E-CIGARETTES AND SMOKING CESSATION: WHAT DO WE KNOW

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Disclosure

I have no conflicts of interest, financial or otherwise, to report.

I will be showing pictures and advertisements of tobacco products. These are for educational purposes only. I do not endorse these products and do not have any affiliation with the products, companies or brands presented.

- The information, examples, and views expressed in this presentation represent the speaker’s analysis of current research as of this date. They do not convey an official position of the National Cancer Institute (NCI), the National Institutes of Health (NIH), the Department of Health and Human Services, or the United States Government.
Overview of Presentation

• Overview of electronic nicotine delivery systems

• The Debate

• Current context

• Literature on e-cigarettes and cessation

• Conclusions
Inhale Oxford's Word of the Year: 'Vape'

Slang terms "clickbait," "normcore," and "mansplain" lose to "vape" as Oxford Dictionaries Word of the Year, which proves electronic cigarettes might not be a drag.

by Bonnie Burton @bonniegrrl / November 19, 2014 3:07 PM PST

If you've ever used electronic cigarettes, you'll be happy to know your demographic is now celebrated by Oxford Dictionaries. "Vape" has been revealed as its Word of the Year.
Electronic Nicotine Delivery Systems (ENDS)
The debate

Potential: E-cigarettes may help smokers reduce or quit tobacco smoking

Concern: E-cigarettes may interfere with progress in tobacco control, especially with denormalizing tobacco use

“Whether ENDS fulfil the promise or the threat depends on a complex and dynamic interplay among the industries marketing ENDS (independent makers and tobacco companies), consumers, regulators, policy-makers, practitioners, scientists, and advocates.” – World Health Organization, 2014
Proposed regulation for emerging products

• Sottera v. FDA decision (2010)

• April 2014 - FDA proposed to extend deeming authority over other tobacco products including e-cigarettes

• Tobacco Control Act requires public health standard recognizing importance of product toxicity, appeal, and marketing impacts on all segments of population:
  • Never users, current tobacco users, former tobacco users, populations at high risk for tobacco use
Vape Shops

http://www.henleycigs.com/vaporium/
TAKE BACK YOUR FREEDOM

with blu eCigs, the smart alternative to cigarettes.

- No Odor, No Ash
- No Tobacco Smoke, Only Vapor
- Slim, Rechargeable Pack

blu™ electronic cigarettes are now available in retail stores nationwide.

Visit us at blu.com/store-locator

NEW

Smoke Virtually Anywhere and say NO to second-hand smoke!
Cessation and “switch” messages
Cessation aid anecdotal accounts and individual “testimonials”

“I tried every single one of the FDA-approved smoking cessation products … Then one day I decided to try one more thing, the e-cigarette. The day I started it was the day I quit smoking for good.”

“After 22 years of smoking I found something that worked. And I’m happy to say I have no cravings at all for cigarettes because of my personal vaporizer.”
WHAT DO WE KNOW?
Do products deliver nicotine?

- Poor nicotine delivery with *older*, cigarette-shaped products
  - Nicotine delivery about equal to nicotine inhaler

- Greater nicotine delivery in experienced users using *newer*, non-cigarette-shaped devices

- Nicotine delivery through passive exposure to aerosol

Eissenberg, 2010; Vansickel and Eissenberg 2011; Bullen et al., 2011; Vansickel et al., 2013; Vansickel et al, 2013); Flouris et al., 2013
Adult E-cigarette User Samples

• Most used refillable devices with medium to high nicotine content solution

• Report successful quitting and reduction of conventional cigarettes

• Longitudinal study:
  • Most still using e-cigarettes at follow-up
  • Low rate of relapse to smoking conventional cigarettes

Etter and Bullen, 2011; Etter and Bullen, 2013, Goniewicz et al., 2012
Randomized Cessation Trial - Italy

• General population sample of Italian smokers (n=300), not ready to quit
• Randomized to 12 weeks of:
  • nicotine e-cigarette (7.2mg),
  • nicotine tapering e-cigarette regimen (7.2 to 5.4mg)
  • non-nicotine e-cigarette (0mg)

• Significant reduction in cigarettes per day (up to week 8 visit)

• No difference in quit rates at one year (13.0%, 9%, 4.0%, p=0.24)

Caponnetto et al., 2013
Randomized Controlled Trial

- New Zealand smokers motivated to quit (n=657)
- Randomized to 3 conditions:
  - 16mg nicotine e-cigarette
  - Non-nicotine e-cigarette
  - 21mg nicotine patch
- No differences in quit rates or reduction in cigarettes per day at 6-month follow-up
  - Continuous abstinence: 7.3%, 4.1%, 5.8% (p=0.55)

Bullen et al., 2013
Reduced Consumption

• Many still smoking ~10 cigarettes per day

• Continuing dual use:
  • No substantial cardiovascular benefit
  • Nonlinear dose-response

• Cancer risks
  • *Duration* may be more important than intensity

Godtfredsen et al., 2003; Barnoya and Glantz, 2005; Jha et al., 2013; Tverdal and Bjartveit, 2006
Cross-sectional study - UK

• UK-based sample of 5863 adult smokers who made at least one past-year quit attempt
  • quit attempt with e-cigarette only ($n = 464$),
  • NRT bought over-the-counter only ($n = 1922$)
  • No cessation aid ($n = 3477$)

• Ecig users were 1.63 times as likely to quit compared to NRT and 1.61 as likely as those who did not use a cessation aid

Brown et al., 2014
Longitudinal Study Overview - US

- To determine whether e-cigarette use among smokers predicted:
  - odds of successful quitting
  - lower consumption of cigarettes per day

- Participants:
  - 949 current smokers from a Knowledge Networks (now GfK) sample

- Surveyed online at baseline (November 2011) and follow-up (November 2012)

Grana et al., 2014
Longitudinal Study Results - US

- Baseline e-cigarette use was not a significant predictor of quitting ($OR=0.76 \ [0.36, 1.60], \ p=0.46$)

- Intention to quit, cigarettes per day were significant predictors of quitting

- Baseline past 30-day e-cigarette use was not associated reduced cigarette consumption at follow-up (p=0.25)

Grana et al., 2014
## Population Studies: Mixed Evidence

<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Odds of quitting compared to non-e cig-users (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adkison (2013)</td>
<td>US, UK, Canada, Australia (ITC)</td>
<td>0.81 (0.43–1.53)*</td>
</tr>
<tr>
<td>Vickerman (2013)</td>
<td>US quit line callers</td>
<td>0.50 (0.40–0.63)**</td>
</tr>
<tr>
<td>Brown et al. (2014)</td>
<td>UK national sample (made at least one quit attempt)</td>
<td>1.61 (1.19–2.18)</td>
</tr>
<tr>
<td>Grana et al. (2014)</td>
<td>US national sample</td>
<td>0.76 (0.60–1.36)</td>
</tr>
<tr>
<td>Choi et al. (2014)</td>
<td>US regional sample</td>
<td>0.93 (0.19–4.63)</td>
</tr>
</tbody>
</table>

*Odds ratios obtained by contacting authors  
**Computed by authors of this report based on the numbers reported in the paper
Clinical Considerations

- Questions about e-cigarettes may signal willingness to quit
- Encourage quit attempt, offer evidence-based treatment
- Encourage quitting tobacco use completely

Educate:
- Not regulated and not enough evidence to support e-cigarettes for smoking cessation
- Potentially expose others to nicotine and other toxicants

- Limited evidence on short-term and long-term health effects
What works to quit tobacco use

• Counseling from a health professional

• Free quitline with trained counselors: 1-800-QUIT-NOW

• Over-The-Counter medications:
  • Nicotine replacement therapy (NRT): patch, gum, lozenge, mini-lozenge

• Prescription medication:
  • NRT inhaler, nasal spray
  • Zyban (Wellbutrin, bupropion)
  • Chantix (varenicline)
Tobacco Control Interventions

Tobacco tax up more than twofold

The cost of smoking a cigarette, pipe or chewing tobacco rose 62 cents Wednesday to pay for an expansion in health coverage for children.

Federal tax rate on cigarettes

1951-’82

1982-’90 91-’92 93-’99 00-’01 02-’09 April 1, 2009

8c 16c 20c 24c 34c 39c $1.01

SOURCES: Congressional Research Service; U.S. Treasury AP
NO SMOKING
WITHIN 15 FT OF ENTRYWAY
INCLUDING E-CIGARETTES
If you see someone smoking, please notify the manager.
If the problem persists, please call 311 and report it.

E-Cigs & Liquid
If you weren't born on or before TODAY’S DATE in 1996
Then you CAN’T buy E-CIG’S, Electronic Cigarettes, Liquids and Supplies.

AT&T is a "SMOKE FREE" Facility
Including:
• Electronic Cigarettes or Smoke by Vaporization IS NOT PERMITTED Anywhere Inside AT&T Park

NO SMOKING
Including E-CIGARETTES
AND ALL OTHER ELECTRONIC SMOKING DEVICES
Need help quitting? Call the California Smokers’ Helpline 1-800-NO-BUTTS.

SmokeFree!
N.D.C.C. 23-12-9 to 23-12-11
Smoking, including the use of e-cigarettes, is prohibited by law indoors and within 20 feet of entrances and windows.

18 is the Legal Age

Island Vape Shop
Conclusions

• Often perceived as a cessation aid or for cutting down

• Currently not FDA-approved for cessation

• Not enough evidence to conclude whether e-cigarettes help or hinder quitting tobacco cigarettes

• Potential benefit for cessation must be weighed against potential harm (youth uptake and exposure, effects on smokefree norm)