THE ONTARIO TOBACCO RESEARCH UNIT
UNITÉ DE RECHERCHE SUR LE TABAC DE L'ONTARIO
Generating knowledge for public health

OTRU Update

September 2014

OTRU Research on the Use and Impact of Electronic Cigarettes

There are many unanswered questions about e-cigarettes, and public debate abounds about their promotion, sale and use; concerns over youth uptake; the potential for renormalization of smoking; their effectiveness as a cessation aid; and their health impacts.

We are very pleased to announce that OTRU, in partnership with the Centre for Addiction and Mental Health (CAMH), has been awarded $500,000 over two years to conduct research on e-cigarettes. This competitive funding comes from the Ontario Ministry of Health and Long-term Care Health System Research Fund.

OTRU has been awarded a grant for research on e-cigarettes by the Ontario Ministry of Health and Long-Term Care. This grant provides the opportunity for Administrative Health Research Questions.

Funded Research Activities

The project will entail three types of activities – a knowledge synthesis of e-cigarettes, analyses of the evidence from the synthesis, and primary research.

1. Synthesis: A comprehensive, realist-informed knowledge synthesis will examine the prevalence of e-cigarette use (particularly among youth), the relationship between e-cigarette use and uptake of cigarette smoking, the health effects of e-cigarettes, and their effectiveness as a cessation aid.

2. Analysis: The project will analyze evidence from studies identified in the synthesis to assess applicability to Ontario's demographic, tobacco use and e-cigarette use contexts and to identify gaps in knowledge needed to develop policy in Ontario.

3. Primary Research:

    a. *Analysis of data from existing surveys:* The project will analyse two Ontario surveys to estimate e-cigarette awareness, use (lifetime, past year, past 30 days), reasons for use, and co-use. Descriptive analyses will explore key e-cig indicators, examining sub-populations (e.g., sex, grade/age, geography) tobacco use, health status, socio-economic status, and home environment.

b. *Generation of new survey data:* E-cigarette (Longitudinal) Panel: The project will create an e-cigarette longitudinal panel of 1,300 e-cigarette users and never users, matched for age and sex. E-cigarette panel participants will be invited by telephone or email to complete a brief web survey and a follow-up web survey at six months.
c. *Social media analysis of youth and young adult e-cigarette messages & use:* Structured searches of Facebook, Twitter, Pinterest, Instagram and YouTube will be conducted. These will be supplemented with structured searches of Google search data to explore keywords, frequencies, and context of the structured searches.
d. *Survey of youth and young adults:* A total of 250 youth and young adult e-cigarette users will be recruited to a short web-survey with a prize incentive. Closed and open-ended questions will gather information on use, attitudes, and knowledge. Respondents, who have consented, will be re-contacted for a ~45 minute interview to gather in-depth insight into social contexts and motivations of use.
e. *Biomarkers:* We will assess the health related effects of e-cigarettes by obtaining plasma samples from current users of non-nicotine e-cigarettes, users of nicotine e-cigarettes, users of both e-cigarettes and traditional cigarettes , and current users traditional cigarettes only. We will analyze and compare the plasma samples for nicotine, propylene glycol (and metabolites), nitrosamines etc.
f. *Cessation Effectiveness Randomized Control Trial:* Using an adaptive study design, the project will also conduct a randomized controlled trial to determine whether e-cigarettes are best used alone or in combination with nicotine replacement therapy. The primary outcome measure will be continuous abstinence from weeks 9-12. Secondary outcomes will be 7-day point-prevalence abstinence (PPA) at weeks 4 and 8. Blood samples taken at baseline, 12, 26-, and 52-weeks will be analyzed for contaminants to assess longer-term health effects and toxicity of e-cigarettes when used as a cessation aid.
g. *Expert Panel:* An international, multidisciplinary Expert Panel will be convened to (1) seek consensus on the current evidence for e-cigarette health effects, cessation aid effectiveness, and relationship with cigarette use; (2) identify gaps in knowledge; (3) identify implications for public health policy and cessation programming/practices; and (4) disseminate this knowledge. The 1.5-day Panel event will include an open seminar/webinar for ~250 key Ontario Knowledge Users – 50 onsite and 200 with remote access.

Review of Existing Literature

There are already a considerable number of publications on individual e-cigarette studies and multiple reviews of this literature. OTRU has been following the ever-growing body of literature closely. The co-investigator team, which includes renowned American expert, Thomas Eissenberg, has reached a

preliminary consensus that, to date, the body of knowledge about e-cigarettes is inconclusive on just about every research question. This is due to insufficient numbers of studies of adequate quality and objectivity. Our knowledge synthesis and analysis endeavours to cast light on the nature of what we know and don't yet know and will draw out implications for policy and program development. As is OTRU practice, we will engage knowledge users from the outset and will disseminate new knowledge from this project in real time through multiple channels.

Opportunities to Address Additional Research Questions (Administrative Health Research Questions)

This grant provides the opportunity for Administrative Health Research Questions (AHRQ). An AHRQ is a question posed by a health system policy maker or provider (Knowledge User) in order to obtain research evidence to inform planning, policy and program development that will benefit the broader Ontario health system. As a Research Provider, we look forward to working with you to identify and address knowledge needs for the development of policies, programs and public education about e-cigarettes.

What AHRQ Responses Can Provide to Knowledge Users

Three Types of Research Provider Responses

1. Rapid response: Preliminary information in one week or less providing a "first blush" response, e.g., expert opinion or 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:
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