



## Assisted and Unassisted Quitting: Do Immigrant Neighbourhoods Quit Differently?

### Background

Ontario has a diverse population with approximately one third of Ontarians born outside of Canada. In general, immigrants have lower smoking rates than those born in Canada but rates of smoking vary widely by ethnic and cultural groups.<sup>1,2</sup> There is increasing evidence showing the impact of the social and cultural environments on smoking. However, little is known about the effect of living in immigrant neighbourhoods has on smoking behaviour. We examined attempts to quit and the methods that smokers used to quit among those living in different Ontario neighbourhoods.

### Methods

Data for this study were obtained from the Ontario Tobacco Survey (OTS), a regionally-stratified longitudinal survey of adult (18+ years) smokers from Ontario; participants were followed-up every 6 months for up to three years between 2005-2011.<sup>3</sup> Participant postal codes were linked to Canadian Census data using the Postal Code Conversion File Census Dissemination Area<sup>4</sup> for neighborhood income quintile and immigrant tertile. Outcomes (no quit attempt, quit attempt unassisted, quit attempt assisted) were assessed at each 6 month follow-up for current smokers. Assisted quit attempts were classified as those using one or more of the following quit aids or resources in the past six months: nicotine patches, gum, lozenges or inhalers; bupropion, Zyban®, Wellbutrin®, Champix® or varenicline; group counselling or specialized addiction counseling. Quit attempts that did not use any of these quit aids or resources were classified as unassisted.

We compiled data on 3,443 OTS current smokers at baseline with one or consecutive follow-up interviews. A complex analysis using repeated data on 12,861 observations assessed the

### Highlights

- Ontario has a diverse population with one third born outside Canada
- Smokers from neighbourhoods with high proportions of immigrants are less likely to use smoking cessation resources to help them quit
- Culturally adapted and effective smoking cessation resources may be needed to assist smokers in these neighbourhoods
- Research is warranted to better understand how culture, economics, demographics and access to services impact smoking cessation

association between residing in immigrant neighbourhoods and assisted quitting. Analyses controlled with the repeated nature of the data and complex survey design. Percentages, weighted to the baseline survey sampling probabilities, are valid for comparing between groups of smokers defined by neighbourhood characteristics, but may not reflect percentages in the underlying Ontario population.

## Results

Neighbourhood income was not associated with making a quit attempt at follow-up. Similarly, there were no differences in the rates of assisted or unassisted quitting when examining by neighbourhood income ( $p=0.58$ , Table 1).

There was an association between the neighbourhood density of immigrants and reported methods used to quit ( $p=0.003$ , Table 1): neighbourhoods with high proportions of immigrants were less likely to quit using cessation resources than those who lived in low immigrant neighbourhoods (6.7% vs. 12.3%, respectively).

**Figure 1: Quit Attempts by Neighborhood Income Quintile and Immigrant Tertile**

	No quit attempt N = 10,436		Quit Attempt				p-value <sup>b</sup>
			Unassisted N = 1963		Assisted N = 1718		
	%	95 % CI	n	95 % CI	n	95 % CI	
Neighborhood Income Quintile							0.58
Lowest quintile	73.9	(71.0, 76.7)	15.1	(12.6, 17.6)	11.0	(9.2, 12.9)	
Medium-low quintile	74.0	(70.8, 77.2)	16.0	(13.3, 18.7)	10.0	(8.0, 12.0)	
Middle quintile	74.0	(70.7, 77.3)	14.9	(12.1, 17.6)	11.1	(9.1, 13.1)	
Medium-high quintile	72.5	(68.6, 76.4)	15.4	(12.4, 18.3)	12.1	(9.4, 14.8)	
Highest quintile	73.4	(69.7, 77.1)	16.7	(13.5, 19.9)	9.9	(7.7, 12.0)	
Immigrant (foreign-born) Tertile							0.003
Lowest Tertile	73.5	(71.9, 75.1)	14.2	(12.9, 15.4)	12.3	(11.2, 13.4)	
Middle Tertile	73.8	(69.9, 77.7)	17.9	(14.4, 21.3)	8.3	(6.0, 10.5)	
Highest Tertile	73.7	(67.6, 79.8)	19.6	(14.6, 24.6)	6.7	(2.9, 10.5)	

<sup>a</sup>The total number of observations are person-time observation periods as repeated measures nested within individuals in the panel study ( $n=14,135$  observations in 3,443 participants). Each observation in the analysis represents one six month time period for one smoker ('at risk' for quitting smoking) during the time period.

<sup>b</sup>Adjusted for clustering by individual.



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## Conclusions

Neighbourhoods with high proportions of immigrants appear less likely to quit using smoking cessation resources. This study was unable to differentiate the between the impact of *being* an individual who was born outside of Canada compared to *living* in a neighbourhood with a greater percentage of immigrants; however, this distinction is possibly less critical in high immigrant neighbourhoods where it may be easier to maintain cultural traditions. Other personal and smoking characteristics may also explain some of this association. Neighbourhoods with high percentages of immigrants have unique cultural traditions.<sup>5</sup> It is important to understand and provide culturally adapted smoking cessation resources to help these smokers quit and ensure equitable access and effectiveness of cessation resources across Ontario. Future in-depth research is needed to determine how culture, economics, demographics and access to effective local services impact smoking cessation.

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## References

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<sup>3</sup> Diemert, L., Chaiton, M., Victor, J.C., Bondy, S.J. *Ontario Tobacco Survey Technical Report 2: Six and Twelve Month Data*. Toronto, ON: Ontario Tobacco Research Unit, April 2010.

<sup>4</sup> Statistics Canada. *Postal Code Conversion File Plus Version 6B, Reference Guide*. Ottawa, ON: Statistics Canada, 2014 Catalogue No.: 82-F0086-XDB.

<sup>5</sup> Logan J, Zhang W, Alba RD. Immigrant enclaves and ethnic communities in New York and Los Angeles. *American Sociological Review* 2002;67(2):299-322.