

**Appendix: Population level impacts of the risk factors**

The population attributable risks ( $PAR\%$ ) were calculated to estimate the proportion of smoking cessation cases were attributed to the factors identified as significant predictors for continuous abstinence at 3, 6 and 12 months respectively. Briefly, we quantified the population level impact of a factor of interest on the primary outcomes of interest (i.e. continuous abstinence at 3, 6 and 12 months). This epidemiological measure was formulated as a function of the odds ratio and the prevalence of the factor of interest. When there is only one risk factor at two levels (1 versus 0):

$$PAR\% = \frac{p(OR - 1)}{p(OR - 1) + 1} = 1 - \frac{1}{\sum_{s=1}^2 p_s OR_s}$$

Where  $OR$  is the odds ratios,  $p$  is the prevalence of the risk factor of interest and  $s$  indexes the two strata determined by the value of the risk factor. In this study we generalized the  $PAR\%$  into a multifactorial setting where there is more than one risk factor at multiple levels as follows:

$$PAR\% = \frac{\sum_{s=1}^S p_s (OR_s - 1)}{1 + \sum_{s=1}^S p_s (OR_s - 1) + 1} = 1 - \frac{1}{\sum_{s=1}^S p_s OR_s}$$

where  $OR_s$  and  $p_s$ ,  $s = 1, \dots, S$ , are the odds ratios and the prevalences in the target population for the  $s$ th combination of the risk factors. The above equation can be interpreted as the proportion of the number of “smoking cessation rates” (at 3, 6 and 12 months) associated with risk factor of interest.

The  $PAR\%$  is calculated based on the odds ratio of the association between the factor(s) and outcome(s) of interest, combined with the prevalence of the factor(s) in the study population. All the models were adjusted for the unmodifiable and/or background factors including age, aboriginality status and years of conviction. The method for calculating the  $PAR\%$  based on

estimated adjusted odds ratios for each individual risk factor and their various combinations by using logistic regression models. Prevalence for the combinations of the factors was estimated as multinomial probabilities among study participants at each unique level. The principle of the approach for *PAR%* is to determine the joint impact of several (at least theoretically) modifiable risk factors on smoking cessation while keeping constant background factor(s) such as age, Aboriginality, time served in prison since conviction. This approach allows for the assessment of factors on the primary outcome after allowing for the correlation between them.