



PROJECT NEWS

February 2015

Introduction to RECIG: Research on E-Cigarettes



The Ontario Tobacco Research Unit (OTRU), in partnership with the Centre for Addiction and Mental Health (CAMH), has recently been awarded a grant by the Ministry of Health and Long-Term Care (MOHLTC) to undertake a multi-component research study of e-cigarettes (RECIG) that will inform the current evidence base, and future provincial policy and legislation. This first OTRU RECIG newsletter provides updates on three ongoing RECIG study components: an ongoing knowledge synthesis; a report of findings from the most

recent Ontario Student Drug Use and Health Survey; and an upcoming social media analysis. This newsletter also highlights opportunities for stakeholders to ask further questions of the research team through the Applied Health Research Questions (AHRQs) process. Upcoming OTRU RECIG newsletters will keep you informed of study progress and emerging findings.

Background

Growing in popularity, electronic cigarettes (e-cigarettes) are

battery-powered devices that are used to heat and vaporize a solution containing propylene glycol, flavourings, and sometimes nicotine.¹ There has been much debate about the use, impact and efficacy of e-cigarettes. While there may be potential for e-cigarettes to support tobacco harm reduction and cessation, there are also concerns about possible adverse health effects, renormalization of smoking and tobacco uptake among youth, and other unforeseen consequences of unregulated production, sale, and use of e-cigarettes.¹

In Canada, legislation prohibits the sale of e-cigarettes containing nicotine; however the ban has not been actively enforced. The province of Ontario has recently announced new regulations, to be implemented January 2016, that will mirror tobacco cigarette policy by restricting e-cigarette sales to minors (under 19 years of age), e-cigarette use in enclosed public places, and the point-of-sale promotion of e-cigarette products.²

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The RECIG project has been designed with multiple components to help address many of the unanswered questions about e-cigarettes:

- Comprehensive, realist-informed knowledge synthesis of e-cigarette literature
- Analysis of data from existing e-cigarette surveys
- Longitudinal survey to inform prevalence and patterns of e-cigarette use among adults (19 years and over)
- Surveys and in-depth interviews to inform prevalence, attitudes and knowledge of e-cigarette use among the youth and young adult population (15-29 years of age)
- Social media analysis of e-cigarette message exposure, reach and content
- Randomized clinical trial comparing smoking cessation effectiveness of e-cigarettes and nicotine replacement therapy products
- Biomarker study of e-cigarette users to measure concentrations of nicotine and other chemicals
- International, multidisciplinary Expert Panel to assess project findings and identify implications for public health policy

Additional background information on the RECIG project can be found online in the OTRU Update publication *OTRU Research on the Use and Impact of Electronic Cigarettes* <http://otru.org/otru-research-use-impact-electronic-cigarettes/>.

Ongoing Knowledge Synthesis to Assess State of the Scientific Literature

Despite a growing body of research on e-cigarettes, consensus on many e-cigarette issues has not yet been reached; findings from studies are often mixed or inconclusive. OTRU has undertaken a broadly scoped systematic review of peer-reviewed and grey literature that will contribute to the growing demand for credible, scientifically sound knowledge about e-cigarettes. Specifically, we are examining the prevalence of e-cigarette use (particularly among youth), health effects of e-cigarette use, the relationship between use of e-cigarettes and uptake of cigarette smoking, and the effectiveness of e-cigarettes as a cessation aid.

RECIG Co-investigator Team

- Dr. Robert Schwartz (PI), Ontario Tobacco Research Unit, University of Toronto
- Dr. Laurie Zawertailo (PI), Centre for Addiction and Mental Health
- Dr. Thomas Eissenberg, Virginia Commonwealth University
- 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
- Melodie Tilson, Non-Smokers' Rights Association

RECIG Knowledge Exchange Advisory Committee

The Advisory Committee consists of representatives from public health organizations across Ontario, including the Ontario Medical Association, Non-Smokers' Rights Association, Canadian Cancer Society, Registered Nurses' Association of Ontario, Ontario Lung Association, Toronto Public Health, Tobacco Control Area Networks, and the University Health Network.

Through an iterative process with input from project Co-Investigators and a Knowledge Exchange Advisory Committee, OTRU has developed a comprehensive data extraction tool, as well as a broadly applicable, realist-informed quality assessment form with criteria derived from 'gold standard' quality appraisal tools.

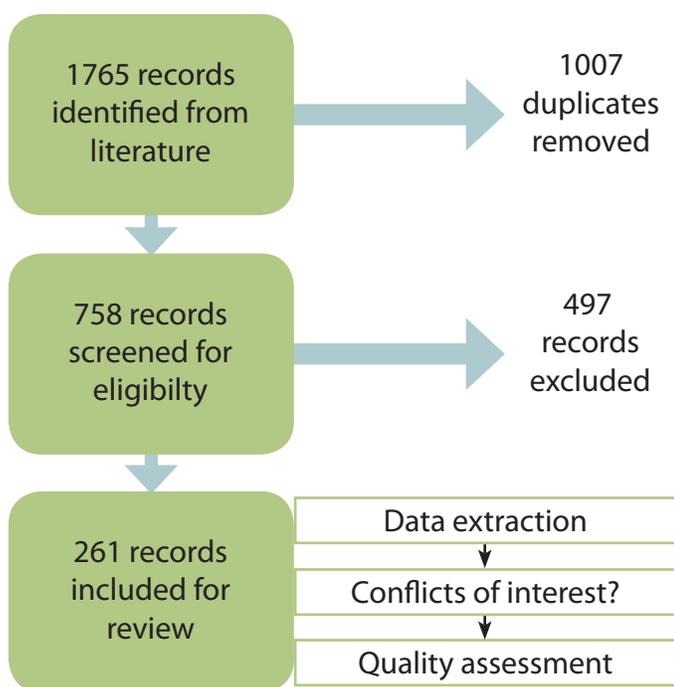
These tools are implemented using cutting edge software from DistillerSR, which manages many aspects of the review, analysis, and reporting, allowing for greater rigour, efficiency, and enhanced workflow. The knowledge synthesis protocol has been registered with the international registry for systematic reviews in health sciences, PROSPERO.

To date, the OTRU team has reviewed over 230 articles including peer-reviewed and grey literature covering a

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Figure 1: RECIG Systematic Review Process



range of subject areas, study designs, and findings. The quality of evidence of included studies so far—rated as weak, moderate, or strong—has been found to be distributed normally. New studies on e-cigarettes are published every week and are incorporated in the knowledge synthesis as they become available. Data analysis is expected to commence mid-February, with a full report scheduled for early spring.

Recent OSDUHS Data Reveal Increasing Experimentation of E-Cigarettes among Youth

E-cigarettes are becoming increasingly popular among youth.^{3,4} However, little is known about the popularity and patterns of use among youth in Ontario. Recent data from the Ontario Student Drug Use and Health Survey (OSDUHS) has shed some light on the prevalence and sociodemographic characteristics of e-cigarette use among Ontario high school students (grades 9 – 12).⁵ Between October 2011 and June 2012, in the first OSDUHS questionnaire to include measures

of e-cigarette use, a random sample of 2892 high school students from 198 public schools answered survey questions on awareness and ever use of e-cigarettes.

Highlights of Study Findings

- An estimated 15% of high school students reported trying e-cigarettes in their lifetime, and almost one-third of this group used e-cigarettes that contained nicotine (28% of ever users)
- Nicotine-containing e-cigarettes were especially common among students who reported smoking tobacco cigarettes in the previous 12 months (38%), compared to students that had not smoked in the previous 12 months (18%)
- Survey findings showed that 7% of students who never smoked a cigarette in their lifetime had reported using an e-cigarette
- High school students who were male, Caucasian, lived in rural regions, and had a history of smoking tobacco were found to be more likely to have tried e-cigarettes

These findings highlight the relatively high proportion of high school students who have experimented with e-cigarettes.

Analysis of the Social Media Landscape on E-Cigarettes

Social media analysis is an evolving tool for studying popular trends and online behaviour, especially among youth and young adults. This presents an innovative way to generate qualitative knowledge about the characteristics of e-cigarette users, patterns and contexts of e-cigarette use, and the emergence of e-cigarette communities and related cultural phenomena. OTRU is currently formulating an analysis plan for use with Sysomos HeartBeat, a powerful tool for online data collection, analysis, and reporting. Focusing on Twitter, Instagram, and online forums like Reddit, the social media analysis is expected to provide a valuable window into the individual and group contexts of e-cigarette use, as well as the main influencers and audiences of e-cigarette-related online communication.

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 can provide:

1. Rapid response. Preliminary information in one week or less providing a “first blush” response, e.g., expert opinion of relevant systematic reviews, articles, or reports on a given policy topic.
2. Research report or technical brief: Approximately 4-8 weeks of work to quickly synthesize the research evidence on a given topic. The final product could be a presentation or a report. Upon conclusion of the AHRQ, the researcher will complete the AHRQ Summary of Findings Form which will be disseminated broadly.
3. Research project: Where it has been confirmed that new knowledge must be generated, i.e., existing knowledge is not sufficient for planning or policy development requirements, new research projects will be initiated. The duration may be months or years, depending on the project. For longer-term projects, it is expected that some information will be provided within the funded fiscal year.

We are excited about this opportunity to contribute to your work on this critical issue!

For more information about initiating an AHRQ request, contact: Robert.Schwartz@utoronto.ca (416-978-3901)

References

¹ WHO Framework Convention on Tobacco Control. *Electronic Nicotine Delivery Systems*. Conference of the Parties to the WHO Framework Convention on Tobacco Control, Moscow, October 13-18, 2014.. Available at: http://apps.who.int/gb/fctc/PDF/cop6/FCTC_COP6_10-en.pdf?ua=1

² Legislative Assembly of Ontario. Bill 45, *Making Healthier Choices Act, 2014*. Available at: http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=3080

³ Centers for Disease Control and Prevention. Notes from the field: Electronic cigarette use among middle and high school students-United States, 2011-2012. *Morbidity and Mortality Weekly Report* 2013 Sep 6;62(35):729-730. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6235a6.htm>

⁴ Vardavas CI, Filippidis FT, Agaku IT. Determinants and prevalence of e-cigarette use throughout the European Union: A secondary analysis of 26,566 youth and adults from 27 countries. *Tobacco Control* 2014 June 16 [Epub ahead of print].

⁵ Hamilton HA, Ferrence R, Boak A, Schwartz R, Mann RE, O'Connor S, Adlaf EM. Ever use of nicotine and non-nicotine electronic cigarettes among high school students in Ontario, Canada. *Nicotine and Tobacco Research* 2014 Oct 30 [Epub ahead of print].

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The Ontario Tobacco Research Unit (OTRU) is an Ontario-based research network that 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.

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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