HIT Hot Topics Conference 2014

Electronic cigarettes – disruptive innovation, public health potential and regulatory challenge

Prof Gerry Stimson
Knowledge Action Change

and

Emeritus Professor Imperial College London; Visiting Professor London School of Hygiene and Tropical Medicine
Harm reduction

Safer use

Safer products
Tobacco harm reduction - origins

Pioneer - Mike Russell
“Smokers cannot easily stop smoking because they are addicted to nicotine.... People smoke for nicotine but they die from the tar”
1976 BMJ 1: 1430-1433

‘Rebalancing the market in favour of the safest nicotine products would provide choice, encourage safer nicotine use, and reduce morbidity and mortality.’ p240

Harm reduction in smoking can be achieved by providing smokers with safer sources of nicotine that are acceptable and effective cigarette substitutes.’ p241

2007

4000 chemicals in tobacco smoke

At the time apart from NRT (and snus) no attractive and viable sources of safer nicotine
But now! attractive and viable sources of safer nicotine

First Generation ECs (‘cigalikes’)
- Disposable
- Re-chargeable with pre-filled cartridges

Second Generation ECs
- Refillable with liquids

Third Generation ECs (‘mods’)

The Liquid
Contents
- Propylene glycol and/or Vegetable glycerine (glycerol)
- Nicotine (in mg/ml; ranging from 0-36)
- Flavourings (e.g. tobacco, mint, fruit)
- Additives

Photos courtesy Lynne Dawkins
E-cigarettes a disruptive innovation*

- Biggest disruption to tobacco consumption since Bonsack invented the cigarette rolling machine in 1880
- Disruptive for:
  - Consumers – an alternative safer source of nicotine
  - Smoking/nicotine researchers – new research agenda
  - Tobacco companies – upsets business model and profit source
  - The public view of nicotine and addiction > recreational nicotine use
  - Governments and regulators – what to do about e-cigarettes?
  - Public health and tobacco control organisations – threat to tobacco control ‘narrative’

The big surprise: Rapid rise in popularity of e-cigarettes since 2007

- They are popular: 29 million users in the EU *
- A large market: US sales = $20m in 2009, an estimated $2b in 2013 **
- They work for some smokers
  - at least as effective as NRT in RCT ***
  - 2.1m users in UK
  - 700,000 UK ex-smokers using e-cigs ****
  - In ‘real world’ – more effective than no help/NRT *****
  - Many (ex) smokers like them, prefer them to other stop smoking aids

Aids used in most recent quit attempt

E-cigarettes are the most popular aid to cessation

N=9438 adults who smoke and tried to stop or who stopped in the past year
Safe – or safer? The comparator is smoked tobacco – 95-99% safer

From analysis of the constituents of e-cigarette vapour, e-cigarette use from popular brands can be expected to be at least 20 times safer (and probably considerably more so) than smoking tobacco cigarettes in terms of long-term health risks


Tests of contents of liquid and vaper suggest e-cigarettes 99% safer than smoked cigarettes. Konstantinos Farsalinos, 2014

Possible harm reversal when switching to e-cigarettes – blood pressure, asthma. Riccardo Polosa. 2014

Gerry Stimson Nov 2014
Continuum (or cliff) of harm for different nicotine containing products

**Fig. 3.** The products ordered by their overall harm scores, with the stacked bar graphs showing the contribution to the overall score of harms to users and harm to others. The numbers in the legend show the sums of the normalized weights at each node.

Graph from Nutt et al, adapted by GVS

**ENDS** = Electronic Nicotine delivery Systems
Consumer led public health revolution at no cost to taxpayer

- A viable, attractive and acceptable means of consuming nicotine
- For people who want to stop smoking but unable or unwilling to stop using nicotine
- Classic harm reduction – providing a safer product, user/consumer led
- Classic public health - WHO Ottawa Charter for Health - ‘Health promotion is the process of enabling people to increase control over, and to improve, their health ... ‘
- (some) consumers highly aware of science, policy, politics; a disorganised individualised social movement
- Vaper advocates = AIDS activists? (David Sweanor)
- For the first time stopping smoking is interesting, fun, communal (in a social media sense) >>>
For the 1st time in tobacco control, ‘smokers’ talk to each other...

Monthly users on the vapers' French forum (61,000 members)

VISITEURS MENSUELS

900 000 interactions per month

Slide from Jacques le Houezec
Vaper activism

E-cigs save lives

PROUD TO VAPE

Vaping Allowed

Sauvons la Cigarette électronique
Agir pour une ecig libre en Europe

Personal vapourisers like this are usually called "electronic cigarettes," but that's not what they really are. Unlike cigarettes they don't contain tobacco or give off toxic smoke.

They're used as a safer alternative to smoking. The vapour they produce isn't dangerous like tobacco smoke - leading scientists say it's basically non-toxic. If everyone who now smokes switched to vapour it would save thousands of lives every year. There's no passive smoke either.

EVUN European Vapers United Network

INFO@ECIGSSAVELIVES.CO.UK
Health impact

- Will e-cigs overtake tobacco cigarettes and when? Stock market analysts predict 2021, 2015?*
- Continued declines in tobacco cigarette sales, and adult smoking prevalence >>

*E-Cigarette Sales to Exceed Traditional Cigarettes by 2021 |NACS Online
Cigarette smoking prevalence

Graph shows prevalence estimate and upper and lower 95% confidence intervals.

England
Health impact

And if they do replace tobacco cigarettes

- Currently 80,000 smoking related deaths in England per year.
- Potential large impact on health – for every 1m smokers who switch to e-cigarettes 6000 lives saved each year**
- Bigger potential impact than other tobacco control measures? – eg EU Tobacco Products Directive estimated to reduce prevalence by 0.5% ***

### Regulatory quandary: What type of product are e-cigarettes?

<table>
<thead>
<tr>
<th></th>
<th>EU Tobacco Products Directive</th>
<th>WHO *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*WHO FCTC/COP/6/10 Electronic Nicotine Delivery Systems</td>
</tr>
<tr>
<td>Medicines only/mainly</td>
<td>Proposed by EC, Rejected by European Parliament</td>
<td></td>
</tr>
<tr>
<td>Medicines – if health claim made</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tobacco product</td>
<td>In TPD but in separate category from other tobacco products</td>
<td>Yes (but never been explicitly agreed by Framework Convention on Tobacco Control) EU: <em>a priori</em> ENDs are not tobacco products, as defined in the FCTC context (9/9/2014)</td>
</tr>
<tr>
<td>Consumer product</td>
<td>Yes, sort of</td>
<td>Not explicitly, but recommends consumer type regulations</td>
</tr>
</tbody>
</table>

Gerry Stimson Nov 2014
But ‘threats’ narrative dominates WHO, some public health and tobacco control organisations

Emphasis of is on threats and risks – some small, some improbable, some important.

- Gateway to smoking
- Young people
- Nicotine addiction
- Renormalisation of smoking
- Tobacco industry
- Vaping in indoor public places
- Toxicity
- Safety

Little consideration of:
the tobacco harm reduction potential of e-cigarettes
Is it just a matter of evidence?  
‘Threat’ and ‘fear’ narratives

<table>
<thead>
<tr>
<th>Narrative</th>
<th>HIV and drugs HR - Needles and syringes</th>
<th>Smoking and E-cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undermines</td>
<td>Undermines anti-drugs policy</td>
<td>Undermines anti-smoking policy</td>
</tr>
<tr>
<td>Gateway</td>
<td>Encourages (young) people to inject, use drugs</td>
<td>Encourages young people to smoke</td>
</tr>
<tr>
<td>Prolongs/increases</td>
<td>Prolongs addiction and delays recovery</td>
<td>Prolongs smoking and delays quitting</td>
</tr>
<tr>
<td>Normalises</td>
<td>Normalises injecting, drug use</td>
<td>Normalises smoking</td>
</tr>
<tr>
<td>Abstinence ambition</td>
<td>Abstinence is the best option</td>
<td>Abstinence is the best option</td>
</tr>
</tbody>
</table>

Public health issues are often driven by a moral agenda rather than by evidence.

Peter Hajek
Harm reduction potential

Perverse consequence of over-regulating and un-selling e-cigarettes is to put them at a disadvantage compared to regular cigarettes

Unethical to deny or discourage use of life saving products

Way forward is:
Maximise public health potential + minimise risk (product standards)

Letter from 53 Scientists to WHO * ‘The potential for tobacco harm reduction products to reduce the burden of smoking related disease is very large, and these products could be among the most significant health innovations of the 21st Century – perhaps saving hundreds of millions of lives.’ http://nicotinepolicy.net/n-s-p/1853-letter-from-53-scientists-to-who-dg
Thank you

gfn.net.co