Public Health England’s Independent Expert E-Cigarettes Evidence Review
Misinformation, Misreporting and Public Understanding

Ann McNeill
Contents

1. PHE e-cigarette evidence updates
2. Public understanding of relative risks of e-cigarettes, smoking and nicotine
3. Areas of agreement and disagreement NASEM and PHE
4. What can be done to reduce public misunderstandings?
E-cigarettes: an evidence update
A report commissioned by Public Health England

Authors:
McNeill A, Broze LS, Calder R, Hitchman SC
Institute of Psychiatry, Psychology & Neuroscience, National Addiction Centre, King’s College London
UK Centre for Tobacco & Alcohol Studies

Hajek P, McRobbie H (Chapters 9 and 10)
Watson Institute of Preventive Medicine, Barts and The London School of Medicine and Dentistry, Queen Mary, University of London
UK Centre for Tobacco & Alcohol Studies
Tobacco Control Plan for England, 2017

At a national level:

Department of Health will monitor the impact of regulation and policy on e-cigarettes and novel tobacco products in England, including evidence on safety, uptake, health impact and effectiveness of these products as smoking cessation aids to inform our actions on regulating their use.

PHE will update their evidence report on e-cigarettes and other novel nicotine delivery systems annually until the end of the Parliament in 2022 and will include within quit smoking campaigns messages about the relative safety of e-cigarettes.
Evidence review of e-cigarettes and heated tobacco products 2018
A report commissioned by Public Health England

Authors
Ann McNeill 1,2, Leonie S Brose 1,2, Robert Calder 1, Linda Bauld 2,3,4, Debbie Robson 1,2

Additional contributors to individual chapters
Ilze Bogdanovica (Ch 11) 2,5, John Britton (Ch 11) 2,6, Jamie Brown (Ch 7) 2,6, Peter Hajek (Ch 4,9) 2,7, Hyun Seok Lee (Ch 12) 1, Magdalena Opazo Breton (Ch 11) 2,5, Lion Shahab (Ch 7,9) 2,6, Eikas Simonavicius (Ch 12) 1, Robert West (Ch 7) 2,6
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8. Poisonings, fires and explosions
9. Health risks
10. Harm perception
11. Indicative pricing
12. Heated tobacco products
## Methods

<table>
<thead>
<tr>
<th>Youth surveys</th>
<th>Adult surveys</th>
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<tbody>
<tr>
<td>ASH Smoke-free GB youth 2016, 2017</td>
<td>ASH Smoke-free GB Adult 2010 to 2017</td>
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<tr>
<td>Wales Schools Health Research Network 2015</td>
<td>Eurobarometer 2017</td>
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<tr>
<td>Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) 2015/16</td>
<td>ITC Policy Evaluation Survey 2002-2016</td>
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<tr>
<td>Smoking, Drinking and Drugs Survey (SDD) 2016</td>
<td>Internet cohort Great Britain survey 2012-2016</td>
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<tr>
<td>Youth Tobacco Policy Survey (YTPS) 2016</td>
<td>Opinion and lifestyle survey (ONS) 2016</td>
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<tr>
<td></td>
<td>Smoking Toolkit Study (STS) 2011-2017</td>
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| Systematic search for e-cigarette publications 2015 to summer 2017          | Other reports and data sources                        |
| Systematic review for heated tobacco products 2010 to summer 2017           | NHS Digital                                           |
| Summaries and additional analyses of surveys                                | Fire Services                                          |
|                                                                              | National Poison Information Service                    |
|                                                                              | MHRA Yellow Card Scheme                                |
|                                                                              | ECigIntelligence                                       |
E-cigarette use and smoking status (GB adults, ASH)
Conclusion 17-1. Overall, there is limited evidence that e-cigarettes may be effective aids to promote smoking cessation.

While caution is needed with these figures, the evidence suggests that e-cigarettes have contributed tens of thousands of additional quitters in England. Stop smoking practitioners and health professionals should provide behavioural support to smokers who want to use an e-cigarette to help them quit smoking.... and receive education.
Conclusion 18-1. There is conclusive evidence that completely substituting e-cigarettes for combustible tobacco cigarettes reduces users’ exposure to numerous toxicants and carcinogens present in combustible tobacco cigarettes.

Vaping poses only a small fraction of the risks of smoking and switching completely from smoking to vaping conveys substantial health benefits over continued smoking.
Expert agreement
E-cigarette use among current adult cigarette smokers in GB 2010-2017 (GB adults, ASH)

![Graph showing the increase in e-cigarette use among current adult cigarette smokers in GB from 2010 to 2017. The graph shows the percentage of adults who have tried e-cigarettes and currently use them. The percentage of adults who have tried e-cigarettes increased from 8.2% in 2010 to 60% in 2017. The percentage of adults who currently use e-cigarettes increased from 2.7% in 2010 to 17.95% in 2017.](image-url)
Smoking vs using alternative nicotine products

I just want to stop [nicotine] completely

They might be more harmful - popcorn lung etc etc

I don’t know what’s in them

I am just transferring my addiction not stopping

I might become addicted to them

Dual use is dangerous, I should go back to just smoking

They are not satisfying enough - don’t manage my withdrawal

If they are equally risky, then I can use them interchangeably
Public confusion (GB adults, ASH... but also US)

Compared with cigarettes, e-cigarettes are.....

- More or equally harmful
- Less harmful
- Completely harmless
- Don't know

Year:
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
Similar confusion about NRT (GB adults, ASH... but also US?)

- NRT compared with smoking
- EC compared with smoking
- EC compared with NRT

<table>
<thead>
<tr>
<th></th>
<th>More harmful</th>
<th>Equally harmful</th>
<th>Less harmful</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRT compared with smoking</td>
<td></td>
<td></td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>EC compared with smoking</td>
<td></td>
<td></td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>EC compared with NRT</td>
<td>20%</td>
<td></td>
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%
Failing (after ~40 years) to separate the nicotine from the tobacco smoke

“Smokers smoke for the nicotine, but die from the tar”
Professor Mike Russell (1979)
Complete misunderstanding of nicotine’s harms
(GB adults, ASH... but also US?)
People who could really benefit are most confused
(GB adults, ASH, 2017)

<table>
<thead>
<tr>
<th>Smokers</th>
<th>EC use status</th>
<th>EC less harmful than cigarettes</th>
<th>NRT less harmful than cigarettes</th>
<th>Health risk of smoking due to nicotine none or very small</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC use status</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Any/all</td>
<td>48.9</td>
<td>52.9</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>Never used EC</td>
<td><strong>33.1</strong></td>
<td>53.4</td>
<td><strong>10.6</strong></td>
<td></td>
</tr>
<tr>
<td>Used/finished in the past</td>
<td>51.5</td>
<td>53.7</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>Current EC use</td>
<td>73.9</td>
<td>56.7</td>
<td>18.4</td>
<td></td>
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</table>
Nicotine in cigarettes does not cause cancer
(ITC Project data; PHE report, 2018)
Perceived addictiveness of e-cigarettes compared with smoking (Internet cohort data, adult smokers, ex-smokers and EC users aged 18+, GB, 2016)
Harm perceptions (PHE Report, 2018)

- Smoking kills up to 2 out of 3 long-term smoker BUT less than half of GB adults think e-cigarettes are less harmful than smoking
- Perceptions even less accurate among smokers who have never tried an e-cigarette
- Similar misperceptions for nicotine replacement therapy and nicotine
- <10% of adults know that most health harms of smoking not caused by nicotine
- 40% of smokers and ex-smokers incorrectly think nicotine in cigarettes is the cause of most of the smoking-related cancer
- Very little change over time
PHE Report, 2018, conclusions

• Policy makers and regulators should ensure that e-cigarettes are manufactured in a way that minimises harm

• An advantage of e-cigarettes is that particular constituents can be removed or minimised in a way that is not feasible with tobacco cigarettes

• Based on current knowledge, stating that vaping is at least 95% less harmful than smoking remains a good way to communicate the large difference in relative risk unambiguously so that more smokers are encouraged to make the switch from smoking to vaping. It should be noted that this does not mean e-cigarettes are safe
Because the term “gateway” has historically been used in colloquial, non-scientific settings and lacks a clear definition, it is not used in this report (Schneider & Diehl, 2016).

...although the concept of the gateway theory is often treated as a straightforward scientific theory, its emergence is rather more complicated. In effect, it is a hybrid of popular, academic and media accounts – a construct retroactively assembled rather than one initially articulated as a coherent theory.” (Bell & Keane, 2014)
Prevalence of EC use in teenagers by smoking status, UK


- Ever use
- At least weekly
- Never smokers' ever use
- Never smokers' weekly use
- Regular smokers' ever use
- Regular smokers' weekly use

Data sources:
- YTPS UK, 11-16 yr olds, 2016
- ASH Smokefree GB - Youth, 11-16 yr olds, 2016
- SHRN Wales, 11-16 yr olds, 2015
- SALSUS Scotland, 13 yr olds, 2015
- SALSUS Scotland, 15 yr olds, 2015
## E-cigarette use 17 to 18 year olds (GB, ASH)

<table>
<thead>
<tr>
<th></th>
<th>2015 (n=728)</th>
<th>2016 (n=814)</th>
<th>2017 (n=790)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All: Ever Use</td>
<td>22.2%</td>
<td>25.2%</td>
<td>28.0%</td>
</tr>
<tr>
<td>All: At least weekly</td>
<td>1.0%</td>
<td>1.3%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Never smokers: Ever use</td>
<td>5.7%</td>
<td>8.8%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Never smokers: Weekly use</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Regular Smokers: Ever use</td>
<td>81.8%</td>
<td>74.2%</td>
<td>75.8%</td>
</tr>
<tr>
<td>Regular Smoker: Weekly use</td>
<td>3.9%</td>
<td>9.6%</td>
<td>8.2%</td>
</tr>
</tbody>
</table>
Conclusion 16-1. There is substantial evidence that e-cigarette use increases risk of ever using combustible tobacco cigarettes among youth and young adults.

The ‘common liability’ hypothesis seems a plausible explanation for the relationship between e-cigarettes and smoking implementation. Despite some experimentation with these devices among never smokers, e-cigarettes are attracting very few young people who have never smoked into regular use. E-cigarettes do not appear to be undermining the long-term decline in cigarette smoking in the UK among young people.
Recommending e-cigarettes to help smokers quit is irresponsible 'because they ENCOURAGE smoking and are linked to bronchitis and stillbirths'

E-cigarettes ARE a gateway to teenage tobacco smoking: Youngsters are twice as likely to go on to regular smoking after using the devices

E-cigarette users at risk of brain and heart damage from inhaling LEAD
E-cigarettes: Balancing risks and opportunities

Prevent uptake & use by children & young people.
Limit health risks to users & bystanders.

Maximise potential for harm reduction in adult smokers.
Acknowledgements

Debbie Robson for slides
Co-authors of PHE report

Questions?

ann.mcneill@kcl.ac.uk