



Society of Actuaries in Ireland

No Smoke Without Fire ?

An update on the IFoA e-Cigarettes working party

Niel Daniels, Head of Pricing, SCOR

Disclaimer

The views expressed in this presentation are those of the presenter(s) and not necessarily those of the Society of Actuaries in Ireland or their employers.

Intro

- ❑ Niel Daniels, Head of Protection Pricing for SCOR Global Life, London
- ❑ Responsible for Protection pricing for SCOR's business in UK & Ireland
- ❑ Been in Reinsurance Pricing for 17 years
- ❑ (and in Reinsurance generally for longer than I want to admit !)
- ❑ Chair of IFoA working party on e-cigarettes

Agenda

- ❑ Background to the e-cigarettes working group
- ❑ A few headlines to set the scene
- ❑ What's in an e-cigarette
- ❑ The current e-cigarette landscape
- ❑ Modelling approach
- ❑ Core research questions
- ❑ A few thoughts on underwriting
- ❑ Product design
- ❑ Conclusion / Next steps

Quiz !

Just to check you're all awake after lunch !

- How much safer than cigarettes are e-cigarettes ?
- What is the main harmful ingredient in cigarettes ?
- What does cotinine test for ?
- When were e-cigs first commercially released ?

Quiz !

Just to check you're all awake after lunch !

- How much safer than cigarettes are e-cigarettes ?
Who knows ! Maybe 95% safer according to PHE
- What is the main harmful ingredient in cigarettes ?
Tar. Not nicotine
- What does cotinine test for ?
By products of nicotine, can't spot the difference between cigs / ecigs
- When were e-cigs first commercially released ?
2003

Background to the working group



Background to the working group

- ❑ Set up by the Institute and Faculty of Actuaries to look into the impact of e-cigarettes on the life industry
- ❑ Our Terms of Reference
The impact of e-cigarettes on the insurance industry. We will consider pricing, underwriting, claims issues
- ❑ For all core life products ie Term / CI / Whole of life / Longevity
- ❑ The group has 13 members - 7 actuaries and 6 claims & underwriting folks
- ❑ Aim is to share what we find with the wider insurance community through presentations, papers etc

Background to the working group

- ❑ We are very much aiming our work at traditional e-cigarettes
- ❑ ie the ones where there is a liquid capsule that is heated and vaporized before being inhaled
- ❑ At this stage we are not so focused on other devices such as IQOS, Juul, Blu, etc

A few headlines to set the scene



A few headlines to set the scene

VAPERS YOU DON'T NEED

**PUBLIC HEALTH ENGLAND SAYS
ECIGS 95% SAFER
THAN SMOKING**



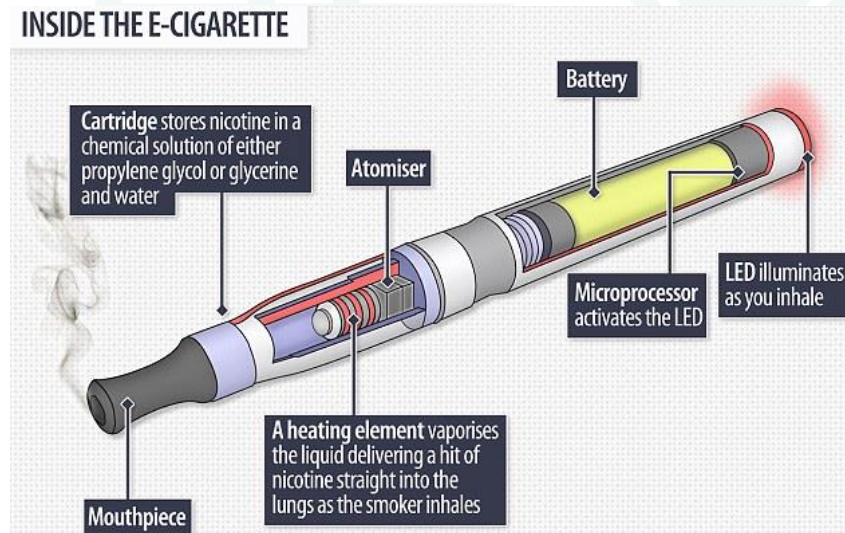
Public Health
England



What's in an e-cigarette



What's in an e-cigarette



- Key components of the e-liquid are
 - Humectants (dissolving solutions)
 - Nicotine
 - Flavourings

The current e-cigarette landscape



What's in an e-cigarette

Humectants

- The humectant is often vegetable glycerine or propylene glycol
- Both of which are used in the food industry
- But do we really know if they are safe when heated to a vapour ?

Nicotine

- Nicotine has some health related concerns
- But is actually relatively far down the list of bad components in a cigarette
- They do create an addiction – but this is actually a necessary feature in helping people quit smoking

Flavourings

- Flavourings are a concern
- Studies have shown that many contain diacetyl (which contributes to “popcorn lung”)
- And other at-risk chemicals

But at far lower levels than in traditional cigarettes

The current e-cigarette landscape

- ❑ Currently in UK,
 - 2.9m current e-cig users
 - **52% ex-smokers**
 - 47% dual users
 - 1% never smoked (far higher in USA interestingly)

- ❑ Ireland
 - 6.2% of population use ecigs (18.8% smoker prevalence)
 - Similar to UK levels
 - Breakdown similar to above (although 3 – 5% never smoked)

- ❑ Public perception on the health implications of e-cigarettes is quite mixed

The current e-cigarette landscape

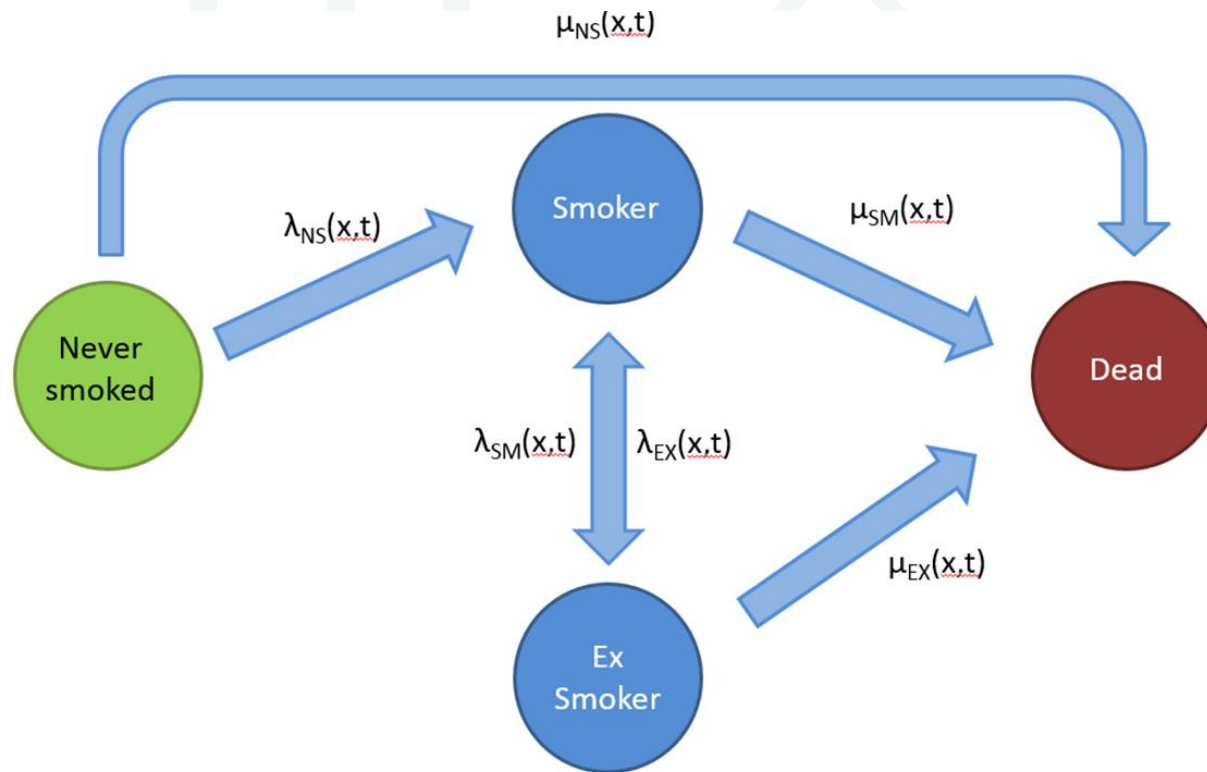
- ❑ Public Health England has issued a report (first in 2015 and then reiterated earlier in year) that suggests that e-cigarettes are significantly less risky
- ❑ But the message is not getting through
- ❑ From an insurance perspective
 - No clear view on risk => hence a variety of approaches regarding rating
 - No solid data on long term impact on quit rates
 - Difficult to validate e-cig usage vs dual usage at underwriting

Modelling approach



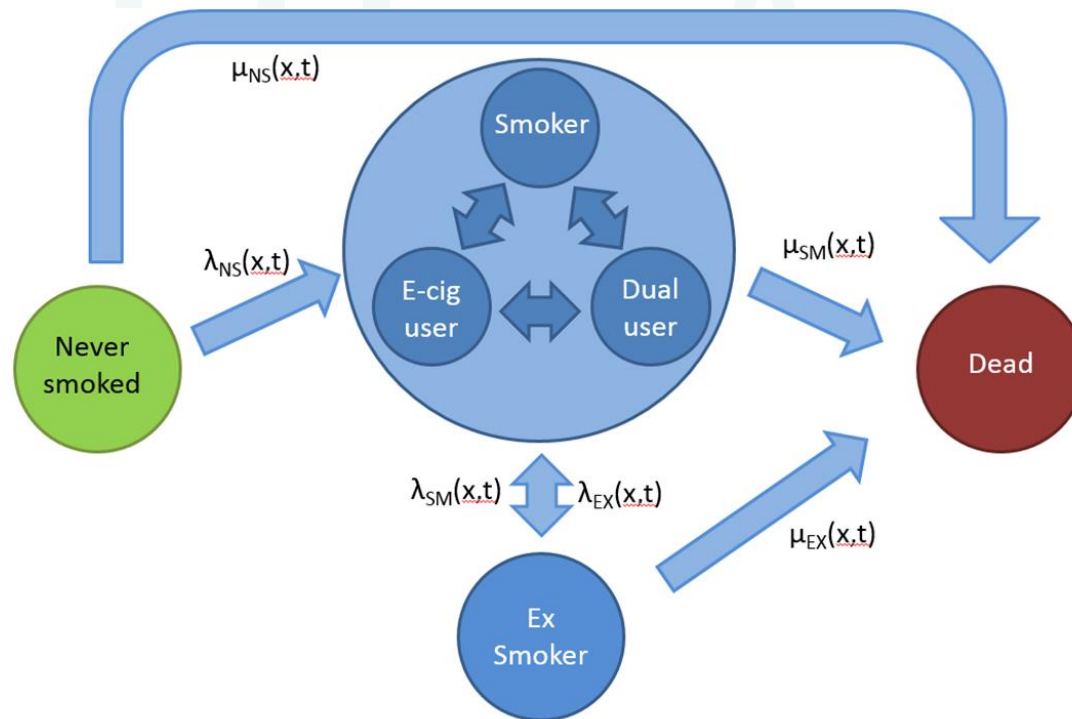
Modelling approach

- For existing pricing of smokers, we can model things as follows



Modelling approach

- But when you introduce e-cigarettes, it gets more complex :



- We must understand 14 different factors to truly understand the impact of e-cigarettes
- They key ones are **relative risk of e-cigarette smoking** and the **impact on quit rates**

Core research questions



Core research questions

Relative risk of e-cigarette use

- ❑ The most important parameter that we are trying to derive !

- ❑ Need to separate this by
 - Dual use v ex-smoker
 - By duration since use / since quitting tobacco
 - By Age / Sex / Socio-economic etc

- ❑ Long term research into e-cigarette risk does not yet exist
 - In fact some studies claim to be “long term” but are actually 6-12 months
 - And none look at mortality (yet)

- ❑ But there are alternatives
 - Chemical composition analysis
 - Genetic mutation analysis

Core research questions

- ❑ Chemical composition analysis is a useful way of determining possible risk.
 - It shows that most chemical components are present at far lower levels in ecigs
 - But some chemicals (eg flavourings) are not in traditional cigarettes at all
 - And some chemicals might act differently when heated to a different temperature

- ❑ Genetic mutation analysis
 - Whilst mortality studies obviously take along time, we can detect minute changes to genetic makeup much more quickly
 - Various studies have been performed which take output from both cigarettes or ecigs and wash it into a solution. Bacteria samples are then exposed to the two solutions & levels of mutation are measured after periods of time
 - Cigarette smoke solutions cause detectable genetic mutation within an hour of exposure. E-cigarette impact is far tougher to detect (although some genes do still react but to a much lower extent)
 - This is, of course, promising but isn't "proof" just yet

Core research questions

Impact on quit rates

- ❑ If determining relative risk of e-cigarettes vs traditional cigarettes is difficult, assessing the impact on quit rates is just as tough !
- ❑ There is some evidence that if a person completely quits smoking (ie is not a dual user) then they are 3 times more likely to stay off cigarettes IF they use an e-cigarette occasionally (defined as 3 days in each month) and that their success grows with the amount of usage
- ❑ This is backed up by the fact that a growing number of e-cigarette users now classify themselves as ex-smokers
- ❑ Statistics on quit rates are very varied & studies are all short term
- ❑ Strong evidence that the speed of the nicotine “hit” impacts on quit rates. E-cigs deliver nicotine more quickly than patches etc but not as fast as cigarettes. Nicotine salts can be added to e-liquids to speed up nicotine delivery

Core research questions

Impact on quit rates **(UPDATE 31 Jan 2019)**

- To date, there have been no proper studies assessing the impact of e-cigarettes on quit rates
- There has been evidence but it's invariably from surveys which are distorted by mix of the people who complete them and any implicit bias eg the fact that that people who *choose* to try a certain quit technique might be more likely to persevere etc
- So randomised controlled trials are the only proper way to test
- On 31 Jan 2019 results were published of a trial of 886 smokers who were randomly given either a nicotine replacement product or an e-cigarette with refill packs
- The quite success rate was 18% on e-cigarettes and 9.9% on nicotine replacement product**
- Granted it's a short term study to date – but the results are very promising thus far
- Suggesting that e-cigarettes are perhaps twice as effective at helping people quit

A few thoughts on underwriting



A few thoughts on underwriting

- ❑ If we do ultimately conclude that an e-cigarette user is significantly less risky than a cigarette smoker, and that people who use e-cigarettes will persevere, then we need to be able to properly underwrite them which involves both
 - Suitable questions
 - A test that can accurately determine type of cigarette used

- ❑ Cotinine determines the presence of nicotine, but since both traditional cigarettes and e-cigarettes both contain nicotine, this test does not help us

- ❑ Testing for Anabasine (an alkaloid found in tobacco) or carboxyhaemoglobin look to show potential – but both are currently much less convenient & much more costly. Testing exhaled CO might be a good test too.

A few thoughts on underwriting

- ❑ In terms of applications, it's important to ensure that questions are clear & unambiguous. E-cigarettes should be explicitly mentioned in questions (ideally as a separate question)
- ❑ Other questions that would be important are :
 - People who smoke both cigarettes & e-cigs
 - Confusion over when somebody “quit”
 - Does use of e-cigs cause a reduction in use of tobacco ?

Industry Survey



Industry Survey

- ❑ The working party surveyed various people in the life industry in order to understand the approaches of different offices to e-cigarettes
- ❑ Two studies were performed, in 2016 and 2017. The 2017 survey received 34 responses
- ❑ Key findings were as follows :

Treatment of current e-cigarette smokers

- 68% of respondents would classify as a smoker
- 9% of respondents would classify as a non-smoker with a rating
- 9% of respondents would classify as a non-smoker without a rating
- 15% said “other” (mostly “it depends on when they quit smoking”)

Industry Survey

- Key findings were as follows (ctd) :

Level of work done to inform company view on how to treat e-cigarette smokers

- 6% said they were doing primary research
- 75% said they were “keeping an eye on the market”
- 58% said they were consulting with reinsurers

What information collected at underwriting stage

- 65% collect e-cigarette usage as part of a core question
- 21% collect e-cigarette usage as part of a separate question
- 15% said they do not ask about e-cigarettes at all

Industry Survey

- ❑ Various questions were asked about key concerns of offices over the topic. Selected responses were :
 - *Key concern is long term health impact*
 - *Expect more clarity / consistency in the market over next 3 years*
 - *not clear on impact of nicotine long term*
 - *It took a long time to prove cigarettes were harmful*
 - *Smoking is no longer binary*

Product Design



Product Design

- ❑ Does a binary risk assessment really work any more ?
 - *As actuaries we are trained to project & predict*
 - *But this is a new field with very little useable data*
 - *And almost NO data on mortality*
 - *And quit data isn't great either*
 - *Very tough to estimate risk with any degree of accuracy*
 - *So if pushed to price a contract now, for a 25-year guarantee, I'd struggle*
 - *Is there a place for a contract with variable premiums according to current smoking status ?*
 - *With annual self certification + random testing to confirm status & premium transitions*

 - *Could we offer discounts for people that dual smoke (as we'd expect them to smoke less tobacco) ?*
 - *But how to validate their usage ?*

Product Design

- ❑ Does ex smoker pricing need to change ?
 - *Most companies essentially have two rates – a non-smoker and a smoker*
 - *Smoker = anyone who has used tobacco products in last 12 months*
 - *Non-smoker = anyone who hasn't*
 - But risk varies far more widely than that
 - So is this approach simply outdated ?
 - Very simply, risk can vary from
 - Never smoked 90%
 - All “non-smokers” 100%
 - Non-smoker who gave up 5 years ago 150%
 - Smoker 200%
 - So it feels like a more refined approach is warranted
 - (notwithstanding issues around underwriting & claims control)

Conclusion / Next steps

- ❑ E-cigarettes are a significant force so we need to form a view
- ❑ Pricing / Underwriting e-cigarette users is far from easy
- ❑ Few studies that look directly at mortality impacts
- ❑ And none that look at long term
- ❑ Some data is highly contradictory
- ❑ So we must continue to look for more data & assess what we see
- ❑ But early evidence is that e-cigarettes do aid quitting ...
- ❑ whilst not risk free, they are ***almost certainly less risky than traditional cigarettes***

So whilst the jury is still out, e-cigs do look to be a force for good

Questions

