Missing	33 (0.2)	22 (0.3)		28 (0.3)	26 (0.3)	
Sense of belonging to the community			0.0757			0.0138
Very weak	2,588 (19.3)	1,512 (20.6)		2,063 (19.7)	2,082 (20.2)	
Neither very strong nor very weak	9,490 (70.6)	4,964 (67.6)		7,269 (69.5)	7,139 (69.2)	
Very strong	993 (7.4)	598 (8.1)		813 (7.8)	808 (7.8)	
Missing	364 (2.7)	268 (3.7)		311 (3.0)	292 (2.8)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-23 Inverse propensity-weighted comparison of non-smokers and former heavy smokers in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Survey cycle			0.0590			0.0294
CCHS 2.1 (2003)	7,320 (32.7)	1,475 (35.3)		4,479 (33.1)	4,506 (34.5)	
CCHS 3.1 (2005)	7,206 (32.2)	1,325 (31.7)		4,338 (32.1)	4,113 (31.5)	
CCHS 4.1 (2007–2008)	7,864 (35.1)	1,376 (33.0)		4,698 (34.8)	4,432 (34.0)	
Age group, years			0.5473			0.0406
25–29	1,728 (7.7)	98 (2.3)		929 (6.9)	824 (6.3)	
30–34	2,133 (9.5)	129 (3.1)		1,150 (8.5)	1,088 (8.3)	
35–39	2,190 (9.8)	195 (4.7)		1,213 (9.0)	1,099 (8.4)	
40–44	1,795 (8.0)	271 (6.5)		1,051 (7.8)	1,041 (8.0)	
45–49	1,522 (6.8)	363 (8.7)		962 (7.1)	928 (7.1)	
50–54	1,803 (8.1)	503 (12.0)		1,177 (8.7)	1,189 (9.1)	
55–59	2,042 (9.1)	603 (14.4)		1,347 (10.0)	1,317 (10.1)	
60–64	1,836 (8.2)	556 (13.3)		1,214 (9.0)	1,151 (8.8)	
65–69	1,759 (7.9)	466 (11.2)		1,131 (8.4)	1,103 (8.5)	
70–74	1,736 (7.8)	444 (10.6)		1,107 (8.2)	1,072 (8.2)	
75–79	1,644 (7.3)	299 (7.2)		988 (7.3)	1,002 (7.7)	
80–84	1,309 (5.8)	186 (4.5)		760 (5.6)	786 (6.0)	
85–89	660 (2.9)	52 (1.2)		362 (2.7)	341 (2.6)	
≥ 90	233 (1.0)	11 (0.3)		124 (0.9)	113 (0.9)	
Alcohol consumption			0.2717			0.0764
Heavy drinker	310 (1.4)	180 (4.3)		252 (1.9)	256 (2.0)	
Moderate drinker	15,521 (69.3)	3,131 (75.0)		9,493 (70.2)	9,590 (73.5)	
Non-drinker	6,345 (28.3)	801 (19.2)		3,629 (26.9)	3,075 (23.6)	
Missing	214 (1.0)	64 (1.5)		141 (1.0)	130 (1.0)	
Physical activity			0.0329			0.0362
Inactive	11,676 (52.1)	2,235 (53.5)		7,073 (52.3)	6,633 (50.8)	
Moderately active	5,777 (25.8)	1,055 (25.3)		3,477 (25.7)	3,384 (25.9)	
Active	4,705 (21.0)	851 (20.4)		2,829 (20.9)	2,907 (22.3)	
Missing	232 (1.0)	35 (0.8)		136 (1.0)	128 (1.0)	
Diet			0.0450			0.0194
Poor diet	1,615 (7.2)	283 (6.8)		967 (7.2)	880 (6.7)	
Fair diet	6,051 (27.0)	1,197 (28.7)		3,691 (27.3)	3,543 (27.1)	
Adequate diet	13,953 (62.3)	2,572 (61.6)		8,402 (62.2)	8,204 (62.9)	
Missing	771 (3.4)	124 (3.0)		455 (3.4)	425 (3.3)	

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APPENDIX

EXHIBIT A-23 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Immigrant status			0.3640			0.059
Immigrant	6,274 (28.0)	564 (13.5)		3,475 (25.7)	3,025 (23.2)	
Non-immigrant	16,083 (71.8)	3,607 (86.4)		10,020 (74.1)	10,008 (76.7)	
Missing	33 (0.1)	5 (0.1)		20 (0.1)	19 (0.1)	
Ethnicity			0.3689			0.1342
White	19,181 (85.7)	4,013 (96.1)		11,803 (87.3)	11,936 (91.5)	
Non-white	3,123 (13.9)	156 (3.7)		1,665 (12.3)	1,084 (8.3)	
Missing	86 (0.4)	7 (0.2)		47 (0.3)	31 (0.2)	
Marital status			0.0684			0.0097
Married or common-law	13,387 (59.8)	2,357 (56.4)		8,011 (59.3)	7,792 (59.7)	
Other	8,995 (40.2)	1,818 (43.5)		5,500 (40.7)	5,256 (40.3)	
Missing	8 (0.0)	1 (0.0)		5 (0.0)	3 (0.0)	
Household type			0.2731			0.0563
Unattached individual	6,735 (30.1)	1,476 (35.3)		4,179 (30.9)	4,057 (31.1)	
Living with spouse or partner	7,032 (31.4)	1,598 (38.3)		4,388 (32.5)	4,282 (32.8)	
Living with spouse or partner and children	5,359 (23.9)	613 (14.7)		3,040 (22.5)	2,988 (22.9)	
Single parent living with children	1,200 (5.4)	196 (4.7)		710 (5.3)	713 (5.5)	
Other	2,002 (8.9)	284 (6.8)		1,160 (8.6)	952 (7.3)	
Missing	62 (0.3)	9 (0.2)		37 (0.3)	59 (0.4)	
Residence owned by a household member			0.0750			0.0316
Yes	17,761 (79.3)	3,190 (76.4)		10,656 (78.9)	10,424 (79.9)	
No	4,598 (20.5)	983 (23.5)		2,841 (21.0)	2,619 (20.1)	
Missing	31 (0.1)	3 (0.1)		17 (0.1)	8 (0.1)	
Highest level of personal education			0.2013			0.0237
Less than high school completion	4,277 (19.1)	978 (23.4)		2,669 (19.7)	2,519 (19.3)	
High school graduate	4,928 (22.0)	1,154 (27.6)		3,101 (22.9)	3,111 (23.8)	
Post-secondary graduate	13,038 (58.2)	2,016 (48.3)		7,657 (56.7)	7,346 (56.3)	
Missing	147 (0.7)	28 (0.7)		88 (0.7)	75 (0.6)	
Highest level of education in household			0.1635			0.0282
Less than high school completion	3,067 (13.7)	666 (15.9)		1,898 (14.0)	1,789 (13.7)	
High school graduate	3,519 (15.7)	863 (20.7)		2,234 (16.5)	2,259 (17.3)	
Post-secondary graduate	15,212 (67.9)	2,519 (60.3)		9,020 (66.7)	8,691 (66.6)	
Missing	592 (2.6)	128 (3.1)		363 (2.7)	312 (2.4)	

EXHIBIT A-23 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Main source of household income			0.1830			0.0197
Employment insurance, worker's compensation, welfare	511 (2.3)	120 (2.9)		323 (2.4)	283 (2.2)	
Senior benefits	7,232 (32.3)	1,646 (39.4)		4,512 (33.4)	4,441 (34.0)	
Wages and salaries⁺	12,838 (57.3)	2,032 (48.7)		7,569 (56.0)	7,256 (55.6)	
Other	1,014 (4.5)	243 (5.8)		638 (4.7)	607 (4.6)	
Missing	795 (3.6)	135 (3.2)		472 (3.5)	464 (3.6)	
Household income, $			0.1168			0.0188
≤ 29,999	5,411 (24.2)	1,157 (27.7)		3,342 (24.7)	3,254 (24.9)	
30,000–79,999	9,201 (41.1)	1,781 (42.6)		5,589 (41.4)	5,323 (40.8)	
≥ 80,000	5,569 (24.9)	898 (21.5)		3,290 (24.3)	3,262 (25.0)	
Missing	2,209 (9.9)	340 (8.1)		1,294 (9.6)	1,213 (9.3)	
Labour force participation			0.2427			0.0210
Typically works < 5 hours/week	7,195 (32.1)	1,671 (40)		4,504 (33.3)	4,250 (32.6)	
Permanently unable to work	570 (2.5)	221 (5.3)		406 (3.0)	394 (3.0)	
Typically works ≥ 5 hours/week	11,024 (49.2)	1,786 (42.8)		6,520 (48.2)	6,311 (48.4)	
Not applicable (age > 75 years)	3,500 (15.6)	481 (11.5)		2,024 (15.0)	2,036 (15.6)	
Missing	101 (0.5)	17 (0.4)		60 (0.4)	61 (0.5)	
Flu vaccination			0.1602			0.0212
Yes	15,289 (68.3)	3,151 (75.5)		9,382 (69.4)	9,186 (70.4)	
No	6,858 (30.6)	987 (23.6)		3,990 (29.5)	3,728 (28.6)	
Missing	243 (1.1)	38 (0.9)		143 (1.1)	138 (1.1)	
Mammogram			0.4378			0.0359
Yes	13,276 (59.3)	3,204 (76.7)		8,387 (62.1)	8,324 (63.8)	
No	5,000 (22.3)	710 (17.0)		2,902 (21.5)	2,687 (20.6)	
Not applicable (age < 35 years)	3,861 (17.2)	227 (5.4)		2,079 (15.4)	1,912 (14.6)	
Missing	253 (1.1)	35 (0.8)		147 (1.1)	129 (1.0)	
Pap test			0.1974			0.0594
Yes	20,170 (90.1)	3,974 (95.2)		12,284 (90.9)	12,077 (92.5)	
No	1,881 (8.4)	162 (3.9)		1038 (7.7)	819 (6.3)	
Missing	339 (1.5)	40 (1.0)		193 (1.4)	156 (1.2)	
Urban dweller			0.0708			0.0245
Yes	17,899 (79.9)	3,217 (77.0)		10,740 (79.5)	10,242 (78.5)	
No	4,491 (20.1)	959 (23.0)		2,774 (20.5)	2,809 (21.5)	

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APPENDIX

EXHIBIT A-23 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Neighbourhood deprivation			0.1301			0.0203
High	3,147 (14.1)	747 (17.9)		1,984 (14.7)	1,972 (15.1)	
Moderate	13,930 (62.2)	2,608 (62.5)		8,410 (62.2)	8,003 (61.3)	
Low	4,814 (21.5)	742 (17.8)		2,827 (20.9)	2,801 (21.5)	
Missing	499 (2.2)	79 (1.9)		293 (2.2)	275 (2.1)	
Local Health Integration Network			0.2559			0.0934
Erie St. Clair	1,579 (7.1)	300 (7.2)		957 (7.1)	893 (6.8)	
South West	2,790 (12.5)	491 (11.8)		1,669 (12.3)	1,628 (12.5)	
Waterloo Wellington	1,425 (6.4)	202 (4.8)		827 (6.1)	829 (6.3)	
Hamilton Niagara Haldimand Brant	2,754 (12.3)	548 (13.1)		1,675 (12.4)	1,567 (12.0)	
Central West	866 (3.9)	87 (2.1)		483 (3.6)	357 (2.7)	
Mississauga Halton	1,195 (5.3)	139 (3.3)		677 (5.0)	582 (4.5)	
Toronto Central	929 (4.1)	142 (3.4)		545 (4.0)	486 (3.7)	
Central	1,516 (6.8)	162 (3.9)		851 (6.3)	696 (5.3)	
Central East	2,209 (9.9)	414 (9.9)		1,337 (9.9)	1,268 (9.7)	
South East	1,310 (5.9)	300 (7.2)		820 (6.1)	798 (6.1)	
Champlain	2,053 (9.2)	461 (11.0)		1,282 (9.5)	1,386 (10.6)	
North Simcoe Muskoka	898 (4.0)	215 (5.1)		569 (4.2)	613 (4.7)	
North East	2,054 (9.2)	516 (12.4)		1,310 (9.7)	1,388 (10.6)	
North West	807 (3.6)	199 (4.8)		512 (3.8)	561 (4.3)	
Missing	5 (0.0)	0 (0.0)		3 (0.0)	0 (0.0)	
Self-perceived stress			0.0238			0.035
Quite a bit or extremely stressful	4,460 (19.9)	848 (20.3)		2,705 (20.0)	2,774 (21.3)	
At most, a bit stressful	17,856 (79.7)	3,319 (79.5)		10,768 (79.7)	10,249 (78.5)	
Missing	74 (0.3)	9 (0.2)		42 (0.3)	29 (0.2)	
Sense of belonging to the community			0.0811			0.0173
Very weak	4,954 (22.1)	859 (20.6)		2,956 (21.9)	2,802 (21.5)	
Neither very strong nor very weak	15,343 (68.5)	2,843 (68.1)		9,256 (68.5)	9,004 (69.0)	
Very strong	1,639 (7.3)	394 (9.4)		1,030 (7.6)	963 (7.4)	
Missing	454 (2.0)	80 (1.9)		273 (2.0)	283 (2.2)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-24 Inverse propensity-weighted comparison of non-smokers and former light smokers in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Survey cycle			0.0250			0.0051
CCHS 2.1 (2003)	4,404 (32.8)	2,031 (31.8)		3,217 (32.4)	3,187 (32.2)	
CCHS 3.1 (2005)	4,339 (32.3)	2,059 (32.2)		3,199 (32.2)	3,199 (32.3)	
CCHS 4.1 (2007–2008)	4,692 (34.9)	2,299 (36.0)		3,506 (35.3)	3,516 (35.5)	
Age group, years			0.4801			0.0074
25–29	1,246 (9.3)	356 (5.6)		801 (8.1)	786 (7.9)	
30–34	1,661 (12.4)	407 (6.4)		1,034 (10.4)	1,024 (10.3)	
35–39	1,818 (13.5)	504 (7.9)		1,162 (11.7)	1,162 (11.7)	
40–44	1,759 (13.1)	537 (8.4)		1,149 (11.6)	1,149 (11.6)	
45–49	1,151 (8.6)	449 (7.0)		800 (8.1)	793 (8.0)	
50–54	1,091 (8.1)	616 (9.6)		856 (8.6)	863 (8.7)	
55–59	1,145 (8.5)	649 (10.2)		898 (9.0)	896 (9.0)	
60–64	987 (7.3)	639 (10.0)		818 (8.2)	822 (8.3)	
65–69	803 (6.0)	612 (9.6)		713 (7.2)	717 (7.2)	
70–74	714 (5.3)	596 (9.3)		655 (6.6)	654 (6.6)	
75–79	535 (4.0)	515 (8.1)		520 (5.2)	517 (5.2)	
80–84	330 (2.5)	339 (5.3)		334 (3.4)	335 (3.4)	
85–89	150 (1.1)	132 (2.1)		142 (1.4)	142 (1.4)	
≥ 90	45 (0.3)	38 (0.6)		42 (0.4)	41 (0.4)	
Alcohol consumption			0.1293			0.0047
Heavy drinker	954 (7.1)	613 (9.6)		791 (8.0)	797 (8.1)	
Moderate drinker	10,049 (74.8)	4,828 (75.6)		7,438 (75.0)	7,424 (75.0)	
Non-drinker	2,189 (16.3)	814 (12.7)		1,502 (15.1)	1,487 (15.0)	
Missing	243 (1.8)	134 (2.1)		191 (1.9)	194 (2.0)	
Physical activity			0.0217			0.0055
Inactive	5,822 (43.3)	2,773 (43.4)		4,304 (43.4)	4,291 (43.3)	
Moderately active	3,473 (25.9)	1,690 (26.5)		2,580 (26.0)	2,569 (25.9)	
Active	3,863 (28.8)	1,785 (27.9)		2,829 (28.5)	2,840 (28.7)	
Missing	277 (2.1)	141 (2.2)		209 (2.1)	202 (2.0)	
Diet			0.0605			0.0061
Poor diet	1,765 (13.1)	727 (11.4)		1,254 (12.6)	1,258 (12.7)	
Fair diet	5,366 (39.9)	2,520 (39.4)		3,939 (39.7)	3,911 (39.5)	
Adequate diet	5,747 (42.8)	2,861 (44.8)		4,310 (43.4)	4,322 (43.6)	
Missing	557 (4.1)	281 (4.4)		419 (4.2)	411 (4.2)	

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EXHIBIT A-24 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Immigrant status			0.0236			0.0107
Immigrant	3,285 (24.5)	1,622 (25.4)		2,460 (24.8)	2,442 (24.7)	
Non-immigrant	10,133 (75.4)	4,761 (74.5)		7,450 (75.1)	7,445 (75.2)	
Missing	17 (0.1)	6 (0.1)		12 (0.1)	16 (0.2)	
Ethnicity			0.1563			0.0046
White	11,461 (85.3)	5,773 (90.4)		8,623 (86.9)	8,611 (87.0)	
Non-white	1,921 (14.3)	593 (9.3)		1,260 (12.7)	1,250 (12.6)	
Missing	53 (0.4)	23 (0.4)		38 (0.4)	41 (0.4)	
Marital status			0.0677			0.0046
Married or common-law	9,368 (69.7)	4,642 (72.7)		7,018 (70.7)	7,025 (70.9)	
Other	4,065 (30.3)	1,744 (27.3)		2,901 (29.2)	2,875 (29.0)	
Missing	2 (0.0)	3 (0.0)		3 (0.0)	3 (0.0)	
Household type			0.2702			0.0080
Unattached individual	2,881 (21.4)	1,398 (21.9)		2,132 (21.5)	2,102 (21.2)	
Living with spouse or partner	4,444 (33.1)	2,847 (44.6)		3,654 (36.8)	3,672 (37.1)	
Living with spouse or partner and children	4,251 (31.6)	1,507 (23.6)		2,886 (29.1)	2,887 (29.2)	
Single parent living with children	210 (1.6)	97 (1.5)		154 (1.6)	157 (1.6)	
Other	1,619 (12.1)	529 (8.3)		1,076 (10.8)	1,065 (10.8)	
Missing	30 (0.2)	11 (0.2)		21 (0.2)	20 (0.2)	
Residence owned by a household member			0.0421			0.0059
Yes	11,089 (82.5)	5,354 (83.8)		8,230 (82.9)	8,213 (82.9)	
No	2,319 (17.3)	1,029 (16.1)		1,676 (16.9)	1,675 (16.9)	
Missing	27 (0.2)	6 (0.1)		17 (0.2)	14 (0.1)	
Highest level of personal education			0.2742			0.0070
Less than high school completion	1,486 (11.1)	1,296 (20.3)		1,399 (14.1)	1,407 (14.2)	
High school graduate	2,722 (20.3)	1,389 (21.7)		2,052 (20.7)	2,026 (20.5)	
Post-secondary graduate	9,118 (67.9)	3,650 (57.1)		6,389 (64.4)	6,391 (64.5)	
Missing	109 (0.8)	54 (0.8)		82 (0.8)	79 (0.8)	
Highest level of education in household			0.2297			0.0022
Less than high school completion	842 (6.3)	756 (11.8)		799 (8.0)	800 (8.1)	
High school graduate	1,888 (14.1)	1,104 (17.3)		1,498 (15.1)	1,488 (15.0)	
Post-secondary graduate	10,220 (76.1)	4,289 (67.1)		7,261 (73.2)	7,252 (73.2)	
Missing	485 (3.6)	240 (3.8)		364 (3.7)	362 (3.7)	

EXHIBIT A-24 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Main source of household income			0.3433			0.0037
Employment insurance, worker's compensation, welfare	249 (1.9)	114 (1.8)		181 (1.8)	184 (1.9)	
Senior benefits	2,580 (19.2)	2,120 (33.2)		2,348 (23.7)	2,341 (23.6)	
Wages and salaries⁺	9,884 (73.6)	3,717 (58.2)		6,808 (68.6)	6,788 (68.5)	
Other	452 (3.4)	290 (4.5)		373 (3.8)	375 (3.8)	
Missing	270 (2.0)	148 (2.3)		213 (2.1)	216 (2.2)	
Household income, $			0.1962			0.0053
≤ 29,999	1,635 (12.2)	1,063 (16.6)		1,356 (13.7)	1,361 (13.7)	
30,000–79,999	5,757 (42.9)	2,961 (46.3)		4,357 (43.9)	4,330 (43.7)	
≥ 80,000	5,339 (39.7)	1,990 (31.1)		3,670 (37.0)	3,679 (37.2)	
Missing	704 (5.2)	375 (5.9)		540 (5.4)	532 (5.4)	
Labour force participation			0.3480			0.0081
Typically works < 5 hours/week	2,374 (17.7)	1,632 (25.5)		2,013 (20.3)	2,030 (20.5)	
Permanently unable to work	290 (2.2)	179 (2.8)		237 (2.4)	236 (2.4)	
Typically works ≥ 5 hours/week	9,757 (72.6)	3,646 (57.1)		6,704 (67.6)	6,665 (67.3)	
Not applicable (age > 75 years)	934 (7.0)	905 (14.2)		914 (9.2)	913 (9.2)	
Missing	80 (0.6)	27 (0.4)		54 (0.5)	58 (0.6)	
Flu vaccination			0.1803			0.0038
Yes	7,967 (59.3)	4,323 (67.7)		6,145 (61.9)	6,134 (61.9)	
No	5,165 (38.4)	1,913 (29.9)		3,549 (35.8)	3,546 (35.8)	
Missing	303 (2.3)	153 (2.4)		228 (2.3)	222 (2.2)	
Urban dweller			0.0469			0.0030
Yes	10,707 (79.7)	4,969 (77.8)		7,849 (79.1)	7,845 (79.2)	
No	2,728 (20.3)	1,420 (22.2)		2,073 (20.9)	2,057 (20.8)	
Neighbourhood deprivation			0.0653			0.0045
High	1,620 (12.1)	888 (13.9)		1,253 (12.6)	1,244 (12.6)	
Moderate	8,357 (62.2)	3,916 (61.3)		6,144 (61.9)	6,133 (61.9)	
Low	3,220 (24.0)	1,447 (22.6)		2,334 (23.5)	2,329 (23.5)	
Missing	238 (1.8)	138 (2.2)		191 (1.9)	196 (2.0)	
Local Health Integration Network			0.1430			0.0150
Erie St. Clair	921 (6.9)	416 (6.5)		669 (6.7)	676 (6.8)	
South West	1,689 (12.6)	817 (12.8)		1,258 (12.7)	1,248 (12.6)	
Waterloo Wellington	856 (6.4)	390 (6.1)		618 (6.2)	604 (6.1)	

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EXHIBIT A-24 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Former light smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Former light smokers, n (%)**	**Standardized difference**
Hamilton Niagara Haldimand Brant	1,680 (12.5)	783 (12.3)		1,235 (12.4)	1,246 (12.6)	
Central West	586 (4.4)	199 (3.1)		393 (4.0)	391 (3.9)	
Mississauga Halton	738 (5.5)	339 (5.3)		538 (5.4)	542 (5.5)	
Toronto Central	646 (4.8)	215 (3.4)		435 (4.4)	451 (4.5)	
Central	918 (6.8)	388 (6.1)		654 (6.6)	649 (6.5)	
Central East	1,285 (9.6)	631 (9.9)		955 (9.6)	950 (9.6)	
South East	746 (5.6)	362 (5.7)		555 (5.6)	554 (5.6)	
Champlain	1,264 (9.4)	595 (9.3)		927 (9.3)	919 (9.3)	
North Simcoe Muskoka	526 (3.9)	303 (4.7)		415 (4.2)	408 (4.1)	
North East	1,096 (8.2)	641 (10.0)		866 (8.7)	850 (8.6)	
North West	478 (3.6)	309 (4.8)		400 (4.0)	412 (4.2)	
Missing	6 (0.0)	1 (0.0)		4 (0.0)	4 (0.0)	
Self-perceived stress			**0.0709**			**0.0064**
Quite a bit or extremely stressful	2,754 (20.5)	1,132 (17.7)		1,950 (19.7)	1,961 (19.8)	
At most, a bit stressful	10,648 (79.3)	5,242 (82.0)		7,948 (80.1)	7,920 (80.0)	
Missing	33 (0.2)	15 (0.2)		24 (0.2)	21 (0.2)	
Sense of belonging to the community			**0.0355**			**0.0055**
Very weak	2,588 (19.3)	1,309 (20.5)		1,950 (19.7)	1,948 (19.7)	
Neither very strong nor very weak	9,490 (70.6)	4,425 (69.3)		6,962 (70.2)	6,948 (70.2)	
Very strong	993 (7.4)	466 (7.3)		733 (7.4)	738 (7.5)	
Missing	364 (2.7)	189 (3.0)		277 (2.8)	268 (2.7)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

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A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

EXHIBIT A-25 Inverse propensity-weighted comparison of non-smokers and former light smokers in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Survey cycle			0.0365			0.0014
CCHS 2.1 (2003)	7,320 (32.7)	2,455 (31.0)		4,921 (32.3)	4,857 (32.3)	
CCHS 3.1 (2005)	7,206 (32.2)	2,635 (33.3)		4,955 (32.5)	4,894 (32.5)	
CCHS 4.1 (2007–2008)	7,864 (35.1)	2,821 (35.7)		5,379 (35.3)	5,296 (35.2)	
Age group, years			0.1767			0.0254
25–29	1,728 (7.7)	428 (5.4)		1,085 (7.1)	1,055 (7.0)	
30–34	2,133 (9.5)	607 (7.7)		1,380 (9.0)	1,346 (8.9)	
35–39	2,190 (9.8)	668 (8.4)		1,434 (9.4)	1,354 (9.0)	
40–44	1,795 (8.0)	651 (8.2)		1,229 (8.1)	1,185 (7.9)	
45–49	1,522 (6.8)	615 (7.8)		1,074 (7.0)	1,051 (7.0)	
50–54	1,803 (8.1)	703 (8.9)		1,265 (8.3)	1,275 (8.5)	
55–59	2,042 (9.1)	872 (11.0)		1,471 (9.6)	1,488 (9.9)	
60–64	1,836 (8.2)	792 (10.0)		1,324 (8.7)	1,300 (8.6)	
65–69	1,759 (7.9)	683 (8.6)		1,229 (8.1)	1,197 (8.0)	
70–74	1,736 (7.8)	667 (8.4)		1,210 (7.9)	1,195 (7.9)	
75–79	1,644 (7.3)	591 (7.5)		1,128 (7.4)	1,158 (7.7)	
80–84	1,309 (5.8)	425 (5.4)		871 (5.7)	870 (5.8)	
85–89	660 (2.9)	164 (2.1)		416 (2.7)	440 (2.9)	
≥ 90	233 (1.0)	45 (0.6)		140 (0.9)	133 (0.9)	
Alcohol consumption			0.3131			0.0307
Heavy drinker	310 (1.4)	262 (3.3)		292 (1.9)	300 (2.0)	
Moderate drinker	15,521 (69.3)	6,270 (79.3)		10,974 (71.9)	10,998 (73.1)	
Non-drinker	6,345 (28.3)	1,283 (16.2)		3,832 (25.1)	3,584 (23.8)	
Missing	214 (1.0)	96 (1.2)		157 (1.0)	165 (1.1)	
Physical activity			0.0768			0.0116
Inactive	11,676 (52.1)	3,854 (48.7)		7,816 (51.2)	7,650 (50.8)	
Moderately active	5,777 (25.8)	2,179 (27.5)		4,003 (26.2)	3,935 (26.2)	
Active	4,705 (21.0)	1,816 (23.0)		3,288 (21.6)	3,314 (22.0)	
Missing	232 (1.0)	62 (0.8)		148 (1.0)	147 (1.0)	
Diet			0.0451			0.0092
Poor diet	1,615 (7.2)	535 (6.8)		1,086 (7.1)	1,102 (7.3)	
Fair diet	6,051 (27.0)	2,153 (27.2)		4,135 (27.1)	4,088 (27.2)	
Adequate diet	13,953 (62.3)	5,006 (63.3)		9,537 (62.5)	9,376 (62.3)	
Missing	771 (3.4)	217 (2.7)		497 (3.3)	479 (3.2)	

EXHIBIT A-25 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Immigrant status			0.2419			0.0468
Immigrant	6,274 (28.0)	1,419 (17.9)		3,859 (25.3)	3,506 (23.3)	
Non-immigrant	16,083 (71.8)	6,483 (81.9)		11,374 (74.6)	11,522 (76.6)	
Missing	33 (0.1)	9 (0.1)		21 (0.1)	19 (0.1)	
Ethnicity			0.3012			0.0555
White	19,181 (85.7)	7,478 (94.5)		13,429 (88.0)	13,508 (89.8)	
Non-white	3,123 (13.9)	413 (5.2)		1,773 (11.6)	1,493 (9.9)	
Missing	86 (0.4)	20 (0.3)		53 (0.3)	46 (0.3)	
Marital status			0.0076			0.0083
Married or common-law	13,387 (59.8)	4,740 (59.9)		9,126 (59.8)	8,942 (59.4)	
Other	8,995 (40.2)	3,167 (40.0)		6,123 (40.1)	6,100 (40.5)	
Missing	8 (0.0)	4 (0.1)		6 (0.0)	5 (0.0)	
Household type			0.1206			0.0197
Unattached individual	6,735 (30.1)	2,486 (31.4)		4,642 (30.4)	4,620 (30.7)	
Living with spouse or partner	7,032 (31.4)	2,719 (34.4)		4,914 (32.2)	4,929 (32.8)	
Living with spouse or partner and children	5,359 (23.9)	1,721 (21.8)		3,560 (23.3)	3,415 (22.7)	
Single parent living with children	1,200 (5.4)	446 (5.6)		831 (5.4)	831 (5.5)	
Other	2,002 (8.9)	506 (6.4)		1,261 (8.3)	1,207 (8.0)	
Missing	62 (0.3)	33 (0.4)		47 (0.3)	45 (0.3)	
Residence owned by a household member			0.0128			0.0078
Yes	17,761 (79.3)	6,235 (78.8)		12,078 (79.2)	11,957 (79.5)	
No	4,598 (20.5)	1,664 (21.0)		3,155 (20.7)	3,071 (20.4)	
Missing	31 (0.1)	12 (0.2)		22 (0.1)	19 (0.1)	
Highest level of personal education			0.1004			0.0065
Less than high school completion	4,277 (19.1)	1,476 (18.7)		2,893 (19.0)	2,824 (18.8)	
High school graduate	4,928 (22.0)	2,076 (26.2)		3,532 (23.2)	3,514 (23.4)	
Post-secondary graduate	13,038 (58.2)	4,310 (54.5)		8,732 (57.2)	8,614 (57.2)	
Missing	147 (0.7)	49 (0.6)		99 (0.6)	95 (0.6)	
Highest level of education in household			0.0784			0.0117
Less than high school completion	3,067 (13.7)	1,012 (12.8)		2,053 (13.5)	2,037 (13.5)	
High school graduate	3,519 (15.7)	1,472 (18.6)		2,514 (16.5)	2,501 (16.6)	
Post-secondary graduate	15,212 (67.9)	5,235 (66.2)		10,296 (67.5)	10,148 (67.4)	
Missing	592 (2.6)	192 (2.4)		392 (2.6)	361 (2.4)	

EXHIBIT A-25 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Main source of household income			0.0659			0.0175
Employment insurance, worker's compensation, welfare	511 (2.3)	168 (2.1)		341 (2.2)	318 (2.1)	
Senior benefits	7,232 (32.3)	2,732 (34.5)		5,023 (32.9)	5,068 (33.7)	
Wages and salaries⁺	12,838 (57.3)	4,374 (55.3)		8,662 (56.8)	8,471 (56.3)	
Other	1,014 (4.5)	406 (5.1)		713 (4.7)	693 (4.6)	
Missing	795 (3.6)	231 (2.9)		516 (3.4)	497 (3.3)	
Household income, $			0.0675			0.0092
≤ 29,999	5,411 (24.2)	1,892 (23.9)		3,674 (24.1)	3,600 (23.9)	
30,000–79,999	9,201 (41.1)	3,313 (41.9)		6,301 (41.3)	6,216 (41.3)	
≥ 80,000	5,569 (24.9)	2,070 (26.2)		3,849 (25.2)	3,845 (25.6)	
Missing	2,209 (9.9)	636 (8.0)		1431 (9.4)	1385 (9.2)	
Labour force participation			0.0562			0.0186
Typically works < 5 hours/week	7,195 (32.1)	2,651 (33.5)		4,952 (32.5)	4,776 (31.7)	
Permanently unable to work	570 (2.5)	228 (2.9)		403 (2.6)	394 (2.6)	
Typically works ≥ 5 hours/week	11,024 (49.2)	3,903 (49.3)		7,516 (49.3)	7,449 (49.5)	
Not applicable (age > 75 years)	3,500 (15.6)	1,097 (13.9)		2,316 (15.2)	2,362 (15.7)	
Missing	101 (0.5)	32 (0.4)		67 (0.4)	66 (0.4)	
Flu vaccination			0.0738			0.0022
Yes	15,289 (68.3)	5,660 (71.5)		10,545 (69.1)	10,414 (69.2)	
No	6,858 (30.6)	2,188 (27.7)		4,556 (29.9)	4,483 (29.8)	
Missing	243 (1.1)	63 (0.8)		154 (1.0)	150 (1.0)	
Mammogram			0.1484			0.0124
Yes	13,276 (59.3)	5,227 (66.1)		9,321 (61.1)	9,282 (61.7)	
No	5,000 (22.3)	1,576 (19.9)		3,305 (21.7)	3,201 (21.3)	
Not applicable (age < 35 years)	3,861 (17.2)	1,035 (13.1)		2,465 (16.2)	2,401 (16.0)	
Missing	253 (1.1)	73 (0.9)		164 (1.1)	163 (1.1)	
Pap test			0.2142			0.0178
Yes	20,170 (90.1)	7,556 (95.5)		13,959 (91.5)	13,841 (92.0)	
No	1,881 (8.4)	280 (3.5)		1,087 (7.1)	1,007 (6.7)	
Missing	339 (1.5)	75 (0.9)		209 (1.4)	199 (1.3)	
Urban dweller			0.0442			0.0121
Yes	17,899 (79.9)	6,182 (78.1)		12,121 (79.5)	11,882 (79.0)	
No	4,491 (20.1)	1,729 (21.9)		3,133 (20.5)	3,165 (21.0)	

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EXHIBIT A-25 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Neighbourhood deprivation			0.0382			0.0098
High	3,147 (14.1)	1,158 (14.6)		2,166 (14.2)	2,146 (14.3)	
Moderate	13,930 (62.2)	4,985 (63.0)		9,519 (62.4)	9,331 (62.0)	
Low	4,814 (21.5)	1,583 (20.0)		3,224 (21.1)	3,213 (21.4)	
Missing	499 (2.2)	185 (2.3)		346 (2.3)	357 (2.4)	
Local Health Integration Network			0.1759			0.0374
Erie St. Clair	1,579 (7.1)	527 (6.7)		1,061 (7.0)	1,057 (7.0)	
South West	2,790 (12.5)	1,003 (12.7)		1,908 (12.5)	1,903 (12.6)	
Waterloo Wellington	1,425 (6.4)	434 (5.5)		934 (6.1)	901 (6.0)	
Hamilton Niagara Haldimand Brant	2,754 (12.3)	1,005 (12.7)		1,890 (12.4)	1,850 (12.3)	
Central West	866 (3.9)	199 (2.5)		534 (3.5)	469 (3.1)	
Mississauga Halton	1,195 (5.3)	328 (4.1)		766 (5.0)	734 (4.9)	
Toronto Central	929 (4.1)	291 (3.7)		613 (4.0)	593 (3.9)	
Central	1,516 (6.8)	368 (4.7)		946 (6.2)	897 (6.0)	
Central East	2,209 (9.9)	782 (9.9)		1,503 (9.9)	1,478 (9.8)	
South East	1,310 (5.9)	571 (7.2)		950 (6.2)	957 (6.4)	
Champlain	2,053 (9.2)	810 (10.2)		1,440 (9.4)	1,420 (9.4)	
North Simcoe Muskoka	898 (4.0)	362 (4.6)		637 (4.2)	644 (4.3)	
North East	2,054 (9.2)	832 (10.5)		1,460 (9.6)	1,517 (10.1)	
North West	807 (3.6)	399 (5.0)		609 (4.0)	628 (4.2)	
Missing	5 (0.0)	0 (0.0)		3 (0.0)	0 (0.0)	
Self-perceived stress			0.0296			0.0041
Quite a bit or extremely stressful	4,460 (19.9)	1,496 (18.9)		3,000 (19.7)	2,975 (19.8)	
At most, a bit stressful	17,856 (79.7)	6,395 (80.8)		12,207 (80.0)	12,022 (79.9)	
Missing	74 (0.3)	20 (0.3)		47 (0.3)	49 (0.3)	
Sense of belonging to the community			0.0495			0.0104
Very weak	4,954 (22.1)	1,639 (20.7)		3,320 (21.8)	3,303 (22.0)	
Neither very strong nor very weak	15,343 (68.5)	5,578 (70.5)		10,534 (69.1)	10,377 (69.0)	
Very strong	1,639 (7.3)	566 (7.2)		1,107 (7.3)	1063 (7.1)	
Missing	454 (2.0)	128 (1.6)		294 (1.9)	303 (2.0)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

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EXHIBIT A-26 Inverse propensity-weighted comparison of non-smokers and heavy smokers aged 65 and older in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Survey cycle			0.1830			0.0957
CCHS 2.1 (2003)	810 (31.4)	132 (33.8)		471 (31.2)	393 (26.9)	
CCHS 3.1 (2005)	780 (30.3)	142 (36.3)		475 (31.5)	479 (32.8)	
CCHS 4.1 (2007–2008)	987 (38.3)	117 (29.9)		562 (37.3)	588 (40.3)	
Age group, years			0.5639			0.3205
65–69	803 (31.2)	206 (52.7)		515 (34.2)	472 (32.3)	
70–74	714 (27.7)	105 (26.9)		419 (27.8)	392 (26.8)	
75–79	535 (20.8)	53 (13.6)		297 (19.7)	240 (16.5)	
≥ 80	525 (20.3)	27 (6.9)		278 (18.5)	356 (24.4)	
Alcohol consumption			0.5482			0.0848
Heavy drinker	70 (2.7)	75 (19.2)		82 (5.4)	77 (5.3)	
Moderate drinker	1,751 (67.9)	219 (56.0)		999 (66.2)	925 (63.3)	
Non-drinker	678 (26.3)	89 (22.8)		385 (25.5)	424 (29.1)	
Missing	78 (3.0)	8 (2.0)		43 (2.9)	34 (2.3)	
Physical activity			0.3691			0.1207
Inactive	1,128 (43.8)	239 (61.1)		703 (46.6)	749 (51.3)	
Moderately active	626 (24.3)	67 (17.1)		351 (23.2)	343 (23.5)	
Active	688 (26.7)	64 (16.4)		378 (25.0)	312 (21.4)	
Missing	135 (5.2)	21 (5.4)		78 (5.2)	55 (3.8)	
Diet			0.5966			0.3293
Poor diet	233 (9.0)	83 (21.2)		159 (10.6)	330 (22.6)	
Fair diet	912 (35.4)	178 (45.5)		560 (37.1)	472 (32.3)	
Adequate diet	1,199 (46.5)	82 (21.0)		647 (42.9)	546 (37.4)	
Missing	233 (9.0)	48 (12.3)		142 (9.4)	112 (7.6)	
Immigrant status			0.3063			0.1650
Immigrant	851 (33.0)	77 (19.7)		469 (31.1)	564 (38.6)	
Non-immigrant	1,719 (66.7)	313 (80.1)		1,036 (68.7)	896 (61.3)	
Missing	7 (0.3)	1 (0.3)		4 (0.3)	1 (0.1)	
Ethnicity			0.2169			0.2167
White	2,351 (91.2)	377 (96.4)		1,387 (92.0)	1,413 (96.8)	
Non-white	208 (8.1)	13 (3.3)		112 (7.4)	46 (3.1)	
Missing	18 (0.7)	1 (0.3)		9 (0.6)	1 (0.1)	

EXHIBIT A-26 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Marital status			0.4437			0.0077
Married or common-law	1,893 (73.5)	206 (52.7)		1,058 (70.2)	1,019 (69.8)	
Other	684 (26.5)	185 (47.3)		450 (29.8)	441 (30.2)	
Household type			0.4041			0.3730
Unattached individual	635 (24.6)	166 (42.5)		414 (27.4)	411 (28.1)	
Living with spouse or partner	1,647 (63.9)	188 (48.1)		926 (61.4)	762 (52.2)	
Living with spouse or partner and children	140 (5.4)	<12		76 (5.0)	230 (15.7)	
Single parent living with children	34 (1.3)	<12		19 (1.2)	12 (0.8)	
Other	121 (4.7)	21 (5.4)		74 (4.9)	45 (3.1)	
Residence owned by a household member			0.5435			0.1019
Yes	2,257 (87.6)	258 (66.0)		1,276 (84.6)	1,274 (87.3)	
No	312 (12.1)	133 (34.0)		228 (15.1)	186 (12.7)	
Missing	8 (0.3)	0 (0.0)		4 (0.3)	0 (0.0)	
Highest level of personal education			0.4044			0.2864
Less than high school completion	789 (30.6)	192 (49.1)		506 (33.6)	466 (31.9)	
High school graduate	442 (17.2)	62 (15.9)		258 (17.1)	417 (28.6)	
Post-secondary graduate	1,315 (51.0)	132 (33.8)		727 (48.2)	565 (38.7)	
Missing	31 (1.2)	5 (1.3)		18 (1.2)	12 (0.8)	
Highest level of education in household			0.4456			0.3322
Less than high school completion	509 (19.8)	147 (37.6)		335 (22.2)	332 (22.8)	
High school graduate	452 (17.5)	74 (18.9)		276 (18.3)	460 (31.5)	
Post-secondary graduate	1,508 (58.5)	153 (39.1)		836 (55.4)	628 (43.0)	
Missing	108 (4.2)	17 (4.3)		62 (4.1)	40 (2.7)	
Main source of household income			0.2702			0.3357
Employment insurance, worker's compensation, welfare	14 (0.5)	10 (2.6)		11 (0.7)	12 (0.8)	
Senior benefits	1,884 (73.1)	303 (77.5)		1,114 (73.8)	958 (65.6)	
Wages and salaries+	323 (12.5)	48 (12.3)		190 (12.6)	360 (24.7)	
Other	218 (8.5)	14 (3.6)		117 (7.7)	62 (4.2)	
Missing	138 (5.4)	16 (4.1)		77 (5.1)	68 (4.7)	
Household income, $			0.5305			0.2315
≤ 29,999	687 (26.7)	193 (49.4)		463 (30.7)	438 (30.0)	
30,000–79,999	1,242 (48.2)	151 (38.6)		697 (46.2)	612 (41.9)	
≥ 80,000	389 (15.1)	21 (5.4)		206 (13.7)	162 (11.1)	
Missing	259 (10.1)	26 (6.6)		142 (9.4)	248 (17.0)	

EXHIBIT A-26 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Labour force participation			0.4692			0.1336
Typically works < 5 hours/week	1,226 (47.6)	244 (62.4)		748 (49.6)	657 (45.0)	
Permanently unable to work	68 (2.6)	23 (5.9)		52 (3.4)	75 (5.1)	
Typically works ≥ 5 hours/week	337 (13.1)	57 (14.6)		198 (13.1)	197 (13.5)	
Not applicable (age > 75 years)	934 (36.2)	66 (16.9)		504 (33.4)	530 (36.3)	
Missing	12 (0.5)	1 (0.3)		6 (0.4)	1 (0.1)	
Flu vaccination			0.3568			0.0693
Yes	2,063 (80.1)	257 (65.7)		1,179 (78.2)	1,164 (79.7)	
No	379 (14.7)	114 (29.2)		252 (16.7)	242 (16.6)	
Missing	135 (5.2)	20 (5.1)		77 (5.1)	54 (3.7)	
Urban dweller			0.0361			0.2348
Yes	1,971 (76.5)	293 (74.9)		1,156 (76.7)	965 (66.1)	
No	606 (23.5)	98 (25.1)		352 (23.3)	494 (33.9)	
Neighbourhood deprivation			0.3838			0.1335
High	271 (10.5)	90 (23.0)		192 (12.7)	243 (16.6)	
Moderate	1,660 (64.4)	240 (61.4)		958 (63.5)	868 (59.5)	
Low	588 (22.8)	53 (13.6)		325 (21.6)	330 (22.6)	
Missing	58 (2.3)	8 (2.0)		33 (2.2)	19 (1.3)	
Local Health Integration Network			0.4057			0.4318
Erie St. Clair	172 (6.7)	25 (6.4)		100 (6.7)	125 (8.6)	
South West	391 (15.2)	45 (11.5)		216 (14.3)	172 (11.8)	
Waterloo Wellington	155 (6.0)	19 (4.9)		87 (5.7)	82 (5.6)	
Hamilton Niagara Haldimand Brant	361 (14.0)	54 (13.8)		214 (14.2)	177 (12.1)	
Central West	75 (2.9)	7 (1.8)		41 (2.7)	20 (1.4)	
Mississauga Halton	122 (4.7)	<10		64 (4.3)	202 (13.8)	
Toronto Central	90 (3.5)	<10		48 (3.2)	14 (1.0)	
Central	161 (6.2)	14 (3.6)		89 (5.9)	80 (5.5)	
Central East	260 (10.1)	46 (11.8)		151 (10.0)	85 (5.8)	
South East	172 (6.7)	33 (8.4)		102 (6.8)	94 (6.5)	
Champlain	221 (8.6)	38 (9.7)		131 (8.7)	163 (11.2)	
North Simcoe Muskoka	106 (4.1)	17 (4.3)		62 (4.1)	53 (3.6)	
North East	200 (7.8)	62 (15.9)		138 (9.1)	119 (8.1)	
North West	90 (3.5)	20 (5.1)		64 (4.3)	73 (5.0)	
Missing	1 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

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EXHIBIT A-26 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Self-perceived stress			**0.1396**			**0.0502**
Quite a bit or extremely stressful	213 (8.3)	48 (12.3)		139 (9.2)	136 (9.3)	
At most, a bit stressful	2,347 (91.1)	339 (86.7)		1,359 (90.1)	1319 (90.4)	
Missing	17 (0.7)	4 (1.0)		10 (0.7)	5 (0.3)	
Sense of belonging to the community			**0.1931**			**0.1122**
Very weak	761 (29.5)	95 (24.3)		431 (28.6)	387 (26.5)	
Neither very strong nor very weak	1,495 (58.0)	228 (58.3)		879 (58.3)	914 (62.6)	
Very strong	155 (6.0)	42 (10.7)		103 (6.8)	95 (6.5)	
Missing	166 (6.4)	26 (6.6)		96 (6.3)	63 (4.3)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

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EXHIBIT A-27 Inverse propensity-weighted comparison of non-smokers and heavy smokers aged 65 and older in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Survey cycle			0.0661			0.2336
CCHS 2.1 (2003)	2,462 (33.5)	134 (36.4)		1,365 (33.7)	1,216 (33.3)	
CCHS 3.1 (2005)	2,295 (31.3)	114 (31.0)		1,267 (31.2)	1,493 (40.9)	
CCHS 4.1 (2007–2008)	2,584 (35.2)	120 (32.6)		1,424 (35.1)	945 (25.9)	
Age group, years			0.6689			0.2750
65–69	1,759 (24.0)	165 (44.8)		1,015 (25.0)	1,111 (30.4)	
70–74	1,736 (23.6)	106 (28.8)		968 (23.9)	862 (23.6)	
75–79	1,644 (22.4)	64 (17.4)		898 (22.1)	751 (20.6)	
80–84	1,309 (17.8)	27 (7.3)		702 (17.3)	660 (18.1)	
85–89	660 (9.0)	6 (1.6)		350 (8.6)	270 (7.4)	
≥ 90	233 (3.2)	0 (0.0)		123 (3.0)	0 (0.0)	
Alcohol consumption			0.3505			0.1567
Heavy drinker	38 (0.5)	26 (7.1)		36 (0.9)	38 (1.0)	
Moderate drinker	4,211 (57.4)	203 (55.2)		2,319 (57.2)	2,318 (63.4)	
Non-drinker	3,001 (40.9)	134 (36.4)		1,649 (40.7)	1,224 (33.5)	
Missing	91 (1.2)	5 (1.4)		51 (1.2)	74 (2.0)	
Physical activity			0.2680			0.0661
Inactive	4,393 (59.8)	266 (72.3)		2,453 (60.5)	2,109 (57.7)	
Moderately active	1,677 (22.8)	61 (16.6)		913 (22.5)	840 (23.0)	
Active	1,092 (14.9)	36 (9.8)		592 (14.6)	608 (16.6)	
Missing	179 (2.4)	5 (1.4)		97 (2.4)	97 (2.7)	
Diet			0.5919			0.1684
Poor diet	463 (6.3)	59 (16.0)		276 (6.8)	198 (5.4)	
Fair diet	2,097 (28.6)	171 (46.5)		1,194 (29.4)	1,358 (37.2)	
Adequate diet	4,319 (58.8)	121 (32.9)		2,334 (57.6)	1,875 (51.3)	
Missing	462 (6.3)	17 (4.6)		252 (6.2)	224 (6.1)	
Immigrant status			0.4425			0.0726
Immigrant	2,190 (29.8)	45 (12.2)		1,175 (29.0)	1,019 (27.9)	
Non-immigrant	5,132 (69.9)	322 (87.5)		2,870 (70.8)	2,608 (71.4)	
Missing	19 (0.3)	1 (0.3)		11 (0.3)	28 (0.8)	
Ethnicity			0.1480			0.1124
White	6,878 (93.7)	355 (96.5)		3,806 (93.8)	3,491 (95.5)	
Non-white	427 (5.8)	13 (3.5)		231 (5.7)	163 (4.5)	
Missing	36 (0.5)	0 (0)		19 (0.5)	0 (0.0)	

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

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EXHIBIT A-27 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Marital status			0.2027			0.0790
Married or common-law	2,930 (39.9)	112 (30.4)		1,600 (39.5)	1,572 (43.0)	
Other	4,407 (60)	256 (69.6)		2,453 (60.5)	2,082 (57.0)	
Missing	4 (0.1)	0 (0.0)		2 (0.1)	0 (0.0)	
Household type			0.1750			0.1368
Unattached individual	3,975 (54.1)	225 (61.1)		2,211 (54.5)	1,959 (53.6)	
Living with spouse or partner	2,587 (35.2)	104 (28.3)		1,416 (34.9)	1,422 (38.9)	
Living with spouse or partner and children	144 (2)	4 (1.1)		78 (1.9)	65 (1.8)	
Single parent living with children	296 (4)	17 (4.6)		164 (4.0)	112 (3.1)	
Other	337 (4.6)	18 (4.9)		186 (4.6)	96 (2.6)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Residence owned by a household member			0.3324			0.0582
Yes	5,595 (76.2)	226 (61.4)		3,057 (75.4)	2,755 (75.4)	
No	1,733 (23.6)	142 (38.6)		991 (24.4)	899 (24.6)	
Missing	13 (0.2)	0 (0.0)		7 (0.2)	0 (0.0)	
Highest level of personal education			0.1490			0.0905
Less than high school completion	3,026 (41.2)	170 (46.2)		1,679 (41.4)	1,554 (42.5)	
High school graduate	1,754 (23.9)	94 (25.5)		973 (24.0)	795 (21.8)	
Post-secondary graduate	2,472 (33.7)	99 (26.9)		1,353 (33.4)	1,225 (33.5)	
Missing	89 (1.2)	5 (1.4)		49 (1.2)	80 (2.2)	
Highest level of education in household			0.2243			0.0362
Less than high school completion	2,344 (31.9)	139 (37.8)		1,304 (32.2)	1,132 (31.0)	
High school graduate	1,534 (20.9)	94 (25.5)		857 (21.1)	750 (20.5)	
Post-secondary graduate	3,249 (44.3)	123 (33.4)		1,775 (43.8)	1,659 (45.4)	
Missing	214 (2.9)	12 (3.3)		119 (2.9)	113 (3.1)	
Main source of household income			0.1274			0.1036
Employment insurance, worker's compensation, welfare, other	582 (8.0)	24 (6.6)		318 (7.9)	220 (6.1)	
Senior benefits	5,677 (77.3)	295 (80.2)		3,140 (77.4)	2,902 (79.4)	
Wages and salaries†	549 (7.5)	22 (6.0)		303 (7.5)	316 (8.6)	
Missing	533 (7.3)	27 (7.3)		294 (7.2)	216 (5.9)	

EXHIBIT A-27 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Household income, $			0.3010			0.1467
≤ 29,999	3,247 (44.2)	214 (58.2)		1,819 (44.9)	1,523 (41.7)	
30,000–79,999	2,495 (34.0)	97 (26.4)		1,367 (33.7)	1,343 (36.8)	
≥ 80,000	411 (5.6)	9 (2.4)		221 (5.4)	113 (3.1)	
Missing	1,188 (16.2)	48 (13.0)		648 (16.0)	675 (18.5)	
Labour force participation			0.5298			0.1223
Typically works < 5 hours/week	3,339 (45.5)	238 (64.7)		1,881 (46.4)	1,784 (48.8)	
Permanently unable to work	182 (2.5)	18 (4.9)		106 (2.6)	98 (2.7)	
Typically works ≥ 5 hours/week	303 (4.1)	25 (6.8)		174 (4.3)	220 (6.0)	
Not applicable (age > 75 years)	3,500 (47.7)	87 (23.6)		1,885 (46.5)	1,553 (42.5)	
Missing	17 (0.2)	0 (0.0)		9 (0.2)	0 (0.0)	
Flu vaccination			0.1155			0.2193
Yes	6,104 (83.1)	299 (81.3)		3,365 (83.0)	2,717 (74.4)	
No	1,052 (14.3)	64 (17.4)		590 (14.5)	839 (23.0)	
Missing	185 (2.5)	5 (1.4)		100 (2.5)	97 (2.7)	
Mammogram			0.0854			0.1604
Yes	6,116 (83.3)	304 (82.6)		3,374 (83.2)	2,815 (77.0)	
No	1,028 (14.0)	58 (15.8)		574 (14.2)	735 (20.1)	
Missing	197 (2.7)	6 (1.6)		107 (2.6)	104 (2.9)	
Pap test			0.1411			0.1104
Yes	6,229 (84.9)	327 (88.9)		3,449 (85.1)	3,230 (88.4)	
No	855 (11.6)	35 (9.5)		468 (11.5)	302 (8.3)	
Missing	257 (3.5)	6 (1.6)		138 (3.4)	122 (3.3)	
Urban dweller			0.0286			0.0295
Yes	5,902 (80.4)	300 (81.5)		3,265 (80.5)	2,984 (81.7)	
No	1,439 (19.6)	68 (18.5)		790 (19.5)	670 (18.3)	
Neighbourhood deprivation			0.2986			0.2136
High	1,164 (15.9)	90 (24.5)		663 (16.4)	589 (16.1)	
Moderate	4,679 (63.7)	235 (63.9)		2,583 (63.7)	2,237 (61.2)	
Low	1,284 (17.5)	39 (10.6)		694 (17.1)	555 (15.2)	
Missing	214 (2.9)	4 (1.1)		115 (2.8)	273 (7.5)	
Local Health Integration Network			0.2553			0.2606
Erie St. Clair	589 (8.0)	25 (6.8)		323 (8.0)	204 (5.6)	
South West	1,028 (14.0)	51 (13.9)		566 (14.0)	690 (18.9)	

EXHIBIT A-27 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Heavy smokers, n (%)	Standardized difference
Waterloo Wellington	434 (5.9)	16 (4.3)		237 (5.8)	168 (4.6)	
Hamilton Niagara Haldimand Brant	1,010 (13.8)	60 (16.3)		563 (13.9)	362 (9.9)	
Central West	203 (2.8)	7 (1.9)		110 (2.7)	112 (3.1)	
Mississauga Halton	284 (3.9)	14 (3.8)		157 (3.9)	137 (3.8)	
Toronto Central	223 (3.0)	11 (3.0)		125 (3.1)	133 (3.6)	
Central	417 (5.7)	7 (1.9)		223 (5.5)	156 (4.3)	
Central East	669 (9.1)	41 (11.1)		373 (9.2)	309 (8.5)	
South East	462 (6.3)	26 (7.1)		257 (6.3)	178 (4.9)	
Champlain	621 (8.5)	35 (9.5)		345 (8.5)	395 (10.8)	
North Simcoe Muskoka	331 (4.5)	14 (3.8)		181 (4.5)	261 (7.2)	
North East	758 (10.3)	46 (12.5)		422 (10.4)	393 (10.7)	
North West	310 (4.2)	15 (4.1)		173 (4.3)	156 (4.3)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Self-perceived stress			**0.1310**			**0.0732**
Quite a bit or extremely stressful	743 (10.1)	53 (14.4)		418 (10.3)	399 (10.9)	
At most, a bit stressful	6,552 (89.3)	313 (85.1)		3,612 (89.1)	3,248 (88.9)	
Missing	46 (0.6)	2 (0.5)		25 (0.6)	6 (0.2)	
Sense of belonging to the community			**0.3776**			**0.1313**
Very weak	2,240 (30.5)	73 (19.8)		1,217 (30.0)	1,289 (35.3)	
Neither very strong nor very weak	4,282 (58.3)	226 (61.4)		2,374 (58.5)	1,910 (52.3)	
Very strong	531 (7.2)	62 (16.8)		310 (7.6)	285 (7.8)	
Missing	288 (3.9)	7 (1.9)		155 (3.8)	169 (4.6)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-28 Inverse propensity-weighted comparison of non-smokers and light smokers aged 65 and older in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Survey cycle			0.0324			0.0196
CCHS 2.1 (2003)	810 (31.4)	201 (32.9)		515 (31.6)	507 (32.5)	
CCHS 3.1 (2005)	780 (30.3)	183 (30.0)		493 (30.3)	468 (30.1)	
CCHS 4.1 (2007–2008)	987 (38.3)	227 (37.2)		621 (38.1)	583 (37.4)	
Age group, years			0.4426			0.1054
65–69	803 (31.2)	280 (45.8)		553 (33.9)	531 (34.1)	
70–74	714 (27.7)	187 (30.6)		466 (28.6)	474 (30.4)	
75–79	535 (20.8)	94 (15.4)		319 (19.6)	289 (18.5)	
80–84	330 (12.8)	38 (6.2)		187 (11.4)	185 (11.9)	
≥ 85	195 (7.5)	12 (1.9)		105 (6.5)	79 (5.0)	
Alcohol consumption			0.2587			0.0155
Heavy drinker	70 (2.7)	52 (8.5)		69 (4.2)	62 (4.0)	
Moderate drinker	1751 (67.9)	401 (65.6)		1100 (67.5)	1056 (67.8)	
Non-drinker	678 (26.3)	139 (22.7)		413 (25.3)	392 (25.1)	
Missing	78 (3)	19 (3.1)		49 (3.0)	49 (3.1)	
Physical activity			0.2322			0.0282
Inactive	1128 (43.8)	329 (53.8)		750 (46.0)	721 (46.2)	
Moderately active	626 (24.3)	132 (21.6)		387 (23.7)	356 (22.8)	
Active	688 (26.7)	114 (18.7)		408 (25.0)	403 (25.9)	
Missing	135 (5.2)	36 (5.9)		86 (5.3)	79 (5.0)	
Diet			0.3679			0.0963
Poor diet	233 (9.0)	98 (16)		171 (10.5)	166 (10.6)	
Fair diet	912 (35.4)	273 (44.7)		610 (37.4)	648 (41.6)	
Adequate diet	1199 (46.5)	184 (30.1)		703 (43.1)	603 (38.7)	
Missing	233 (9.0)	56 (9.2)		146 (8.9)	141 (9.1)	
Immigrant status			0.1248			0.0722
Immigrant	851 (33.0)	174 (28.5)		521 (32.0)	521 (33.4)	
Non-immigrant	1719 (66.7)	437 (71.5)		1105 (67.8)	1037 (66.6)	
Missing	7 (0.3)	0 (0.0)		4 (0.2)	0 (0.0)	
Ethnicity			0.0774			0.0517
White	2,351 (91.2)	570 (93.3)		1,496 (91.8)	1,437 (92.2)	
Non-white	208 (8.1)	38 (6.2)		124 (7.6)	117 (7.5)	
Missing	18 (0.7)	3 (0.5)		10 (0.6)	4 (0.3)	

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EXHIBIT A-28 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Marital status			0.3178			0.0316
Married or common-law	1,893 (73.5)	358 (58.6)		1,143 (70.1)	1,070 (68.7)	
Other	684 (26.5)	253 (41.4)		487 (29.9)	488 (31.3)	
Household type			0.3246			0.0897
Unattached individual	635 (24.6)	233 (38.1)		450 (27.6)	446 (28.6)	
Living with spouse or partner	1,647 (63.9)	301 (49.3)		989 (60.7)	888 (57.0)	
Living with spouse or partner and children	140 (5.4)	29 (4.7)		86 (5.3)	103 (6.6)	
Single parent living with children	34 (1.3)	13 (2.1)		23 (1.4)	26 (1.7)	
Other	121 (4.7)	35 (5.7)		82 (5.0)	95 (6.1)	
Residence owned by a household member			0.3607			0.0461
Yes	2,257 (87.6)	451 (73.8)		1,380 (84.7)	1,320 (84.7)	
No	312 (12.1)	159 (26.0)		246 (15.1)	237 (15.2)	
Missing	8 (0.3)	1 (0.2)		4 (0.3)	1 (0.1)	
Highest level of personal education			0.3571			0.0500
Less than high school completion	789 (30.6)	280 (45.8)		551 (33.8)	536 (34.4)	
High school graduate	442 (17.2)	112 (18.3)		284 (17.4)	286 (18.3)	
Post-secondary graduate	1315 (51)	212 (34.7)		776 (47.6)	725 (46.5)	
Missing	31 (1.2)	7 (1.1)		19 (1.1)	12 (0.7)	
Highest level of education in household			0.3738			0.0463
Less than high school completion	509 (19.8)	204 (33.4)		369 (22.7)	370 (23.8)	
High school graduate	452 (17.5)	130 (21.3)		300 (18.4)	299 (19.2)	
Post-secondary graduate	1,508 (58.5)	254 (41.6)		895 (54.9)	836 (53.6)	
Missing	108 (4.2)	23 (3.8)		65 (4.0)	53 (3.4)	
Main source of household income			0.1036			0.0590
Employment insurance, worker's compensation, welfare	14 (0.5)	6 (1.0)		11 (0.7)	11 (0.7)	
Senior benefits	1,884 (73.1)	461 (75.5)		1,197 (73.4)	1,114 (71.5)	
Wages and salaries+	323 (12.5)	78 (12.8)		207 (12.7)	216 (13.9)	
Other	218 (8.5)	40 (6.5)		131 (8.0)	121 (7.8)	
Missing	138 (5.4)	26 (4.3)		85 (5.2)	97 (6.2)	
Household income, $			0.3828			0.0363
≤ 29,999	687 (26.7)	256 (41.9)		492 (30.2)	480 (30.8)	
30,000–79,999	1,242 (48.2)	256 (41.9)		760 (46.6)	702 (45.1)	
≥ 80,000	389 (15.1)	41 (6.7)		218 (13.4)	210 (13.5)	
Missing	259 (10.1)	58 (9.5)		160 (9.8)	166 (10.7)	

EXHIBIT A-28 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Labour force participation			0.4263			0.0831
Typically works < 5 hours/week	1,226 (47.6)	373 (61.0)		815 (50.0)	764 (49.0)	
Permanently unable to work	68 (2.6)	45 (7.4)		63 (3.9)	60 (3.9)	
Typically works ≥ 5 hours/week	337 (13.1)	68 (11.1)		208 (12.8)	241 (15.5)	
Not applicable (age > 75 years)	934 (36.2)	123 (20.1)		537 (32.9)	488 (31.3)	
Missing	12 (0.5)	2 (0.3)		7 (0.4)	4 (0.3)	
Flu vaccination			0.1864			0.0127
Yes	2,063 (80.1)	443 (72.5)		1,280 (78.5)	1,230 (78.9)	
No	379 (14.7)	132 (21.6)		264 (16.2)	250 (16.0)	
Missing	135 (5.2)	36 (5.9)		86 (5.3)	79 (5.0)	
Urban dweller			0.0242			0.0227
Yes	1,971 (76.5)	461 (75.5)		1,247 (76.5)	1,176 (75.5)	
No	606 (23.5)	150 (24.5)		384 (23.5)	382 (24.5)	
Neighbourhood deprivation			0.3316			0.0645
High	271 (10.5)	120 (19.6)		208 (12.8)	201 (12.9)	
Moderate	1,660 (64.4)	399 (65.3)		1046 (64.2)	956 (61.4)	
Low	588 (22.8)	81 (13.3)		341 (20.9)	364 (23.4)	
Missing	58 (2.3)	11 (1.8)		35 (2.2)	37 (2.3)	
Local Health Integration Network			0.2336			0.0853
Erie St. Clair	172 (6.7)	46 (7.5)		114 (7.0)	108 (6.9)	
South West	391 (15.2)	85 (13.9)		242 (14.8)	231 (14.8)	
Waterloo Wellington	155 (6.0)	29 (4.7)		93 (5.7)	75 (4.8)	
Hamilton Niagara Haldimand Brant	361 (14.0)	84 (13.7)		230 (14.1)	234 (15.0)	
Central West	75 (2.9)	20 (3.3)		48 (2.9)	40 (2.6)	
Mississauga Halton	122 (4.7)	20 (3.3)		73 (4.5)	84 (5.4)	
Toronto Central	90 (3.5)	17 (2.8)		54 (3.3)	54 (3.5)	
Central	161 (6.2)	31 (5.1)		97 (5.9)	81 (5.2)	
Central East	260 (10.1)	51 (8.3)		157 (9.7)	145 (9.3)	
South East	172 (6.7)	38 (6.2)		105 (6.4)	94 (6.0)	
Champlain	221 (8.6)	48 (7.9)		139 (8.5)	144 (9.2)	
North Simcoe Muskoka	106 (4.1)	32 (5.2)		69 (4.2)	66 (4.3)	
North East	200 (7.8)	76 (12.4)		143 (8.8)	134 (8.6)	
North West	90 (3.5)	34 (5.6)		68 (4.1)	70 (4.5)	
Missing	1 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	

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EXHIBIT A-28 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Light smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Light smokers, n (%)**	**Standardized difference**
Self-perceived stress			**0.1158**			**0.0252**
Quite a bit or extremely stressful	213 (8.3)	69 (11.3)		144 (8.8)	128 (8.2)	
At most, a bit stressful	2,347 (91.1)	535 (87.6)		1,472 (90.3)	1,419 (91.1)	
Missing	17 (0.7)	7 (1.1)		13 (0.8)	11 (0.7)	
Sense of belonging to the community			**0.1955**			**0.0164**
Very weak	761 (29.5)	141 (23.1)		460 (28.2)	436 (28.0)	
Neither very strong nor very weak	1,495 (58.0)	366 (59.9)		949 (58.2)	912 (58.5)	
Very strong	155 (6.0)	62 (10.1)		116 (7.1)	115 (7.4)	
Missing	166 (6.4)	42 (6.9)		105 (6.4)	96 (6.1)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

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EXHIBIT A-29 Inverse propensity-weighted comparison of non-smokers and light smokers aged 65 and older in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Survey cycle			0.0488			0.05770
CCHS 2.1 (2003)	2,462 (33.5)	323 (32.2)		1,407 (33.3)	1,309 (31.7)	
CCHS 3.1 (2005)	2,295 (31.3)	336 (33.5)		1,330 (31.5)	1,411 (34.2)	
CCHS 4.1 (2007–2008)	2,584 (35.2)	343 (34.2)		1,482 (35.1)	1,405 (34.1)	
Age group, years			0.4702			0.0505
65–69	1,759 (24.0)	376 (37.5)		1,080 (25.6)	1,015 (24.6)	
70–74	1,736 (23.6)	292 (29.1)		1,023 (24.2)	998 (24.2)	
75–79	1,644 (22.4)	193 (19.3)		931 (22.1)	963 (23.3)	
80–84	1,309 (17.8)	104 (10.4)		714 (16.9)	698 (16.9)	
≥ 85	893 (12.2)	37 (3.7)		470 (11.2)	451 (11.0)	
Alcohol consumption			0.2436			0.0562
Heavy drinker	38 (0.5)	23 (2.3)		33 (0.8)	30 (0.7)	
Moderate drinker	4,211 (57.4)	636 (63.5)		2,450 (58.1)	2,508 (60.8)	
Non-drinker	3,001 (40.9)	319 (31.8)		1,679 (39.8)	1,537 (37.3)	
Missing	91 (1.2)	24 (2.4)		57 (1.4)	50 (1.2)	
Physical activity			0.0913			0.0136
Inactive	4,393 (59.8)	641 (64.0)		2,547 (60.4)	2,516 (61.0)	
Moderately active	1,677 (22.8)	212 (21.2)		954 (22.6)	918 (22.3)	
Active	1,092 (14.9)	131 (13.1)		618 (14.6)	598 (14.5)	
Missing	179 (2.4)	18 (1.8)		100 (2.4)	93 (2.2)	
Diet			0.3593			0.0256
Poor diet	463 (6.3)	102 (10.2)		289 (6.9)	302 (7.3)	
Fair diet	2,097 (28.6)	417 (41.6)		1,269 (30.1)	1,253 (30.4)	
Adequate diet	4,319 (58.8)	418 (41.7)		2,394 (56.7)	2,297 (55.7)	
Missing	462 (6.3)	65 (6.5)		267 (6.3)	272 (6.6)	
Immigrant status			0.2290			0.0081
Immigrant	2,190 (29.8)	202 (20.2)		1,209 (28.7)	1,191 (28.9)	
Non-immigrant	5,132 (69.9)	799 (79.7)		2,999 (71.1)	2,925 (70.9)	
Missing	19 (0.3)	1 (0.1)		10 (0.2)	9 (0.2)	
Ethnicity			0.1692			0.0381
White	6,878 (93.7)	974 (97.2)		3,970 (94.1)	3,867 (93.7)	
Non-white	427 (5.8)	26 (2.6)		229 (5.4)	227 (5.5)	
Missing	36 (0.5)	2 (0.2)		19 (0.5)	31 (0.7)	

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EXHIBIT A-29 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Marital status			0.2328			0.0507
Married or common-law	2,930 (39.9)	290 (28.9)		1,626 (38.5)	1,494 (36.2)	
Other	4,407 (60.0)	711 (71.0)		2,590 (61.4)	2,626 (63.7)	
Missing	4 (0.1)	1 (0.1)		3 (0.1)	5 (0.1)	
Household type			0.2297			0.0753
Unattached individual	3,975 (54.1)	637 (63.6)		2,337 (55.4)	2,382 (57.7)	
Living with spouse or partner	2,587 (35.2)	265 (26.4)		1,439 (34.1)	1,278 (31.0)	
Living with spouse or partner and children	144 (2.0)	9 (0.9)		78 (1.8)	74 (1.8)	
Single parent living with children	296 (4.0)	34 (3.4)		167 (3.9)	192 (4.6)	
Other	337 (4.6)	57 (5.7)		197 (4.7)	199 (4.8)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Residence owned by a household member			0.2775			0.0671
Yes	5,595 (76.2)	642 (64.1)		3,150 (74.7)	3,018 (73.2)	
No	1,733 (23.6)	360 (35.9)		1,062 (25.2)	1,107 (26.8)	
Missing	13 (0.2)	0 (0.0)		7 (0.2)	0 (0.0)	
Highest level of personal education			0.1105			0.0377
Less than high school completion	3,026 (41.2)	452 (45.1)		1,756 (41.6)	1,688 (40.9)	
High school graduate	1,754 (23.9)	251 (25.0)		1,014 (24.0)	954 (23.1)	
Post-secondary graduate	2,472 (33.7)	287 (28.6)		1,397 (33.1)	1,437 (34.8)	
Missing	89 (1.2)	12 (1.2)		51 (1.2)	46 (1.1)	
Highest level of education in household			0.1561			0.0133
Less than high school completion	2,344 (31.9)	370 (36.9)		1,373 (32.5)	1,350 (32.7)	
High school graduate	1,534 (20.9)	236 (23.6)		894 (21.2)	873 (21.2)	
Post-secondary graduate	3,249 (44.3)	369 (36.8)		1,830 (43.4)	1,791 (43.4)	
Missing	214 (2.9)	27 (2.7)		122 (2.9)	110 (2.7)	
Main source of household income			0.0899			0.0508
Employment insurance, worker's compensation, welfare	49 (0.7)	8 (0.8)		29 (0.7)	34 (0.8)	
Senior benefits	5,677 (77.3)	799 (79.7)		3,273 (77.6)	3,183 (77.2)	
Wages and salaries†	549 (7.5)	65 (6.5)		312 (7.4)	279 (6.8)	
Other	533 (7.3)	54 (5.4)		298 (7.1)	337 (8.2)	
Missing	533 (7.3)	76 (7.6)		307 (7.3)	292 (7.1)	
Household income, $			0.2793			0.0314
≤ 29,999	3,247 (44.2)	570 (56.9)		1930 (45.8)	1,918 (46.5)	

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A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

EXHIBIT A-29 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
30,000–79,999	2,495 (34.0)	267 (26.6)		1,399 (33.2)	1,373 (33.3)	
≥ 80,000	411 (5.6)	25 (2.5)		221 (5.2)	189 (4.6)	
Missing	1,188 (16.2)	140 (14.0)		669 (15.9)	645 (15.6)	
Labour force participation			0.3982			0.0464
Typically works < 5 hours/week	3,339 (45.5)	610 (60.9)		1,990 (47.2)	1,877 (45.5)	
Permanently unable to work	182 (2.5)	44 (4.4)		116 (2.7)	103 (2.5)	
Typically works ≥ 5 hours/week	303 (4.1)	56 (5.6)		184 (4.4)	201 (4.9)	
Not applicable (age > 75 years)	3,500 (47.7)	289 (28.8)		1,917 (45.5)	1,930 (46.8)	
Missing	17 (0.2)	3 (0.3)		10 (0.2)	15 (0.4)	
Flu vaccination			0.1079			0.0402
Yes	6,104 (83.1)	800 (79.8)		3,489 (82.7)	3,362 (81.5)	
No	1,052 (14.3)	182 (18.2)		626 (14.8)	670 (16.3)	
Missing	185 (2.5)	20 (2.0)		103 (2.4)	93 (2.2)	
Mammogram			0.0672			0.0190
Yes	6,116 (83.3)	823 (82.1)		3,505 (83.1)	3,417 (82.8)	
No	1,028 (14.0)	159 (15.9)		604 (14.3)	610 (14.8)	
Missing	197 (2.7)	20 (2.0)		110 (2.6)	98 (2.4)	
Pap test			0.0943			0.0545
Yes	6,229 (84.9)	881 (87.9)		3,593 (85.2)	3,447 (83.6)	
No	855 (11.6)	97 (9.7)		483 (11.5)	546 (13.2)	
Missing	257 (3.5)	24 (2.4)		142 (3.4)	132 (3.2)	
Urban dweller			0.0065			0.0079
Yes	5,902 (80.4)	803 (80.1)		3,391 (80.4)	3,328 (80.7)	
No	1,439 (19.6)	199 (19.9)		828 (19.6)	797 (19.3)	
Neighbourhood deprivation			0.2437			0.0842
High	1,164 (15.9)	239 (23.9)		712 (16.9)	795 (19.3)	
Moderate	4,679 (63.7)	624 (62.3)		2,679 (63.5)	2,554 (61.9)	
Low	1,284 (17.5)	115 (11.5)		706 (16.7)	625 (15.2)	
Missing	214 (2.9)	24 (2.4)		121 (2.9)	151 (3.7)	
Local Health Integration Network			0.2309			0.1385
Erie St. Clair	589 (8.0)	66 (6.6)		332 (7.9)	375 (9.1)	
South West	1,028 (14.0)	102 (10.2)		570 (13.5)	436 (10.6)	
Waterloo Wellington	434 (5.9)	44 (4.4)		242 (5.7)	252 (6.1)	
Hamilton Niagara Haldimand Brant	1,010 (13.8)	156 (15.6)		591 (14.0)	604 (14.6)	

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EXHIBIT A-29 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Light smokers, n (%)	Standardized difference
Central West	203 (2.8)	24 (2.4)		115 (2.7)	114 (2.8)	
Mississauga Halton	284 (3.9)	29 (2.9)		158 (3.7)	118 (2.9)	
Toronto Central	223 (3.0)	30 (3.0)		127 (3.0)	92 (2.2)	
Central	417 (5.7)	40 (4.0)		231 (5.5)	208 (5.0)	
Central East	669 (9.1)	100 (10.0)		387 (9.2)	388 (9.4)	
South East	462 (6.3)	85 (8.5)		276 (6.5)	263 (6.4)	
Champlain	621 (8.5)	107 (10.7)		368 (8.7)	430 (10.4)	
North Simcoe Muskoka	331 (4.5)	67 (6.7)		202 (4.8)	196 (4.8)	
North East	758 (10.3)	107 (10.7)		437 (10.4)	446 (10.8)	
North West	310 (4.2)	45 (4.5)		182 (4.3)	204 (4.9)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Self-perceived stress			**0.0765**			**0.0072**
Quite a bit or extremely stressful	743 (10.1)	111 (11.1)		431 (10.2)	429 (10.4)	
At most, a bit stressful	6,552 (89.3)	878 (87.6)		3,757 (89.1)	3,665 (88.8)	
Missing	46 (0.6)	13 (1.3)		30 (0.7)	31 (0.7)	
Sense of belonging to the community			**0.1919**			**0.0315**
Very weak	2,240 (30.5)	246 (24.6)		1,258 (29.8)	1,232 (29.9)	
Neither very strong nor very weak	4,282 (58.3)	602 (60.1)		2,471 (58.6)	2,374 (57.6)	
Very strong	531 (7.2)	119 (11.9)		326 (7.7)	341 (8.3)	
Missing	288 (3.9)	35 (3.5)		164 (3.9)	178 (4.3)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-30 Inverse propensity-weighted comparison of non-smokers and former heavy smokers aged 65 and older in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Survey cycle			0.0667			0.0077
CCHS 2.1 (2003)	810 (31.4)	1,008 (33.4)		923 (32.9)	913 (32.6)	
CCHS 3.1 (2005)	780 (30.3)	951 (31.5)		851 (30.4)	859 (30.7)	
CCHS 4.1 (2007–2008)	987 (38.3)	1,060 (35.1)		1,027 (36.7)	1,024 (36.6)	
Age group, years			0.1367			0.0109
65–69	803 (31.2)	953 (31.6)		880 (31.4)	876 (31.3)	
70–74	714 (27.7)	867 (28.7)		795 (28.4)	787 (28.2)	
75–79	535 (20.8)	695 (23.0)		613 (21.9)	610 (21.8)	
80–84	330 (12.8)	362 (12.0)		345 (12.3)	351 (12.6)	
85–89	150 (5.8)	120 (4.0)		134 (4.8)	138 (4.9)	
≥ 90	45 (1.7)	22 (0.7)		33 (1.2)	33 (1.2)	
Alcohol consumption			0.2377			0.0150
Heavy drinker	70 (2.7)	223 (7.4)		157 (5.6)	148 (5.3)	
Moderate drinker	1,751 (67.9)	2,081 (68.9)		1,911 (68.2)	1,910 (68.3)	
Non-drinker	678 (26.3)	633 (21.0)		650 (23.2)	655 (23.4)	
Missing	78 (3.0)	82 (2.7)		83 (3.0)	83 (3.0)	
Physical activity			0.0801			0.0021
Inactive	1,128 (43.8)	1,371 (45.4)		1,247 (44.5)	1,245 (44.5)	
Moderately active	626 (24.3)	791 (26.2)		709 (25.3)	709 (25.4)	
Active	688 (26.7)	724 (24.0)		710 (25.4)	708 (25.3)	
Missing	135 (5.2)	133 (4.4)		136 (4.8)	134 (4.8)	
Diet			0.1130			0.0076
Poor diet	233 (9.0)	301 (10.0)		274 (9.8)	268 (9.6)	
Fair diet	912 (35.4)	1,208 (40.0)		1,062 (37.9)	1,058 (37.8)	
Adequate diet	1,199 (46.5)	1,278 (42.3)		1,233 (44.0)	1,235 (44.2)	
Missing	233 (9.0)	232 (7.7)		232 (8.3)	234 (8.4)	
Immigrant status			0.1308			0.0050
Immigrant	851 (33.0)	820 (27.2)		837 (29.9)	832 (29.8)	
Non-immigrant	1,719 (66.7)	2,194 (72.7)		1,959 (69.9)	1,959 (70.1)	
Missing	7 (0.3)	5 (0.2)		5 (0.2)	5 (0.2)	
Ethnicity			0.2029			0.0064
White	2,351 (91.2)	2,902 (96.1)		2,632 (94.0)	2,624 (93.9)	
Non-white	208 (8.1)	105 (3.5)		155 (5.5)	158 (5.7)	
Missing	18 (0.7)	12 (0.4)		14 (0.5)	13 (0.5)	

EXHIBIT A-30 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Marital status			0.0110			0.0014
Married or common-law	1,893 (73.5)	2,203 (73.0)		2,043 (72.9)	2,040 (73.0)	
Other	684 (26.5)	816 (27.0)		758 (27.1)	755 (27.0)	
Household type			0.1401			0.0194
Unattached individual	635 (24.6)	806 (26.7)		728 (26.0)	725 (25.9)	
Living with spouse or partner	1,647 (63.9)	1,984 (65.7)		1,814 (64.8)	1,807 (64.7)	
Living with spouse or partner and children	140 (5.4)	98 (3.2)		119 (4.2)	120 (4.3)	
Single parent living with children	34 (1.3)	27 (0.9)		30 (1.1)	31 (1.1)	
Other	121 (4.7)	103 (3.4)		110 (3.9)	112 (4.0)	
Missing	140 (5.4)	98 (3.2)		119 (4.2)	120 (4.3)	
Residence owned by a household member			0.1130			0.0045
Yes	2,257 (87.6)	2,531 (83.8)		2,392 (85.4)	2,391 (85.5)	
No	312 (12.1)	482 (16.0)		403 (14.4)	398 (14.2)	
Missing	8 (0.3)	6 (0.2)		6 (0.2)	6 (0.2)	
Highest level of personal education			0.1385			0.0025
Less than high school completion	789 (30.6)	1,101 (36.5)		939 (33.5)	938 (33.5)	
High school graduate	442 (17.2)	514 (17.0)		480 (17.1)	481 (17.2)	
Post-secondary graduate	1,315 (51.0)	1,356 (44.9)		1,341 (47.9)	1,337 (47.8)	
Missing	31 (1.2)	48 (1.6)		41 (1.5)	40 (1.4)	
Highest level of education in household			0.1042			0.0043
Less than high school completion	509 (19.8)	723 (23.9)		607 (21.7)	608 (21.7)	
High school graduate	452 (17.5)	522 (17.3)		496 (17.7)	493 (17.6)	
Post-secondary graduate	1,508 (58.5)	1,648 (54.6)		1,579 (56.4)	1,577 (56.4)	
Missing	108 (4.2)	126 (4.2)		120 (4.3)	117 (4.2)	
Main source of household income			0.1199			0.0080
Employment insurance, worker's compensation, welfare	14 (0.5)	20 (0.7)		16 (0.6)	17 (0.6)	
Senior benefits	1,884 (73.1)	2,351 (77.9)		2,115 (75.5)	2,108 (75.4)	
Wages and salaries†	323 (12.5)	292 (9.7)		308 (11.0)	306 (11.0)	
Other	218 (8.5)	207 (6.9)		215 (7.7)	219 (7.8)	
Missing	138 (5.4)	149 (4.9)		147 (5.2)	145 (5.2)	
Household income, $			0.1510			0.0014
≤ 29,999	687 (26.7)	865 (28.7)		784 (28.0)	781 (27.9)	
30,000–79,999	1,242 (48.2)	1,571 (52)		1,405 (50.2)	1,403 (50.2)	

EXHIBIT A-30 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
≥ 80,000	389 (15.1)	316 (10.5)		351 (12.5)	350 (12.5)	
Missing	259 (10.1)	267 (8.8)		261 (9.3)	261 (9.3)	
Labour force participation			0.1004			0.0215
Typically works < 5 hours/week	1,226 (47.6)	1,557 (51.6)		1,393 (49.7)	1,382 (49.5)	
Permanently unable to work	68 (2.6)	92 (3.0)		90 (3.2)	81 (2.9)	
Typically works ≥ 5 hours/week	337 (13.1)	320 (10.6)		328 (11.7)	331 (11.8)	
Not applicable (age > 75 years)	934 (36.2)	1,036 (34.3)		975 (34.8)	987 (35.3)	
Missing	12 (0.5)	14 (0.5)		15 (0.5)	14 (0.5)	
Flu vaccination			0.1078			0.0009
Yes	2,063 (80.1)	2,539 (84.1)		2,300 (82.1)	2,295 (82.1)	
No	379 (14.7)	343 (11.4)		364 (13.0)	364 (13.0)	
Missing	135 (5.2)	137 (4.5)		137 (4.9)	137 (4.9)	
Urban dweller			0.0425			0.0018
Yes	1,971 (76.5)	2,254 (74.7)		2,108 (75.2)	2,105 (75.3)	
No	606 (23.5)	765 (25.3)		693 (24.8)	690 (24.7)	
Neighbourhood deprivation			0.1754			0.0042
High	271 (10.5)	482 (16)		379 (13.5)	377 (13.5)	
Moderate	1,660 (64.4)	1,888 (62.5)		1,773 (63.3)	1,766 (63.2)	
Low	588 (22.8)	572 (18.9)		581 (20.8)	583 (20.9)	
Missing	58 (2.3)	77 (2.6)		68 (2.4)	69 (2.5)	
Local Health Integration Network			0.2293			0.0102
Erie St. Clair	172 (6.7)	211 (7.0)		196 (7.0)	196 (7.0)	
South West	391 (15.2)	400 (13.2)		395 (14.1)	394 (14.1)	
Waterloo Wellington	155 (6.0)	145 (4.8)		147 (5.3)	150 (5.4)	
Hamilton Niagara Haldimand Brant	361 (14)	390 (12.9)		375 (13.4)	373 (13.3)	
Central West	75 (2.9)	59 (2.0)		67 (2.4)	66 (2.4)	
Mississauga Halton	122 (4.7)	126 (4.2)		128 (4.6)	129 (4.6)	
Toronto Central	90 (3.5)	75 (2.5)		84 (3.0)	85 (3.0)	
Central	161 (6.2)	130 (4.3)		140 (5.0)	137 (4.9)	
Central East	260 (10.1)	290 (9.6)		272 (9.7)	275 (9.8)	
South East	172 (6.7)	264 (8.7)		220 (7.9)	218 (7.8)	
Champlain	221 (8.6)	267 (8.8)		240 (8.6)	240 (8.6)	
North Simcoe Muskoka	106 (4.1)	159 (5.3)		131 (4.7)	132 (4.7)	
North East	200 (7.8)	367 (12.2)		289 (10.3)	285 (10.2)	

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EXHIBIT A-30 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Former heavy smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Former heavy smokers, n (%)**	**Standardized difference**
North West	90 (3.5)	135 (4.5)		116 (4.2)	115 (4.1)	
Missing	1 (0.0)	1 (0.0)		1 (0.0)	1 (0.0)	
Self-perceived stress			0.0366			0.0116
Quite a bit or extremely stressful	213 (8.3)	255 (8.4)		238 (8.5)	231 (8.3)	
At most, a bit stressful	2,347 (91.1)	2,752 (91.2)		2,547 (90.9)	2,546 (91.1)	
Missing	17 (0.7)	12 (0.4)		16 (0.6)	18 (0.6)	
Sense of belonging to the community			0.1147			0.0041
Very weak	761 (29.5)	757 (25.1)		753 (26.9)	752 (26.9)	
Neither very strong nor very weak	1,495 (58.0)	1,835 (60.8)		1,673 (59.7)	1,666 (59.6)	
Very strong	155 (6.0)	235 (7.8)		197 (7.0)	197 (7.0)	
Missing	166 (6.4)	192 (6.4)		178 (6.3)	180 (6.4)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-31 Inverse propensity-weighted comparison of non-smokers and former heavy smokers aged 65 and older in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Survey cycle			0.0463			0.0082
CCHS 2.1 (2003)	2,462 (33.5)	521 (35.7)		1,515 (33.9)	1,480 (34.1)	
CCHS 3.1 (2005)	2,295 (31.3)	443 (30.4)		1,390 (31.1)	1,332 (30.7)	
CCHS 4.1 (2007–2008)	2,584 (35.2)	494 (33.9)		1,562 (35.0)	1,522 (35.1)	
Age group, years			0.3740			0.0447
65–69	1,759 (24.0)	466 (32.0)		1,135 (25.4)	1,136 (26.2)	
70–74	1,736 (23.6)	444 (30.5)		1,106 (24.8)	1,069 (24.7)	
75–79	1,644 (22.4)	299 (20.5)		984 (22.0)	971 (22.4)	
80–84	1,309 (17.8)	186 (12.8)		757 (16.9)	743 (17.1)	
85–89	660 (9.0)	52 (3.6)		361 (8.1)	304 (7.0)	
≥ 90	233 (3.2)	11 (0.8)		124 (2.8)	111 (2.6)	
Alcohol consumption			0.3691			0.0502
Heavy drinker	38 (0.5)	52 (3.6)		51 (1.1)	45 (1.0)	
Moderate drinker	4,211 (57.4)	1,002 (68.7)		2,646 (59.2)	2,673 (61.7)	
Non-drinker	3,001 (40.9)	381 (26.1)		1,712 (38.3)	1562 (36)	
Missing	91 (1.2)	23 (1.6)		57 (1.3)	53 (1.2)	
Physical activity			0.0835			0.0246
Inactive	4,393 (59.8)	929 (63.7)		2,704 (60.6)	2,602 (60.1)	
Moderately active	1,677 (22.8)	298 (20.4)		1,000 (22.4)	962 (22.2)	
Active	1,092 (14.9)	203 (13.9)		656 (14.7)	672 (15.5)	
Missing	179 (2.4)	28 (1.9)		106 (2.4)	97 (2.2)	
Diet			0.0631			0.0098
Poor diet	463 (6.3)	99 (6.8)		286 (6.4)	274 (6.3)	
Fair diet	2,097 (28.6)	453 (31.1)		1,296 (29.0)	1,270 (29.3)	
Adequate diet	4,319 (58.8)	822 (56.4)		2,606 (58.4)	2,529 (58.4)	
Missing	462 (6.3)	84 (5.8)		277 (6.2)	261 (6.0)	
Immigrant status			0.2724			0.0146
Immigrant	2,190 (29.8)	268 (18.4)		1,246 (27.9)	1,186 (27.4)	
Non-immigrant	5,132 (69.9)	1,188 (81.5)		3,210 (71.9)	3,135 (72.3)	
Missing	19 (0.3)	2 (0.1)		11 (0.2)	12 (0.3)	
Ethnicity			0.2293			0.0417
White	6,878 (93.7)	1,431 (98.1)		4,218 (94.4)	4,131 (95.3)	
Non-white	427 (5.8)	23 (1.6)		228 (5.1)	188 (4.3)	
Missing	36 (0.5)	4 (0.3)		20 (0.5)	14 (0.3)	

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EXHIBIT A-31 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Marital status			0.0561			0.0303
Married or common-law	2,930 (39.9)	550 (37.7)		1,765 (39.5)	1,707 (39.4)	
Other	4,407 (60.0)	908 (62.3)		2,700 (60.4)	2,626 (60.6)	
Missing	4 (0.1)	0 (0.0)		2 (0.0)	0 (0.0)	
Household type			0.0687			0.0429
Unattached individual	3,975 (54.1)	824 (56.5)		2,439 (54.6)	2,381 (55.0)	
Living with spouse or partner	2,587 (35.2)	503 (34.5)		1,568 (35.1)	1,535 (35.4)	
Living with spouse or partner and children	144 (2.0)	25 (1.7)		85 (1.9)	70 (1.6)	
Single parent living with children	296 (4.0)	46 (3.2)		173 (3.9)	177 (4.1)	
Other	337 (4.6)	60 (4.1)		200 (4.5)	169 (3.9)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Residence owned by a household member			0.1662			0.0545
Yes	5,595 (76.2)	1,013 (69.5)		3,352 (75.0)	3,249 (75.0)	
No	1,733 (23.6)	445 (30.5)		1,108 (24.8)	1,084 (25.0)	
Missing	13 (0.2)	0 (0.0)		7 (0.1)	0 (0.0)	
Highest level of personal education			0.0739			0.0286
Less than high school completion	3,026 (41.2)	559 (38.3)		1,815 (40.6)	1,706 (39.4)	
High school graduate	1,754 (23.9)	373 (25.6)		1,080 (24.2)	1,083 (25.0)	
Post-secondary graduate	2,472 (33.7)	514 (35.3)		1,520 (34.0)	1,498 (34.6)	
Missing	89 (1.2)	12 (0.8)		51 (1.1)	46 (1.1)	
Highest level of education in household			0.0638			0.0340
Less than high school completion	2,344 (31.9)	432 (29.6)		1,406 (31.5)	1,317 (30.4)	
High school graduate	1,534 (20.9)	325 (22.3)		943 (21.1)	947 (21.9)	
Post-secondary graduate	3,249 (44.3)	666 (45.7)		1,991 (44.6)	1,962 (45.3)	
Missing	214 (2.9)	35 (2.4)		126 (2.8)	108 (2.5)	
Main source of household income			0.0675			0.0331
Employment insurance, worker's compensation, welfare	49 (0.7)	9 (0.6)		29 (0.7)	23 (0.5)	
Senior benefits	5,677 (77.3)	1,154 (79.1)		3,469 (77.7)	3,394 (78.3)	
Wages and salaries†	549 (7.5)	103 (7.1)		330 (7.4)	289 (6.7)	
Other	533 (7.3)	109 (7.5)		326 (7.3)	325 (7.5)	
Missing	533 (7.3)	83 (5.7)		312 (7.0)	302 (7.0)	
Household income, $			0.1444			0.0230
≤ 29,999	3,247 (44.2)	674 (46.2)		1,990 (44.6)	1,974 (45.6)	
30,000–79,999	2,495 (34.0)	532 (36.5)		1,539 (34.5)	1,484 (34.2)	

EXHIBIT A-31 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
≥ 80,000	411 (5.6)	88 (6.0)		252 (5.6)	235 (5.4)	
Missing	1,188 (16.2)	164 (11.2)		684 (15.3)	640 (14.8)	
Labour force participation			0.3164			0.0160
Typically works < 5 hours/week	3,339 (45.5)	840 (57.6)		2,121 (47.5)	2,065 (47.7)	
Permanently unable to work	182 (2.5)	71 (4.9)		132 (3.0)	135 (3.1)	
Typically works ≥ 5 hours/week	303 (4.1)	63 (4.3)		186 (4.2)	189 (4.4)	
Not applicable (age > 75 years)	3,500 (47.7)	481 (33.0)		2,016 (45.1)	1,936 (44.7)	
Missing	17 (0.2)	3 (0.2)		10 (0.2)	9 (0.2)	
Flu vaccination			0.1073			0.0101
Yes	6,104 (83.1)	1,268 (87.0)		3,742 (83.8)	3,645 (84.1)	
No	1,052 (14.3)	161 (11.0)		614 (13.8)	586 (13.5)	
Missing	185 (2.5)	29 (2.0)		110 (2.5)	102 (2.3)	
Mammogram			0.1533			0.0329
Yes	6,116 (83.3)	1,292 (88.6)		3,760 (84.2)	3,695 (85.3)	
No	1,028 (14.0)	138 (9.5)		591 (13.2)	542 (12.5)	
Missing	197 (2.7)	28 (1.9)		115 (2.6)	97 (2.2)	
Pap test			0.1690			0.0495
Yes	6,229 (84.9)	1,318 (90.4)		3,832 (85.8)	3,779 (87.2)	
No	855 (11.6)	108 (7.4)		487 (10.9)	443 (10.2)	
Missing	257 (3.5)	32 (2.2)		148 (3.3)	112 (2.6)	
Urban dweller			0.0031			0.0015
Yes	5,902 (80.4)	1,174 (80.5)		3,591 (80.4)	3,482 (80.3)	
No	1,439 (19.6)	284 (19.5)		875 (19.6)	852 (19.7)	
Neighbourhood deprivation			0.1478			0.0372
High	1,164 (15.9)	296 (20.3)		744 (16.7)	727 (16.8)	
Moderate	4,679 (63.7)	929 (63.7)		2,847 (63.7)	2,809 (64.8)	
Low	1,284 (17.5)	201 (13.8)		752 (16.8)	698 (16.1)	
Missing	214 (2.9)	32 (2.2)		124 (2.8)	100 (2.3)	
Local Health Integration Network			0.2179			0.0762
Erie St. Clair	589 (8.0)	102 (7.0)		350 (7.8)	329 (7.6)	
South West	1,028 (14.0)	175 (12.0)		611 (13.7)	581 (13.4)	
Waterloo Wellington	434 (5.9)	63 (4.3)		252 (5.6)	256 (5.9)	
Hamilton Niagara Haldimand Brant	1,010 (13.8)	199 (13.6)		614 (13.7)	581 (13.4)	
Central West	203 (2.8)	22 (1.5)		114 (2.5)	95 (2.2)	

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EXHIBIT A-31 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former heavy smokers, n (%)	Standardized difference
Mississauga Halton	284 (3.9)	49 (3.4)		168 (3.8)	147 (3.4)	
Toronto Central	223 (3.0)	50 (3.4)		140 (3.1)	146 (3.4)	
Central	417 (5.7)	53 (3.6)		238 (5.3)	214 (4.9)	
Central East	669 (9.1)	145 (9.9)		413 (9.3)	379 (8.8)	
South East	462 (6.3)	117 (8.0)		296 (6.6)	293 (6.8)	
Champlain	621 (8.5)	162 (11.1)		398 (8.9)	457 (10.6)	
North Simcoe Muskoka	331 (4.5)	89 (6.1)		213 (4.8)	228 (5.3)	
North East	758 (10.3)	174 (11.9)		472 (10.6)	454 (10.5)	
North West	310 (4.2)	58 (4.0)		187 (4.2)	172 (4.0)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Self-perceived stress			**0.0880**			**0.0358**
Quite a bit or extremely stressful	743 (10.1)	132 (9.1)		442 (9.9)	392 (9.1)	
At most, a bit stressful	6,552 (89.3)	1,324 (90.8)		4,000 (89.6)	3,923 (90.5)	
Missing	46 (0.6)	2 (0.1)		24 (0.5)	17 (0.4)	
Sense of belonging to the community			**0.1323**			**0.0422**
Very weak	2,240 (30.5)	367 (25.2)		1,320 (29.6)	1,258 (29.0)	
Neither very strong nor very weak	4,282 (58.3)	902 (61.9)		2,635 (59.0)	2,620 (60.5)	
Very strong	531 (7.2)	135 (9.3)		335 (7.5)	283 (6.5)	
Missing	288 (3.9)	54 (3.7)		176 (3.9)	172 (4.0)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

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EXHIBIT A-32 Inverse propensity-weighted comparison of non-smokers and former light smokers aged 65 and older in the male cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Survey cycle			0.0141			0.007
CCHS 2.1 (2003)	810 (31.4)	696 (31.2)		753 (31.3)	750 (31.2)	
CCHS 3.1 (2005)	780 (30.3)	690 (30.9)		729 (30.3)	738 (30.6)	
CCHS 4.1 (2007–2008)	987 (38.3)	846 (37.9)		921 (38.3)	919 (38.2)	
Age group, years			0.1082			0.0058
65–69	803 (31.2)	612 (27.4)		714 (29.7)	719 (29.9)	
70–74	714 (27.7)	596 (26.7)		655 (27.3)	657 (27.3)	
75–79	535 (20.8)	515 (23.1)		517 (21.5)	514 (21.4)	
80–84	330 (12.8)	339 (15.2)		333 (13.9)	335 (13.9)	
85–89	150 (5.8)	132 (5.9)		142 (5.9)	141 (5.9)	
≥ 90	45 (1.7)	38 (1.7)		41 (1.7)	41 (1.7)	
Alcohol consumption			0.1932			0.0133
Heavy drinker	70 (2.7)	86 (3.9)		79 (3.3)	80 (3.3)	
Moderate drinker	1,751 (67.9)	1,671 (74.9)		1,709 (71.1)	1,709 (71.0)	
Non-drinker	678 (26.3)	418 (18.7)		547 (22.8)	545 (22.6)	
Missing	78 (3.0)	57 (2.6)		68 (2.8)	73 (3.0)	
Physical activity			0.0594			0.0064
Inactive	1,128 (43.8)	967 (43.3)		1,047 (43.6)	1051 (43.7)	
Moderately active	626 (24.3)	589 (26.4)		610 (25.4)	614 (25.5)	
Active	688 (26.7)	578 (25.9)		629 (26.2)	628 (26.1)	
Missing	135 (5.2)	98 (4.4)		117 (4.8)	114 (4.7)	
Diet			0.0688			0.0080
Poor diet	233 (9.0)	183 (8.2)		209 (8.7)	214 (8.9)	
Fair diet	912 (35.4)	830 (37.2)		869 (36.2)	869 (36.1)	
Adequate diet	1,199 (46.5)	1,052 (47.1)		1,124 (46.8)	1,127 (46.8)	
Missing	233 (9.0)	167 (7.5)		200 (8.3)	197 (8.2)	
Immigrant status			0.0460			0.0209
Immigrant	851 (33)	721 (32.3)		785 (32.7)	789 (32.8)	
Non-immigrant	1,719 (66.7)	1,509 (67.6)		1,613 (67.1)	1,611 (66.9)	
Missing	7 (0.3)	2 (0.1)		5 (0.2)	7 (0.3)	
Ethnicity			0.0460			0.0209
White	1,719 (66.7)	1,509 (67.6)		1,613 (67.1)	1,611 (66.9)	
Non-white	851 (33.0)	721 (32.3)		785 (32.7)	789 (32.8)	
Missing	7 (0.3)	2 (0.1)		5 (0.2)	7 (0.3)	

EXHIBIT A-32 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Marital status			0.0446			0.0206
Married or common-law	1,893 (73.5)	1,606 (72.0)		1,746 (72.7)	1,745 (72.5)	
Other	684 (26.5)	625 (28.0)		657 (27.3)	661 (27.5)	
Missing	0 (0.0)	1 (0.0)		0 (0.0)	1 (0.0)	
Household type			0.1063			0.0033
Unattached individual	635 (24.6)	603 (27.0)		621 (25.8)	624 (25.9)	
Living with spouse or partner	1,647 (63.9)	1,439 (64.5)		1,540 (64.1)	1,541 (64.0)	
Living with spouse or partner and children	140 (5.4)	84 (3.8)		112 (4.7)	111 (4.6)	
Single parent living with children	34 (1.3)	23 (1.0)		28 (1.2)	29 (1.2)	
Other	121 (4.7)	83 (3.7)		102 (4.2)	102 (4.2)	
Residence owned by a household member			0.0967			0.0255
Yes	2,257 (87.6)	1,890 (84.7)		2,071 (86.2)	2,068 (85.9)	
No	312 (12.1)	339 (15.2)		326 (13.6)	329 (13.7)	
Missing	8 (0.3)	3 (0.1)		6 (0.2)	9 (0.4)	
Highest level of personal education			0.1490			0.0087
Less than high school completion	789 (30.6)	807 (36.2)		797 (33.2)	797 (33.1)	
High school graduate	442 (17.2)	421 (18.9)		430 (17.9)	428 (17.8)	
Post-secondary graduate	1,315 (51.0)	976 (43.7)		1,145 (47.6)	1,149 (47.7)	
Missing	31 (1.2)	28 (1.3)		31 (1.3)	33 (1.4)	
Highest level of education in household			0.1240			0.0041
Less than high school completion	509 (19.8)	536 (24.0)		520 (21.6)	519 (21.6)	
High school graduate	452 (17.5)	426 (19.1)		439 (18.3)	437 (18.1)	
Post-secondary graduate	1,508 (58.5)	1,182 (53.0)		1,345 (56.0)	1,351 (56.1)	
Missing	108 (4.2)	88 (3.9)		99 (4.1)	100 (4.2)	
Main source of household income			0.1026			0.0104
Employment insurance, worker's compensation, welfare	14 (0.5)	13 (0.6)		13 (0.6)	14 (0.6)	
Senior benefits	1,884 (73.1)	1,720 (77.1)		1,796 (74.8)	1,793 (74.5)	
Wages and salaries†	323 (12.5)	223 (10.0)		274 (11.4)	273 (11.4)	
Other	218 (8.5)	181 (8.1)		200 (8.3)	204 (8.5)	
Missing	138 (5.4)	95 (4.3)		118 (4.9)	123 (5.1)	
Household income, $			0.1899			0.0064
≤ 29,999	687 (26.7)	657 (29.4)		675 (28.1)	679 (28.2)	
30,000–79,999	1,242 (48.2)	1,164 (52.2)		1,202 (50.0)	1,199 (49.8)	

EXHIBIT A-32 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
≥ 80,000	389 (15.1)	204 (9.1)		296 (12.3)	294 (12.2)	
Missing	259 (10.1)	207 (9.3)		230 (9.6)	234 (9.7)	
Labour force participation			0.0970			0.0222
Typically works < 5 hours/week	1,226 (47.6)	1,009 (45.2)		1,122 (46.7)	1,129 (46.9)	
Permanently unable to work	68 (2.6)	60 (2.7)		64 (2.7)	62 (2.6)	
Typically works ≥ 5 hours/week	337 (13.1)	251 (11.2)		296 (12.3)	294 (12.2)	
Not applicable (age > 75 years)	934 (36.2)	905 (40.5)		910 (37.9)	908 (37.7)	
Missing	12 (0.5)	7 (0.3)		10 (0.4)	14 (0.6)	
Flu vaccination			0.0911			0.0049
Yes	2,063 (80.1)	1,865 (83.6)		1,961 (81.6)	1,966 (81.7)	
No	379 (14.7)	268 (12.0)		325 (13.5)	326 (13.5)	
Missing	135 (5.2)	99 (4.4)		117 (4.9)	115 (4.8)	
Urban dweller			0.0096			0.0056
Yes	1,971 (76.5)	1,698 (76.1)		1,831 (76.2)	1,840 (76.5)	
No	606 (23.5)	534 (23.9)		571 (23.8)	567 (23.5)	
Neighbourhood deprivation			0.1395			0.0037
High	271 (10.5)	337 (15.1)		303 (12.6)	304 (12.6)	
Moderate	1,660 (64.4)	1,377 (61.7)		1,522 (63.3)	1,520 (63.2)	
Low	588 (22.8)	477 (21.4)		529 (22.0)	533 (22.1)	
Missing	58 (2.3)	41 (1.8)		49 (2.0)	50 (2.1)	
Local Health Integration Network			0.1848			0.0286
Erie St. Clair	172 (6.7)	137 (6.1)		155 (6.5)	156 (6.5)	
South West	391 (15.2)	295 (13.2)		345 (14.4)	342 (14.2)	
Waterloo Wellington	155 (6.0)	143 (6.4)		147 (6.1)	147 (6.1)	
Hamilton Niagara Haldimand Brant	361 (14.0)	296 (13.3)		326 (13.6)	326 (13.5)	
Central West	75 (2.9)	55 (2.5)		64 (2.7)	61 (2.5)	
Mississauga Halton	122 (4.7)	98 (4.4)		110 (4.6)	110 (4.6)	
Toronto Central	90 (3.5)	47 (2.1)		71 (2.9)	78 (3.2)	
Central	161 (6.2)	121 (5.4)		141 (5.9)	140 (5.8)	
Central East	260 (10.1)	237 (10.6)		248 (10.3)	250 (10.4)	
South East	172 (6.7)	130 (5.8)		150 (6.2)	149 (6.2)	
Champlain	221 (8.6)	202 (9.1)		212 (8.8)	210 (8.7)	
North Simcoe Muskoka	106 (4.1)	118 (5.3)		114 (4.7)	113 (4.7)	
North East	200 (7.8)	251 (11.2)		224 (9.3)	228 (9.5)	

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EXHIBIT A-32 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	**Former light smokers, n (%)**	**Standardized difference**	**Non-smokers, n (%)**	**Former light smokers, n (%)**	**Standardized difference**
North West	90 (3.5)	102 (4.6)		96 (4.0)	97 (4.0)	
Missing	1 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Self-perceived stress			**0.0499**			**0.0068**
Quite a bit or extremely stressful	213 (8.3)	188 (8.4)		200 (8.3)	200 (8.3)	
At most, a bit stressful	2,347 (91.1)	2,037 (91.3)		2,191 (91.2)	2,196 (91.3)	
Missing	17 (0.7)	7 (0.3)		12 (0.5)	11 (0.5)	
Sense of belonging to the community			**0.0884**			**0.0067**
Very weak	761 (29.5)	593 (26.6)		676 (28.2)	682 (28.3)	
Neither very strong nor very weak	1,495 (58.0)	1,373 (61.5)		1,431 (59.6)	1,432 (59.5)	
Very strong	155 (6.0)	147 (6.6)		153 (6.4)	154 (6.4)	
Missing	166 (6.4)	119 (5.3)		142 (5.9)	139 (5.8)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-33 Inverse propensity-weighted comparison of non-smokers and former light smokers aged 65 and older in the female cohort

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Survey cycle			0.0465			0.0080
CCHS 2.1 (2003)	2,462 (33.5)	810 (31.5)		1,642 (33.0)	1,610 (32.6)	
CCHS 3.1 (2005)	2,295 (31.3)	845 (32.8)		1,579 (31.7)	1,577 (31.9)	
CCHS 4.1 (2007–2008)	2,584 (35.2)	920 (35.7)		1,758 (35.3)	1,750 (35.5)	
Age group, years			0.1522			0.0281
65–69	1,759 (24.0)	683 (26.5)		1,228 (24.7)	1,209 (24.5)	
70–74	1,736 (23.6)	667 (25.9)		1,206 (24.2)	1,176 (23.8)	
75–79	1,644 (22.4)	591 (23.0)		1,123 (22.6)	1,134 (23.0)	
80–84	1,309 (17.8)	425 (16.5)		868 (17.4)	860 (17.4)	
85–89	660 (9.0)	164 (6.4)		415 (8.3)	436 (8.8)	
≥ 90	233 (3.2)	45 (1.7)		139 (2.8)	123 (2.5)	
Alcohol consumption			0.3514			0.0169
Heavy drinker	38 (0.5)	33 (1.3)		36 (0.7)	35 (0.7)	
Moderate drinker	4,211 (57.4)	1,862 (72.3)		3,052 (61.3)	3,061 (62.0)	
Non-drinker	3,001 (40.9)	640 (24.9)		1,825 (36.6)	1,772 (35.9)	
Missing	91 (1.2)	40 (1.6)		66 (1.3)	69 (1.4)	
Physical activity			0.0952			0.0155
Inactive	4,393 (59.8)	1,454 (56.5)		2,937 (59.0)	2,931 (59.4)	
Moderately active	1,677 (22.8)	620 (24.1)		1,150 (23.1)	1,120 (22.7)	
Active	1,092 (14.9)	454 (17.6)		778 (15.6)	782 (15.8)	
Missing	179 (2.4)	47 (1.8)		113 (2.3)	105 (2.1)	
Diet			0.0427			0.0128
Poor diet	463 (6.3)	177 (6.9)		323 (6.5)	321 (6.5)	
Fair diet	2,097 (28.6)	748 (29.0)		1,431 (28.7)	1,447 (29.3)	
Adequate diet	4,319 (58.8)	1,510 (58.6)		2,924 (58.7)	2,874 (58.2)	
Missing	462 (6.3)	140 (5.4)		302 (6.1)	296 (6.0)	
Immigrant status			0.1416			0.0277
Immigrant	2,190 (29.8)	622 (24.2)		1,408 (28.3)	1,337 (27.1)	
Non-immigrant	5,132 (69.9)	1,952 (75.8)		3,561 (71.5)	3,589 (72.7)	
Missing	19 (0.3)	1 (0.0)		10 (0.2)	12 (0.2)	
Ethnicity			0.1736			0.0517
White	6,878 (93.7)	2,505 (97.3)		4,713 (94.7)	4,724 (95.7)	
Non-white	427 (5.8)	65 (2.5)		246 (4.9)	202 (4.1)	
Missing	36 (0.5)	5 (0.2)		20 (0.4)	11 (0.2)	

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EXHIBIT A-33 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Marital status			0.0327			0.0098
Married or common-law	2,930 (39.9)	988 (38.4)		3,011 (60.5)	3,006 (60.9)	
Other	4,407 (60.0)	1,585 (61.6)		1,965 (39.5)	1,928 (39.0)	
Missing	4 (0.1)	2 (0.1)		3 (0.1)	4 (0.1)	
Household type			0.1287			0.0398
Unattached individual	3,975 (54.1)	1,489 (57.8)		2,746 (55.1)	2,744 (55.6)	
Living with spouse or partner	2,587 (35.2)	900 (35.0)		1,748 (35.1)	1,720 (34.8)	
Living with spouse or partner and children	144 (2.0)	38 (1.5)		91 (1.8)	90 (1.8)	
Single parent living with children	296 (4.0)	62 (2.4)		180 (3.6)	199 (4.0)	
Other	337 (4.6)	86 (3.3)		212 (4.3)	185 (3.7)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Residence owned by a household member			0.0980			0.0091
Yes	5,595 (76.2)	1,855 (72.0)		3,737 (75.1)	3,687 (74.7)	
No	1,733 (23.6)	717 (27.8)		1,234 (24.8)	1,242 (25.2)	
Missing	13 (0.2)	3 (0.1)		8 (0.2)	9 (0.2)	
Highest level of personal education			0.0833			0.0125
Less than high school completion	3,026 (41.2)	962 (37.4)		2,001 (40.2)	1,983 (40.2)	
High school graduate	1,754 (23.9)	672 (26.1)		1,220 (24.5)	1,233 (25.0)	
Post-secondary graduate	2,472 (33.7)	914 (35.5)		1,700 (34.1)	1,666 (33.7)	
Missing	89 (1.2)	27 (1.0)		58 (1.2)	55 (1.1)	
Highest level of education in household			0.0757			0.0201
Less than high school completion	2,344 (31.9)	746 (29)		1,552 (31.2)	1,570 (31.8)	
High school graduate	1,534 (20.9)	576 (22.4)		1,060 (21.3)	1,063 (21.5)	
Post-secondary graduate	3,249 (44.3)	1,191 (46.3)		2,229 (44.8)	2,179 (44.1)	
Missing	214 (2.9)	62 (2.4)		138 (2.8)	126 (2.6)	
Main source of household income			0.1170			0.0193
Employment insurance, worker's compensation, welfare	49 (0.7)	12 (0.5)		31 (0.6)	30 (0.6)	
Senior benefits	5,677 (77.3)	2,052 (79.7)		3,884 (78.0)	3,888 (78.7)	
Wages and salaries†	549 (7.5)	147 (5.7)		349 (7.0)	327 (6.6)	
Other	533 (7.3)	223 (8.7)		377 (7.6)	366 (7.4)	
Missing	533 (7.3)	141 (5.5)		338 (6.8)	327 (6.6)	
Household income, $			0.1151			0.0178
≤ 29,999	3,247 (44.2)	1,122 (43.6)		2,197 (44.1)	2,193 (44.4)	
30,000–79,999	2,495 (34.0)	978 (38.0)		1,745 (35.0)	1,750 (35.4)	

EXHIBIT A-33 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
≥ 80,000	411 (5.6)	149 (5.8)		280 (5.6)	273 (5.5)	
Missing	1,188 (16.2)	326 (12.7)		757 (15.2)	722 (14.6)	
Labour force participation			0.1134			0.0197
Typically works < 5 hours/week	3,339 (45.5)	1,274 (49.5)		2,315 (46.5)	2,271 (46.0)	
Permanently unable to work	182 (2.5)	72 (2.8)		127 (2.6)	119 (2.4)	
Typically works ≥ 5 hours/week	303 (4.1)	130 (5.0)		219 (4.4)	221 (4.5)	
Not applicable (age > 75 years)	3,500 (47.7)	1,097 (42.6)		2,308 (46.4)	2,320 (47.0)	
Missing	17 (0.2)	2 (0.1)		10 (0.2)	7 (0.1)	
Flu vaccination			0.0893			0.0158
Yes	6,104 (83.1)	2,222 (86.3)		4,178 (83.9)	4,141 (83.9)	
No	1,052 (14.3)	306 (11.9)		685 (13.8)	691 (14.0)	
Missing	185 (2.5)	47 (1.8)		116 (2.3)	105 (2.1)	
Mammogram			0.1094			0.0120
Yes	6,116 (83.3)	2,245 (87.2)		4,198 (84.3)	4,170 (84.5)	
No	1,028 (14.0)	276 (10.7)		656 (13.2)	652 (13.2)	
Missing	197 (2.7)	54 (2.1)		126 (2.5)	116 (2.3)	
Pap test			0.1772			0.0106
Yes	6,229 (84.9)	2,334 (90.6)		4,299 (86.3)	4,266 (86.4)	
No	855 (11.6)	185 (7.2)		523 (10.5)	524 (10.6)	
Missing	257 (3.5)	56 (2.2)		157 (3.2)	147 (3.0)	
Urban dweller			0.0195			-0.0010
Yes	5,902 (80.4)	2,090 (81.2)		4,012 (80.6)	3,977 (80.5)	
No	1,439 (19.6)	485 (18.8)		967 (19.4)	961 (19.5)	
Neighbourhood deprivation			0.0575			0.0053
High	1164 (15.9)	443 (17.2)		807 (16.2)	801 (16.2)	
Moderate	4679 (63.7)	1,652 (64.2)		3,178 (63.8)	3,149 (63.8)	
Low	1284 (17.5)	402 (15.6)		846 (17.0)	836 (16.9)	
Missing	214 (2.9)	78 (3.0)		148 (3.0)	151 (3.1)	
Local Health Integration Network			0.1645			0.0353
Erie St. Clair	589 (8.0)	185 (7.2)		389 (7.8)	394 (8.0)	
South West	1,028 (14.0)	342 (13.3)		687 (13.8)	686 (13.9)	
Waterloo Wellington	434 (5.9)	131 (5.1)		283 (5.7)	277 (5.6)	
Hamilton Niagara Haldimand Brant	1,010 (13.8)	353 (13.7)		684 (13.7)	663 (13.4)	
Central West	203 (2.8)	48 (1.9)		127 (2.5)	134 (2.7)	

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EXHIBIT A-33 *continued*

	Unweighted			Weighted		
	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference	Non-smokers, n (%)	Former light smokers, n (%)	Standardized difference
Mississauga Halton	284 (3.9)	90 (3.5)		187 (3.8)	177 (3.6)	
Toronto Central	223 (3.0)	80 (3.1)		151 (3.0)	139 (2.8)	
Central	417 (5.7)	93 (3.6)		255 (5.1)	243 (4.9)	
Central East	669 (9.1)	260 (10.1)		466 (9.4)	471 (9.5)	
South East	462 (6.3)	208 (8.1)		339 (6.8)	348 (7.0)	
Champlain	621 (8.5)	240 (9.3)		431 (8.7)	418 (8.5)	
North Simcoe Muskoka	331 (4.5)	129 (5.0)		231 (4.6)	226 (4.6)	
North East	758 (10.3)	272 (10.6)		520 (10.4)	534 (10.8)	
North West	310 (4.2)	144 (5.6)		228 (4.6)	228 (4.6)	
Missing	2 (0.0)	0 (0.0)		1 (0.0)	0 (0.0)	
Self-perceived stress			**0.0453**			**0.0041**
Quite a bit or extremely stressful	743 (10.1)	229 (8.9)		488 (9.8)	478 (9.7)	
At most, a bit stressful	6,552 (89.3)	2,333 (90.6)		4,462 (89.6)	4,431 (89.7)	
Missing	46 (0.6)	13 (0.5)		29 (0.6)	29 (0.6)	
Sense of belonging to the community			**0.0787**			**0.0099**
Very weak	2,240 (30.5)	740 (28.7)		1,497 (30.1)	1,503 (30.4)	
Neither very strong nor very weak	4,282 (58.3)	1,593 (61.9)		2,950 (59.2)	2,917 (59.1)	
Very strong	531 (7.2)	159 (6.2)		346 (6.9)	338 (6.8)	
Missing	288 (3.9)	83 (3.2)		186 (3.7)	179 (3.6)	

CCHS = Canadian Community Health Survey

†Includes self-employment.

EXHIBIT A-34 Health care cost ratios —— a comparison of multivariable and inverse propensity-weighted models by cohort sex

	Male Cohort		Female Cohort	
	Multivariable primary attribution model (Model 3)	Inverse propensity-weighted model	Multivariable primary attribution model (Model 3)	Inverse propensity-weighted model
Hospital care				
Heavy smoker	1.73 (1.63, 1.83)	1.70 (1.56, 1.86)	1.68 (1.57, 1.79)	1.41 (1.33, 1.51)
Light smoker	1.64 (1.55, 1.73)	1.68 (1.53, 1.83)	1.25 (1.18, 1.32)	1.35 (1.27, 1.43)
Former heavy	1.42 (1.34, 1.50)	1.41 (1.31, 1.53)	1.50 (1.41, 1.59)	1.61 (1.51, 1.71)
Former light	1.34 (1.26, 1.42)	1.23 (1.13, 1.33)	1.18 (1.11, 1.25)	1.28 (1.21, 1.36)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.82 (1.54, 2.10)		0.82 (0.58, 1.06)	
Drugs (age ≥ 65 years)				
Heavy smoker	1.23 (1.09, 1.37)	1.33 (1.21, 1.47)	1.15 (1.03, 1.27)	1.05 (0.99, 1.10)
Light smoker	1.14 (1.03, 1.25)	1.16 (1.06, 1.28)	1.15 (1.07, 1.23)	1.07 (1.02, 1.13)
Former heavy smoker	1.21 (1.14, 1.28)	1.18 (1.10, 1.26)	1.33 (1.26, 1.40)	1.28 (1.22, 1.34)
Former light smoker	1.07 (1.00, 1.14)	1.06 (0.98, 1.14)	1.15 (1.10, 1.20)	1.18 (1.13, 1.24)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.13 (0.96, 1.30)		1.23 (1.08, 1.38)	
Community care				
Heavy smoker	1.26 (1.21, 1.31)	1.34 (1.28, 1.40)	1.18 (1.13, 1.23)	1.26 (1.23, 1.30)
Light smoker	1.13 (1.09, 1.17)	1.12 (1.07, 1.17)	1.10 (1.07, 1.13)	1.20 (1.16, 1.23)
Former heavy smoker	1.22 (1.18, 1.26)	1.21 (1.17, 1.26)	1.30 (1.26, 1.34)	1.32 (1.28, 1.36)
Former light smoker	1.11 (1.07, 1.15)	1.11 (1.06, 1.15)	1.07 (1.04, 1.10)	1.11 (1.08, 1.14)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.43 (1.30, 1.56)		0.98 (0.87, 1.09)	

A $4.9 BILLION DECREASE IN HEALTH CARE EXPENDITURE: THE TEN-YEAR IMPACT OF IMPROVING SMOKING, ALCOHOL, DIET AND PHYSICAL ACTIVITY IN ONTARIO

APPENDIX

EXHIBIT A-35 Health care cost ratios — comparison of multivariable and inverse propensity-weighted models by cohort sex, sensitivity analysis

	Male Cohort		Female Cohort	
	Multivariable primary attribution model (Model 3)	Inverse propensity-weighted model	Multivariable primary attribution model (Model 3)	Inverse propensity-weighted model
Age < 65 years				
Hospital care				
Current smoker	1.63 (1.54, 1.72)	1.68 (1.54,1.83)	1.33 (1.25, 1.41)	1.46 (1.36, 1.56)
Former smoker	1.37 (1.28, 1.46)	1.34 (1.23,1.46)	1.22 (1.14, 1.30)	1.30 (1.21, 1.39)
Non-smoker	Reference	Reference	Reference	Reference
Missing	2.96 (2.48, 3.44)		0.58 (0.21, 0.95)	
Community care				
Current smoker	1.16 (1.12, 1.20)	1.18 (1.13, 1.23)	1.08 (1.05, 1.11)	1.09 (1.06, 1.13)
Former smoker	1.17 (1.13, 1.21)	1.20 (1.15, 1.24)	1.11 (1.08, 1.14)	1.10 (1.07, 1.14)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.92 (1.70, 2.14)		0.77 (0.61, 0.93)	
Age ≥ 65 years				
Hospital care				
Current smoker	2.00 (1.83, 2.17)	1.57 (1.35, 1.82)	1.38 (1.25, 1.51)	1.25 (1.15, 1.37)
Former smoker	1.38 (1.27, 1.49)	1.33 (1.21, 1.47)	1.41 (1.32, 1.50)	1.46 (1.34, 1.58)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.14 (0.84, 1.44)		1.03 (0.75, 1.31)	
Drugs				
Current smoker	1.17 (1.07, 1.27)	1.21 (1.10, 1.32)	1.14 (1.07, 1.21)	1.07 (1.02, 1.12)
Former smoker	1.15 (1.09, 1.21)	1.13 (1.07, 1.20)	1.21 (1.17, 1.25)	1.21 (1.16, 1.26)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.13 (0.96, 1.30)		1.23 (1.08, 1.38)	
Community care				
Current smoker	1.28 (1.19, 1.37)	1.14 (1.05, 1.23)	1.23 (1.16, 1.30)	1.24 (1.19, 1.30)
Former smoker	1.15 (1.10, 1.20)	1.13 (1.08, 1.19)	1.23 (1.19, 1.27)	1.24 (1.19, 1.29)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.05 (0.89, 1.21)	1.23 (1.08, 1.38)	1.17 (1.03, 1.31)	
All Ages				
Hospital care				
Current smoker	1.67 (1.59, 1.75)	1.64 (1.52, 1.78)	1.34 (1.27, 1.41)	1.32 (1.24, 1.40)
Former smoker	1.37 (1.30, 1.44)	1.32 (1.23, 1.41)	1.28 (1.22, 1.34)	1.40 (1.33, 1.48)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.87 (1.59, 2.15)		0.81 (0.57, 1.05)	

EXHIBIT A-35 *continued*

	Male Cohort		Female Cohort	
	Multivariable primary attribution model (Model 3)	**Inverse propensity-weighted model**	**Multivariable primary attribution model (Model 3)**	**Inverse propensity-weighted model**
Community care				
Current smoker	1.17 (1.13, 1.21)	1.17 (1.12, 1.22)	1.11 (1.08, 1.14)	1.18 (1.15, 1.21)
Former smoker	1.16 (1.13, 1.19)	1.15 (1.12, 1.19)	1.15 (1.12, 1.18)	1.18 (1.15, 1.21)
Non-smoker	Reference	Reference	Reference	Reference
Missing	1.45 (1.32, 1.58)		0.98 (0.87, 1.09)	

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