



THE ONTARIO TOBACCO RESEARCH UNIT
UNITÉ DE RECHERCHE SUR LE TABAC DE L'ONTARIO

Generating knowledge for public health

PROJECT NEWS

December 2015

Emerging RECIG Results: Knowledge Synthesis and Adult Survey 6-Month Follow-Up



Welcome to the fifth in our series of six newsletters from OTRU's Research on E-Cigarettes (RECIG) Project! Our last newsletter provided an update on our youth and young adult survey and interviews and our adult longitudinal panel. This newsletter focuses on the results from the health effects and patterns of use knowledge syntheses, analysis of Ontario survey data as well as preliminary results of the Adult Longitudinal

Panel 6-month follow-up survey. Additional background information on the RECIG project can be found on the [OTRU website](#).

Ongoing RECIG Knowledge Synthesis

Our ongoing knowledge synthesis examined the patterns of use of e-cigarettes, including the relationship between the use of e-cigarettes and uptake of

cigarette smoking, as well as the health effects of e-cigarette use. Preliminary results of our analysis of peer-reviewed and grey literature are presented in this newsletter.

E-Cigarettes and Cigarette Smoking Uptake

Seven articles were identified that investigated smoking intentions and rates of smoking uptake among young e-cigarette experimenters or users. Three studies found a positive association between e-cigarette and tobacco use and all studies found evidence suggesting a relationship between e-cigarette use and intention to smoke among never smokers.

The internationally-recognized Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to assess the overall quality of the evidence. Of the included studies, three were rated moderate and four were rated strong.

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The state of evidence about the relationship between use of e-cigarettes and smoking intentions is assessed as low. The three cross-sectional studies were deemed 'low' evidence as they were limited by substantial biases or imprecisions of results.

The GRADE analysis indicates very low evidence on the relationships between e-cigarette and tobacco cigarette use. The inconsistencies of results across the four studies as well as design weaknesses (sampling problems) and significant biases (regarding both selection and recall bias) make it impossible to make conclusive statements about this evidence.

Health Effects of E-Cigarette Use

We identified and assessed 38 articles that investigate outcomes related to the health effects of e-cigarette use, including:

- Liquid constituents
- Vapour constituents
- Liquid cytotoxicity
- Vapour cytotoxicity
- Adverse health effects
- Passive exposure effects

Of the included studies, 29 were moderate and 9 had a strong quality assessment. Results from the knowledge synthesis suggest that, while they were often at low levels, various compounds such as carbonyls, TSNAs, VOCs, metals, and impurities were frequently detected in e-liquids and e-cigarette vapour. Exposure to e-liquids and vapour resulted in some cytotoxicity. Nicotine and flavourings were often cited as potential contributors to the negative effects on cell viability.

Studies reported that levels of exposure and cytotoxicity from e-cigarette use were lower than that from smoking tobacco cigarettes and, when comparable, lower than U.S. EPA suggested levels. The findings are not conclusive, since some studies tested a small selection of e-cigarette products

(often with weak designs and methods), and only investigated the effects of acute exposure. More, and better, studies are needed to investigate the effects associated with prolonged use and exposure, as well as the effects of nicotine dosage.

Increasing E-Cigarette Experimentation and Continued Use by Ontario Students

Recent data from the 2015 Ontario Student Drug Use and Health Survey (OSDUHS) reveal increasing use of e-cigarettes among Ontario students (grades 7-12). A random sample of 5, 023 middle and high school students answered survey questions on ever and past year use of e-cigarettes.

- 22.6% of students reported trying e-cigarettes in their lifetime
- 18.7% of students had used an e-cigarette in the past year, and 14% of this group used e-cigarettes that contained nicotine
- Among Ontario students who used an e-cigarette in the past year, 37.5% vaped e-cigarettes only once, 43.8% vaped a few times, 8.2% vaped monthly and 6.1% vaped daily
- 15.7% of student reported first time use of e-cigarettes in the past year
- 14.4% of students perceived that regular vaping presents no risk to one's health, 38.2% perceived a slight risk, 21.7% a medium risk and 9.8% perceived a great risk to health






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These findings highlight the continued popularity of e-cigarettes among youth.

Prevalence of E-Cigarette Use among Ontario Adults

The CAMH Monitor is a representative survey of alcohol, tobacco and other drug use among adults in Ontario (aged 18 years and older). According to 2014 CAMH Monitor data:

- 13% of Ontarian adults have **ever tried an e-cigarette** 
- 10% report **past year use**.  Rates of ever and past year use are higher among men than women
- 3% of adults reported **past 30 day e-cigarette use**.  Of these users, 88% were nondaily users including 29%¹ who vaped an e-cigarette only once.

These results suggest that experimentation of e-cigarettes is increasing among adults in Ontario. Close to 3% of the Ontario adult population, representing 343,000 individuals, reported having vaped in the last 30 days, indicative of current e-cigarette use.

Monitoring Trends of E-Cigarette Use: Longitudinal Panel Follow-Up Survey

In our second and fourth newsletters, we reported on results of the baseline survey. The six-month follow-up survey was conducted in September and October 2015. Among the 1,937 baseline participants, 967 (50%) completed the 6-month follow-up. There was no difference in age, gender, marital status, employment, and e-cigarette use at baseline between those who completed and those who were lost to the 6-month follow-up. However, those who were lost to the 6-month follow-up were more likely to be non-White (15% vs. 11%), with low education (35% vs. 30%) and current daily smokers (54% vs. 46%) at baseline.

Highlights from the 6-month follow-up survey

focusing on the association between use of e-cigarettes at baseline and smoking cessation at 6-month follow-up suggest that:

- Daily e-cigarette vapers are more likely than others to successfully quit smoking regular cigarettes
- 24% of daily e-cigarette vapers quit for 30 days or more; however this represents a small number (9 out of 37 baseline daily e-cigarette users). Moreover, two of these vapers continued to use cigars, two continued to use smokeless tobacco and one continued to use waterpipe
- Among the 28 baseline daily e-cigarette vapers who did not quit for 30 days at 6-month follow-up, 7 (25%) became former vapers, 8 (28.6%) became non-daily vapers, and 13 (46.4%) were still daily vapers at 6-month follow-up

These findings suggest that while daily e-cigarette use may increase the chances of quitting for some, most baseline daily vapers continued to both smoke cigarettes and vape e-cigarettes.

RECIG Findings and Expert Panel Discussion

The RECIG Expert Panel will convene in Toronto on January 12 and 13, 2016. The Expert Panel brings together an international and multidisciplinary group to validate and enrich the findings of the RECIG project with their own knowledge. On January 13th OTRU is hosting a seminar/webinar as part of the RECIG Expert Panel. For more information and to register to attend in person or online, please visit <http://otru.org/about-otru/otru-events/>.

Notes

1. Marginal. Interpret with caution: subject to moderate sampling variability

Follow the TIMS link  for results in table and chart form



Invitation to Propose Additional Research Questions

This grant provides the opportunity for Applied Health Research Questions (AHRQ). An AHRQ is a question posed by a health system policy maker or provider (Knowledge User) in the interest of obtaining research evidence to inform planning, policy, and/or program development that will benefit the broader Ontario health system. Knowledge Users are invited to submit a Knowledge Request to Research Providers with the goal of identifying research gaps and opportunities for knowledge generation.

As a Research Provider, OTRU invites you to submit your knowledge needs for the development of policies, programs, and public education about e-cigarettes. Based on the nature of your request, there are three types of responses we, as Research Providers, can provide: a *rapid response*, a *research report* or *technical brief*, or a *research project*. We are excited about this opportunity to contribute to your work on this critical issue!

For more information about initiating an AHRQ request, contact:

Dr. Robert Schwartz
Ontario Tobacco Research Unit
c/o Dalla Lana School of Public Health
University of Toronto
155 College Street, Unit 536
Toronto, ON M5T 3M7
Robert.Schwartz@utoronto.ca

RECIG Research Team

- Alexa Minichiello, Research Officer
- Bo Zhang, Research Officer
- Diane Van Abbe, Information Coordinator
- Jaklyn Andrews, Research Officer
- Muhannad Malas, Research Officer
- Aliya Noormohamed, Research Coordinator
- Jan van der Tempel, Research Officer

RECIG Investigator Team

- Dr. Robert Schwartz, Principal Investigator, Ontario Tobacco Research Unit, University of Toronto
- Dr. Laurie Zawertailo, Principal Investigator, Centre for

Addiction and Mental Health

- Dr. Roberta Ferrence, Ontario Tobacco Research Unit, University of Toronto
- Dr. Shawn O'Connor, Ontario Tobacco Research Unit, University of Toronto
- Dr. Peter Selby, Centre for Addiction and Mental Health
- Dr. Thomas Eissenberg, Virginia Commonwealth University
- Melodie Tilson, Non-Smokers' Rights Association

RECIG Knowledge Exchange Advisory Committee

- Dr. Irmajean Bajnok, Registered Nurses' Association of Ontario
- Claire Harvey, Toronto Public Health
- Jennifer McFarlane, Tobacco Control Area Networks
- Michael Perley, Ontario Campaign for Action on Tobacco
- Rowena Pinto, Canadian Cancer Society
- Dr. Michael Stanbrook, University Health Network
- Andrea Stevens Lavigne, Ontario Lung Association
- Melodie Tilson, Non-Smokers' Rights Association

Newsletter Production

Sonja Johnston

The Ontario Tobacco Research Unit (OTRU) is recognized as a Canadian leader in tobacco control research, monitoring and evaluation, teaching and training and as a respected source of science based information on tobacco control.

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The views expressed in this newsletter are the views of the Ontario Tobacco Research Unit and do not necessarily reflect those of the Province of Ontario.

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