Welcome to today's webinar:

Smoking on Patios: Levels of Exposure, Health Effects & Impact on Behaviour Change **Roberta Ferrence & Michael Chaiton**

Start time: 10:30 A.M.

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Today's Speakers

Roberta Ferrence, PhD

Roberta is Senior Scientific Advisor for the Ontario Tobacco Research Unit at the University of Toronto, Professor in the Dalla Lana School of Public Health & Affiliate Scientist with the Centre for Addiction and Mental Health. She has training in Epidemiology & Medical Sociology.

Her research focuses on tobacco smoke exposure, including the economic and environmental impact of smoke-free bylaws, indoor and outdoor air quality studies including waterpipe, and thirdhand smoke exposure. She has published more than 150 peerreviewed papers and has authored three books, including Nicotine and Public Health.





Today's Speakers

Michael Chaiton, PhD

Michael is an Assistant Professor at OTRU in the Dalla Lana School of Public Health at the University of Toronto, and Co-Head of the Population Research Initiative on Mental Health and Addictions (PRIMHA) at OTRU. His work is focused on the social and psychosocial factors influencing tobacco use from a population health perspective. At OTRU, he is the project lead for the Ontario Tobacco Survey and is the principal investigator of a CIHR funded study on policy option for addressing tobacco retail availability.





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Health Effects of Outdoor **Exposure to Smoking on Patios**

Roberta Ferrence Ontario Tobacco Research Unit Webinar March 27, 2014

Significant smoke exposure in outdoor public spaces continues...



Measuring Outdoor Exposure What is PM_{2.5}?

Standardized measure of small particles less than 2.5 micrometers in width

"PM_{2.5} is a toxic pollutant produced by cigarettes, wood-burning stoves, diesel engines and other forms of combustion.

"It contains benzo(a)pyrene, a carcinogen, and many other toxic chemicals that can penetrate deep inside the lungs." (Klepeis and Ott, 2007)

What do we know about smoke exposure on patios?

Same as indoor smoke but dissipates faster



Substantial exposure within **2 metres** of smoker – higher if more smokers Safe distance about 9 metres

Health Effects of AQI Levels Caused by PM _{2.5} (3 hr running average)			
Category	AQI	Breakpoints PM 2.5 μg/m ³	(PM _{2.5})
Very good	0-15	0-11	Sensitive populations exercise caution
Good	16-31	12-22	As above
Moderate	32-49	23-45	People with respiratory disease at some risk
Poor	50-99	46-90	General population at some risk
Very Poor	100 +	91 +	Serious respiratory effects; At risk groups at high risk; Gen Pop at increased risk

Some context...

US Embassy in Beijing: Extremely High Levels of PM_{2.5}: Steps to Reduce Your Exposure

- The U.S. AQI does not include recommendations for PM_{2.5} levels above 500, but levels are sometimes worse ("beyond index"). What should I do?
- Pollution is hazardous at these levels.
- Stay indoors in a room or building with filtered air
- Reduce activity levels

What levels of PM2.5 are found on Patios?

Levels often equivalent to indoor smoking:

Outdoor patios with cigarette smoking
 <u>51-284 µg/m³</u> (Wilson NZ) (x3 Very poor 3 hr level)

Outdoors at **waterpipe cafes** (waterpipe plus a few cigarettes: (x19)

<u>15 – 1711 μg/m³</u> (Zhang *et al.*, Toronto) (x19)

Doorways to public buildings (cigarettes)
 Up to <u>496 µg/m³</u> (Kaufman *et al.*, Toronto) (x5)

SHS Health Effects Same indoors or out

No safe level of exposure (SGR)

Even very low exposure associated with changes in gene expression that may reflect early damage.

 Even brief exposure increases risk of acute cardiac events and can worsen asthma

 Long term exposure causes cancer, heart and respiratory disease

Occupational Exposure a Serious Hazard

Wait staff on patios are at high risk:

"An increase of 5-10 µg/m³ in average annual PM_{2.5} exposure is associated with a 3-6% increase in all-cause mortality" (Chapman & Hyland 2010)



Final Thoughts

- Wait staff and patrons exposed to unsafe levels of particulates on outdoor patios and indoors from drifting outdoor smoke
- Bans on outdoor smoking should consider all hazardous smoked products (Cigarettes, Waterpipe, Marijuana)
 - E-cigarettes may be hazardous, and social exposure is certainly a potential problem
- Research needed to quantify cumulative risk of brief exposures



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Smoking behaviour and exposure to smoking on patios

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Justifications for outdoor smoking bans

1. Prevent physical harm



2. Change social norms

More visibility = more socially acceptable Alesci (2003)



3. Encourage Quitting

NO

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Drinking optional, smoking mandatory



Indoor Exposure

Higher numbers of cigarettes smoked
Reduced likelihood of quit attempts
Increased chance of relapse

Increase in outdoor smoking with smoking bans

How does exposure to smoking on patio affect smoking behaviour?

Ontario Tobacco Survey

- 4500 Ontario smokers
- 2005-2011
- Followed every 6 months for 3 years
- x-sectional survey of 3000 nonsmokers



Research Questions

- 1. What are the correlates of being exposed to smoking on patios among smokers and nonsmokers?
- 2. Is exposure to smoking on a patio associated with making a quit attempt, among smokers?
- 3. Is risk of relapse greater among those exposed to smoking on patios among those trying to quit?









to a restaurant or bar Went to a restaurant or bar but did not sit on a patio Visited a E patio but s was not exposed to smoking

a patio

Patio smoking (past 30 days)





Did not go to Went to a Visited a Exposed to a restaurant restaurant or patio but smoking on or bar bar but did was not a patio not sit on a exposed to patio smoking



Fewer quit attempts associated with visiting patios Increased risk of relapse associated with smoking on patios

Visual cues

Conclusions

- Exposure to smoking on a patio associated with changes in smoking behaviour
- An important side effect of reducing physical exposure to smoke



Questions



Thank You!



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Thank you for participating

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