The Conference Board of Canada | Le Conference Board du Canada

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Briefing 3

SMOKING CESSATION AND THE WORKPLACE

Benefits of Workplace Programs.

At a Glance

- Smokers have a direct impact on profitability and the bottom line of employers.
- On average, daily smokers cost employers $4,256 in 2012—up from $3,396 in 2005.
- Smoking imposes economic costs borne by businesses and society. In 2010, these were estimated at $11.4 billion.
- Employers in industries with high rates of smoking, such as construction, can help to reduce the prevalence of smoking among their workers and improve their bottom line by offering an effective smoking cessation program to their employees.

SMOKING CESSATION: DRIVING ACTION

In its research series, Smoking Cessation and the Workplace, The Conference Board of Canada has argued that Canada needs to do more to help smokers quit and that employers should play a role as part of an integrated approach to smoking cessation. The first briefing in this series, *Profile of Tobacco Smokers in Canada*, presented data on smoking prevalence and cessation in Canada with a focus on the employed population. The second briefing, *Smoking Cessation Programs in Canadian Workplaces*, explored the role of employer-supported smoking cessation efforts and presented the results of a Conference Board survey of employer-initiated policies and programs. This third, and final, briefing measures the productivity losses attributable to smoking, from the perspectives

of both employers and society as a whole. It then estimates the potential benefits of implementing smoking cessation programs in the workplace.

The workplace is an ideal setting to combat smoking for two important reasons. First, three-quarters of current smokers are employed and most have a desire to quit. Second, and more importantly, employers have a strong incentive to help their employees quit. Smoking is associated with large losses in productivity. Many smokers take unsanctioned smoking breaks during the workday and are more likely to use sick days. They are also much more likely to go on short- and long-term disability and have a higher risk of premature mortality. Reducing smoking can therefore foster a more productive and reliable workforce. This is especially true in industries, such as construction, that employ predominantly male blue-collar workers, among whom smoking is most prevalent.

Yet, employers are not doing enough to change the smoking culture in their workplace. Results from the Conference Board's Smoking Cessation Programs in the Workplace Survey reveal that less than half of the respondents take the important first step in offering a health risk assessment to all employees to understand their smoking risk. Furthermore, poor coordination of cessation programs and benefits, and poor alignment with broader health and wellness strategies, are common. As well, only a very small percentage of organizations measure and evaluate their programs. Thus, employers that offer a cessation program or benefits have a limited understanding of whether their support is reaching those who need it and whether their programs are successful in helping employees quit.

WORKPLACE PROGRAMS

Research has shown that combining behavioural support and pharmacotherapy can increase the chance of success with quitting.[1] In addition, providing full financial coverage of smoking cessation treatments can increase the number of people attempting to quit and succeeding in doing so.[2] These approaches are as effective when offered in a workplace as they are in other settings.[3]

Furthermore, workplace smoking cessation programs that begin with an assessment of health risks, feedback on those risks, and follow-up interventions at an individual level have been shown to be effective.[4] Research also suggests that comprehensive, effective smoking cessation programs offered by insurers and employers are low cost and that the benefits for employers are significant, even in the short term.[5]

Providing full financial coverage of smoking cessation treatments can increase the number of people attempting to quit and succeeding in doing so.

Although there is no "one size fits all" for employer-sponsored programs, a number of key strategies for success are outlined in Briefing 2, *Smoking Cessation Programs in Canadian Workplaces*:

- strong policies about a smoke-free work environment;
- relationships with external organizations that have expertise in evidence-based cessation programs, such as public health departments, community pharmacies, or cancer and lung associations;
- an integrated wellness strategy that ensures alignment between risk assessment, programming, and benefits;
- support from senior leadership;
- targeted and regular communication about the support programs available and how to access them.

1 Stead and Lancaster, "Combined Pharmacotherapy and Behavioural Interventions."

2 Reda, Kotz, Evers, and van Schayck, "Healthcare Financing Systems."

3 Cahill, Moher, and Lancaster, "Workplace Interventions."

4 Soler and others, "A Systematic Review of Selected Interventions."

5 Fitch, Iwasaki, and Pyenson, *Covering Smoking Cessation as a Health Benefit.*

The next section explores the productivity losses that can be attributed to smoking, followed by a case example of the potential benefits of introducing an effective workplace cessation program.

ANNUAL PRODUCTIVITY LOSSES ATTRIBUTABLE TO SMOKING

We identify four categories of productivity losses in this briefing. The first two categories have a direct impact on profitability and employers' bottom line, while the last two have an indirect, but nonetheless tangible, impact on both businesses and society.

DIRECT COSTS: THE IMPACT ON THE BOTTOM LINE

The direct costs include the productivity losses due to unsanctioned smoking breaks and absenteeism. These costs were last estimated in the 2006 Conference Board of Canada report *Smoking and the Bottom Line: Updating the Costs of Smoking in the Workplace*.[6] In this briefing, we adopt a similar approach and update these estimates to 2012.

The Cost of Unsanctioned Smoking Breaks

As described in the 2006 report, many employees who smoke spend a considerable amount of time on unsanctioned smoking breaks, which results in a significant loss in their employers' productive capacity. This cost is particularly high for daily smokers, who smoked an average of 14.4 cigarettes per day in 2011.[7]

As data on smoking habits in the workplace were not available at the time, the 2006 report assumed that smokers would smoke two cigarettes per day during unsanctioned breaks and that each break would last about 20 minutes—leading to a total of 40 minutes per day wasted on smoking breaks. A 2010 survey by market research firm OnePoll offers some validation of these assumptions: The survey polled 2,500 adults in Britain and found that smokers take, on average, 60 unsanctioned minutes a day off work to smoke, typically in the form of four 15-minute breaks.[8] These results suggest that the estimates used in the 2006 study were reasonable, if not conservative.

Keeping the same assumptions as in the 2006 study (see box "Productivity Losses Due to Unsanctioned Smoking Breaks"), the loss of productivity per smoking employee is estimated at $3,842 per full-time employee—a 26 per cent increase since 2005. (See Table 1.)

Productivity Losses Due to Unsanctioned Smoking Breaks

The productivity losses attributable to unsanctioned smoking breaks are calculated as follows:

$$\text{Annual Smoking Break Cost}_{\text{per daily smoker}} = \text{Cigarette Breaks}_{\text{per day}} \times \text{Length of Breaks}_{\text{hours}} \times \text{Hourly Wage} \times (1 + \text{Benefits and Taxes}) \times \text{Number of Work Days}_{\text{per year}}$$

With average weekly earnings of $896.71,[1] and an average of 40 hours worked per week, the hourly wage for 2012 is estimated at about $22.42. Benefits and taxes represent the amount of payroll taxes and benefits paid by the employer; this is expressed as a percentage of wages and salaries, and was estimated to be 13.3 per cent in 2012.

1 Statistics Canada, *CANSIM Table 281-0026*.

The Cost of Absenteeism

Productivity losses due to absenteeism—defined in this briefing as the foregone production caused by smoking-attributable sick leave—are another major cost for employers. Employees who smoke have a higher risk of contracting chronic conditions, infections, and other illnesses, which makes them likely to take more sick days.

Data from the Canadian Community Health Survey (CCHS) are rich enough to provide information on the average number of sick days taken per employee, by smoking status and by cause of absence. CCHS data from 2010 show that daily smokers take significantly more sick days than those who have never smoked.

6 Hallamore, *Smoking and the Bottom Line*.

7 Health Canada, *Canadian Tobacco Use Monitoring Survey*.

8 Geoghegan, "Should Workers Be Forced to Clock Out to Smoke?"

Table 1
Productivity Loss at Work, per Daily Smoker

	2005	2012
Cigarette breaks	2	2
Time per break (minutes)	20	20
Total time off work due to smoking break (minutes)	40	40
Average hourly wage	$17.90	$22.40
Benefits and taxes	12.50%	13.3%*
Number of days worked per year	227	227
Annual cost per full-time employee	$3,053	$3,842

*payroll taxes and benefits paid by the employer expressed as a percentage of wages and salaries
Sources: The Conference Board of Canada; Statistics Canada, CANSIM Table 281-0026.

Furthermore, former daily smokers who quit recently (defined as less than 11 years ago) are also much more likely to take sick days. Put together, daily smokers and recent quitters took, on average, 2.4 more sick days in 2010 compared with those who have never smoked. However, some of these differences can be explained by socio-economic factors, such as age, sex, occupation, and education. Adjusting for these factors,[9] the gap shrinks to approximately 2 days. (See Table 2.)

Table 2
Absenteeism Cost to Employers, per Daily Smoker

	2005	2012
Days of absence	2.00	2.04
Daily wage	$143.50	$179.34
Benefits and taxes	12.54%	13.25%
Total:	$323	$414

Sources: The Conference Board of Canada; Statistics Canada, Canadian Community Health Survey.

The estimated absenteeism cost to employers in 2012 was $414 for every daily smoker and recent quitter (see box "Productivity Losses Due to Absenteeism" for the methodology used). This represents a 28 per cent increase since 2005, largely as a result of an increase in wages. Unlike costs attributable to smoking breaks, this cost cannot be instantly reduced as soon as a smoking employee quits. Particularly if the employee had been smoking heavily for a long time, it may be many years after the employee quits before this cost drops substantially.

Productivity Losses Due to Absenteeism

To calculate the productivity losses due to absenteeism, the method used in the 2006 Conference Board study was once again adopted. Absenteeism costs were calculated as follows:

$\text{Absenteeism Cost}_{\text{per year}} = \text{Days of Absence}_{\text{per year}} \times \text{Daily Wage} \times (1 + \text{Benefits and Taxes})$

The Impact on the Bottom Line

In summary, the average cost to the employer in 2012 was estimated at $4,256 per daily smoker, up from $3,376 in 2005. (See Table 3.) Almost 90 per cent of the cost is attributable to unsanctioned smoking breaks. Yet, while the annual absenteeism cost represents only about 10 per cent of this cost, it applies to both current daily smokers as well as recent quitters, which gives it a more widespread impact. In a typical Canadian firm with 100 employees, 14 daily smokers, and 15 former daily smokers who recently quit, this represents an annual productivity loss of nearly $60,000. The figure can be significantly higher in industries where smoking rates are typically well above average.

The previous Conference Board of Canada briefing included smoking facilities costs, which include the cost of purchasing and cleaning ashtrays. Given the relatively small value of this cost and this briefing's focus on productivity losses, these costs were not updated.

THE BROADER PRODUCTIVITY COSTS OF SMOKING

In addition to the productivity losses due to smoking breaks and increased absenteeism, smoking imposes economic costs that are not directly borne by one employer, but by businesses and society as

9 See Appendix A, Section A.

a whole. Smoking has been linked to a large number of chronic conditions, including but not limited to lung cancer, bladder cancer, leukemia, chronic obstructive pulmonary disease, heart disease, and cerebrovascular disease.[10]

Canadians who smoke daily are three times more likely to be unable to work for at least three months a year due to a chronic condition.

Chronic conditions may impair a smoker's ability to work or cause premature death, thus significantly reducing the productive capacity of the economy. In this section, we estimate the general economic costs of smoking.

Short- and Long-Term Disability Costs

The Canadian Community Health Survey of 2010 shows that, in general, Canadians who smoke daily are three times more likely to be unable to work for at least three months a year due to a chronic condition. Specifically, 6.5 per cent of all daily smokers and recent quitters are forced out of the labour force for at least three months due to a chronic condition, compared with just 2 per cent of those who have never smoked daily. After adjusting for several socio-economic factors, including age, sex, and education,[11] the gap shrinks but remains significant: Daily smokers and recent quitters are estimated to be 2.3 times (5.6 vs. 2.4 per cent) more likely to be rendered incapable of working due to a chronic condition. (See Table 4.)

Also at higher risk (1.9 times) are occasional smokers who used to smoke daily. Interestingly, the data do not show an increased risk of disability among former daily smokers who quit more than 10 years ago. This once again suggests that the passing of 10 years is an approximate cut-off point whereby the risk of disability associated with smoking daily begins a gradual drop toward a level near that of those who have never smoked daily.

What proportion of current short- and long-term disabilities can be attributed to current or past smoking? If all Canadians had the same risk of disability as those who have never smoked, 29 per cent fewer people would have been unable to work due to a chronic condition. This represents a significant decline from the actual share of 3.4 to 2.4 per cent.[12]

Table 3
Annual Cost per Smoker of Employing Smokers

Year of publication	2007	2013
Year of estimation	2005	2012
Increased absenteeism	$323	$414
Decreased productivity	$3,053	$3,842
Increased life insurance costs		
Smoking facilities costs	$20	
Total	$3,396	$4,256

Source: The Conference Board of Canada.

Table 4
Share of Canadians Who Are Unable to Work Due to a Chronic Condition
(per cent)

	Crude rate	Standardized rate*
Current daily smokers and recent quitters	6.5	5.6
Never daily smoker	1.9	2.4
Former daily smoker—quit more than 10 years ago	3.8	2.3
Now occasional, former daily smoker	3.7	4.6
Average	3.4	3.4

*the standardized rate is the crude rate adjusted for differences in sex, age, and education across the smoking categories
Sources: The Conference Board of Canada; Statistics Canada, Canadian Community Health Survey.

10 U.S. Department of Health and Human Services, *The Health Consequences of Smoking.*

11 Refer to Appendix A, Section B for more details.

12 Appendix A, Section B provides more details on how this is estimated.

This implies that, during the same year, the equivalent of an estimated 261,251 Canadians were rendered unable to work for the whole year due to a chronic condition that was caused by smoking.[13] By Conference Board estimates, this loss in the labour force translated into a $7.1-billion loss in productivity—or the equivalent of 0.42 per cent of Canadian GDP in 2010.

Costs Due to Premature Mortality

A recently published report by the World Health Organization estimated that about 31,955 deaths in Canada in 2004 could be attributed to smoking.[14] In this briefing, we estimate the number of deaths attributable to smoking by adopting Friedman's estimates[15] of the relative risk of death. (See box "Deaths Attributable to Smoking.")

This method yields an estimate of 26,681 deaths attributable to smoking in 2010. (See Table 5.) Although this is lower than the estimate in the WHO study (see box "Lower Estimated Number of Deaths"), it still represents over 11 per cent of all deaths of Canadians aged 35 years or older. In addition to the tremendous social costs of these premature deaths, there are sizable economic losses. If their deaths had been prevented, many of these Canadians would have continued to work productively for many years, thus contributing to Canada's economy. Specifically, these premature deaths are estimated to have caused a loss of 112,013 person-years in the labour force from 2010 to 2049,[16] assuming typical labour force participation rates and death rates by age and sex.[17]

Using The Conference Board of Canada's model of the economy, and a 4 per cent discount rate for future years, we estimated that premature mortality in 2010 attributable to smoking caused $4.3 billion in long-term economic losses, which is equivalent to about 0.26 per cent of GDP. (See Table 6.)

Deaths Attributable to Smoking

Deaths attributable to smoking are estimated using the following equation:

$$DAS_{s,a} = \left[\frac{P_{s,a}\,(RR_{s,a} - 1)}{P_{s,a}\,(RR_{s,a} - 1) + 1} \right] D_{s,a}$$

Where:

$DAS_{s,a}$ is the number of deaths, by age and sex, attributable to smoking.

$P_{s,a}$ is the prevalence rate, by age and sex, of the population at risk. This includes daily smokers, former daily smokers who quit less than 11 years ago, and former daily smokers who now smoke occasionally.

$RR_{s,a}$ is the relative risk of death from all causes among smokers, compared with never smokers, by age and sex.

$D_{s,a}$ is the total number of deaths from all causes, by age and sex.

13 The word "equivalent" is used to describe the figure because it is calculated on a person-year basis. For instance, if two people were unable to work for 6 months of the year, they are counted as one person-year (6 months + 6 months = 1 year). The actual number of people affected is somewhat larger than the reported figure of 261,251.

14 World Health Organization, *WHO Global Report*.

15 Friedman and others, "Smoking and Mortality: The Kaiser Permanente Experience."

16 It is important to note that this figure represents the loss of person-years due to deaths occurring in 2010 alone. Not all of the impact occurs in the same year, as deaths in 2010 reduce the size of the labour force for many years.

17 The labour force loss was estimated based on the number of potential years of life lost and current labour force participation rates by age and sex. In turn, the estimate of number of potential years of life lost was based on current mortality rates by age and sex. (See charts 3 and 4 in Appendix A for our assumptions on mortality rates and labour force participation rates by age and sex.)

Table 5
Estimated Number of Deaths in 2010 Attributable to Smoking

	Relative risk of death		Total deaths		Deaths attributable to smoking		
Age group	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Total**
35 to 49	1.5	2.2	6,559	4,281	1,019	1,084	2,103
50 to 64	2.8	2.2	21,330	13,933	8,269	3,403	11,672
65 to 74	2.0	2.1	23,063	15,834	4,539	2,901	7,440
75 and over	1.3	1.4	66,002	82,497	2,470	2,996	5,466
Total			**116,953**	**116,546**	**16,298**	**10,383**	**26,681**

Note: At the time of writing, mortality statistics were only available until 2009. The number of deaths in 2010 was estimated based on trends from 2005 to 2009 in the death rate by age and sex.
Sources: The Conference Board of Canada; Friedman.

Lower Estimated Number of Deaths

The estimated number of deaths attributable to smoking in this briefing is lower than previous estimates from the WHO due to two factors. Some of the gap can be explained by the reduction in the prevalence of smoking achieved since 2004, the year for which tobacco-attributable deaths were calculated by the WHO. However, much of the gap is due to differences in methodology and data sources. The WHO estimate relied on a two-step approach: First, the population-attributable fraction was calculated for each disease and then was applied to the number of deaths associated with each disease. In this briefing, a more direct approach was adopted. Instead of using the established evidence of the link between smoking and all diseases linked to smoking, we used estimates of the direct link between smoking and risk of death. It was hoped that using a more direct approach would minimize the impact of confounding factors (a common criticism of the WHO approach[1]), thereby reducing double-counting and leading to more accurate estimates. On the other hand, the direct approach has its own limitations. Because deaths are generally rare occurrences, accurately directly estimating the relative risk of death due to smoking requires a very large sample size. As a result, very few attempts have been made to calculate this. The validity of the study on which this briefing's estimates are based, which included over 60,000 observations, is considered adequate. In addition, the direct approach was preferred due to its more conservative results.

1 Levy and Marimont, "Lies, Damned Lies."

Table 6
Estimated Economic Cost of Premature Mortality Attributable to Smoking

Potential years of life lost	527,407
Potential years in labour force lost	112,013
Gross domestic product loss	$4.3 billion

Source: The Conference Board of Canada.

SUMMARY: THE IMPACT ON THE ECONOMY

In summary, smoking is responsible for large losses in economic activity, due to its association with increased risk of short- and long-term disability and premature mortality. In 2010 alone, this loss was estimated at $11.4 billion, or 0.68 per cent of GDP.

WORKPLACE CESSATION PROGRAMS: A CASE EXAMPLE OF IMPACT

Acknowledging smoking-attributable productivity losses is the first step. When it comes to dealing with the problem, employers have a number of options. There is considerable evidence that many types of workplace smoking cessation programs are effective. A systematic review by The Cochrane Collaboration concluded that there was strong evidence that workplace

interventions such as group therapy, individual counselling, and pharmacological treatment significantly increased quit rates.[18]

While many different types of programs have been shown to be effective, they each have considerably different results and costs. In this briefing, we chose to evaluate the effectiveness of an employer program based on the engagement of a community pharmacy. We focused on this approach as a case example for the following reasons:

- Community-based pharmacist-led smoking cessation programs have been shown to be effective[19] and are increasingly being used by some governments for drug-benefit recipients.
- Employees with extended health benefits often access community pharmacies, and thus may have established relationships with these service providers.
- This approach allows employers to leverage the growing scope of practice, training, and expertise of community pharmacists in evidence-based smoking cessation methods, including readiness assessment, counselling, and the use of nicotine replacement therapy and/or medications.
- This can provide both a consistent approach for employers with locations in different regions of the country and a common avenue for evaluation and assessment of the return on investment (ROI) of their program.

THE INTERVENTION

To measure the impact of a workplace smoking cessation program, we used the results of a randomized controlled trial of a pharmacist-led smoking cessation program conducted in the United States.[20] While the evaluated program was not restricted to the workplace, this study was chosen because it was the only study featuring a pharmacist-led program that satisfied our selection criteria. In particular, the chosen study:

- employed a rigorous methodology with a control group, such as a randomized controlled trial;
- had a population comparable to Canada's;
- was conducted in the past 10 years;
- used biochemical verification as opposed to relying on self-reported smoking status.

The trial offered participants—all of whom expressed a desire to quit smoking—their choice of bupropion[21] or nicotine patches. Participants in the control group were offered a single, short counselling session by a pharmacist over the telephone, whereas participants in the intervention group were invited to participate in three pharmacist-led, face-to-face counselling sessions at a clinic. After a period of six months, the smoking status of all participants was tested biochemically to assess the success of the program. Participants who were enrolled in the pharmacist-led smoking cessation program were 2.4 times more likely to have remained abstinent (28 vs. 11.8 per cent).[22]

To take into account the possibility of higher than usual relapse rates among smokers who quit with the help of a cessation program, evidence from five workplace smoking cessation studies[23,24,25,26,27] was used to estimate the impact of such programs after one year.[28]

THE APPROACH

In this section, we estimate the potential benefits of introducing a workplace cessation program in a typical Canadian firm, using the pharmacy-led intervention as an example. We measure the impact of the program on the smoking rate of the firm's employees and estimate the resulting reduction in productivity losses.

18 Cahill, Moher, and Lancaster, "Workplace Interventions."

19 British Columbia Pharmacy Association, *British Columbia Pharmacy Association Clinical Service Proposal*.

20 Dent, Harris, and Noonan, "Randomized Trial Assessing."

21 Bupropion is a widely used smoking cessation medication.

22 This was estimated on an intention-to-treat (ITT) basis.

23 Salina and others, "A Follow-Up of a Media-Based."

24 Lang and others, "Smoking Cessation at the Workplace."

25 Helyer and others, "Effectiveness of a Worksite."

26 Jason and others, "A Worksite Smoking Intervention."

27 Koffman and others, "The Impact of Including Incentives."

28 The studies were chosen from the meta-analysis by Smedslund and others, "The Effectiveness of Workplace Smoking Cessation Programmes: a Meta analysis of Recent Studies." A 16 per cent reduction in effectiveness was estimated, on average, after the six-month period.

To achieve this, we created a microsimulation model that tracks the progress of 1 million employees over 14 years. To our knowledge, this is the first time that such a model has been used to measure the potential benefits of workplace smoking cessation programs. The model was designed to simulate the behaviour of employees in a typical Canadian firm. It was run under three hypothetical scenarios:

- Scenario 1: No workplace smoking cessation program was provided to employees.
- Scenario 2: The firm introduces a workplace smoking cessation program[29] in 2014, and all smokers who are trying to quit participate.
- Scenario 3: The firm introduces a workplace smoking cessation program[30] in 2014, but only half of the smokers who are trying to quit participate.

The approach is designed such that the firm's employees' age, gender, and smoking statuses reflect the average Canadian employed population. Beyond that point, the following adjustments take place each year from 2011 to 2025:

- To reflect natural turnover, some employees leave the company and are replaced by new employees.
- A certain proportion of daily smokers will attempt to quit. Each quit attempt has a probability to succeed. If it succeeds, employees become non-smokers.
- Conversely, a certain proportion of non-daily smokers will become daily smokers.
- Among former daily smokers, the model keeps track of the number of years that have passed since they quit.
- Each daily smoker is assumed to cost the firm the full annual productivity cost of $4,256 every year.
- Each former daily smoker who quit less than 11 years ago is assumed to cost the firm $414 annually in absenteeism costs.
- Beginning in 2014, the intervention (cessation program) is introduced in one of the scenarios. This has the effect of increasing the probability of successfully quitting by 2.4 times compared to the scenario where no intervention was introduced.

29 The program is as described in the previous section.

30 Ibid.

Exhibit 1 provides a visual illustration of how the model works. For a more detailed description of the model and its assumptions, refer to Section C of Appendix A.

RESULTS

The introduction of an effective workplace cessation program in 2014 could significantly reduce the prevalence rate of daily smokers in a given Canadian company. We estimated that the prevalence rate of daily smokers in a typical Canadian company would fall by 35 per cent (from 14 to 9.2 per cent) by 2025 if a workplace cessation program were introduced, compared with a 13 per cent reduction (to 12.2 per cent) in the absence of such a program.[31] Not surprisingly, the simulation also demonstrates that it is critical to promote the program on an ongoing basis to ensure the highest participation rate possible. If only half of the daily smokers who attempt to quit actually choose to participate in the program, smoking prevalence is estimated to fall to only 10.5 per cent by 2025. (See Chart 1.)

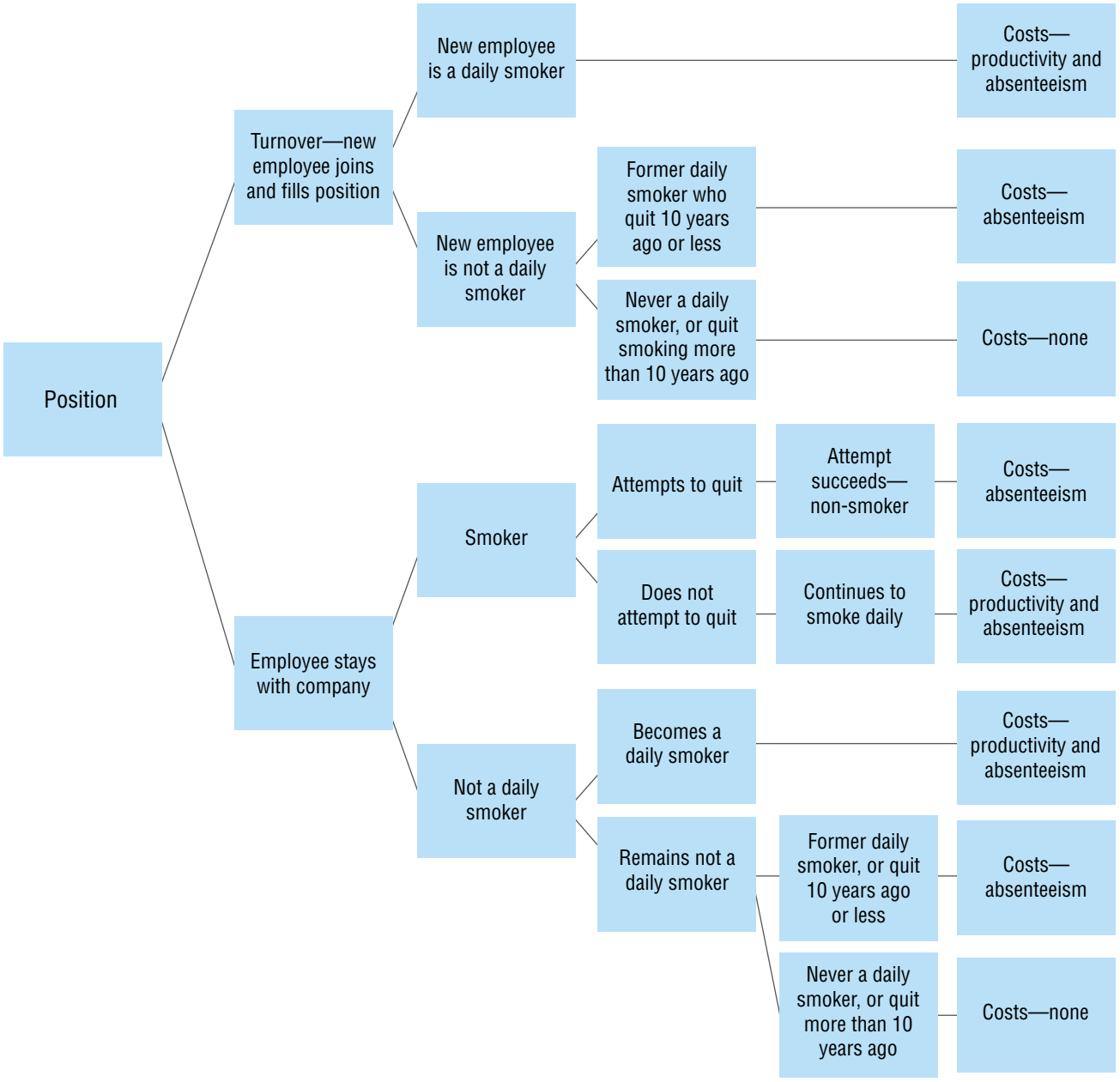
The introduction of an effective workplace cessation program in 2014 could significantly reduce the prevalence rate of daily smokers in a given Canadian company.

Given the measured impact of smoking on productivity in the workplace, such a reduction in smoking could lead to sizable cost savings. For instance, even if only half of its smoking employees participate, a Canadian company with 1,000 employees could still expect to see 17 fewer smokers by 2025 and a total reduction of over $360,000 in productivity losses[32] from 2014 to 2025. According to data collected from The Conference Board of Canada's Smoking Cessation Programs in

31 The prevalence of smoking declines even in the absence of a smoking cessation program, due to other factors such as the increased availability of smoking cessation aids and the gradual decline in popularity of smoking among youth.

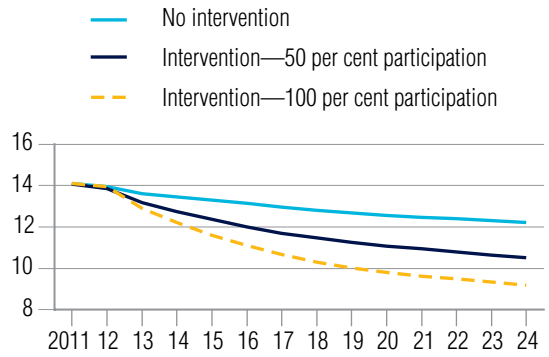
32 This figure is in 2012 dollars. Future productivity gains are discounted using an annual discount rate of 5 per cent. As there is a significant lag before smoking cessation reduces absenteeism, most of these savings come from a reduction in time spent on unsanctioned smoking breaks.

Exhibit 1
Smoking Status Microsimulation Model—Transition Mechanisms



Source: The Conference Board of Canada.

Chart 1
Smoking Prevalence Rate, by Scenario
(per cent)



Source: The Conference Board of Canada.

the Workplace Survey,[33] a cessation program costs employers an average of $4.86 per employee, annually. The estimated reduction in productivity losses is high enough to fully recoup and exceed the costs of implementing even the most expensive program reported in the survey, which cost nearly $25 per employee per year.[34]

The gains would be even greater in workplaces where smoking prevalence is higher than average. In this context, it is useful to revisit one of the main findings of Briefing 1 of this series, which showed that smoking rates are highest in industries that employ many young and middle-aged blue-collar workers, such as construction, mining and oil and gas extraction, and transportation and warehousing. (See Table 7.) Since employers in these industries incur the largest productivity losses due to smoking, they also stand to gain the most from providing a cessation program for their employees.

33 Unpublished data from survey by Lamontagne and Stonebridge.

34 Given the lack of data on the nature of the programs reported in the survey, no attempt was made to estimate a return on investment for workplace cessation programs. The return is likely to vary significantly, depending on the circumstances of each employer, the smoking status of the employees, and the type of program chosen.

Table 7
Smoking Prevalence, by Industry, 2011

	Share of workers who smoke* (per cent)
Construction	34
Mining and oil and gas extraction	29
Transportation and warehousing	29
Administrative support, waste management, and remediation services	27
Accommodation and food services	27
Wholesale trade	26
Manufacturing	24
Retail trade	23
Real estate and rental leasing	23
Agriculture, forestry, fishing, and hunting	22
Other services (except public administration)	22
Health care and social assistance	18
Arts, entertainment, and recreation	18
Utilities	17
Information and cultural industries	17
Professional, scientific, and technical services	16
Public administration	16
Finance and insurance	15
Educational services	10

*including occasional smokers
Source: Statistics Canada, Canadian Community Health Survey.

CONCLUSION

Smoking has a detrimental impact on the bottom line of Canadian firms and the overall productivity of the Canadian economy. A full-time employee who smokes daily is likely to spend a significant amount of time on unsanctioned smoking breaks, costing his or her employer $3,842 per year. Further, a daily smoker or a former daily smoker who has quit within the past 10 years will, on average, take two more sick days per year than an employee who has never smoked, resulting in an additional $414 annual loss in productivity.

Smoking can also have a devastating impact on individuals and their families. It is linked to many chronic conditions and other ailments that can cause short-term disability and premature mortality. This costs the Canadian economy and businesses $11.4 billion, or about 0.68 per cent of GDP, every year in indirect productivity losses.

Canadian businesses have an important role to play and a strong financial incentive to help smokers quit. This is especially true for industries like construction, mining, and transportation, where the prevalence of smoking is much higher than average and where access to effective cessation programs, benefits, policies, or practices can be poor. Well-designed and strategic investments by employers in effective smoking cessation programs benefit individuals and their employers. Our modelling has illustrated that by implementing such a program, and successfully promoting it to ensure the highest participation possible, a Canadian employer could significantly reduce smoking, thereby improving productivity. In our analysis, for instance, introducing a workplace smoking cessation program could reduce the prevalence of daily smokers in a Canadian company by up to 35 per cent by 2025, compared with 13 per cent in the absence of such a program.

The rate of decline in smoking prevalence has gradually slowed and it is likely that future progress will require more strategic and targeted efforts, in part by helping current smokers quit. Employers, together with public health groups, health professionals, and insurers, can help to ensure that any Canadian who wants to quit smoking has access to the right supports to help him or her achieve this goal.

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Appendix A

Supplementary Information

SECTION A: ESTIMATING SMOKING-ATTRIBUTABLE ABSENTEEISM

A direct comparison between the number of sick days taken by smokers to that of non-smokers can be misleading due to the presence of what epidemiologists call "confounding factors."[1] A "confounding factor" is a variable that correlates with both the dependent variable (number of sick days) and the independent variable (smoking status). Failure to control for a confounding factor can lead to a bias in the estimate of the relationship between the two variables. It was therefore important to address this issue to provide an accurate estimate of the number of sick days that can be reliably attributed to smoking behaviour.

For an example of how a confounding factor can provide misleading results, consider the following: The first briefing in this series showed that smokers have, on average, a lower level of education than non-smokers. If we assume that this makes them more likely to be employed outdoors, it may also mean that they may become more prone to a heat-related illness. In this example, a simple comparison will show that smokers took more sick days. However, it would be erroneous to attribute this higher absenteeism solely to smoking, since it was in fact the type of occupation and not the act of smoking itself that was directly responsible for the increased likelihood of heat illness.

To adjust as much as possible for such issues in the data, a multivariate ordinary least squares (OLS) regression was performed to control for differences in age, sex, education, and occupation. The results of the regression (see Table 1 in this Appendix) show that daily smokers and former daily smokers who quit within the past 10 years take, on average, about two additional days off work every year (0.51 every quarter) compared with employees who have never smoked daily. The regression results also suggest that the impact of smoking on absenteeism begins to weaken around 10 years after a daily smoker quits.

SECTION B: ESTIMATING SMOKING-ATTRIBUTABLE SHORT- AND LONG-TERM DISABILITY

As was the case with absenteeism, confounding factors can bias the estimate of the relationship between smoking status and ability to work. To control for these factors, the data were standardized by age, sex, and education. Unlike the approach to absenteeism, the standardization method was favoured over multivariate

1 Statisticians refer to this as the "omitted-variable bias."

Table 1
Ordinary Least Squares Regression Results
(dependent variable—number of sick days taken in a quarter)

Variable	Coefficient	Standard error	t-Statistic	p value
Constant	0.554	0.1995	2.7767	0.0055
Daily smokers and recent quitters	0.510*	0.0761	6.6963	0.0000
Former daily smokers	0.045	0.1081	0.4186	0.6755
Occasional smokers who were former daily smokers	0.148	0.1841	0.8056	0.4205
Female	0.602*	0.0712	8.4592	0.0000
Graduated from high school	–0.254	0.1313	–1.9319	0.0534
Some post-secondary education	–0.08	0.1559	–0.5134	0.6076
Post-secondary education	–0.281*	0.1185	–2.3677	0.0179
Occupation—business or finance	0.063	0.0945	0.6697	0.5030
Occupation—sales and services	–0.04	0.0916	–0.4347	0.6638
Occupation—trades and transportation	0.185	0.1097	1.6858	0.0918
Occupation—primary industry, processing, and manufacturing	–0.105	0.1306	–0.8055	0.4205
Age 18 to 19	0.563*	0.2636	2.1349	0.0328
Age 20 to 24	0.537*	0.2335	2.2995	0.0215
Age 25 to 29	0.743*	0.2295	3.2383	0.0012
Age 30 to 34	0.758*	0.2327	3.2589	0.0011
Age 35 to 39	0.754*	0.2297	3.2836	0.0010
Age 40 to 44	0.848*	0.2292	3.7006	0.0002
Age 45 to 49	0.827*	0.2303	3.5918	0.0003
Age 50 to 54	0.858*	0.2256	3.8033	0.0001
Age 55 to 59	0.714*	0.2261	3.1574	0.0016
Age 60 to 64	0.641*	0.2345	2.7350	0.0062
Age 65 to 69	0.419	0.2741	1.5297	0.1261
Age 70 to 74	0.727*	0.3552	2.0464	0.0407

Notes: Smoking status dummy variables are compared with "never daily smokers," occupations with management, education with "no high school," occupation groups with management, and age groups with ages 15 to 17; regression results are based on quarterly data, which were then adjusted to produce an annual estimate.
*statistically significant
Sources: The Conference Board of Canada; Statistics Canada, Canadian Community Health Survey.

regression analysis, primarily due to the importance of using weighted data to get an accurate estimate of the total impact of smoking on the Canadian labour force.[2]

The standardized rates allow for an unbiased comparison of the ability to work across different smoking statuses. However, an additional step is required to estimate the total impact of smoking on short- and long-term disability. To achieve this, we applied the probability of becoming disabled due to a chronic condition among those who had never smoked daily to the rest of the Canadian population. The estimates are computed by age, sex, and education to account for the

2 The data were standardized by the direct method to the overall population (this method is also used by Statistics Canada). For more information on standardization, please see *Journal of the Royal College of General Practitioners*, "Age Standardization by the Direct Method."

Table 2
Share of Canadians Who Are Unable to Work Due to a Chronic Condition
(per cent)

	Crude rate	Standardized rate	Crude rate assuming no one had ever smoked daily*
Current daily smokers and recent quitters	6.5	5.6	2.9
Never daily smoker	1.9	2.4	1.9
Former daily smoker—quit more than 10 years ago	3.8	2.3	3.7
Now occasional, former daily smoker	3.7	4.6	2.0
Average	3.4	3.4	2.4

*in this column, the difference in rates across the groups is due solely to differences in age, sex, and education
Sources: The Conference Board of Canada; Statistics Canada, *Canadian Community Health Survey*.

difference in socio-economic status among different groups. (See Table 2 in this Appendix.) This analysis implies that an additional 261,251 Canadians would have been able to work if no one in the population had ever smoked on a daily basis. Incorporating this information into The Conference Board of Canada's model of the economy, and given typical labour force participation rates by age and sex, smoking-attributable disability costs were estimated at $7.1 billion in 2010, or the equivalent of 0.42 per cent of GDP.

SECTION C: A MORE DETAILED DESCRIPTION OF THE MICRO-SIMULATION MODEL

In 2011, the first year of the simulation, the smoking status of each employee in the firm was initialized based on actual data, as reported in the 2011 Canadian Tobacco Use Monitoring Survey. The model divides employees into three groups according to their smoking status: current daily smokers, former daily smokers, and those who never smoked daily. In addition, the model keeps track of the number of years that have passed since former daily smokers quit smoking.

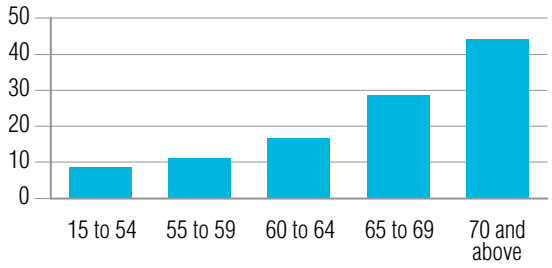
FORECASTING FUTURE SMOKING STATUS

To forecast the smoking status of each employee into the future, the model incorporates transitional probabilities for all possible outcomes. In addition, it simulates turnover to reflect conditions in a Canadian firm as closely as possible. Each year, a proportion of employees will leave the company and get replaced. The employees who stay are then aged by one year, and their smoking status is updated as follows. Employees who currently are daily smokers may decide to make an attempt to quit. If they succeed, and their status gets updated to "former daily smoker." If they fail, they continue to be daily smokers. Conversely, employees who are not daily smokers may either remain abstinent or begin to smoke on a daily basis. Meanwhile, the model also keeps track of the number of years since quitting among former daily smokers. (See Exhibit 1 earlier in this briefing for an illustration.) The parameters used to determine the probability of transition from one smoking status to the other were based on data from various sources, as detailed below.

TURNOVER

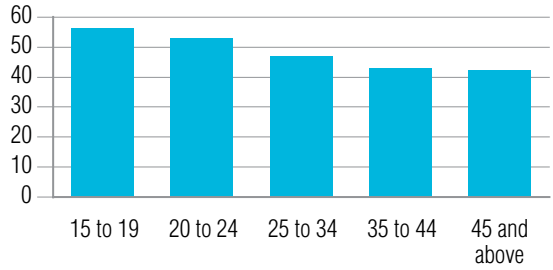
Turnover rates included both voluntary and involuntary turnover, and varied by age of employee. The overall employee turnover was assumed to be 10.6 per cent, as measured by The Conference Board of Canada's most

Chart 1
Estimated Turnover Rate, by Age Group
(per cent of employees)



Source: The Conference Board of Canada.

Chart 2
Estimated Probability of Attempting to Quit Smoking, by Age Group
(per cent)



Sources: The Conference Board of Canada; Statistics Canada, Canadian Tobacco Use Monitoring Survey.

recent annual compensation survey.[3] The turnover rate by age was then estimated using data on labour force participation rates by age group.[4] Due to retirement, the estimated turnover rate increases with age, sitting at just 8.8 per cent for employees under 55 years of age, and reaching over 44 per cent among those aged 70 or more. (See Chart 1 in this Appendix.)

THE EVOLUTION OF SMOKING STATUS

During the first year of the model (2011), the smoking status of employees reflects that of the overall working population in that year. The forecast of smoking status, on the other hand, is determined by three key factors: the probability that a smoker will attempt to quit, the probability that a quit attempt will succeed, and the probability that a non-daily smoker will become a daily smoker.

The probability that each smoker will attempt to quit in a given year and the probability that each attempt will succeed were estimated using data from the Canadian Tobacco Use Monitoring Survey.[5] Younger Canadians were found to be more likely to attempt to quit, defined as a period of abstinence with the intention to quit that lasts at least 24 hours. In particular, 56 per cent of smokers aged 15 to 19 said they made an attempt to quit in the past year, compared with 42 per cent among those aged 45 and higher. (See Chart 2 in this Appendix.) The probability of success of a given attempt was estimated at 10.7 per cent. As it did not vary significantly by age, it was assumed to be constant across all ages.

Meanwhile, the probability that a non-daily smoker will start to smoke daily was estimated as a residual parameter during the calibration of the model. In particular, this parameter and its change over time were calculated ad hoc to provide a good fit with smoking prevalence trend over the preceding five years (2006–11). This probability included both smokers who had relapsed as well as new smokers who took up smoking for the first time. Not surprisingly, this probability was highest among the youngest age groups and declined among the older population.

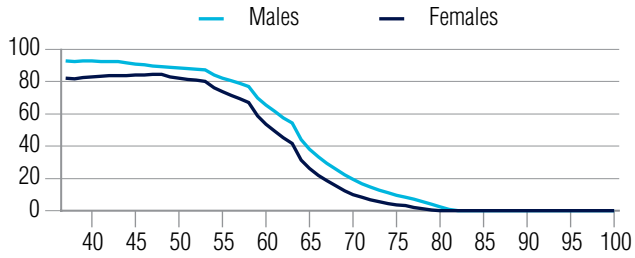
We also charted both labour force participation and mortality rates, by age and gender, over time—with the labour force participation rate decling with age and, conversely, the mortality rate increasing with age. (See charts 3 and 4.)

3 Stewart, *Compensation Planning Outlook*.

4 Statistics Canada, CANSIM Table 282-0001.

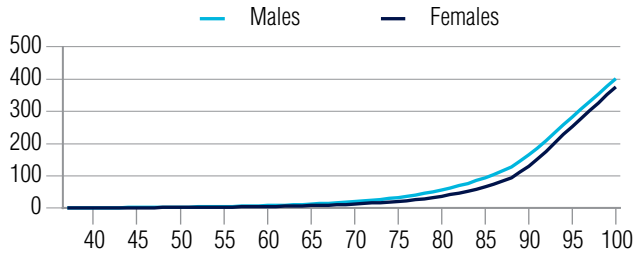
5 Statistics Canada, Canadian Tobacco Use Monitoring Survey.

Chart 3
Labour Force Participation Rate, by Age
(per cent)



Sources: The Conference Board of Canada; Statistics Canada.

Chart 4
Mortality Rate, by Age
(per 1,000)



Sources: The Conference Board of Canada; Statistics Canada.

Appendix B

Bibliography

Bounajm, Fares, and Carole Stonebridge. *Smoking Cessation and the Workplace: Briefing 1—Profile of Tobacco Smokers in Canada*. Ottawa: The Conference Board of Canada, 2013.

British Columbia Pharmacy Association. *British Columbia Pharmacy Association Clinical Service Proposal: Pharmacist-led Smoking Cessation Services.* Vancouver: British Columbia Pharmacy Association, 2013.

Cahill, Kate, Michael Moher, and Tim Lancaster. "Workplace Interventions for Smoking Cessation." *Cochrane Database of Systematic Reviews*, no. 4 (2008).

Dent, Larry, Karry Jo Harris, and Curtis Noonan. "Randomized Trial Assessing the Effectiveness of a Pharmacist-Delivered Program for Smoking Cessation." *The Annals of Pharmacotherapy* 43, no. 2 (2009): 194–201.

Fitch, Kate, Kosuke Iwasaki, and Bruce Pyenson. *Covering Smoking Cessation as a Health Benefit: A Case for Employers.* New York: Milliman, Inc., 2006.

Friedman, Gary D., Irene Tekawa, Marianne Sadler, and Stephen Sidney. "Smoking and Mortality: The Kaiser Permanente Experience." *Smoking and Tobacco Control Monograph No. 8: Changes in Cigarette-related Disease Risks and Their Implications for Prevention and Control.* Bethesda, Maryland: National Cancer Institute, U.S. National Institutes of Health, 1997.

Geoghegan, Tom. "Should Workers Be Forced to Clock Out to Smoke?" *BBC News Magazine.* November 2, 2010. www.bbc.co.uk/news/magazine-11665813 (accessed May 16, 2013).

Hallamore, Christopher. *Smoking and the Bottom Line: Updating the Costs of Smoking in the Workplace.* Ottawa: The Conference Board of Canada, 2006.

Health Canada. Canadian Tobacco Use Monitoring Survey—Historical Tables 1999–2011. September 9, 2012. www.hc-sc.gc.ca/hc-ps/tobac-tabac/research-recherche/stat/_ctums-esutc_2011/ann-histo-eng.php#t6 (accessed June 5, 2013).

—. *Smoking Cessation in the Workplace: A Guide to Helping Your Employees Quit Smoking.* Cat. No. H128-1/06-489E. Ottawa: Health Canada. 2008. www.hc-sc.gc.ca/hc-ps/pubs/tobac-tabac/cessation-renoncement/index-eng.php (accessed June 14, 2013).

Helyer, A.J., W.T. Brehm, N.O. Gentry, and T.A. Pittman. "Effectiveness of a Worksite Smoking Cessation Program in the Military. Program Evaluation." *American Association of Occupational Health Nurses* 46, no. 5 (1998): 238–45.

Jason, L.A., D. Saline, S.D. McMahon, D. Hedeker, and M. Stockton. "Worksite Smoking Intervention: A 2-Year Assessment of Groups, Incentives and Self-Help." *Health Education Research*, no. 12 (1997): 129–38.

Journal of the Royal College of General Practitioners. "Age Standardization by the Direct Method." *Journal of the Royal College of General Practitioners,* Occasional Paper 26 (May 1984): 7.

Koffman, D.M., Jerry Lee, Joyce Hopp, and Seth Emont. "The Impact of Including Incentives and Competition in a Workplace Smoking Cessation Program on Quit Rates." *American Journal of Health Promotion* 13, no. 2 (1998): 105–111.

Lamontagne, Elyse, and Carole Stonebridge. *Smoking Cessation and the Workplace: Briefing 2—Smoking Cessation Programs in Canadian Workplaces*. Ottawa: The Conference Board of Canada, 2013.

Lang, T., and others. "Smoking Cessation at the Workplace. Results of a Randomised Controlled Intervention Study." *Journal of Epidemiology and Community Health* 54 (2000): 349–54.

Levy, Robert, and Rosalind Marimont. "Lies, Damned Lies, & 400,000 Smoking-Related Deaths." *Regulation* 21, no. 24 (1998): 24–9.

Reda, A., D. Kotz, S. Evers, and C. van Schayck. "Healthcare Financing Systems for Increasing the Use of Tobacco Dependence Treatment." *Cochrane Database of Systematic Reviews*, no. 6 (2012).

Rehm, J., D. Baliunas, S. Brochu, B. Fischer, W. Gram, J. Patra, S. Popova, A. Sarnocinthe-Hart, and B. Taylor. *The Costs of Substance Abuse in Canada 2002*. Ottawa: Canadian Centre on Substance Abuse, 2006.

Salina, D., L.A. Jason, D. Hedeker, J. Kaufman, L. Lesondak, S.D. McMahon, S. Taylor, and P. Kimball. "A Follow-Up of a Media-Based, Worksite Smoking Cessation Program." *American Journal of Community Psychology* 22, no. 2 (1994): 257–71.

Smedslund, G., K.J. Fisher, S.M. Bales, and E. Lichenstein. "The Effectiveness of Workplace Smoking Cessation Programmes: A Meta-Analysis of Recent Studies." *Tobacco Control* 13, no. 2 (2004): 197–204.

Soler, Robin, and others. "A Systematic Review of Selected Interventions for Worksite Health Promotion." *American Journal of Preventive Medicine* 38, no. 2S (2010): S237–S262.

Statistics Canada. Canadian Community Health Survey 2011. Ottawa: Statistics Canada, 2011.

—. Canadian Tobacco Use Monitoring Survey (CTUMS) 2011 (public-use microdata file). Ottawa: Statistics Canada, 2011.

—. CANSIM Table 281-0026. April 25, 2013. www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2810049&pattern=&csid= (accessed May 17, 2013).

—. CANSIM Table 282-0001. January 13, 2013. www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820001&pattern=&csid= (accessed May 21, 2013).

—. CANSIM Table 282-0003. May 10, 2013. www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820003&pattern=&csid= (accessed May 24, 2013).

—. CANSIM Table 282-0026. January 4, 2013. www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820026&pattern=Labour+force+survey+estimates+%28LFS%29%2C+by+actual+hours+worked%2C+class+of+worker&tabMode=dataTable&srchLan=-1&p1=1&p2=-1 (accessed May 17, 2013).

Stead, L., and T. Lancaster. "Behavioural Interventions as Adjuncts to Pharmacotherapy for Smoking Cessation." *The Cochrane Library* (The Cochrane Collaboration), no. 2 (2012).

—. "Combined Pharmacotherapy and Behavioural Interventions." *The Cochrane Library* (The Cochrane Collaboration), no. 2 (2012).

Stewart, Nicole. *Compensation Planning Outlook 2013.* Ottawa: The Conference Board of Canada, 2012.

U.S. Department of Health and Human Services. *The Health Consequences of Smoking: A Report of the Surgeon General.* Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.

World Health Organization. *WHO Global Report: Mortality Attributable to Tobacco.* Geneva: World Health Organization, 2012.

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Smoking Cessation and the Workplace: Benefits of Workplace Programs

by Fares Bounajm, Carole Stonebridge, and Louis Thériault

The Conference Board of Canada

255 Smyth Road, Ottawa ON
K1H 8M7 Canada
Tel. 613-526-3280
Fax 613-526-4857
Inquiries 1-866-711-2262
conferenceboard.ca

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