

THE IMPACT OF CANADA'S LOWERED IGNITION PROPENSITY REGULATIONS ON SMOKING BEHAVIOUR & CONSUMER PERCEPTIONS

David Hammond, Richard J. O'Connor, Gary A. Giovino, Geoffrey T. Fong, Carla Parkinson



BACKGROUND

- Fires caused by smoking materials are the leading cause of fire-related death in Canada. The technology to manufacture "fire-safer" cigarettes has existed for several decades; however, the industry has failed to implement these designs for fear of litigation or consumer rejection.
- In October 2005, Canada became the first country and only the second jurisdiction in the world after New York State to legislate lowered ignition propensity (LIP) cigarettes.
- Although extensive testing both in Canada and elsewhere suggests that the new restrictions will reduce the ignition propensity of cigarettes, tobacco manufacturers have opposed the legislation on the grounds that the changes required to design LIP cigarettes may be more toxic to smokers.

OBJECTIVES

1. To examine any changes in puffing behaviour associated with LIP cigarette designs.
2. To examine any changes in exhaled breath carbon monoxide levels associated with LIP cigarettes.

STUDY DESIGN

- Pre-post longitudinal design.
- The baseline visit occurred 1-2 months prior to the implementation of Canada's LIP law (August-September 2006); the follow-up visit occurred approximately 10 months later (June-July 2007)
- Participants smoked their usual cigarette brands through a CReSSmicro device for a 24-hour period, provided an exhaled breath carbon monoxide sample, and completed a brief questionnaire at baseline and follow-up.

PARTICIPANTS

- 42 adult smokers completed both waves (72% retention from baseline)
- Recruited from community advertisements
- Smoked a mean of 17.9 (SD=7.6) cigarettes per day
- Mean age=32.1
- 25 males, 17 females
- Smoked one of six popular cigarette brands

MEASURES

Puff Topography

- CReSSmicro (Plowshare Technologies Inc.) is a portable battery-operated device that measures smoking topography, including puff number, duration, inter-puff interval (IPI), peak flow, and puff volume.
- The portability of the CReSSmicro allows for in vivo measures of smoking topography to be taken in the smokers' natural environment.



Exhaled Carbon Monoxide

A Bedfont Micro 3 Smokerlyzer was used to collect 2 CO samples immediately before a cigarette was smoked and two samples immediately following a cigarette was smoked at both baseline and follow-up.

RESULTS

Puff Topography

	Puff Number	Puff Interval (secs)	Mean Flow (ml/sec)	Puff Volume (ml)	Cigarette Volume (ml)
Pre-LIP	10.7	31.1	30.9	50.3	608.0
Post-LIP	10.5	35.3	32.0	51.4	641.1
Difference	-0.2 <i>p</i> =.30	4.2 <i>p</i> =.29	1.1 <i>p</i> =.12	1.1 <i>p</i> =.34	33.1 <i>p</i> =.09

RESULTS CONT.

Carbon Monoxide Boost

	Carbon Monoxide Boost (ppm)
Pre-LIP (SD)	4.3 (2.7)
Post-LIP (SD)	4.4 (2.1)
Difference	0.1 <i>p</i> =.80

Survey Measures

- There were no significant changes in worrying about starting a fire, fire risk behaviours (e.g. leaving a cigarette unattended), or cigarette-related fire incidents between baseline and follow-up.

CONCLUSIONS

- There were no significant increases in exposure to tobacco smoke associated with LIP cigarettes.
- Future analyses will examine changes in urinary cotinine, NNK, and benzo[a]pyrene levels.
- Cigarette butt analyses will also be conducted to provide a second measure of total smoke exposure.
- This study was conducted in parallel with similar laboratory studies being conducted in New York State and Massachusetts, as well as population-based surveys conducted in Ontario, Canada and New York State.
- Together, this data will provide a comprehensive examination of any adverse effects in terms of increased exposure associated with smoking LIP cigarettes.