



Published in final edited form as:

Addict Behav. 2016 September ; 60: 78–83. doi:10.1016/j.addbeh.2016.03.031.

Knowledge and Beliefs about Electronic Cigarettes among Quitline Cessation Staff

Sharon Cummins, PhD¹, Scott Leischow, PhD², Linda Bailey, JD, MHS³, Terry Bush, PhD⁴,
Ken Wassum, BA⁴, Lesley Copeland, MPH⁵, and Shu-Hong Zhu, PhD¹

¹Department of Family Medicine and Public Health, UCSD, 9500 Gilman Drive, MC 0905, La Jolla, CA 92093, United States

²Mayo Clinic, 13400 E. Shea Blvd, MCCR2-205, Scottsdale, AZ 85259, United States

³North American Quitline Consortium, 3219 E. Camelback Road, #416, Phoenix, AZ 85018, United States

⁴Alere Wellbeing, Clinical and Behavioral Sciences, 999 3rd Ave Suite 2100, Seattle, WA 98104, United States

⁵Moore Cancer Center, UCSD, 9500 Gilman Drive, MC 0905, La Jolla, CA 92093, United States

Abstract

Introduction—Smokers are asking health practitioners for guidance about using e-cigarettes as an aid to quitting. Several studies have surveyed physicians. However, in North America many smokers seek help from telephone quitlines rather than physicians. The objective of the current study was to assess quitline counselors' perceptions of e-cigarettes and what they tell callers about these products.

Methods—An online cross-sectional survey, conducted in 2014 with 418 quitline counselors in the U.S. and Canada, measured perceptions of e-cigarettes: (1) as quitting aids; (2) safety; (3) professional guidance given/organizational guidance received; (4) regulation. The response rate was 90.1%. Analyses included calculating standard errors and 95% confidence intervals around summary statistic.

Results—Nearly 70% of counselors believed that e-cigarettes are not effective quitting aids. Most believed e-cigarettes are addictive (87%) and that secondhand exposure to vapor is harmful (71%). Counselors reported that callers ask for advice about e-cigarettes, but few counselors

Address correspondence to: Shu-Hong Zhu, Ph.D., Department of Family Medicine and Public Health, University of California, San Diego, 9500 Gilman Drive, MC 0905, La Jolla, CA 92093-0905, Tel: 858-300-1056, Fax: 858-300-1099, ; Email: szhu@ucsd.edu

HUMANS SUBJECTS APPROVAL STATEMENT The survey and consent procedures were approved by the University of California, San Diego's human research protection program (#130830) and Mayo Clinic Institutional Review Board (#13-009333).

CONTRIBUTORS Shu-Hong Zhu and Sharon Cummins designed the study. Scott Leischow provided support, Linda Bailey facilitated the survey implementation, and Terry Bush and Ken Wassum assisted with data collection. All authors participated in the questionnaire design. Lesley Copeland and Sharon Cummins wrote the first draft and all authors contributed to and approved the final manuscript.

CONFLICT OF INTEREST NAQC (Linda Bailey) received an award from a Pfizer Independent Grants for Learning & Change; Scott Leischow received research support from McNeil Consumer and GSK (GlaxoSmithKlein). The remaining authors have no conflicts of interest to report.

recommended e-cigarettes (4%). Counselors (97%) reported being instructed by quitline employers to explain to clients that e-cigarettes are not FDA-approved; 74% were told to recommend approved quitting aids instead. Most counselors (>87%) believed e-cigarettes should be regulated like cigarettes in terms of advertising, taxation, access by minors, and use in public places.

Conclusions—Quitline counselors view e-cigarettes as ineffective quitting aids, potentially dangerous, and in need of greater regulations. Counselors can influence how treatment seekers view e-cigarettes, therefore it is imperative that quitlines stay abreast of emerging data and communicate about these products in ways that best serve clients.

Keywords

Electronic nicotine delivery device (ENDS); Smoking cessation program; Tobacco use cessation products; Information seeking behavior; Public health

1. INTRODUCTION

Electronic cigarettes (e-cigarettes) have rapidly increased in popularity in recent years, especially among smokers and recent quitters (Giovenco, Lewis, & Delnevo, 2014; Zhu et al., 2013). A 2012 survey from the United States (U.S.) estimated that 6.3% of current smokers and 6.1% of former smokers who had quit within the past year used e-cigarettes in the previous month (Zhu et al., 2013). In 2013, a nationally representative survey conducted in the U.S. found that 16.4% of current smokers and former smokers who had quit within the past 5 years were using e-cigarette (Giovenco et al., 2014). Over half of the smokers who have tried e-cigarettes said they used them as a way to quit smoking (Vickerman, Carpenter, Altman, Nash, & Zbikowski, 2013; Zhu et al., 2013).

The tobacco control field remains divided about the potential population impact of e-cigarettes (Ebbert, Agunwamba, & Rutten, 2015). Proponents of e-cigarettes suggest that they could lead to the demise of combustible cigarettes (Cahn & Siegel, 2011; Etter & Bullen, 2014; Fairchild, Bayer, & Colgrove, 2014; Polosa, Rodu, Caponnetto, Maglia, & Raciti, 2013). Opponents warn that e-cigarettes could re-normalize cigarette use and be a gateway to smoking conventional cigarettes (Fairchild et al., 2014; King, Smith, McNamara, Matthews, & Fridberg, 2015) or that dual use of both products could inhibit quitting smoking (Benowitz, 2014).

A 2014 review of the clinical trials research on e-cigarettes concluded that there is some evidence that the devices could help smokers to stop smoking, but the small number of trials and large confidence estimates weakens confidence in the conclusions (McRobbie, Bullen, Hartmann-Boyce, & Hajek, 2014). An international panel of experts examined the harm profile of 12 nicotine products and created a scale of maximum relative harm (Nutt et al., 2014). They gave cigarettes a rating of 99.6%, electronic nicotine delivery systems (ENDS, such as e-cigarettes) a rating of 4% and nicotine replacement therapy a rating of 2%, suggesting that e-cigarettes have risk profiles more similar to quitting aids than cigarettes. Relevant scientific evidence about their usefulness as a quitting aid and the population impact of e-cigarettes on smoking prevalence and health will continue to emerge over the

coming years. In the meantime, professionals in direct contact with smokers have to talk with clients about e-cigarettes with little empirical data on efficacy and effectiveness to guide them. Some recent studies have examined the perceptions of these professionals. Surveys of clinic-based cessation practitioners in the United Kingdom (UK) found that clients are asking whether e-cigarettes are safe and effective and question why the service does not provide them. (Hiscock et al., 2014). Over a two year period, the proportion of practitioners who agreed that “e-cigarettes are a good thing” increased from 15% to 26%. A small study of physicians in one U.S. state showed even more favorable attitudes, with 67% seeing e-cigarettes as a “helpful aid” to quitting cigarettes and 35% recommending them to patients (Kandra, Ranney, Lee, & Goldstein, 2014). Most recently a license was issued by the UK's Medicines and Healthcare Products Regulatory Agency to a tobacco industry-owned company to market an e-cigarette as an aid to quit smoking (Medicines and Healthcare Products Regulatory Agency, 2015). Little is known about the perceptions of cessation professionals outside the UK or in settings other than clinics.

A popular alternative to clinic-based cessation services is a telephone-based quitline. Quitlines are widely available worldwide. In North America about 500,000 tobacco users seek help from quitlines each year (Saul, Davis, & North American Quitline Consortium, 2013). Quitlines report increasing use of e-cigarettes among callers. A study of callers to six state quitlines determined that 30.9% of smokers who called for help had tried e-cigarettes and 10.6% were current e-cigarette users 7 months after enrollment in the program (Vickerman et al., 2013). To date, no study has investigated quitline counselors' knowledge and beliefs about e-cigarettes or what they say to clients about this issue.

The U.S. and Canada have different regulatory environments for e-cigarettes (Health Canada, Government of Canada, 2009; U.S. Food and Drug Administration, 2014). E-cigarettes are largely unregulated in the U.S.; there are no federal laws about e-cigarettes, although local and state laws are emerging regarding their use in public. A proposal has been submitted to the federal government's Office of Management and Budget by the FDA's Center for Tobacco Products to “deem” e-cigarettes a tobacco product, which would increase the FDA's authority over e-cigarettes (Briant, 2015; Wheeler, 2015). Canada has federal policies restricting the manufacture and sale of e-cigarette products that contain nicotine unless a company has been granted market authorization (Health Canada, Government of Canada, 2009); to date, no company has received such authorization.

The aim of this study was to assess how quitline counselors perceive e-cigarettes and what they say to callers about the products. The study further tests whether the regulatory environment for e-cigarettes is associated with differing perceptions of the products by comparing responses from counselors in Canada to those in the U.S. Given the extensive amount of research currently being conducted on e-cigarettes, the next several years are likely to bring changes in attitudes and guidelines as evidence accumulates regarding the benefits and harms of e-cigarette use. Results from this survey provide a baseline understanding about how quitlines and quitline counselors in North America perceive e-cigarettes and deal with smokers who use them.

2. METHODS

2.1 Design

Data were obtained from an online cross-sectional survey of quitline staff in the U.S. and Canada in early 2014. Quitlines are state- or provincially-funded services that help tobacco users quit. Quitline services include telephone counseling (also referred to as coaching), information for proxy callers (e.g., wife calling for husband), referrals to local programs, and mailed self-help materials. Many U.S. quitlines provide free medications such as nicotine replacement therapy (NRT) and some also provide web- or text-based services or prescription pharmacotherapy in the form of bupropion or varenicline. Some states and provinces operate their own quitline service; others contract for services with a separate service provider organization. In the US, there are 53 quitlines, which include those in each state, and the District of Columbia, Puerto Rico, and Guam. At the time of the survey, services for the 53 US quitlines were supplied by 16 providers. In Canada, there are quitlines in 10 provinces and 3 territories. Services for the 13 quitlines in Canada were supplied by 4 providers; one province offers free NRT and medications (varenicline and bupropion).

2.2 Sample

The cross-sectional survey was conducted in partnership with the North American Quitline Consortium (NAQC), a non-profit membership organization with a mission to promote evidence-based quitline services to diverse communities across North America by providing opportunities for professional development, networking, and information sharing among quitline service providers, quitline funders, cessation researchers and strategic partners (<http://www.naquitline.org>).

For the current study, a personalized email invitation from the president of NAQC was sent to the primary contact at each of the provider organizations to request participation in the research. Eighteen of the 20 provider organizations agreed to participate and were sent a survey link to disseminate internally among eligible staff (counselors/coaches with direct clinical contact with clients). The number of staff varied by provider; one organization provided services to 27 U.S. states and had the largest number of quitline counselors (139) whereas the smallest organization provided services to a single state with 4 quitline counselors. This paper focuses on responses from counselors (also referred to as coaches or specialists) because they have the most direct contact with clients.

The survey link took participants to an informed consent page which was approved by the University of California, San Diego's human research protection program (#130830) and Mayo Clinic Institutional Review Board (#13-009333). The survey was available between February 10th 2014 and March 7th 2014, with three reminder emails sent to primary contacts during that time to increase the response rate.

2.3 Measures

The survey consisted of 42 questions designed to gather perceptions of e-cigarettes on four dimensions: (1) use as a quitting aid; (2) safety; (3) professional guidance given and organizational guidance received; (4) regulation. The survey was based on previous

nationally representative surveys and modified with input from several quitline stakeholders (including the co-authors). The survey collected demographic information (gender, age, and race/ethnicity), history of cigarette and e-cigarette use, and years of experience in tobacco cessation (at the current organization or elsewhere). Participants rated their degree of agreement with statements from strongly agree to strongly disagree, which were collapsed into agree and disagree for analysis.

2.3.1 Use as a quitting aid—There were six statements related to using e-cigarettes as aids to quit smoking (Table 1). Respondents were asked to compare the effectiveness of e-cigarettes to NRT and to varenicline (Chantix). They were also asked whether smokers who intended to use e-cigarettes as a way to quit should use them indefinitely or short term like a quitting aid. Finally, they were asked to indicate if they considered smokers to have quit if they no longer smoked but still used e-cigarettes.

2.3.2 Safety—There were five statements related to the safety of e-cigarettes (Table 2). Participants also compared the relative health risks of using e-cigarettes to using NRT, to using varenicline and, finally, to continuing to smoke.

2.3.3 Professional guidance given and organizational guidance received—Participants estimated the number of clients they talked to in the past month and, of those clients, how many asked about e-cigarettes (“best guess”). They were also asked whether they recommended e-cigarettes to clients, and what guidance they received from their quitline employer on how to talk with callers about e-cigarettes. Participants were able to select from a list of possible instructions or to type in their own. Multiple responses were allowed.

2.3.4 Regulation—Participants were asked to rate their agreement with statements about four possible regulations of e-cigarettes (Table 4) including taxation, advertising restrictions, use by minors; and use in places where cigarette bans apply.

2.4 Analysis

We conducted analyses on beliefs and behaviors comparing responses of quitline counselors in the U.S. to those in Canada. Due to small cell sizes, for analysis the four categories were collapsed into agreed (strongly agreed and somewhat agreed) and disagreed (strongly disagreed and somewhat disagreed). We calculated standard errors and 95% confidence intervals around the sampling distribution of the corresponding summary statistic. All calculations were done using R2.12.1. While 418 counselors completed the survey, not all questions had the same response rate; tables indicate the sample size for each question.

3. RESULTS

3.1. Sample characteristics

All four provider organizations in Canada, and fourteen out of sixteen in the U.S., agreed to participate. We had a total contact rate of 90% (18/20). The estimated response rate was 90.1%, as 418 of an estimated 466 counselors completed the survey—389 from the U.S. and

29 from Canada. Most counselors were female (75.8%), and between the ages of 25–44 (65.1%). Counselors had worked in tobacco cessation for an average of 5.1 years ($SD = 4.2$). Over 60% of the counselors were former smokers and about 10.6% had tried e-cigarettes. Most Canadian counselors reported they were White (93.1%) compared to only 62.5% of counselors in the U.S ($p < .001$).

3.2 E-cigarettes as an aid to quit smoking

Table 1 shows the counselors' perceptions about e-cigarettes as a quitting aid. Overall, 31.8% of counselors believed e-cigarettes are effective quitting aids and most believed e-cigarettes to be less effective than FDA-approved quitting aids such as NRT and varenicline (86.3% and 86.0%, respectively). There were no significant differences between countries. Nearly all counselors believed that, if smokers were to use e-cigarettes to help them quit, they should use them short term rather than continuing to use them indefinitely to prevent relapse. Counselors in Canada more often stated that the reason for use of e-cigarettes was to quit smoking (67.9%) whereas counselors in the U.S. more often stated that other reasons were primary (56.9%). Counselors in Canada were more likely to consider someone to have quit smoking if they still used e-cigarettes (72.4%) than counselors in the U.S. (39.5%).

3.3. Perceived safety of e-cigarettes

Table 2 shows how counselors responded to questions regarding the safety of using e-cigarettes. Virtually no counselors believed that it would be safer to smoke standard cigarettes than to use e-cigarettes (2.5%). Most counselors (86.7%) believed that e-cigarettes are highly addictive, pose greater health risks than FDA-approved cessation aids (88.0% when compared to NRT and 66.9% compared to varenicline), and that exposure to secondhand e-cigarette vapor is harmful (71.2%).

3.4. Organizational guidance

Table 3 shows counselors' responses to questions about the organizational guidance they have received on the issue of e-cigarettes. Nearly all counselors have had callers ask about e-cigarettes; counselors estimated that about 33,000 clients (about 35% of total clients) in the month prior to the survey had asked them about e-cigarettes (data not shown on table). Very few counselors have recommended e-cigarettes as either a way to quit smoking (4.0%) or to reduce the number of cigarettes smoked (8.5%). Canadian counselors were more likely to seek advice about what to say to clients about e-cigarettes from their immediate supervisor than U.S. counselors (91.7% vs. 72.9%, $p < 0.05$). The most common instruction counselors received from their organization was to explain to clients that e-cigarettes are not FDA approved as a quitting aid (96.9%) followed by recommending other medications (e.g. NRT) instead (73.8%). Few counselors (44.4%) were told to support the use of e-cigarettes if the client wanted to use them. An even smaller number (10.1%) were told to encourage the use of e-cigarettes for harm reduction.

3.5. Beliefs about regulation of e-cigarettes

Counselors' responses to statements about the regulation of e-cigarettes indicated that they overwhelmingly felt that e-cigarettes should be regulated in the same way that combustible

cigarettes are regulated (see Table 4). There were no differences in counselor responses by country.

4. DISCUSSION

The current study provides evidence that smokers are calling quitlines and asking counselors about e-cigarettes. Quitline counselors are, therefore, in a position to influence how e-cigarettes are perceived. Nearly all quitline counselors reported fielding questions about e-cigarettes, and counselors estimated that over a third of their clients ask about using these products. In general, quitline counselors hold negative views about e-cigarettes. Despite different federal regulations of e-cigarettes in Canada and the U.S. (Health Canada, Government of Canada, 2009; U.S. Food and Drug Administration, 2014), there were very few differences in the way counselors perceived e-cigarettes. Counselors appear to view e-cigarettes as more similar to cigarettes than to NRT and they feel that they should be regulated in many of the same ways that cigarettes are.

Counselors believe e-cigarettes to be less harmful than standard cigarettes, a view supported by emerging research (Nutt et al., 2014; Stead, Hartmann-Boyce, Perera, & Lancaster, 2013). However, they are concerned about the addictive potential of e-cigarettes and the harmfulness of the vapor (i.e., aerosol). Perhaps most importantly, counselors do not believe that e-cigarettes are an effective way to quit smoking. As a result, few counselors recommend them to clients as a way to quit smoking or as a way to reduce the number of cigarettes smoked.

There is strong empirical evidence for the effectiveness of quitlines and this research base has been central to the wide adoption of these programs (Borland & Segan, 2006; Stead et al., 2013). Quitline counselors are trained to value evidence-based cessation interventions. The fact that e-cigarettes are not FDA approved as a quitting aid seems to carry particular weight for counselors, and this is what they communicate to clients. Even if e-cigarettes were shown in randomized controlled trials to be efficacious, counselors might still not feel comfortable recommending them unless the FDA approved them as a way to quit smoking. FDA approval takes time and considerable financial investment and would be required if a company wanted to claim that their e-cigarettes are effective for quitting smoking. It is not clear that any company is interested in pursuing FDA approval for their e-cigarettes, yet it is unlikely that counselors will feel comfortable endorsing them without such approval.

Consistent with this view is the fact that over 40% of counselors do not consider a former smoker who uses e-cigarettes to have quit smoking. Both e-cigarettes and NRT deliver nicotine without combustion, yet a former smoker who uses NRT is classified as having quit smoking whereas it appears from this study that one who uses e-cigarettes is classified as a smoker (North American Quitline Consortium, 2009). What might explain this difference in perception? In the case of e-cigarettes, counselors may equate a lack of FDA approval as evidence that e-cigarettes are not effective as quitting aids. The result is that they view e-cigarettes as more like cigarettes than like other nicotine products.

Quitline organizations are in various stages of establishing policies related to e-cigarettes. However, it is useful to know what quitline counselors believe to be their organization's philosophy toward e-cigarettes. Many counselors (almost two thirds) indicated that they were told to recommend medications (such as NRT) to callers asking about e-cigarettes. Since these products have known safety profiles, persuading smokers to forgo e-cigarettes and use NRT, bupropion, or varenicline instead is reasonable. In situations where smokers are more insistent on using e-cigarettes and cannot be persuaded to switch to a different product, it is not clear what quitline counselors should say. Should they continue to discourage the use of e-cigarettes? Should they encourage the client to make a quit attempt even if it means using e-cigarettes? In light of recent estimates of the harms of e-cigarettes relative to smoking and relative to other quitting aids (Nutt et al., 2014), it might be problematic to take a hard line against e-cigarettes. One possible model would be to examine the clinical approach that quitline counselors take toward other non-FDA approved products. Quitlines may vary in the guidance they give to counselors about clients who want to use acupuncture or unproven herbal aids, but many hold the view that encouraging smokers to make a quit attempt is more important than encouraging any particular strategy. If so, this view may need to be articulated in the developing policies for e-cigarettes as well.

This study is important for several reasons. First, it targets quitline counselors who talk with a large number of smokers each day and, therefore, are in a position to influence attitudes and behaviors towards e-cigarettes. Second, quitlines have a well established infrastructure, which facilitates dissemination of new standards of care. Quitlines have been specifically recommended in clinical practice guidelines (Fiore et al., 2008) and smokers and healthcare professionals alike view quitlines as credible sources of information. Third, given the extensive amount of research currently being conducted on e-cigarettes, the next several years are likely to bring changes in attitudes and guidelines as evidence accumulates regarding the benefits and harms of e-cigarette use. One strength of this study is the high response rate. We attempted to capture the entire population of quitline counselors in the U.S. and Canada at the time of the study, and came close. Therefore the findings provide a baseline understanding about how quitlines and quitline counselors in North America perceive e-cigarettes and deal with smokers who use them.

One limitation of the study is the relatively small sample size for comparisons across countries. This could explain the lack of statistical significance, although there was considerable consistency in responses across countries. It is possible that the regulatory environments between the countries are simply not different enough in practice to lead to differences in attitudes. Another limitation is that the survey deals with topics for which there are no standard measures; therefore, the psychometrics of the instrument are unknown.

5. CONCLUSIONS

Quitline counselors are in a position to influence how treatment seekers view e-cigarettes and they are asking for guidance about how to talk with clients about these products. This creates a challenge for quitlines to stay abreast of the emerging information regarding the potential benefits and harms of e-cigarettes. It also creates an opportunity for quitlines and

quitline counselors to find ways to communicate the realities about e-cigarettes in ways that best serve the interest of clients.

ACKNOWLEDGMENTS

We would like to thank managers in the quitline provider organizations for facilitating the survey implementation within their organization and all the quitline counselors who participated in this research; Gregg Moor for facilitating the collaboration between the KIQNIC and SCTC research groups; Victor Wong and Yue-Lin Zhuang for statistical assistance; Gary Tedeschi for helpful comments on the survey instrument and the earlier drafts of the paper; and Natalia Gromov for assisting with survey administration.

ROLE OF FUNDING SOURCE Funding for this study was provided by the National Cancer Institute, National Institutes of Health (grant number R01CA128638-01A11), and by the National Cancer Institute, National Institutes of Health under the State and Community Tobacco Control Initiative (grant number U01CA154280). Funders had no role in the study design, collection, analysis of interpretation of the data, writing the manuscript, or the decision to submit the paper for publication.

REFERENCES

- Benowitz NL. Emerging nicotine delivery products. Implications for public health. *Annals of the American Thoracic Society*. 2014; 11(2):231–235. <http://doi.org/10.1513/AnnalsATS.201312-433PS>. [PubMed: 24575992]
- Borland R, Segan CJ. The potential of quitlines to increase smoking cessation. *Drug and Alcohol Review*. 2006; 25(1):73–78. <http://doi.org/10.1080/09595230500459537>. [PubMed: 16492579]
- Briant, TA. The Final Steps for the FDA “Deeming” Regulations. Nov 4. 2015 Retrieved February 18, 2016, from <http://www.cspnet.com/category-news/tobacco/articles/final-steps-fda-deeming-regulations>
- Cahn Z, Siegel M. Electronic cigarettes as a harm reduction strategy for tobacco control: A step forward or a repeat of past mistakes? *Journal of Public Health Policy*. 2011; 32(1):16–31. <http://doi.org/10.1057/jphp.2010.41>. [PubMed: 21150942]
- Ebbert JO, Agunwamba AA, Rutten LJ. Counseling patients on the use of electronic cigarettes. *Mayo Clinic Proceedings*. 2015; 90(1):128–134. <http://doi.org/10.1016/j.mayocp.2014.11.004>. [PubMed: 25572196]
- Etter J-F, Bullen C. A longitudinal study of electronic cigarette users. *Addictive Behaviors*. 2014; 39(2):491–494. <http://doi.org/10.1016/j.addbeh.2013.10.028>. [PubMed: 24229843]
- Fairchild AL, Bayer R, Colgrove J. The renormalization of smoking? E-cigarettes and the tobacco “endgame.”. *The New England Journal of Medicine*. 2014; 370(4):293–295. <http://doi.org/10.1056/NEJMp1313940>. [PubMed: 24350902]
- Fiore, MC.; Jaén, CR.; Baker, TB.; Bailey, WC.; Benowitz, NL.; Curry, SJ.; Wewers, ME. Treating tobacco use and dependence: 2008 update. U.S. Public Health Service Clinical Practice Guideline; U.S. Department of Health and Human Services; 2008. p. 1-257.
- Giovenco DP, Lewis MJ, Delnevo CD. Factors associated with e-cigarette use: a national population survey of current and former smokers. *American Journal of Preventive Medicine*. 2014; 47(4):476–480. <http://doi.org/10.1016/j.amepre.2014.04.009>. [PubMed: 24880986]
- Health Canada, Government of Canada. Health Canada Advises Canadians Not to Use Electronic Cigarettes. Mar 27. 2009 Retrieved February 18, 2016, from <http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2009/13373a-eng.php>
- Hiscock R, Goniewicz ML, McEwen A, Murray S, Arnott D, Dockrell M, Bauld L. E-cigarettes: online survey of UK smoking cessation practitioners. *Tobacco Induced Diseases*. 2014; 12(1):13. <http://doi.org/10.1186/1617-9625-12-13>. [PubMed: 25170337]
- Kandra KL, Ranney LM, Lee JGL, Goldstein AO. Physicians' attitudes and use of e-cigarettes as cessation devices, North Carolina, 2013. *PloS One*. 2014; 9(7):e103462. <http://doi.org/10.1371/journal.pone.0103462>. [PubMed: 25072466]
- King AC, Smith LJ, McNamara PJ, Matthews AK, Fridberg DJ. Passive exposure to electronic cigarette (e-cigarette) use increases desire for combustible and e-cigarettes in young adult smokers.

- Tobacco Control. 2015; 24(5):501–504. <http://doi.org/10.1136/tobaccocontrol-2014-051563>. [PubMed: 24848637]
- McRobbie H, Bullen C, Hartmann-Boyce J, Hajek P. Electronic cigarettes for smoking cessation and reduction. The Cochrane Database of Systematic Reviews. 2014; 12:CD010216. <http://doi.org/10.1002/14651858.CD010216.pub2>. [PubMed: 25515689]
- Medicines and Healthcare Products Regulatory Agency. e-Voke 10mg Electronic Inhaler PL 42601/0003; e-Voke 15mg Electronic Inhaler PL 42601/0004. (Nicotine). United Kingdom Product Assessment Report. Nicovations Limited. Nov 19. 2015 United Kingdom Product Assessment Report Retrieved March 3, 2016, from <http://www.mhra.gov.uk/home/groups/par/documents/websitesresources/con616843.pdf>
- North American Quitline Consortium. Measuring Quit Rates. Quality Improvement Initiative. An, L., MD; Betzner, A., PhD; Luxenberg, ML., PhD; Rainey, J., BA; Capesius, T., MPH; Subialka, E., BA, editors. Phoenix, AZ: 2009. Retrieved from https://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/docs/naqc_issuepaper_measuringquit.pdf
- Nutt DJ, Phillips LD, Balfour D, Curran HV, Dockrell M, Foulds J, Sweanor D. Estimating the harms of nicotine-containing products using the MCDA approach. European Addiction Research. 2014; 20(5):218–225. <http://doi.org/10.1159/000360220>. [PubMed: 24714502]
- Polosa R, Rodu B, Caponnetto P, Maglia M, Raciti C. A fresh look at tobacco harm reduction: the case for the electronic cigarette. Harm Reduction Journal. 2013; 10:19. <http://doi.org/10.1186/1477-7517-10-19>. [PubMed: 24090432]
- Saul, J.; Davis, R.; North American Quitline Consortium. Results from the 2012 NAQC Annual Survey of Quitlines. Jul. 2013 Retrieved June 8, 2015, from https://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/2012_annual_survey/oct23naqc_2012_final_report_.pdf
- Stead LF, Hartmann-Boyce J, Perera R, Lancaster T. Telephone counselling for smoking cessation. The Cochrane Database of Systematic Reviews. 2013; 8:CD002850. <http://doi.org/10.1002/14651858.CD002850.pub3>. [PubMed: 23934971]
- U.S. Food and Drug Administration. FDA proposes to extend its tobacco authority to additional tobacco products, including e-cigarettes [WebContent]. Apr 24. 2014 Retrieved February 18, 2016, from <http://www.fda.gov/newsevents/newsroom/pressannouncements/ucm394667.htm>
- Vickerman KA, Carpenter KM, Altman T, Nash CM, Zbikowski SM. Use of electronic cigarettes among state tobacco cessation quitline callers. Nicotine & Tobacco Research: Official Journal of the Society for Research on Nicotine and Tobacco. 2013; 15(10):1787–1791. <http://doi.org/10.1093/ntr/ntt061>. [PubMed: 23658395]
- Wheeler, L. FDA sends e-cigarette regs to White House for review. Oct 23. 2015 Retrieved February 18, 2016, from <http://thehill.com/regulation/pending-regs/257920-fdas-tobacco-deeming-rule-under-final-review>
- Zhu S-H, Gamst A, Lee M, Cummins S, Yin L, Zoref L. The use and perception of electronic cigarettes and snus among the U.S. population. PloS One. 2013; 8(10):e79332. <http://doi.org/10.1371/journal.pone.0079332>. [PubMed: 24250756]

Table 1

Beliefs about E-cigarettes as an Aid to Quitting

	All Counselors	Counselors by Country	
	% (95% CI)	Canada N=29 % (95% CI)	US N=389 % (95% CI)
E-cigarettes are an effective quitting aid (n=409)			
Agree	31.8 (27.3–36.3)	44.8 (26.7–63.0)	30.8 (26.1–35.5)
E-cigarettes are a less effective quitting aid (n=400) than NRT			
Agree	86.3 (82.9–89.6)	82.8 (69.0–96.6)	86.5 (83.0–90.0)
E-cigarettes are a less effective quitting aid (n=399) than Chantix			
Agree	86.0 (82.5–89.4)	86.2 (73.6–98.8)	85.9 (82.4–89.5)
How should a smoker use e-cigarettes? (n=389)			
Use e-cigarettes indefinitely to prevent relapse	5.4 (3.1–7.7)	0	5.8 (3.4–8.3)
Use them like a quitting aid (and stop within 3 months)	94.6 (92.3–96.9)	100	94.2 (91.7–96.6)
People use e-cigarettes... (n=397)			
Mainly to quit smoking	44.8 (39.9–49.7)	67.9 (50.5–85.2) *	43.1 (38.0–48.2)
Mainly for reasons other than to quit smoking, like enjoyment or to use when they can't smoke	55.2 (50.3–60.1)	32.1 (14.8–49.5) *	56.9 (51.8–62.0)
Do you consider someone to have quit smoking if they still use e-cigarettes? (n=401)			
Yes	41.9 (37.0–46.7)	72.4 (56.1–88.8) *	39.5 (34.5–44.5)

*
 $p < 0.05$

Table 2

Perceived Safety of E-cigarettes

	All Counselors	Counselors by Country	
	% (95% CI)	Canada N=29 % (95% CI)	US N=389 % (95% CI)
Exposure to secondhand electronic cigarette vapor is harmful (n=403)			
Agree	71.2 (66.8–75.7)	65.5 (48.1–82.9)	71.7 (67.1–76.2)
E-cigarettes are highly addictive (n=407)			
Agree	86.7 (83.4–90.0)	82.8 (69.0–96.6)	87.0 (83.6–90.4)
Which has greater health risks, using e-cigarettes for 3 months or using NRT for 3 months? (n=399)			
E-cigarettes have greater health risks	88.0 (84.8–91.2)	93.1 (83.8–100)	87.6 (84.2–90.9)
Which has greater health risks, using e-cigarettes for 3 months or using Chantix for 3 months? (n=390)			
E-cigarettes have greater health risks	66.9 (62.2–71.6)	72.4 (56.1–88.8)	66.5 (61.6–71.4)
Which has greater risks, using e-cigarettes for 2 years or smoking regular cigarettes for 2 years? (n=399)			
E-cigarettes have greater health risks	2.5 (1.0–4.0)	0	2.7 (1.0–4.4)

*
p<0.05

Table 3

Clinical Guidance Given and Organizational Guidance Received

	All Counselors	Counselors by Country	
	% (95% CI)	Canada N=29 % (95% CI)	US N=389 % (95% CI)
Have any callers/clients asked you about e-cigarettes? (n=417)			
Yes	99.3 (98.5–100)	100	99.2 (98.4–100)
Recommended e-cigarettes to a caller/client as a way to quit smoking? (n=402)			
Yes	4.0 (2.1–5.9)	3.4 (0–10.1)	4.0 (2.0–6.0)
Recommended e-cigarettes to a caller/client as a way to reduce the number of cigarettes smoked? (n=401)			
Yes	8.5 (5.7–11.2)	3.4 (0–10.1)	8.9 (6.0–11.8)
Ever asked someone in your professional circle about how to talk to a quitline caller about e-cigarettes? (n=402)			
Yes	78.6 (74.6–82.6)	82.8 (69.0–96.6)	78.3 (74.1–82.5)
If yes, who did you ask? (Choose all that apply) (n=316)			
Peer	56.3 (50.9–61.8)	72.7 (54.9–90.5)	55.5 (49.8–61.2)
Immediate supervisor	74.4 (69.6–79.2)	91.7 (80.7–100)*	72.9 (67.8–78.0)
Clinical/Medical Director of your quitline	36.4 (31.1–41.7)	20.8 (4.6–37.0)	37.7 (32.1–43.3)
Senior Management	14.9 (11.0–18.8)	25.0 (7.7–42.3)	14.0 (10.0–18.0)
Other	11.1 (7.6–14.5)	4.2 (0–12.2)	11.6 (7.9–15.3)
Has your employer provided instruction on how to talk with callers about e-cigarettes? (n=401)			
Yes	91.3 (88.5–94.0)	100	90.6 (87.6–93.6)
What kind of instruction have you received? (Choose all that apply) (n=367)			
Explain that e-cigarettes aren't FDA approved	96.7 (94.9–98.6)	96.6 (90.0–100)	97.0 (95.2–98.8)
Support callers using e-cigarettes if they want	44.4 (39.3–49.5)	34.5 (17.2–51.8)	45.4 (40.1–50.7)
Recommend other medications instead (e.g. NRT)	73.8 (69.3–78.3)	82.8 (69.1–96.5)	73.3 (68.6–78.0)
Encourage use of e-cigarettes for harm reduction	10.1 (7.0–13.2)	10.3 (0–21.4)	10.4 (7.1–13.7)
Other	16.4 (12.6–20.1)	10.3 (0–21.4)	16.9 (12.9–20.9)

*
 $p < 0.05$

Table 4

Beliefs about Regulation of E-cigarettes

	All Counselors	Counselors by Country	
	% (95% CI)	Canada N=29 % (95% CI)	US N=389 % (95% CI)
E-cigarettes should be taxed like regular cigarettes (n=410)			
Agree	87.1 (83.8–90.3)	89.7 (78.5–100)	86.9 (83.5–90.3)
E-cigarette advertising should be banned (n=411) just like regular cigarette advertising			
Agree	87.3 (84.1–90.6)	93.1 (83.8–100)	86.9 (83.5–90.3)
E-cigarette use by minors should be illegal (n=411)			
Agree	93.2 (90.7–95.6)	93.1 (83.8–100)	93.2 (90.7–95.7)
Using e-cigarettes should be illegal in places (n=412) where cigarette smoking is illegal			
Agree	89.1 (86.1–92.1)	96.6 (89.9–100)	88.5 (85.3–91.7)

*
 $p < 0.05$

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript