Dr Graham Gulbransen

Cannabis Consultant

GP

Addiction Specialist

Friday, August 09, 2019 (Room 10)

14:00 - 14:55 WS #33: Vaping - A Recreational or Smoking Cessation Tool?

15:05 - 16:00 WS #43: Vaping - A Recreational or Smoking Cessation Tool? (Repeated)

Vaping - A Recreational or Smoking Cessation Tool?

Dr Graham Gulbransen FRNZCGP FAChAM

Cannabis Care Clinic

131 Lincoln Rd, Henderson, Auckland

doctor@cannabiscare.nz

RESOURCES & ACKNOWLEDGEMENTS

MY DISCLOSURE:

‘I believe that vaping has revolutionised smoking cessation’

To Vape or Not to Vape?

E-cigarettes, Evidence and Ideology

Professor Chris Bullen

APSAD November 2018

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Professor Christopher Bullen
National Institute for Health Innovation (NIHI),
School of Population Health,
The University of Auckland,
Auckland, New Zealand.
www.nihi.auckland.ac.nz
c.bullen@Auckland.ac.nz
@DrChrisBullen

https://www.goodfellowunit.org/events/vaping-all-your-questions-answered

Vaping: All your questions answered

Tuesday 25 September 2018, 7.30 - 8.45pm.

Vaping:
Making sense of the evidence & practice tips
(webinar recording)

Dr Hayden McRobbie

The Goodfellow Unit
general practice and primary health care

Australian Tobacco Harm Reduction Association

Legalising vaping in Australia: a report by the McKell Institute

Dr Alex Wodak AM, Conjoint Associate Professor Colin Mendelsohn.

Posted on March 9, 2019

- The report finds that 'legalising vaping has enormous potential to improve public health, particularly for disadvantaged smokers who are disproportionately affected by smoking-related diseases'.

(1) Smoking remains the leading preventable cause of death and illness in Australia.

(2) Smoking is especially prevalent in disadvantaged populations such as Indigenous people, low-income groups and those with mental illness or substance use and is a major contributor to health and financial inequalities.

Nicotine without smoke
Tobacco harm reduction

A report by the Tobacco Advisory Group
of the Royal College of Physicians

April 2016

https://vapingfacts.health.nz/


VAPING VS SMOKING.

VAPING TO QUIT SMOKING.

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ADDRESS

394A Great North Rd, Henderson
Auckland

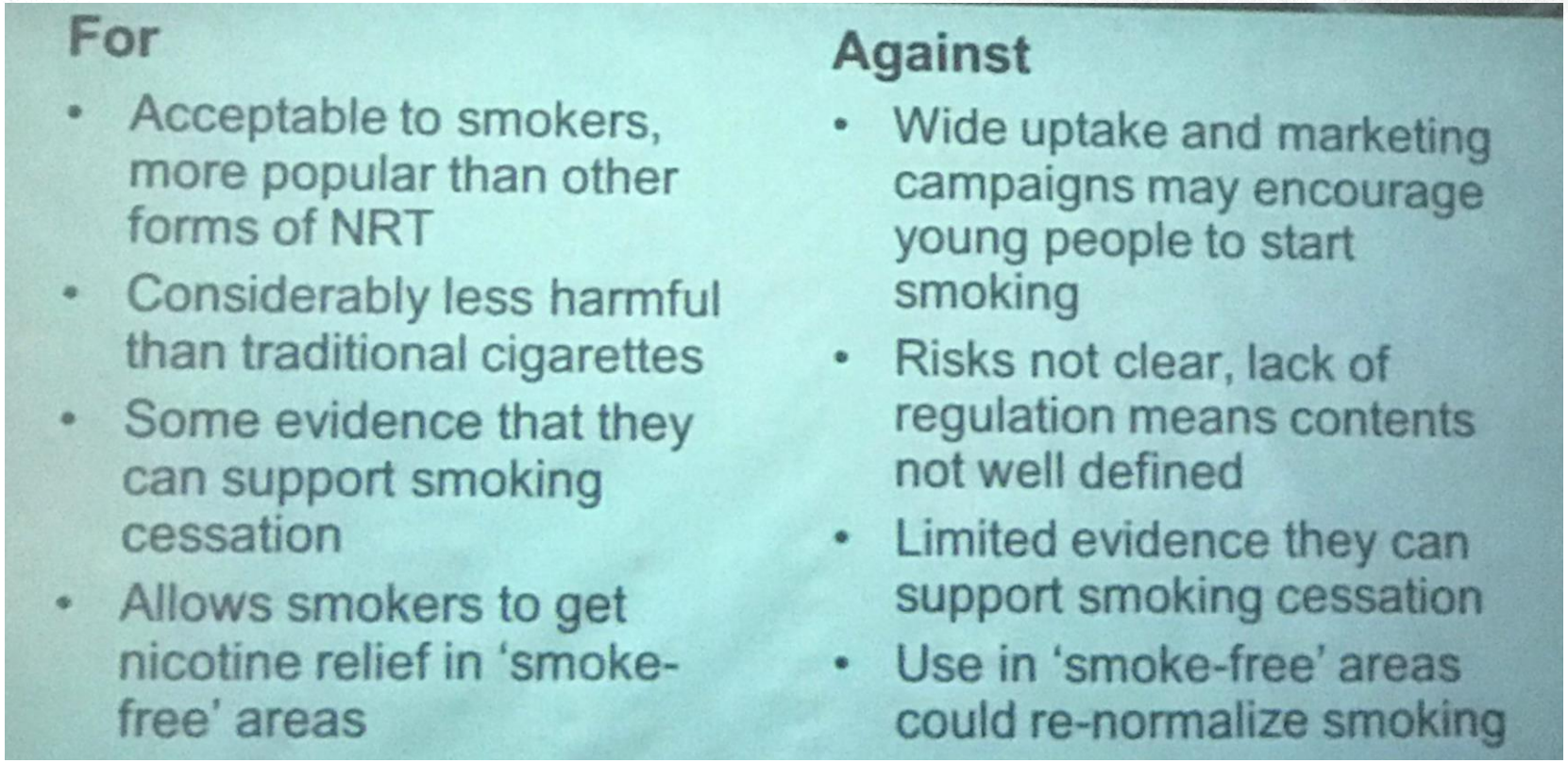
PHONE

+64 9 838 36 84

EMAIL

sales@09vapes.co.nz

The Debate



Dr Michael Ngawati, CADS Akl 16/5/19

WHAT IS VAPING?

E-cigarettes

‘Devices whose function is to vaporise and deliver to the lungs of the user a chemical mixture typically composed of nicotine, propylene glycol and other chemicals.’

World Health Organisation

- Propylene glycol gives the throat hit
- Vegetable glycerine gives the cloud of ‘smoke’. Users look for the right balance
- Flavours
- ± nicotine.

https://www.misthub.com/products/juul-aio-starter-kit

PEOPLE ALSO VIEWED

ASPIRE BREEZE 2 ALL-IN-ONE STARTER KIT

$ 27.99 ~~$ 44.99~~

JOYETECH EGO AIO ECO STARTER KIT

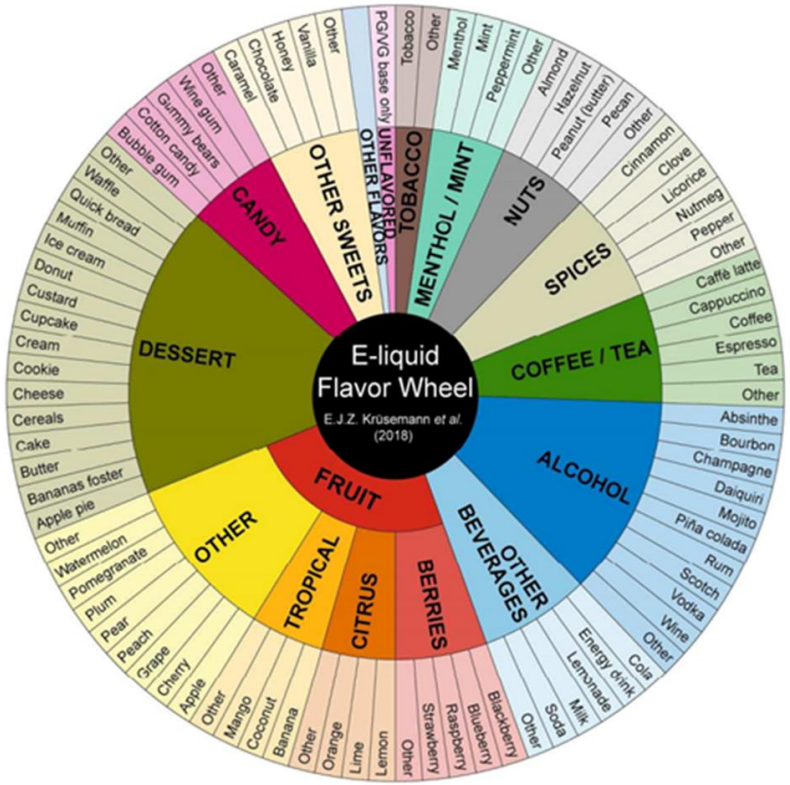
$ 14.65 ~~$ 26.99~~

JUUL ULTRA PORTABLE POD SYSTEM

$ 41.95 ~~$ 49.99~~

SUORIN DROP ALL-IN-ONE STARTER KIT

$ 23.99 ~~$ 39.99~~



Sources: https://www.vapo.co.nz/pages/how-electronic-cigarettes-work'; Kruseman et al, 2018

Dr Hayden McRobbie
Goodfellow Webinar 25/9/18
https://www.goodfellowunit.org/events/vaping-all-your-questions-answered

- ‘I believe that vaping can make an overall positive contribution to public health.’
- Use in combo with NRT
- Vaping is ex-smoking.

DEVICE

DEMONSTRATION

A BIG thank you to

www.09vapes.co.nz, Henderson, Akl

MoH vaping video

promotion
A HAUORA

VAPING FACTS

Vaping to Quit with Kura

Vaping facts [Hayden McRobbie webinar]

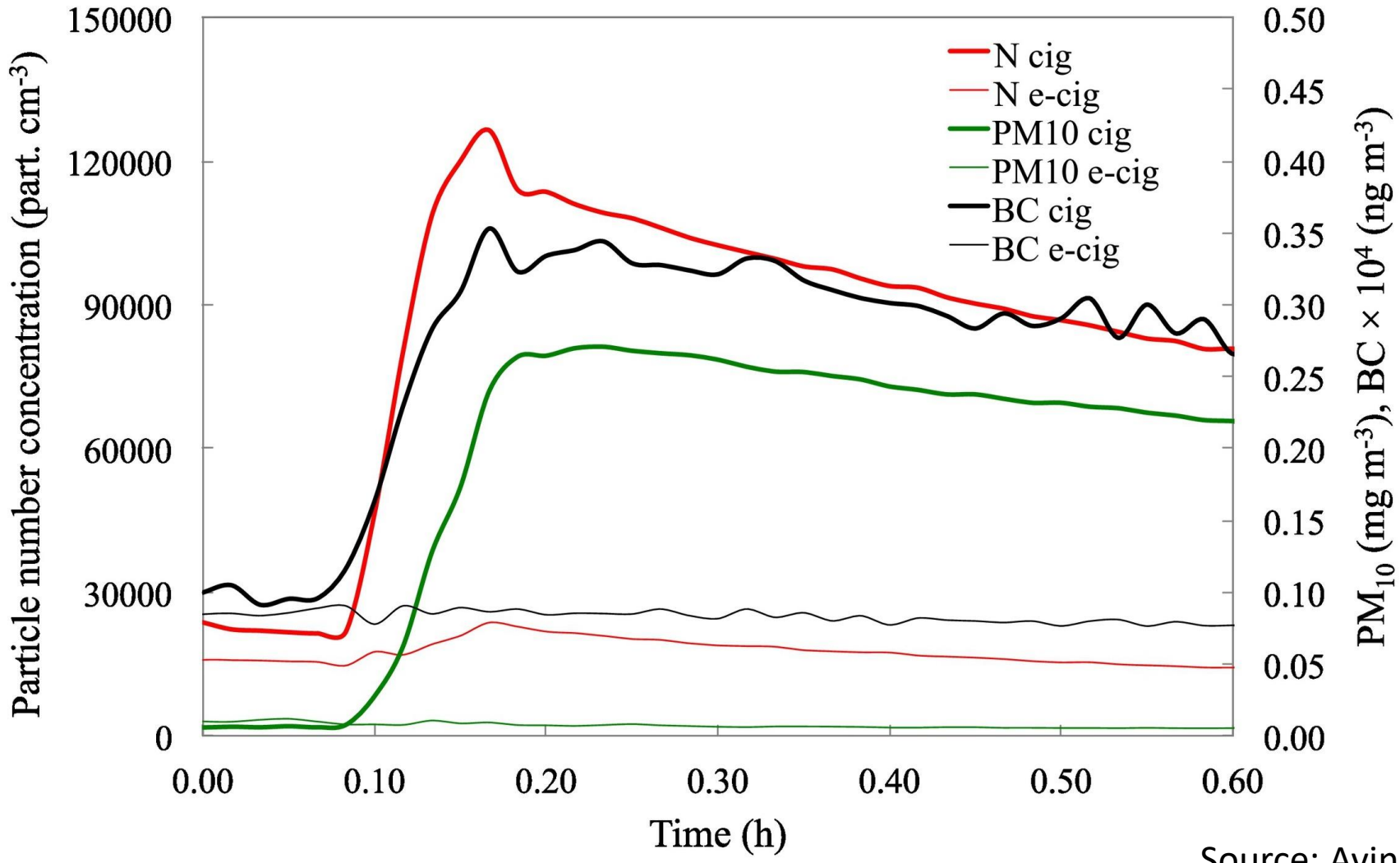
- Vaping is legal in NZ
- Ban on sales to minors and restricted advertising
- Indoor smoking ban applies to cigarettes only
- Supports Smokefree 2025 Goal
- Need to practise vaping to match it with smoking, to get same satisfaction, ie an adjustment period finding the right device and liquid
- Daily use more effective
- Plan to quit vaping, usually by tapering when ready.

smokefree AOTEAROA NEW ZEALAND 2025

Around a tenth the cost of smoking tobacco

Heat not burn

Total particle number, PM10 and Black Carbon (BC) concentrations measured in a test room during cigarette and e-cigarette use experiments



Source: Avino et al., 2018

How effective is vaping?

ATHRA

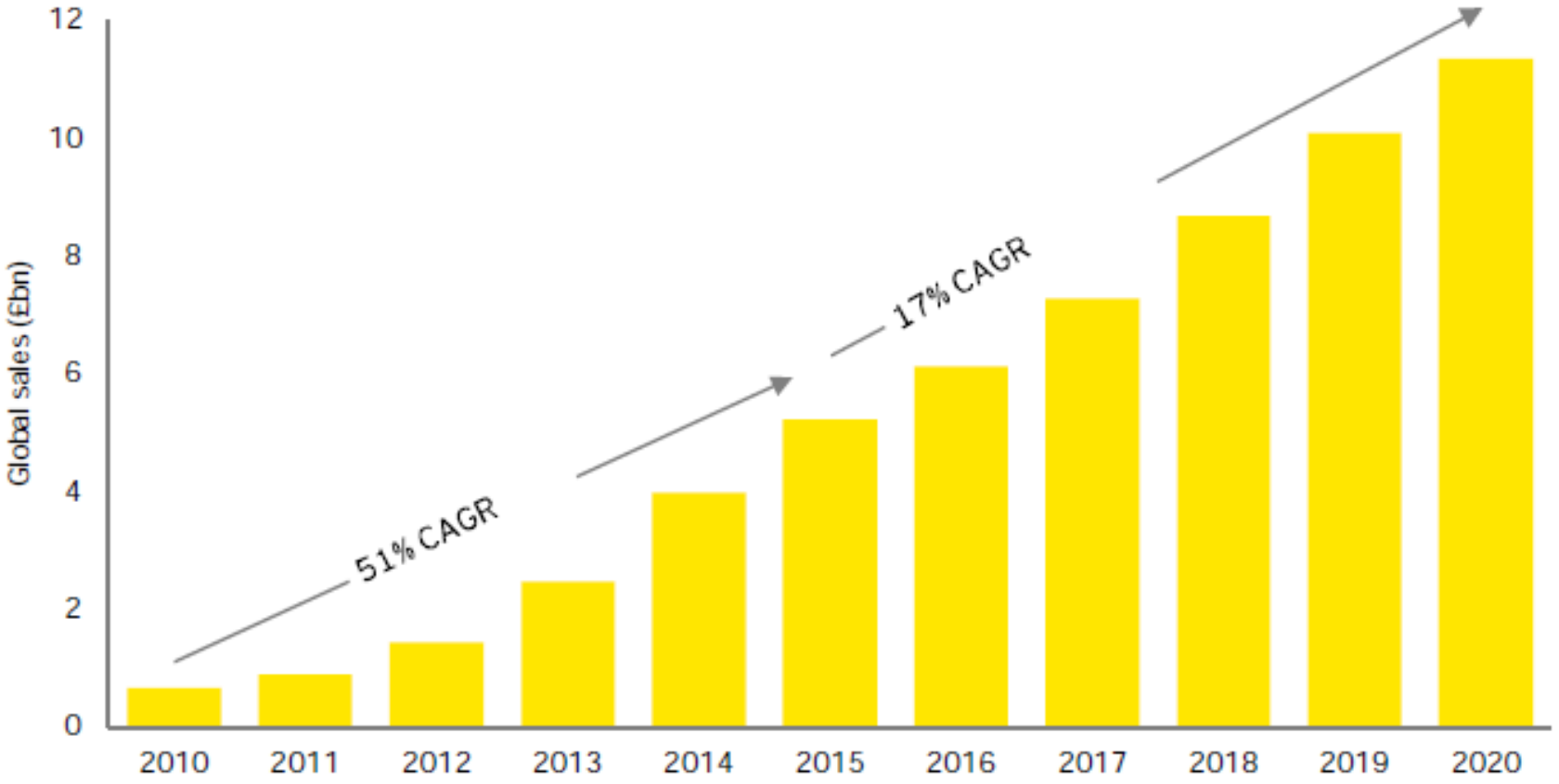
- Vaping is a reduced-risk alternative to smoking for adult smokers who are unwilling or unable to quit.
- Vaping delivers the nicotine smokers are addicted to along with the hand-to-mouth ritual smokers enjoy, but without most of the harmful toxins present in smoke.
- Australia imposes a de facto ban on vaping and is increasingly out of step with other similar countries, such as New Zealand, the UK, European Union, Canada and USA.
- Smoking rates are declining faster in many countries where vaping and other reduced-risk nicotine products are legal and readily available.
- Ironically, it is illegal to possess nicotine liquid for vaping in Australia without a prescription from a doctor although smokers can readily purchase higher-risk cigarettes from supermarkets and most corner shops.

Unprecedented interest from smokers

- A cigarette substitute
- Health concerns with smoking
- More acceptable and satisfying than NRT inhaler
- Convenience
- Affordability
- Social support
- ‘Viral’ movement
- Regulatory vacuum

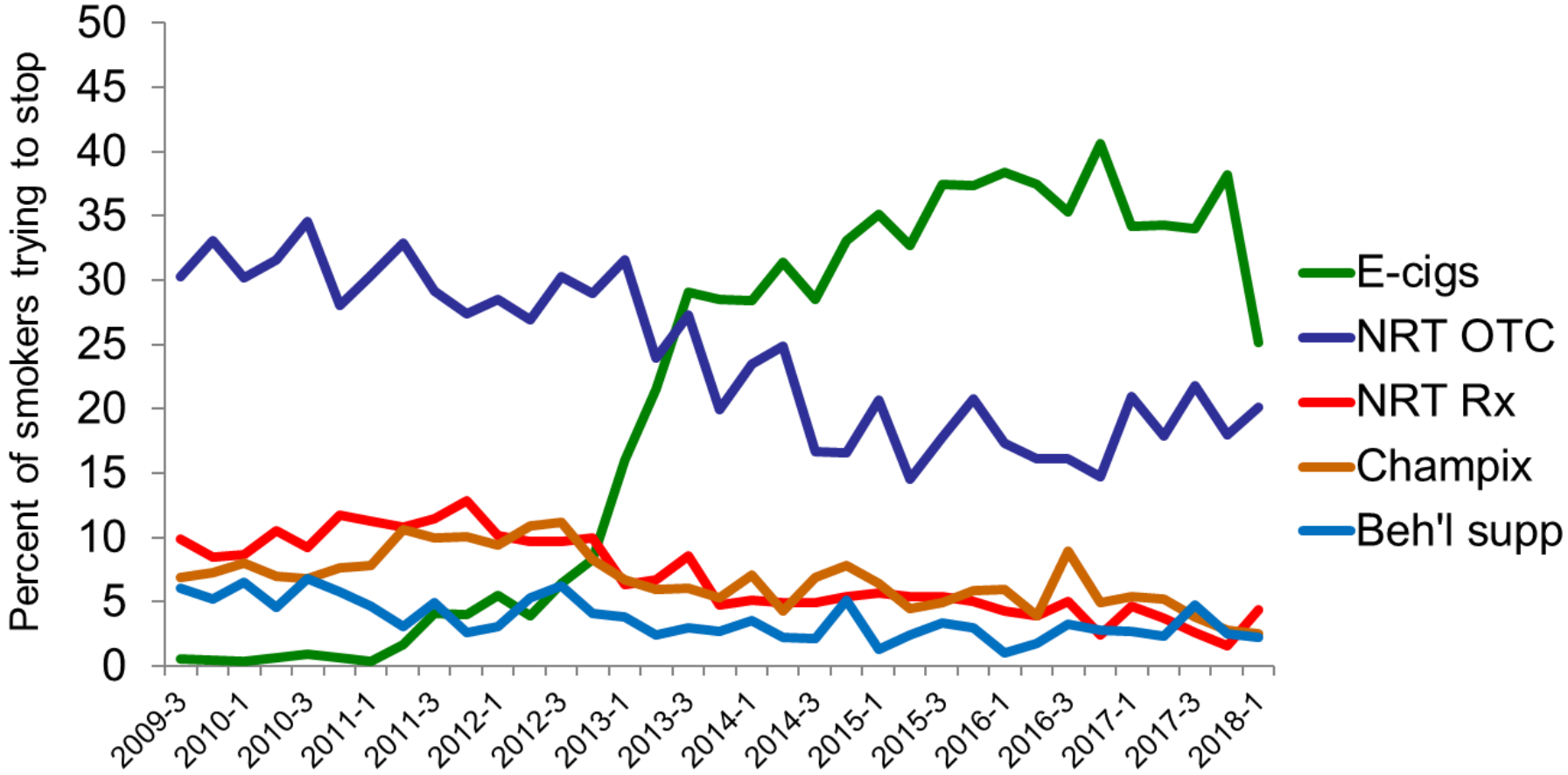
Source: Barbeau et al, 2013; Steinberg et al, 2014

Uptake



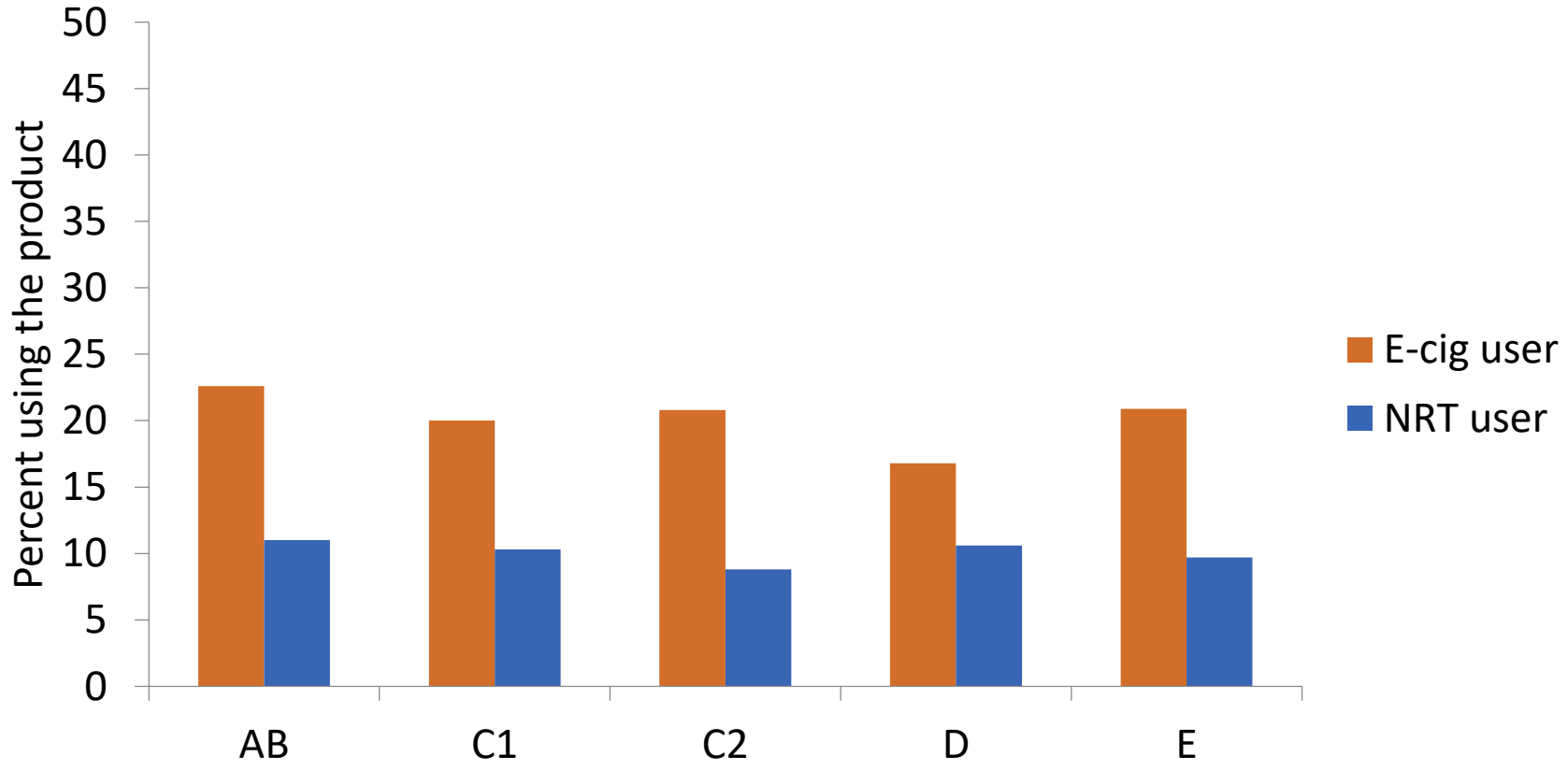
E-cig sales (£ bn) 2010-2020 estimated (Source: KEY Report 2018)

Support used in quit attempts, England 2009-2018



Source: Smoking in England http://www.smokinginengland.info/latest-statistics/

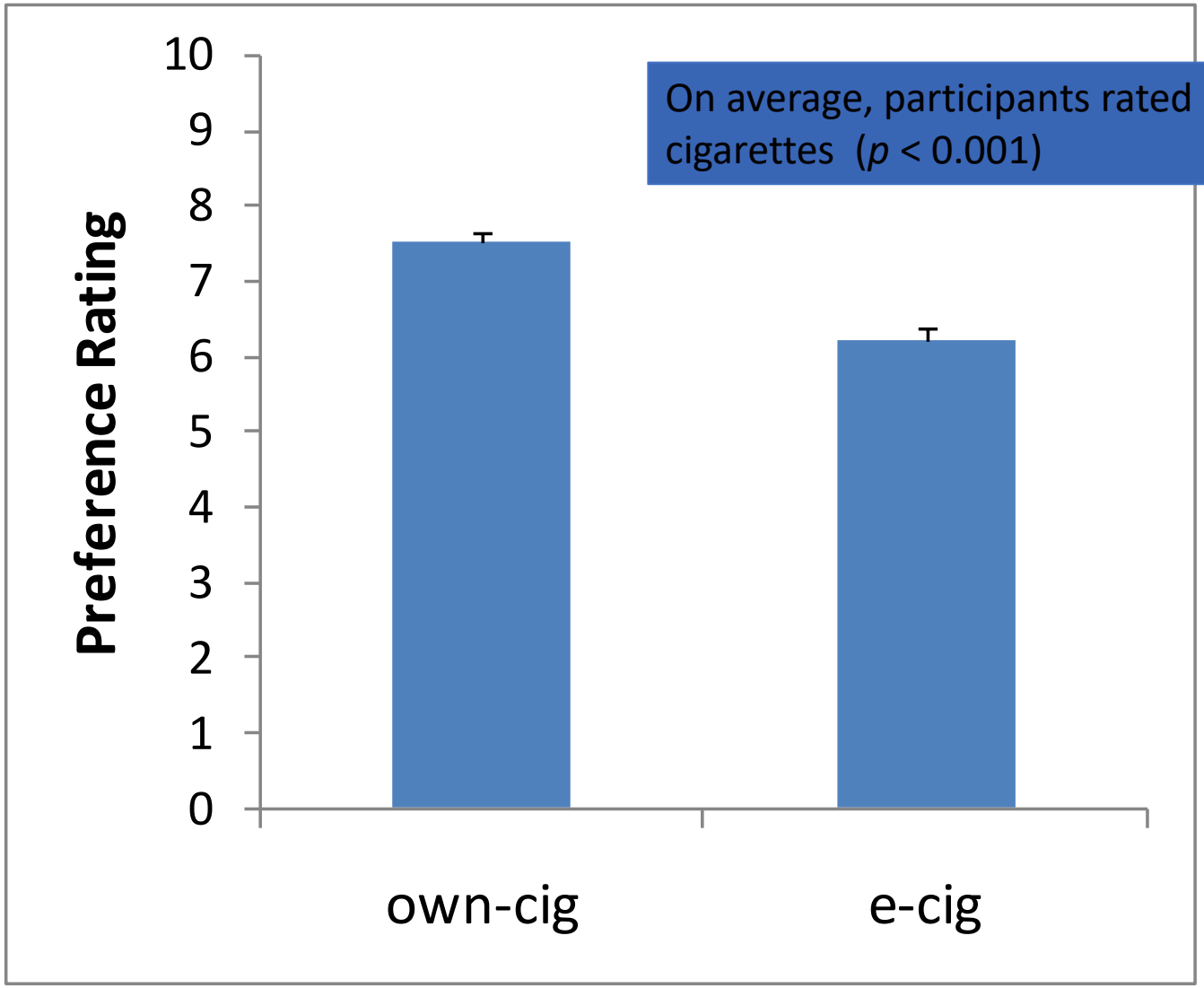
E-cigarette and NRT use by social gradient, 2017, England



N=3,684 adults who smoke or who stopped in the past year and were surveyed in 2017

Source: Smoking in England http://www.smokinginengland.info/latest-statistics/

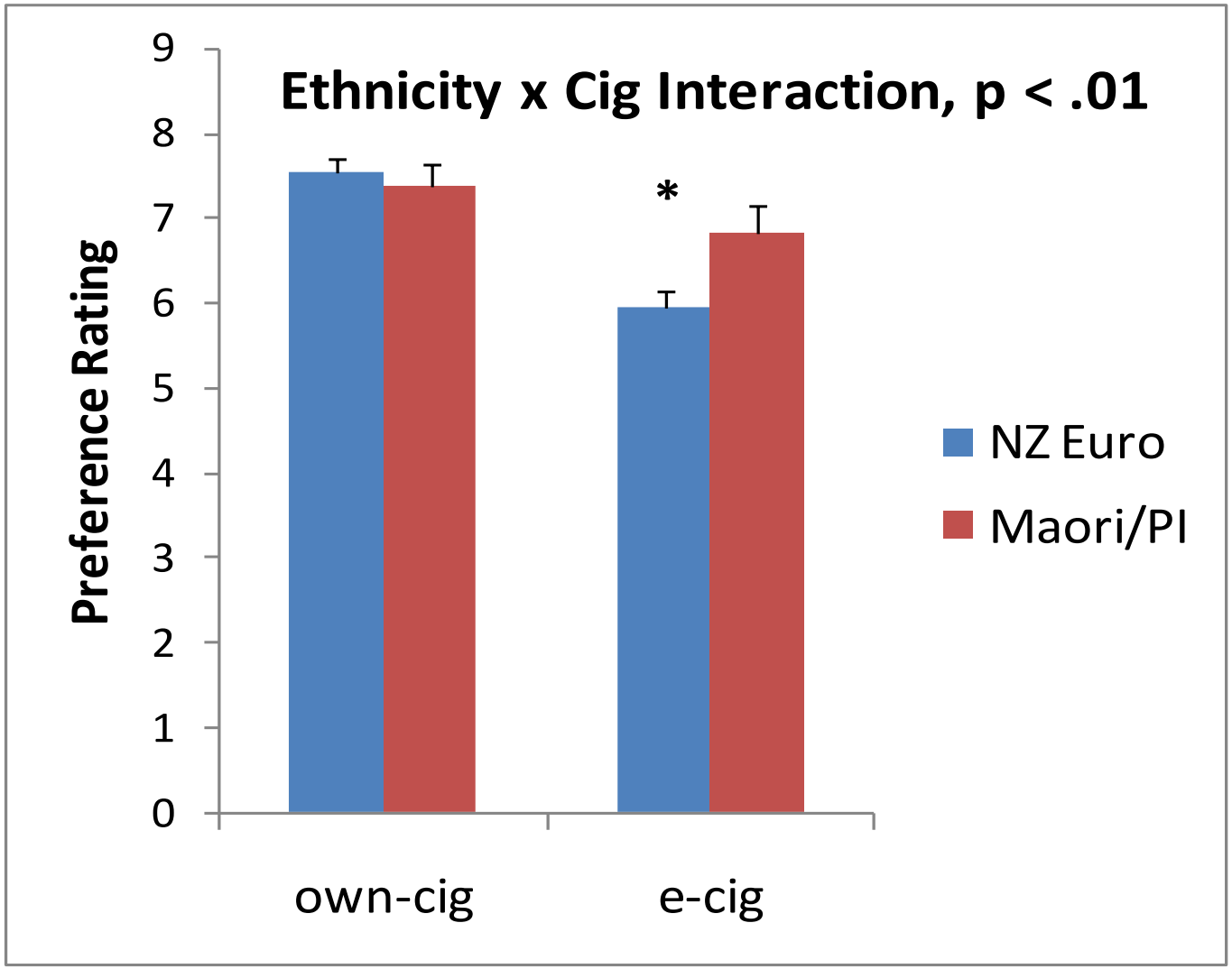
Preferences



On average, participants rated e-cigs 83% as highly as their own cigarettes ($p < 0.001$)

Source: Grace et al, 2014

Preference ratings, by ethnicity



Source: Grace et al, 2014

The ASCEND trial

Health Research Council of New Zealand

852 citations

Electronic cigarettes for smoking cessation: a randomised controlled trial

Christopher Bullen, Colin Howe, Murray Laugesen, Hayden McRobbie, Varsha Parag, Jonathan Williman, Natalie Walker

Summary

Background Electronic cigarettes (e-cigarettes) can deliver nicotine and mitigate tobacco withdrawal and are used by many smokers to assist quit attempts. We investigated whether e-cigarettes are more effective than nicotine patches at helping smokers to quit.

Methods We did this pragmatic randomised-controlled superiority trial in Auckland, New Zealand, between Sept 6, 2011, and July 5, 2013. Adult (≥18 years) smokers wanting to quit were randomised (with computerised block randomisation, block size nine, stratified by ethnicity [Māori; Pacific; or non-Māori, non-Pacific], sex [men or women], and level of nicotine dependence [>5 or ≤5 Fagerström test for nicotine dependence]) in a 4:4:1 ratio to 16 mg nicotine e-cigarettes, nicotine patches (21 mg patch, one daily), or placebo e-cigarettes (no nicotine), from 1 week before until 12 weeks after quit day, with low intensity behavioural support via voluntary telephone counselling. The primary outcome was biochemically verified continuous abstinence at 6 months (exhaled breath carbon monoxide measurement <10 ppm). Primary analysis was by intention to treat. This trial is registered with the Australian New Zealand Clinical Trials Registry, number ACTRN12610000866000.

Findings 657 people were randomised (289 to nicotine e-cigarettes, 295 to patches, and 73 to placebo e-cigarettes) and were included in the intention-to-treat analysis. At 6 months, verified abstinence was 7·3% (21 of 289) with nicotine e-cigarettes, 5·8% (17 of 295) with patches, and 4·1% (three of 73) with placebo e-cigarettes (risk difference for nicotine e-cigarette *vs* patches 1·51 [95% CI −2·49 to 5·51]; for nicotine e-cigarettes *vs* placebo e-cigarettes 3·16 [95% CI −2·29 to 8·61]). Achievement of abstinence was substantially lower than we anticipated for the power calculation, thus we had insufficient statistical power to conclude superiority of nicotine e-cigarettes to patches or to placebo e-cigarettes. We identified no significant differences in adverse events, with 137 events in the nicotine e-cigarettes group, 119 events in the patches group, and 36 events in the placebo e-cigarettes group. We noted no evidence of an association between adverse events and study product.

Interpretation E-cigarettes, with or without nicotine, were modestly effective at helping smokers to quit, with similar achievement of abstinence as with nicotine patches, and few adverse events. Uncertainty exists about the place of e-cigarettes in tobacco control, and more research is urgently needed to clearly establish their overall benefits and harms at both individual and population levels.

Funding Health Research Council of New Zealand.

Published Online September 7, 2013 http://dx.doi.org/10.1016/S0140-6736(13)61842-5

See Online/Comment http://dx.doi.org/10.1016/S0140-6736(13)61534-2

National Institute for Health Innovation, School of Population Health, The University of Auckland, Auckland, New Zealand (C Bullen MBChB, C Howe PhD, V Parag MSc, N Walker PhD); **Health New Zealand, Lyttelton, Christchurch, New Zealand** (M Laugesen MBChB); **Wolfson Institute of Preventive Medicine, UK Centre for Tobacco Control Studies, Queen Mary University of London, Charterhouse Square, London, UK** (H McRobbie MBChB); **and Department of Public Health and General Practice, University of Otago, Christchurch, New Zealand** (J Williman PhD)

Correspondence to: Dr Christopher Bullen, The National Institute for Health Innovation, School of Population Health, The University of Auckland, Private Bag 92019, Auckland 1142, New Zealand **c.bullen@nihi.auckland.ac.nz**

Bullen et al, Lancet 2013

Caveats

- The *quality* of the evidence overall was categorized by the Cochrane methodology as *low* because it was based on only 2 trials
- RCTs used in the trials are now-obsolete products that delivered small amounts of nicotine.

Registered trials with a primary cessation endpoint

	Gartner (Australia)	Hajek (UK, Spain, Czech Rep)	Walker et al (NZ)
Study Pop	Varying motivation to quit	Motivated to quit	Motivated to quit
Product	Vype (BAT)	Gamucci 2.4% nicotine	Kanga 2nd gen Two tobacco flavours 18mg nicotine
Sample size	N=1600	N=220	N=1809
Arms	• NRT choice for short term use • NRT choice for short and/or long term use • Choice of NRT and 'cigarette like' nicotine products for short and/or long term use	• Standard care plus e-cig • Standard care (NRT plus behavioural support)	• E-cig with nicotine • E-cig without nicotine plus 21mg nicotine patch • 21 mg Patch alone • Behavioural support for all 3 arms for 6 weeks post quit
Intervention period	9 weeks	4 weeks	14 weeks
Follow-up	12 months	6 months	6 months
Power	80%	N/A	80%
Primary outcome	Self-reported 12 month continuous abstinence	Verified 4 week continuous abstinence	Continuous abstinence (Russell Standard)

ATHRA

- There is convincing scientific evidence that vaping helps some people quit smoking, including a recent, large randomised trial which found that vaping is nearly twice as effective as conventional nicotine replacement therapy.

[Hajek P, Phillips-Waller A, Pfzulki D, et al. A randomised trial of e-cigarettes versus nicotine replacement therapy. New England Journal of Medicine 2019]

Summary

- E-cigarettes are at least as good as nicotine patches at helping smokers quit
- Nicotine delivery is important to effectiveness
- Daily use increases effectiveness
- Support from others (vendors and online community) may enhance effect
- Time course to completely quit cigarettes may be longer than ‘usual treatment’ with a long period of ‘dual use’
- Role as a ‘rescue’ treatment for cravings
- Many smokers like using them.

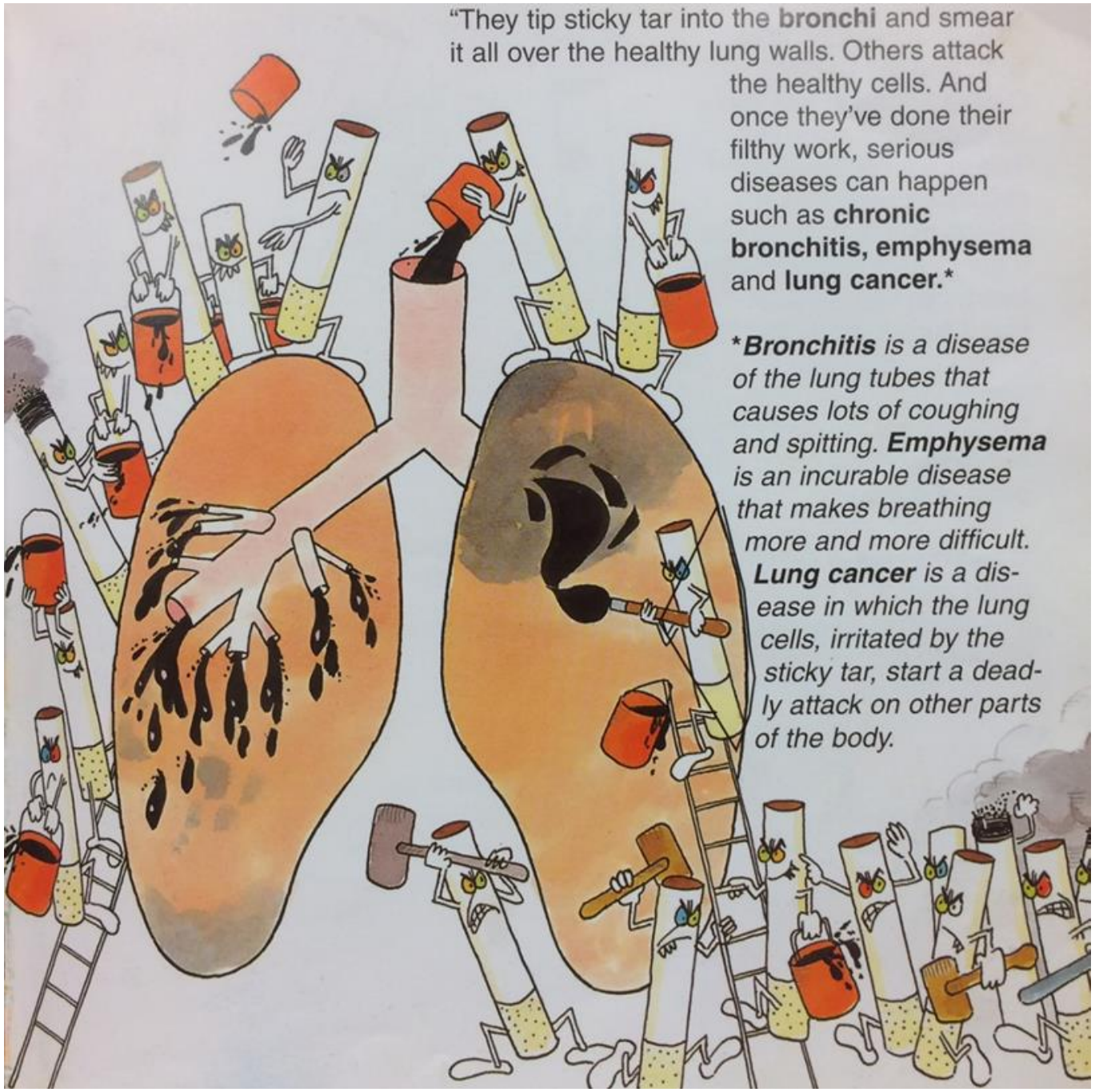
Summary continued

"Based on current use patterns and conservative assumptions…project a **reduction of**

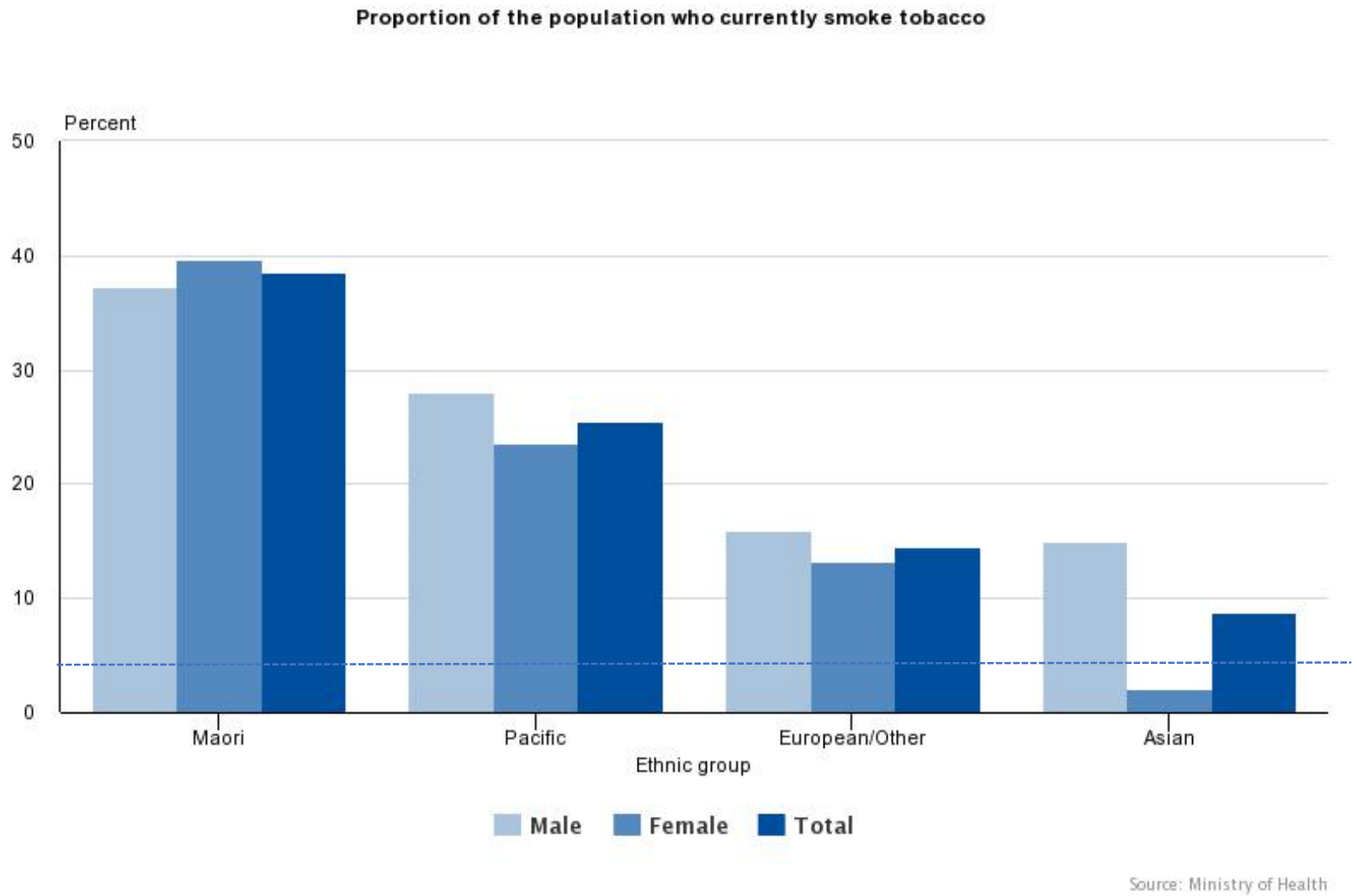
- **21% in smoking-attributable deaths**
- **20% in life years lost as a result of e-cigarette use** by the 1997 US birth cohort compared to a scenario without."

[Source: Abrams et al., 2016]

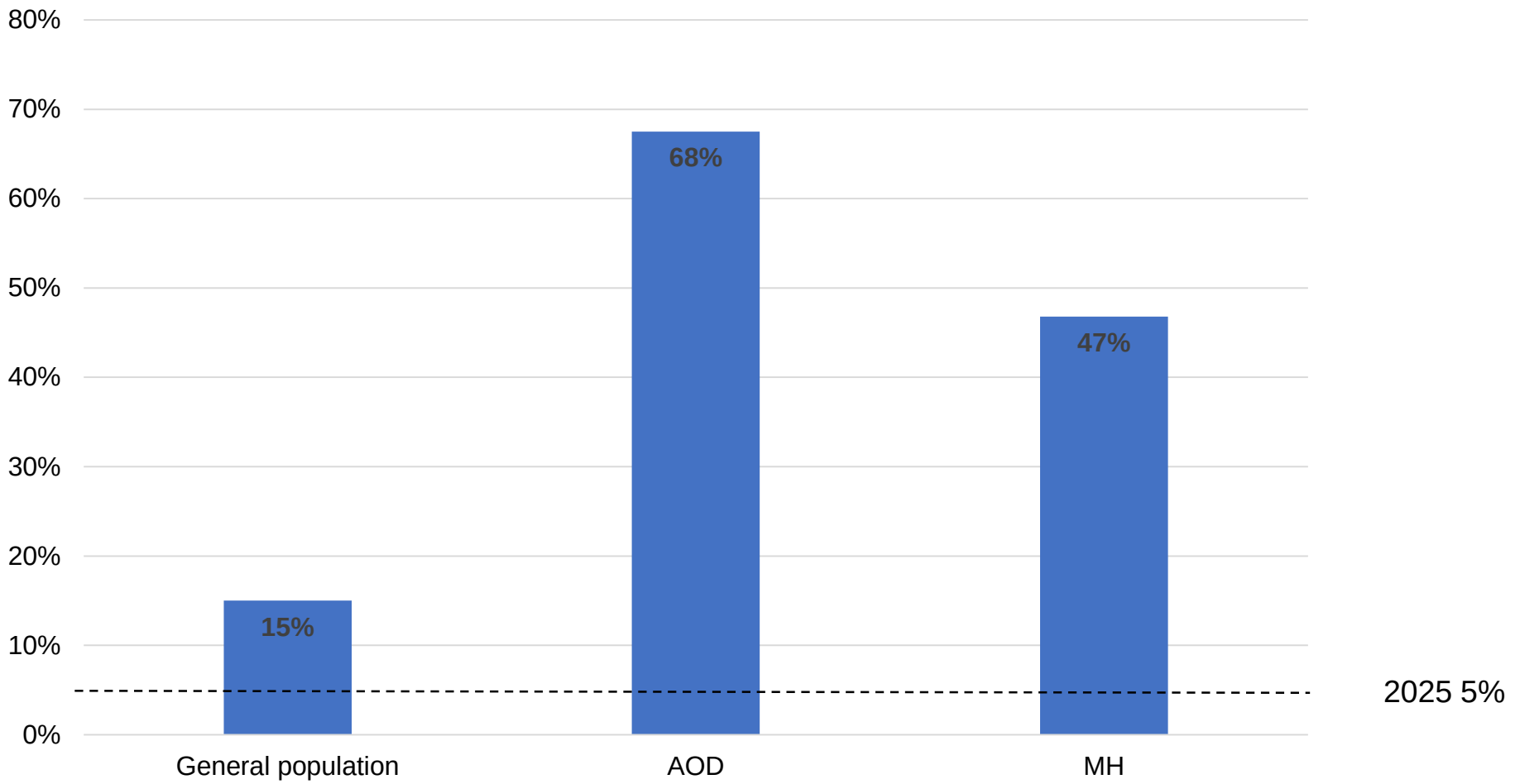
Harms of smoking tobacco


"They tip sticky tar into the **bronchi** and smear it all over the healthy lung walls. Others attack the healthy cells. And once they've done their filthy work, serious diseases can happen such as **chronic bronchitis, emphysema** and **lung cancer.***
Bronchitis is a disease of the lung tubes that causes lots of coughing and spitting. **Emphysema** is an incurable disease that makes breathing more and more difficult. **Lung cancer** is a disease in which the lung cells, irritated by the sticky tar, start a deadly attack on other parts of the body.

Stark Ethnic Differences in Smoking NZ, 2015/16

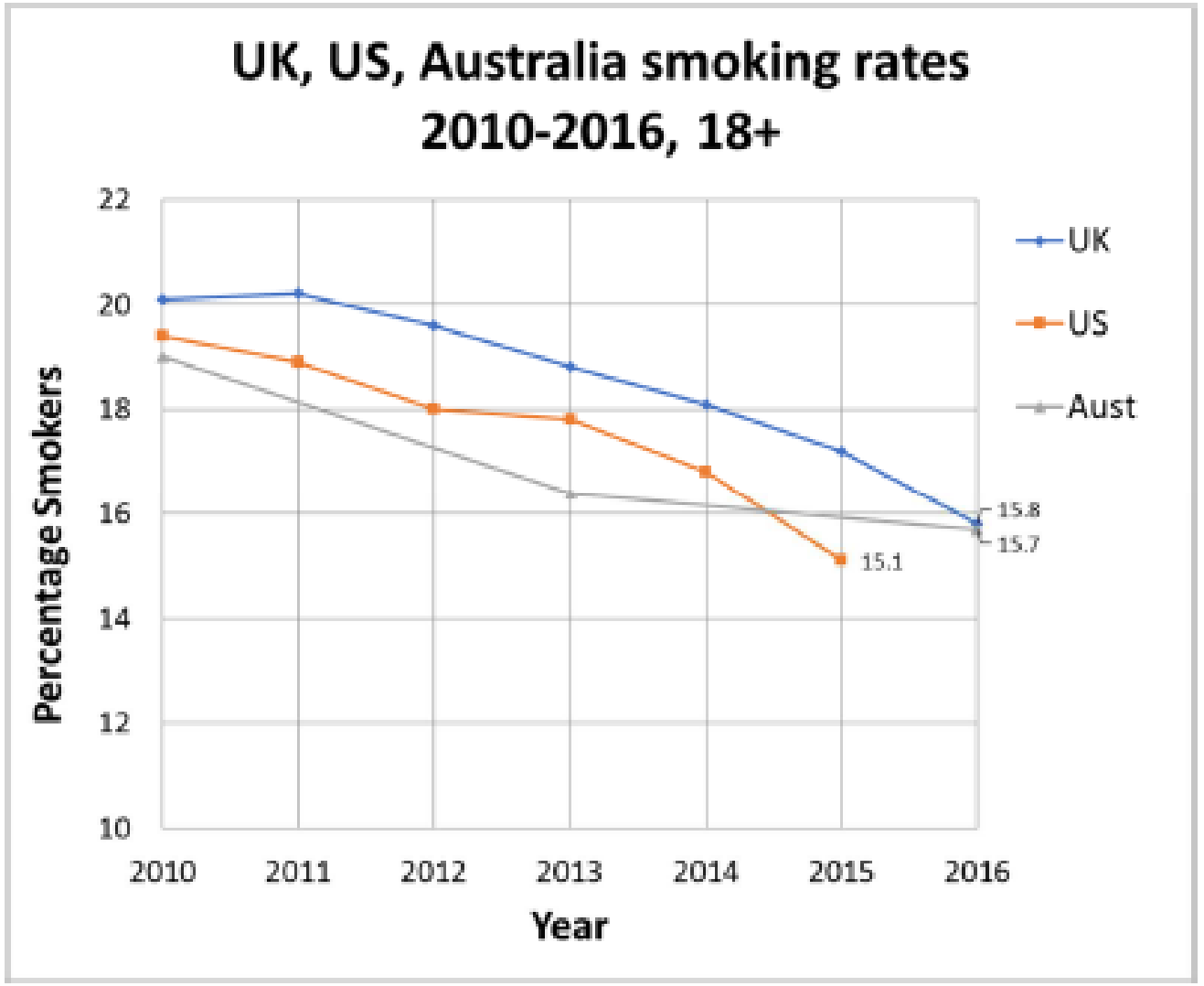


Smoking prevalence in people with Alcohol & Other Drug Dependence, & Mental Illness, NZ, 2016



Source: NZ MoH

Cigarette smoking prevalence reductions UK, US and Australia 2010-2016



NASEM Report 2018

"Although e-cigarettes are not without risk, compared to combustible tobacco cigarettes **they contain fewer toxicants; can deliver nicotine in a similar manner; show significantly less biological activity in most, but not all, in vitro, animal, and human systems; and might be useful as a cessation aid in smokers who use e-cigarettes exclusively**."

Source: http://nationalacademies.org/hmd/Reports/2018/public-health-consequences-of-e-cigarettes.aspx

US Surgeon General and RCP Reports

“Death is overwhelmingly caused by cigarettes and other combustibles... Promotion of e-cigarettes and other innovative products is... likely to be beneficial where the appeal, accessibility and use of cigarettes are rapidly reduced.”

- US Surgeon General’s Report, 2014

“In the interests of public health it is important to promote the use of e-cigarettes…. as widely as possible as a substitute for smoking.”

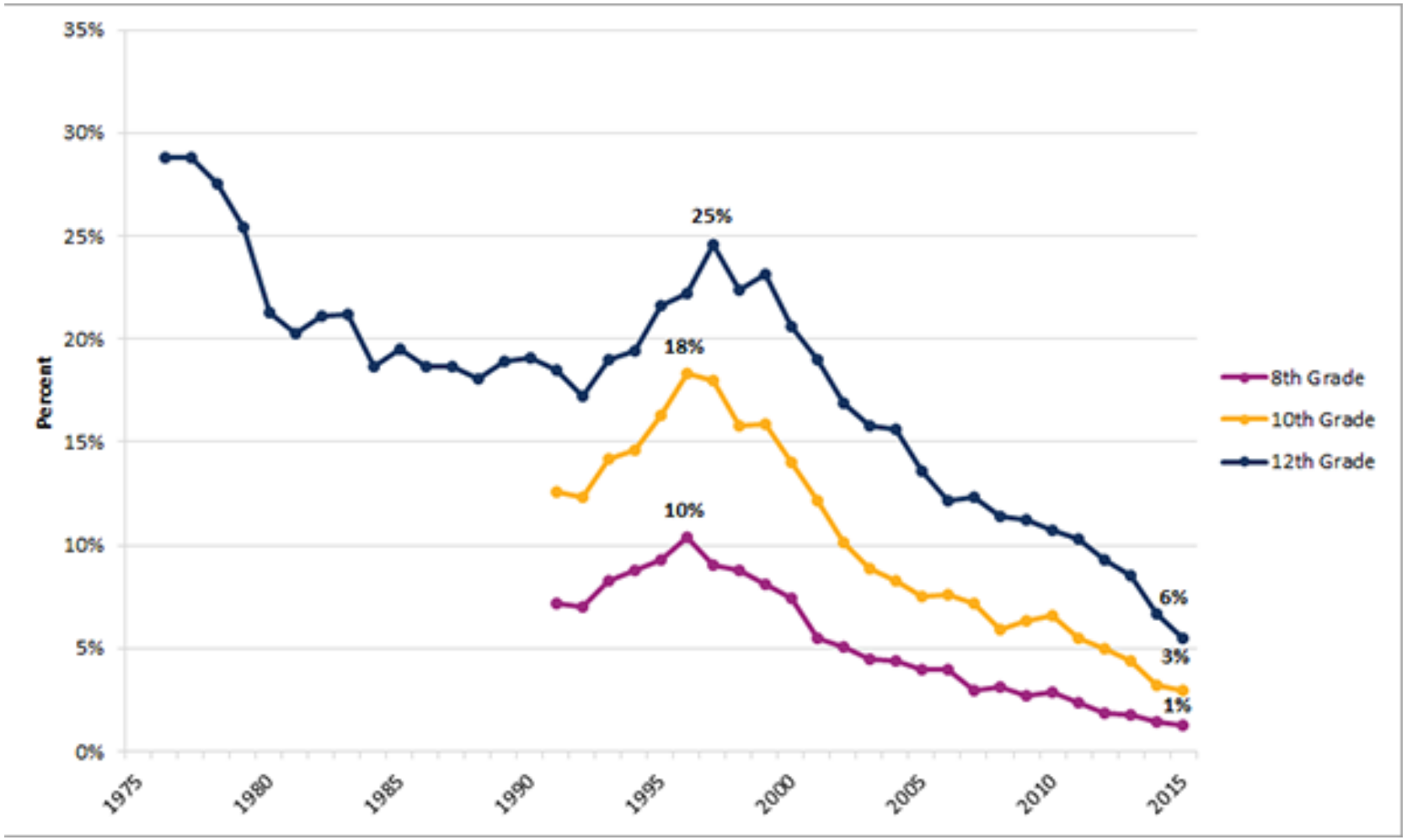
- UK Royal College of Physicians, 2016

Harms of vaping

Young people

- Youth, experimental use
- Less risk of dependence because it is harder to use vapes
- Kids who try vaping are more likely than other kids to start smoking, association, not necessarily causation, gateway

30 Day Prevalence of Daily Use of Cigarettes, by School Grade, USA 1976-2015



Source: Johnston et al., 2016

In both US and UK, increase in access to e-cigarettes has been accompanied by unprecedented declines in youth smoking. Research is ongoing.

[Source: Levy et al.,2016]

Flavourings

- Pop corn lung not yet reported from vaping
- Flavours, buttery (eg diacetyl) or with cinnamon may be harmful

Are e-cigarettes safe?

- Few adverse events reported in trials - mouth and throat irritation, dissipating over time
- Longest randomised follow up: 18 months
- Effects of long-term frequent use unknown
- Increasing number of studies on toxicology of vapour and a few on biomarkers
- Many studies suffer from major methodological problems - unrealistic exposures, lack of comparator, extrapolation from *in vitro* findings to health claims…
- Most find marked differences in *comparative* risks

i.e. e-cigarette use is *safer* than smoking

Royal College of Physicians Report , 2016

"Although it is not possible to precisely quantify the long-term health risks associated with e-cigarettes, the available data suggest that **they are unlikely to exceed 5% of those associated with smoked tobacco products**, and may well be substantially lower than this figure."

-

Aren’t E-cigarettes a Tobacco Industry ploy?

- E-cigarettes were developed *outside* the tobacco industry and pharmaceutical industry
- Tobacco companies own several large e-cigarette brands and and may use this position to have influence on the e-cigarette market
- **Most products popular in NZ and Australia are *not* tobacco industry-sourced products**

As yet unknown health effects?


The Telegraph HOME NEWS

Science

Science

E-cigarettes are no safer tha smoking tobacco, scientists warn

share

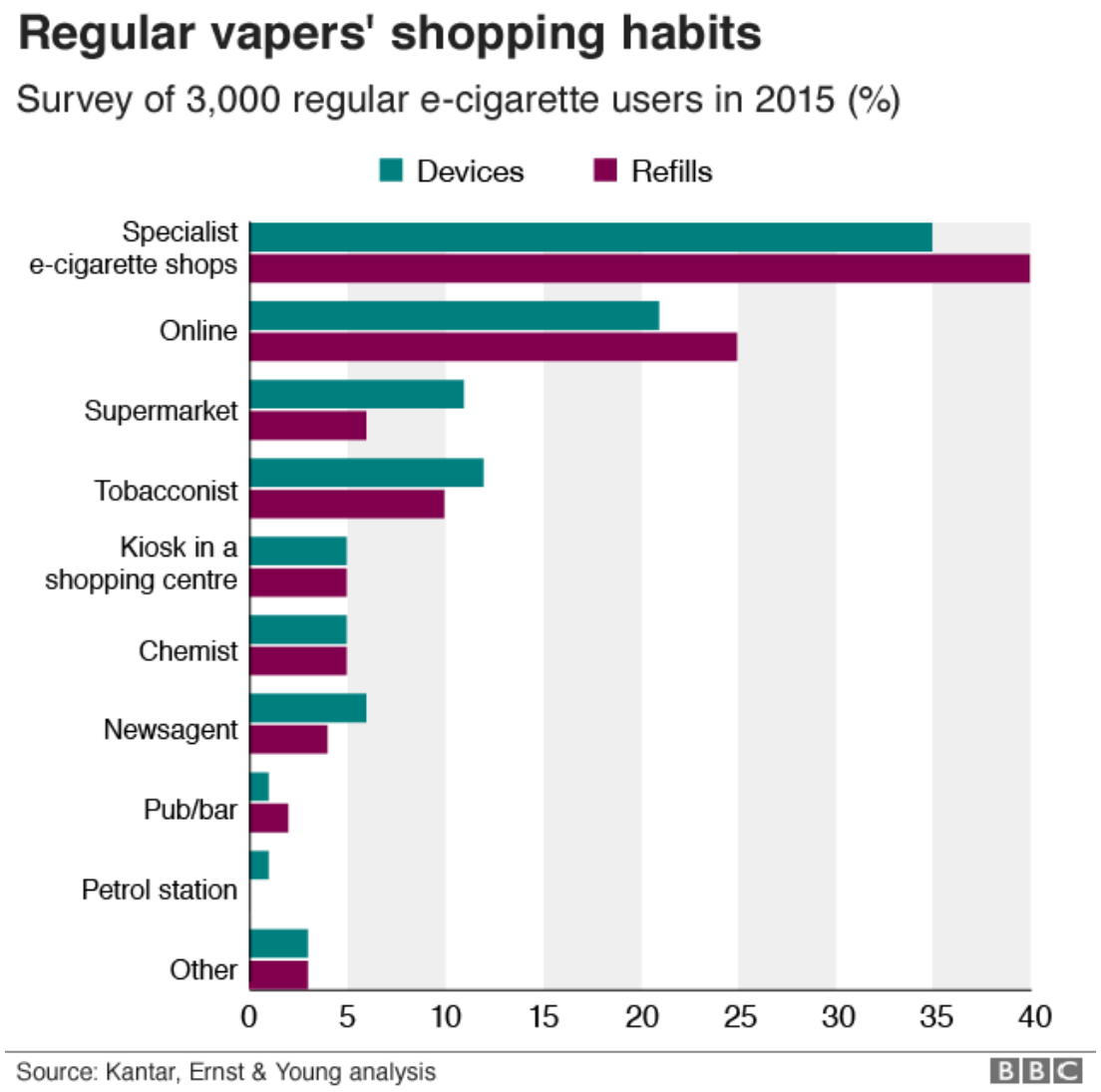
NEWSHEALTHStudy finds e-cigarettes can cause lung damage

Medical experts say the study should have preceded e-cigs' launch years ago.

“More research is needed”

- **Communications and promotion** - communicate proportionate risk, complete substitution, daily use, use in relapse prevention and what works best to enhance switching.
- **Health effects** - biomarkers, respiratory and cardiovascular endpoints.
- **Impact** - policies, regulations, media coverage, interventions, equity and vulnerable populations.
- **Products and product use** in a range of population groups. New products entering market.

Vape stores: An opportunity to reach smokers



Source: KEY report 2016

Conclusions

- E-cigarettes are a popular consumer product that may help people cut down and quit smoking
- They appear to be far safer than smoking; we should do more to encourage smokers to switch to them completely.
- With the right regulatory levers and settings and a *shift in societal and health sector understanding,* we can maximise the opportunities and mitigate risks e-cigarettes present.
- Base our views and build policies on the highest quality available evidence, AND counteract poor quality research and media inaccuracies - but be ready to change our views as new evidence emerges. [Prof Chris Bullen]

Nga mihi nui