Smokers, Cessation and the “End Game”

K. Michael Cummings, PhD, MPH
Medical University of South Carolina
NAQC Meeting, Austin, Texas
March 21, 2017
Outline for my talk

Tobacco control is like plumbing
- Entry and exit gates

What progress have we made?
- Trends in tobacco use behaviors
- The evolving nicotine product market

What can we do to finish the job?
- Three actions that can have a big impact
Tobacco Control is like plumbing
The total market for cigarettes is the result of a dynamic equilibrium with new smokers entering it as confirmed smokers leaving it. Any change at either end (entry/exit) of this equilibrium will change the size of the market.
Replacement smokers (mainly teens) flow into the sink every day
Confirmed smokers (mainly adults) struggle, because of nicotine addiction, to exit the market; those who get stuck in the sink may not get out alive.
However, we cannot ever be comfortable selling a product which most of our customers would stop using if they could. That is to say, if the exit gate from our market should suddenly open, we could be out of business almost overnight.

- Some slow but steady "progress" is being made in developing techniques for stopping smoking; but no universal, easy method is yet in sight.

- The probability of such a method appearing in the near term is small.

- The probability of such a method appearing over the long term approaches 100%.

- If/when that occurs, our options include:

  1. Go out of business.
  2. Find a way to eliminate the desire of smokers to stop smoking.
  3. Provide other products, away from conventional cigarettes, which meet the same needs cigarettes now meet, but without the associated negatives.
So how are we doing?
## The grim US statistics

- 20 million Americans have died from smoking since 1964
- 500,000 deaths per year
- 40 million still smoking today
- Smoking-related illnesses costs more than $300 billion each year
  - Nearly $170 billion for direct medical care for adults
  - More than $156 billion in lost productivity

Sources: [www.tobaccoreport.ca](http://www.tobaccoreport.ca)
# Share of Total Annual Spending on Health Care Attributable to Smoking, by Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage Attributable to Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>18–24</td>
<td>4</td>
</tr>
<tr>
<td>25–44</td>
<td>6</td>
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<tr>
<td>45–64</td>
<td>8</td>
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<tr>
<td>65–74</td>
<td>8</td>
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<tr>
<td>75 or Older</td>
<td>5</td>
</tr>
<tr>
<td>All Ages</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Congressional Budget Office based on data for 2000 to 2008 from the Medical Expenditure Panel Survey and for 1998 to 2007 from the National Health Interview Survey.

https://www.cbo.gov/publication/43319
Lets not forget the progress that has been made
Per-Capita Consumption and Lung Cancer Death Rates

- Per Capita Consumption (age 18 & older)
- Male Lung Cancer Death Rate 2000
- Female Lung Cancer Death Rate 2000

Year:
- 1900
- 1910
- 1920
- 1930
- 1940
- 1950
- 1960
- 1970
- 1980
- 1990
- 2000

Per Capita Consumption:
- 0
- 500
- 1000
- 1500
- 2000
- 2500
- 3000
- 3500
- 4000
- 4500
- 5000

Lung Cancer Death Rate per 100,000:
- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100
Mindset pre-1950’s

How could a behavior as widespread as cigarette smoking with so little apparent acute toxicity, cause major chronic health problems?
Surgeon General’s Committee on Smoking and Health 1963

“Three of the members smoked cigarettes, and two others smoked pipes or cigars. Terry, himself a smoker, served as the nominal Chairman of the group, but it was agreed that he would not participate in any of its deliberations or conclusions.”

1973 Arizona is the first state to restrict smoking in some public places.
1990 Congress makes domestic airline flights smoke-free.
2009 Congress authorizes the biggest federal tobacco excise tax in U.S. history.
2014 50 years after the first Surgeon General’s Report on smoking, 18% of American adults smoke, compared to 42% in 1964.

50 YEARS OF PROGRESS
Public health success story

Cigarette smoking on the wane

<table>
<thead>
<tr>
<th>Year</th>
<th>Per capita cigarette consumption</th>
<th>Adult male smoking prevalence</th>
<th>Adult female smoking prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>4266</td>
<td>52%</td>
<td>34%</td>
</tr>
<tr>
<td>2014</td>
<td>1129</td>
<td>19%</td>
<td>15%</td>
</tr>
</tbody>
</table>
Smoking initiation rates has fallen to record low levels

Current smoking

Figure 8.1. Prevalence of current cigarette smoking among adults aged 18 and over: United States, 1997–March 2016

Percent

95% confidence interval
Despite the good news... marked disparities in declining smoking rates exist by region and by characteristics of smokers
Current Cigarette Use Among Adults (Behavior Risk Factor Surveillance System) 2015

About This Map
- Light green: 9.1% - <12.8%
- Light yellow-green: 12.8% - <16.4%
- Light blue-green: 16.4% - <20.1%
- Dark blue-green: 20.1% - <23.7%
- Dark blue: 23.7% - 27.4%

Territories: Guam, Puerto Rico

CDC Logo
Adult Current Cigarette Use by Household Income

- Less than $10,000 (N=5,670)
- $10,000-$14,999 (N=3,162)
- $15,000-$24,999 (N=3,606)
- $25,000-$34,999 (N=3,233)
- $35,000-$49,999 (N=3,439)
- $50,000-$74,999 (N=3,721)
- $75,000-$99,999 (N=2,419)
- $100,000+ (N=3,915)
39% of adults with a psychiatric diagnosis smoked compared to 16% without a diagnosis, according to data from the National Epidemiologic Survey on Alcohol.
Current Smoking among Adults Aged 18 or Older, by Past Month Serious Psychological Distress Status: NHIS, 1997 to 2011

* Difference between estimate and estimate for 2011 is statistically significant at the .05 level.
Also in spite of all the efforts made to discourage smoking over the past two decades quit rates have remained relatively stable.
In 2015,

- 68% of smokers reported an interest in quitting
- 57% reported advice from a health professional to quit
- 55% reported making a quit attempt
- 31% received counseling and/or used a stop smoking medication when trying to quit
- 7% recently quit smoking
Also, before we pat ourselves on the back…

- Quit attempts have only increased by 5% points (50% to 55%)
- Most smokers attempt to quit without any assistance
- Only 5% of those using treatment get counseling by phone or in person
...also, with the evolving nicotine product market, poly-tobacco use on the rise.

Figure 1. Most Common Combinations of Tobacco Products among Adult Multiple-Product Users.

Prevalences are based on data from 6238 adults who reported current use of two or more types of tobacco products (data were collected from September 12, 2013, through December 15, 2014). Percentages were weighted to the U.S. adult population. Current use was determined according to “current regular use” for cigarettes (the participant has smoked ≥100 cigarettes in his or her lifetime and currently smokes every day or some days) and according to “current use” for each other type of tobacco product. Complete tobacco-use data about every product were needed to determine multiple-product use.
What can be done?
EXECUTIVE SUMMARY REPORT

Ending Cigarette Use By Adults In A Generation Is Possible

The Views Of 120 Leaders In Tobacco Control

Michael Terry, John Seffrin, Ph.D., K. Michael Cummings, Ph.D., Allan Erickson, and Donald Shopland; Authors Core Team on Tobacco Control

March 2017

http://tobaccoreform.com
3 Priority Actions
Increase excise taxes at the federal level and in many states with four (4) goals: lower smoking rates, harmonize taxes across state borders to reduce illicit trade, cover the costs of smoking-related disease, and encourage a shift from cigarettes to reduced-risk products and complete cessation.
Projected impact of a 50-cent increase in federal tax on cigarettes

https://www.cbo.gov/publication/43319
# Estimated Budgetary Impact Through 2021 of the Illustrative Increase in the Cigarette Tax

(Millions of dollars)

<table>
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<tbody>
<tr>
<td><strong>Health Care Programs (Excluding military)</strong></td>
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<tr>
<td>Medicare</td>
<td>-2</td>
<td>-8</td>
<td>-14</td>
<td>-23</td>
<td>-30</td>
<td>-35</td>
<td>-42</td>
<td>-47</td>
<td>-50</td>
<td>-251</td>
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<tr>
<td>Subsidies through health insurance exchanges</td>
<td>0</td>
<td>-1</td>
<td>-2</td>
<td>-5</td>
<td>-9</td>
<td>-13</td>
<td>-17</td>
<td>-22</td>
<td>-27</td>
<td>-95</td>
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<tr>
<td>Federal Employees Health Benefits Program</td>
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<td>-1</td>
<td>-2</td>
<td>-2</td>
<td>-3</td>
<td>-3</td>
<td>-3</td>
<td>-17</td>
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<td><strong>Income Security Programs</strong></td>
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<tr>
<td>Social Securityb</td>
<td>*</td>
<td>*</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>15</td>
<td>24</td>
<td>38</td>
<td>55</td>
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<td>Old-Age and Survivors Insurance</td>
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<td>*</td>
<td>*</td>
<td>1</td>
<td>1</td>
<td>-1</td>
<td>-1</td>
<td>*</td>
<td>*</td>
<td>-1</td>
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<tr>
<td>Disability Insurance</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<td>*</td>
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<td>1</td>
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<tr>
<td>Supplemental Security Income</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<tr>
<td><strong>Civil Service Retirement</strong></td>
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<tr>
<td><strong>Military Programs</strong></td>
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<tr>
<td>Military retirement</td>
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<td>*</td>
<td>*</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>17</td>
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<tr>
<td>Veterans’ compensation</td>
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<td>*</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>DoD health care system (Tricare)</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<td>*</td>
<td>*</td>
<td>-3</td>
</tr>
<tr>
<td><strong>Total Effects on Outlays</strong></td>
<td><strong>-12</strong></td>
<td><strong>-33</strong></td>
<td><strong>-51</strong></td>
<td><strong>-72</strong></td>
<td><strong>-93</strong></td>
<td><strong>-104</strong></td>
<td><strong>-117</strong></td>
<td><strong>-123</strong></td>
<td><strong>-124</strong></td>
<td><strong>-730</strong></td>
</tr>
</tbody>
</table>

https://www.cbo.gov/publication/43319
**Action 2:** Encourage health and life insurers, employers, and health professionals to actively promote smoking cessation measures supported by the U.S. Preventive Services Task Force and the 2014 U.S. Surgeon General’s Report.
Stop Smoking Services in the US

Some government supported funding combined with some employer based insurance coverage

- Network of state run telephone quitlines and website (smokefree.gov)

- Uneven access to free or subsidized stop smoking medications

- No organized network of stop smoking services providing specialist behavioral support and pharmacotherapy
State Trends: Traditional Medicaid

Too Many States Have Policies that make it Harder for Medicaid Enrollees to Access Treatment:

- 35 states charge copays
- 36 states require prior authorization
- 38 states limit duration of treatment
- 37 states limit quit attempts per year
- 6 states limit quit attempts per lifetime
- 16 states have stepped care therapy
- 23 states require counseling in order to obtain medications

Under the ACA, most insurance plans for higher income individuals are not allowed to charge copays for preventive services. This prohibition does NOT apply to traditional Medicaid. This means many states are charging Americans with the lowest incomes for the help they need to quit smoking!
Medicaid Coverage for Tobacco Dependence Treatments in Massachusetts and Associated Decreases in Smoking Prevalence

Thomas Land¹,*, Donna Warner¹, Mark Paskowsky¹, Ayesha Cammaerts², LeAnn Wetherell², Rachel Kaufmann³, Lei Zhang³, Ann Malarcher³, Terry Pechacek³, Lois Keithly⁴

March 2010 | Volume 5 | Issue 3 | e9770

![Graph showing estimated smoking prevalence for Mass-Health members from 1999 to 2008. The graph includes point estimates and a joinpoint trend.](image)

APC
1/1/1999 to 6/30/2006 = -0.1
7/1/2006 to 12/31/2008 = -15.2*

* Statistically significant at the 0.05 level
Program costs (2007-2009) – medication, counseling, promotion was $6.9 million per year or ~ $183 per user

Estimated annual value of averted hospital inpatient admissions for CVD per user ~$549 to $593

Estimated net annual savings ~$366 to $410 per smoker

Return on investment ~$2 to $2.25
MUSC Tobacco Treatment Policies

**Meaningful Use Policy:**
All patients seen in the hospital at MUSC and MUSC outpatient clinics will be screened for tobacco use

**Intervention Policy:**
Patients currently using tobacco are automatically referred to a dedicated tobacco treatment service (*all inpatients* and *outpatients at Hollings Cancer Center, the ER, several outpatient clinics, and a primary care pilot*) that ensures that the patients are provided with tobacco treatment and follow-up
Inpatient Tobacco-Dependence Treatment Service
(Automated Processing of Records)
Inpatient Tobacco Program

Performance Indicators (~2014 to 2016, 25 months):

✓ 66,290 adult admissions screened (excluding IOP)
✓ 11,228 (17%) current smokers identified
✓ 84% (2,566) accepted the bedside consult
✓ 46% were reached by phone within 1 month of discharge
✓ Bedside counseling nearly doubled post-discharge quit rates
Outcomes at 7 Days After Discharge (Feb 2014-May 2015)

<table>
<thead>
<tr>
<th>Patients</th>
<th>Bedside Counselling</th>
<th>No Bedside Counselling</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reached (of those activated for follow-up)</td>
<td>705/1490 = 47%</td>
<td>1558/4130 = 38%</td>
<td>1.24</td>
</tr>
<tr>
<td>Used medications (of those who were reached by phone)</td>
<td>144/705 = 20%</td>
<td>88/1558 = 6%</td>
<td>3.33</td>
</tr>
<tr>
<td>Smoke-free (of those reached by phone)</td>
<td>316/703 = 45%</td>
<td>299/1258 = 24%</td>
<td>1.88</td>
</tr>
<tr>
<td>Smoke-free applying ITT (of those activated for follow-up)</td>
<td>316/1510 = 21%</td>
<td>299/3866 = 8%</td>
<td>2.63</td>
</tr>
</tbody>
</table>

Nahhas et al. (2016). *Nicotine and Tobacco Research.*
Unplanned Re-admission rates of current smokers exposed/unexposed to the inpatient TDTS

- **30-Days**
  - Exposed to TDTS: 9.2%
  - Not Exposed to TDTS: 11.9%

- **90-Days**
  - Exposed to TDTS: 16.6%
  - Not Exposed to TDTS: 18.8%

- **180-Days**
  - Exposed to TDTS: 21.9%
  - Not Exposed to TDTS: 24.7%
Performance Indicators (June to November):

- 11,638 patients discharged home
- 3,453 patients (30%) current cigarette smokers
- 1,020 (30%) patients reach by phone
- 817 (80%) reached said they had smoked in the past 30 days
- 450 (55%) accepted referral to the quitline
- 13% connected to the SC Quitline (~80% via warm transfer)
Look for ways to maximize reach
Billboard in Stockholm plaza shows a man coughing when smokers pass by.
If you feel attached to your cigarettes, just wait until you have an oxygen tank.

Becky, age 54, Ohio

DO YOUR HEART A FAVOR. QUIT SMOKING.
In 2014, the Tips campaign motivated

1.83 million
Americans to try to quit smoking cigarettes.

104,000
cigarette smokers to quit for good.
A Cost-Effectiveness Analysis of the First Federally Funded Antismoking Campaign

Xin Xu, PhD, Robert L. Alexander Jr, PhD, Sean A. Simpson, MA, Scott Goates, PhD, James M. Nonnemaker, PhD, Kevin C. Davis, MA, Tim McAfee, MD

Background: In 2012, CDC launched the first federally funded national mass media antismoking campaign. The Tips From Former Smokers (Tips) campaign resulted in a 12% relative increase in population-level quit attempts.

Purpose: Cost-effectiveness analysis was conducted in 2013 to evaluate Tips from a funding agency’s perspective.

Methods: Estimates of sustained cessations; premature deaths averted; undiscounted life years (LYs) saved; and quality-adjusted life years (QALYs) gained by Tips were estimated.

Results: Tips saved about 179,099 QALYs and prevented 17,109 premature deaths in the U.S. With the campaign cost of roughly $48 million, Tips spent approximately $480 per quitter, $2,819 per premature death averted, $393 per LY saved, and $268 per QALY gained.

Conclusions: Tips was not only successful at reducing smoking-attributable morbidity and mortality but also was a highly cost-effective mass media intervention.

Cigarette package inserts can promote efficacy beliefs and sustained smoking cessation attempts: A longitudinal assessment of an innovative policy in Canada


James F. Thrasher, PhD\(^1,2\), Kamala Swayampakala, PhD\(^1\), K. Michael Cummings, PhD, MPH\(^3\), David Hammond, PhD\(^4\), Dien Anshari, MA\(^1,5\), Dean M. Krugman, PhD\(^5\), and James W. Hardin, PhD\(^6\)
Action 3:

Establish a more rational tobacco, nicotine, and alternative products regulatory framework based on their relative risks, and that is adaptable to the increased speed of innovation in new technology development.

Reduced-risk consumer nicotine market

<table>
<thead>
<tr>
<th>Pure nicotine based</th>
<th>Tobacco based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaping products</td>
<td>Heated tobacco products</td>
</tr>
<tr>
<td>Heated aerosol</td>
<td>“Heat-not-burn”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambient nicotine products</th>
<th>Smokeless tobacco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unheated</td>
<td></td>
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</tbody>
</table>

Items are not shown to scale
Separating the nicotine from the smoke is an old idea

“Smokers smoke for the nicotine, but die from the tar”

Professor Mike Russell, Maudsley Smokers Clinic, 1979
The alternative nicotine product train is already heading down the tracks.
E-Cigarette business is a *consumer driven* market with $4.4 billion in sales estimated for 2017 (up from $4 billion in 2016)

2017E
E-Cig/Vapor Market Size—$4.4B

E-Cigarettes $1.4B
- C-Store, Food, Drug and Mass Retail Channels $700M
- Online and Other Retail Channels $700M
  - Online $400M
  - Other $300M*

Vapors/Tanks/Mods & Personal Vaporizers $3.0B
- Online and Other Retail Channels $700M
- Vape Shops $1.8B
- C-Store, Food, Drug and Mass Retail Channels $500M
Rapid rise of vaping dents GlaxoSmithKline’s sales of nicotine patches and gum

Chief executive said company explored idea of competing by making their own e-cigarettes before deciding not to.

Reuters
The Guardian, Friday 16 January 2015 09.49 GMT

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A man smoking an e-cigarette. Photograph: Getty

GlaxoSmithKline (GSK) is feeling the heat from the rapid growth in sales of electronic cigarettes, with enthusiasm for the nicotine delivery devices dampening sales of the British drugmaker's patches and gum, its chief executive said.
Aids used in quit attempt in past 12 months

N=7,796 adults tried to stop or who stopped in the past year; respondents could use more than one method. *Smoking Toolkit Study*
Trends in E-cigarette use?

Electronic cigarettes on the rise

By Briar Burley
Newsbeat reporter
Ever used E-Cigarettes Among Smokers at Wave 8 (Jul 2010-Jun 2011) and Wave 9 (Feb-Sep 2013)

**Ever Use**

Current E-Cigarette Use Among Smokers at Wave 8 (Jul 2010-Jun 2011) and Wave 9 (Feb-Sep 2013)

**Current Use**
Adult cigarette smoking rates have fallen in recent years.


CDC/NCHS, National Health Interview Survey, 1997–2015, Sample Adult Core component; *2015 data are preliminary; http://www.cdc.gov/nchs/data/nhis/earlyrelease/earlyrelease201605_08.pdf
Safety Concerns
E-cigarettes are safer than smoking cigarettes, but they are not safe
Stories warning of health risks appear almost every week.

News / World, 2012

Electronic cigarette explodes in man’s mouth, takes out teeth

A Florida man trying to kick the smoking habit was puffing on an electronic cigarette when a faulty battery caused it to explode in his mouth, taking out some of his front teeth and a chunk of his tongue, fire officials said.
http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo

A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.

Subject: Fire Risk of Electronic Cigarettes (e-cigarettes) in Checked Baggage

Purpose: This SAFO alerts operators to recent incidents involving e-cigarettes in checked baggage and recommends carriage of such devices in the passenger cabin only.

Background: On August 9, 2014, at Boston’s Logan Airport, an e-cigarette contained in a passenger’s checked bag in the cargo hold of a passenger aircraft caused a fire that forced an evacuation of the aircraft. On January 4, 2015, at Los Angeles International Airport, a checked bag that had missed its flight was found to be on fire in a baggage area. Emergency responders attributed the fire to an overheated e-cigarette inside the bag. These incidents and several others occurring outside of air transportation have shown that e-cigarettes can overheat and cause fires when the heating element is accidentally activated or left on. This danger may be exacerbated by the growing trend of users modifying and rebuilding their reusable e-cigarette devices (personal vaporizers) and interchanging original and aftermarket batteries, heating elements, and vaporizing components.
Calls to Poison Centers for Exposures to Electronic Cigarettes — United States, September 2010–February 2014

Kevin Chatham-Stephens, MD1, Royal Law, MPH2, Ethel Taylor, DVM2, Paul Melstrom, PhD3, Rebecca Bunnell, ScD3, Baoguang Wang, MD4, Benjamin Apelberg, PhD4, Joshua G. Schier, MD2 (Author affiliations at end of text)

FIGURE. Number of calls to poison centers for cigarette or e-cigarette exposures, by month — United States, September 2010–February 2014
## Toxicants in Vapor

<table>
<thead>
<tr>
<th>Toxic compound</th>
<th>Conventional cigarette [µg]</th>
<th>Electronic cigarette [µg per 15 puffs]</th>
<th>Conventional vs. electronic cigarette</th>
</tr>
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<tbody>
<tr>
<td>Formaldehyde</td>
<td>1.6-52</td>
<td>0.20-5.61</td>
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<tr>
<td>Acetaldehyde</td>
<td>52-140</td>
<td>0.11-1.36</td>
<td>130</td>
</tr>
<tr>
<td>Acrolein</td>
<td>4.6-14</td>
<td>0.07-4.19</td>
<td>4</td>
</tr>
<tr>
<td>Toluene</td>
<td>6.4-9.0</td>
<td>0.02-0.63</td>
<td>23</td>
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<tr>
<td>NNN</td>
<td>0.012-0.37</td>
<td>0.00008-0.00043</td>
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<tr>
<td>NNK</td>
<td>0.009-0.08</td>
<td>0.00011-0.00283</td>
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<tr>
<td>Cd</td>
<td>0.03-0.35</td>
<td>0.001-0.022</td>
<td>16</td>
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<tr>
<td>Ni</td>
<td>0.003-0.60</td>
<td>0.011-0.029</td>
<td>15</td>
</tr>
</tbody>
</table>

Goniewicz et al. Tob Control 2013
Can E-cigarettes help people to stop smoking?
E-Cigarettes & Smoking

Lots of indirect evidence that links e-cigarette use to behavioral outcomes
  ➢ Some indirect evidence showing promotion of quitting.
    e.g., Hitchman 2015; Manzoli in press
  ➢ Some indirect evidence to suggest just the opposite.
    e.g., Kalkhoran 2016; Vickerman 2013
  ➢ But these studies are of self-selected users vs. non-users

Two most direct studies (RCTs: Bullen 2013; Caponnetto 2013) explicitly promote/advise e-cigarettes for quitting/reducing and generally show positive impact
  ➢ But these studies are not naturalistic (purposeful reduction/cessation)

Needed: A randomized study (removing selection bias) but still naturalistic (no instructions on use; allowing smokers to do whatever they want).
Quitting in relation to type & frequency of e-cig use at follow up (Hitchman et al, 2015)

Raw data shown; * shows significantly different from non-users after adjusting for confounding factors.
**Study Sample:**
Adult Daily Smokers, both motivated and unmotivated to quit (stratified randomization)
No use of E-cigarettes in past 6 months & Never purchase in lifetime
Final sample size for analyses: N=68 (46 E-Cig Sampling vs. 22 No Sampling)

**E-Cigarette:**
BluCig: Use as you wish; Allowed to keep any leftover at end of sampling period
Study Design: Unanticipated but Opportunistic Changes

Sampling Period: 3x Daily EMA Throughout

3-month Follow-Up Period

Week 1: No E-Cig

Old BluCig: Blu Starter Pack → 1.6% nicotine
New BluCig: BluPlus+ → 2.4% nicotine, improved battery duration

- Only difference is strength of product.
- Everything else constant: manufacturer, style of device (ciga-like), packaging, participant instructions
- Both offered in either tobacco or menthol flavor.
- Up to 7 cartridges given out at Visits 1, 2, 3.
E-Cigarette Uptake During and Beyond Sampling Period

- % Using E-Cig (Control)
- % Using E-Cig (OLD ENDS)
- % Using E-Cig (NEW ENDS)
- # days Using E-Cigarettes (OLD ENDS)
- # days Using E-Cigarettes (NEW ENDS)
Quit Attempts and Cessation

QA = Quit Attempt

*7-day, No Smoking, either floating (ever in study) or point prevalence at 4 months. Point prevalence abstinence at 4 month follow-up was CO verified; Floating abstinence is self-report.
Changes in Cigarettes per Day*

Time x group Interaction p = .03
* Average of 7 days preceding each visit

50% Reduction from Baseline

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<th>Sampling</th>
<th>Study</th>
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<tr>
<td>New</td>
<td>35%</td>
<td>47%</td>
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<td>Old</td>
<td>30%</td>
<td>16%</td>
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<tr>
<td>Control</td>
<td>5%</td>
<td>19%</td>
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Intention to Use E-Cigarettes

Week

Baseline 2 3 4 5 6 7

Time x group Interaction p < .0001

Independent Purchase of E-Cigs

Percent

Control OLD ENDS NEW ENDS

p < .05

ENDS-Old ENDS-New Control
Evidence about smoking cessation

• Some evidence for effectiveness of e-cigarettes for smoking cessation, but more research needed
  – Evidence not as strong as for NRT
  – Differences across countries with more restrictive vs. more liberal policies e-cigarette policies

• Type and frequency of use are associated with cessation
  – More intense users/daily tanks users more likely to quit
  – Less intense/non-daily ciga-like users less likely to quit

• Smokers using e-cigarettes to quit should receive counselling support
Regulating vaping products like tobacco cigarettes as the FDA has proposed makes no sense, and would be counter-productive for smokers who are looking for safer alternatives to cigarettes.
Basic Principle
Less harmful products should have a competitive advantage.
Commonsense policies

- Quality standards for ingredients and manufacturing
- Child and tamper proof packaging
- Accurate labelling
- No sales to minors
- Advertising & marketing to discourage uptake by non-smokers restrictions
- Useful product instructions
Remember

Just 3 things...

1. Raise taxes on combustible tobacco products

2. Improve access to tobacco dependence treatments

3. Support policies that promote the development and wide-scale dissemination of safer alternative nicotine products

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