



Science behind Tobacco Harm Reduction

...and how it impacts policy development and regulation

Clive Bates
Counterfactual

The Harm Reduction Exchange
2022

Nairobi
1 December 2022

I am a former director of Action on Smoking and Health (UK)

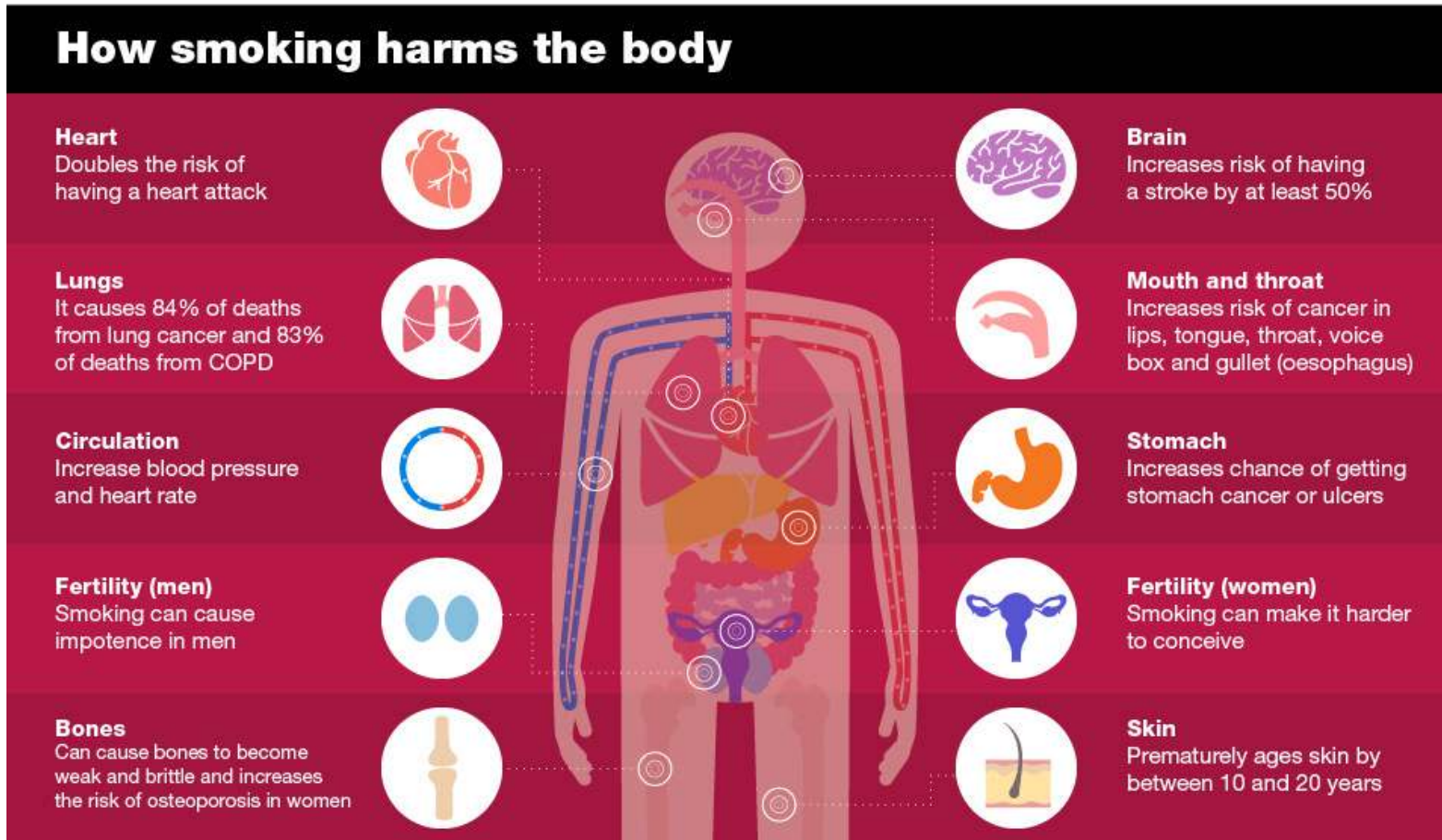
I have supported tobacco harm reduction since 1997

I have no competing interests with respect to the tobacco, e-cigarette, or pharmaceutical industries

Regulation for tobacco harm reduction

1. The problem is smoking

Well researched toll of harm from smoking...

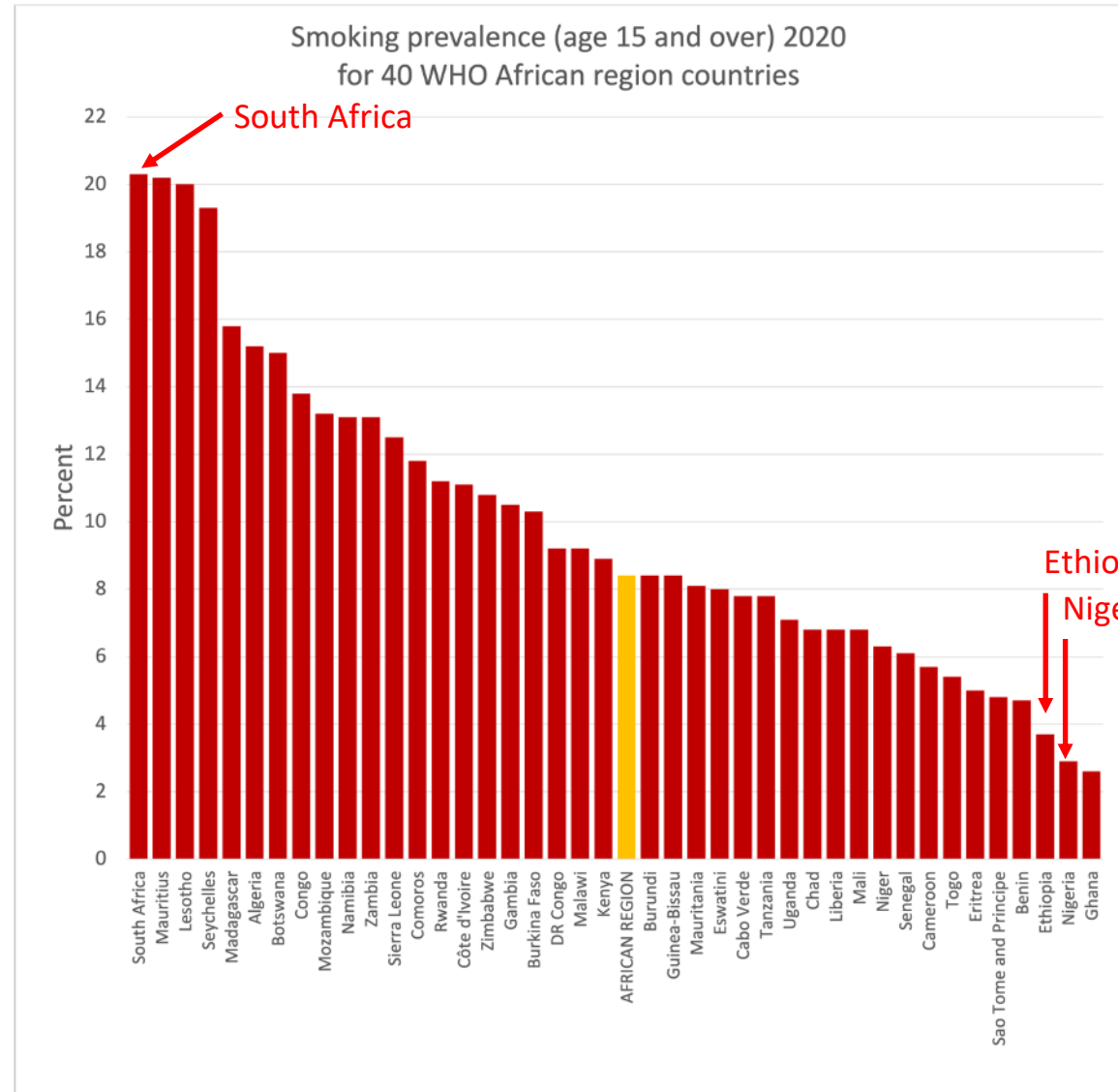


Smoking prematurely kills around 8 million annually

...more than obesity, alcohol, road accidents, drug misuse and HIV combined

...similar to COVID-19, but *every year*

Smoking prevalence in Africa – WHO (2021)

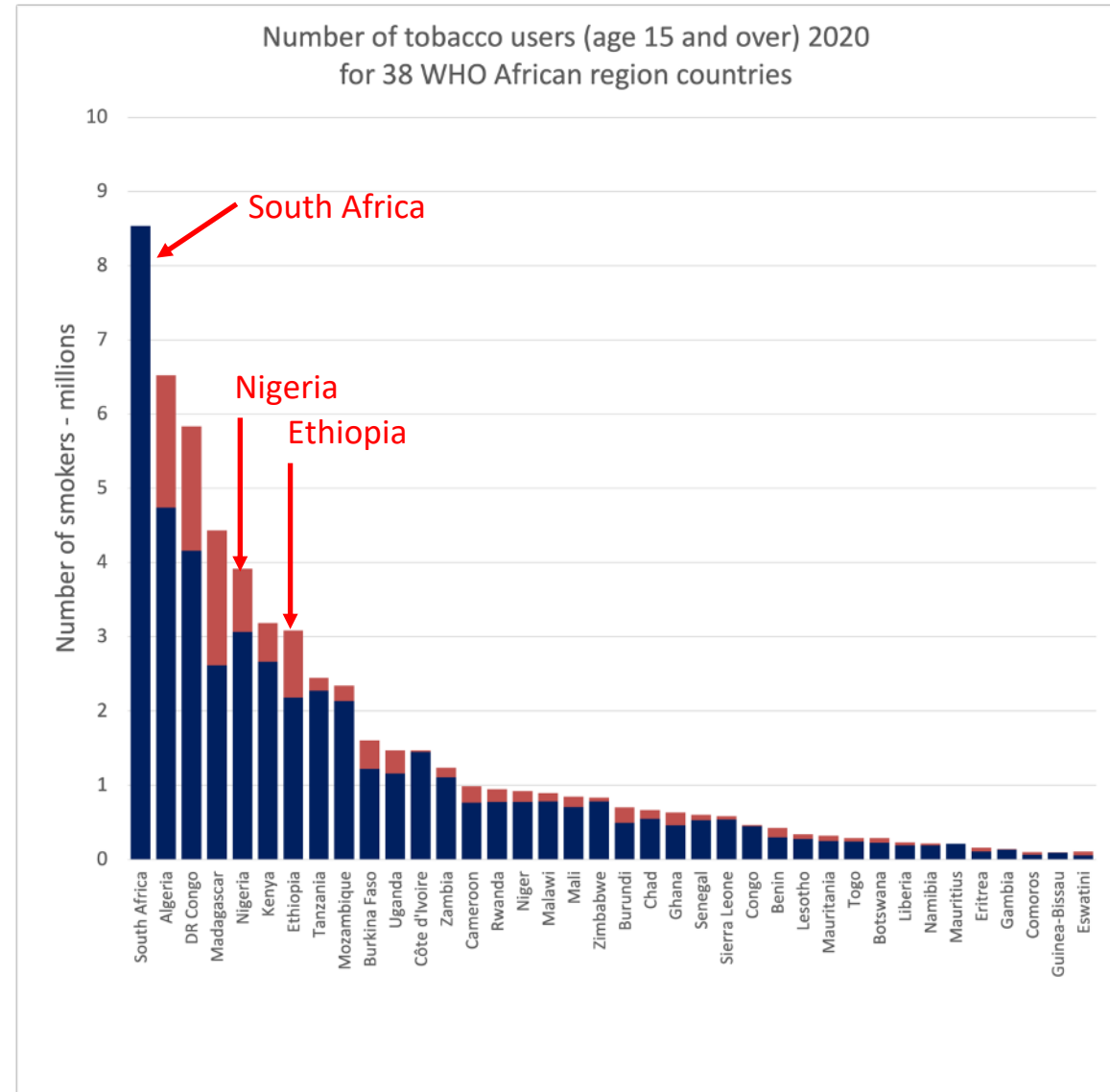


Smoking prevalence in Africa – WHO (2021)

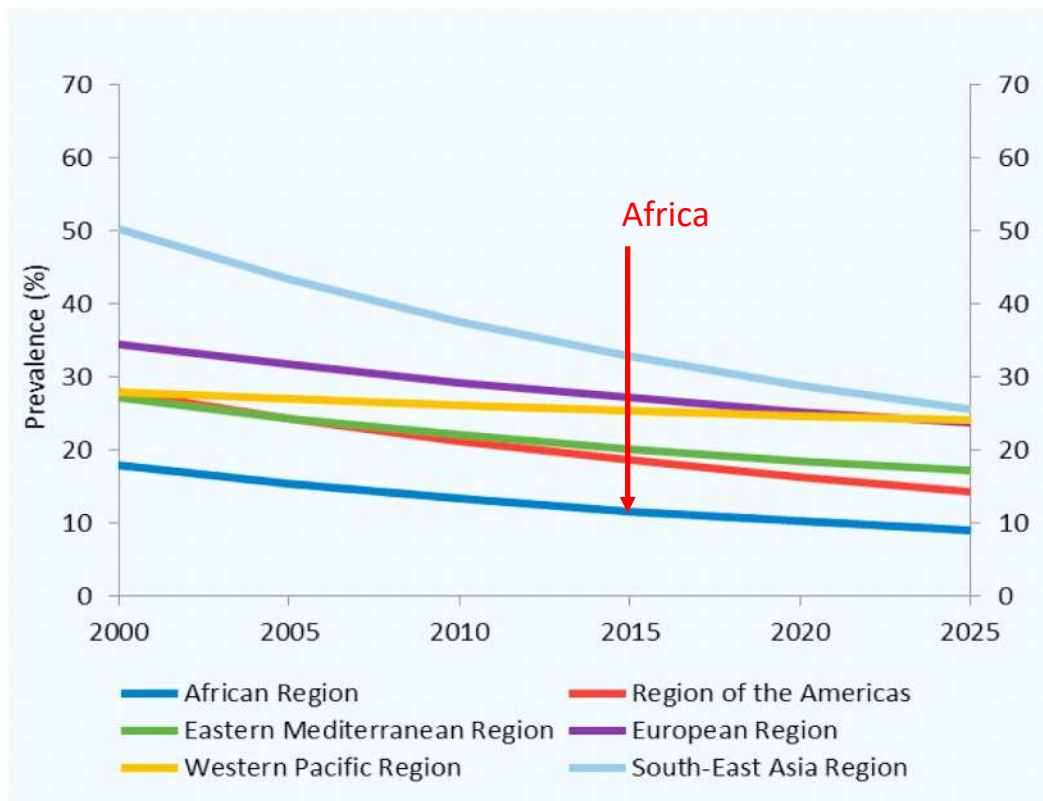
Published November 2021

WHO global report on trends in prevalence of tobacco use 2000–2025

Fourth edition

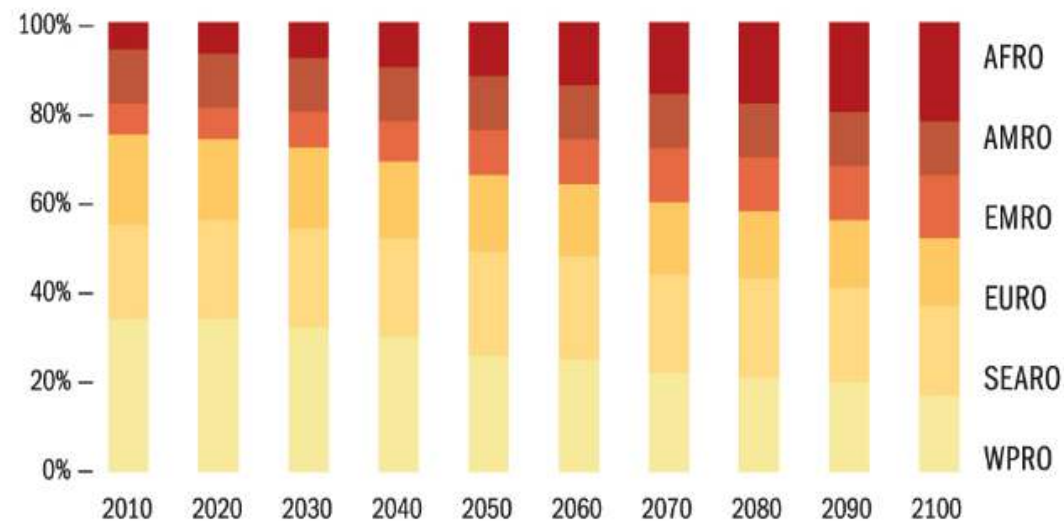


Declining prevalence but increasing population will increase African share



REGIONAL FORECAST

Combined male and female smokers by WHO region with current tobacco control policies, 2010–2100

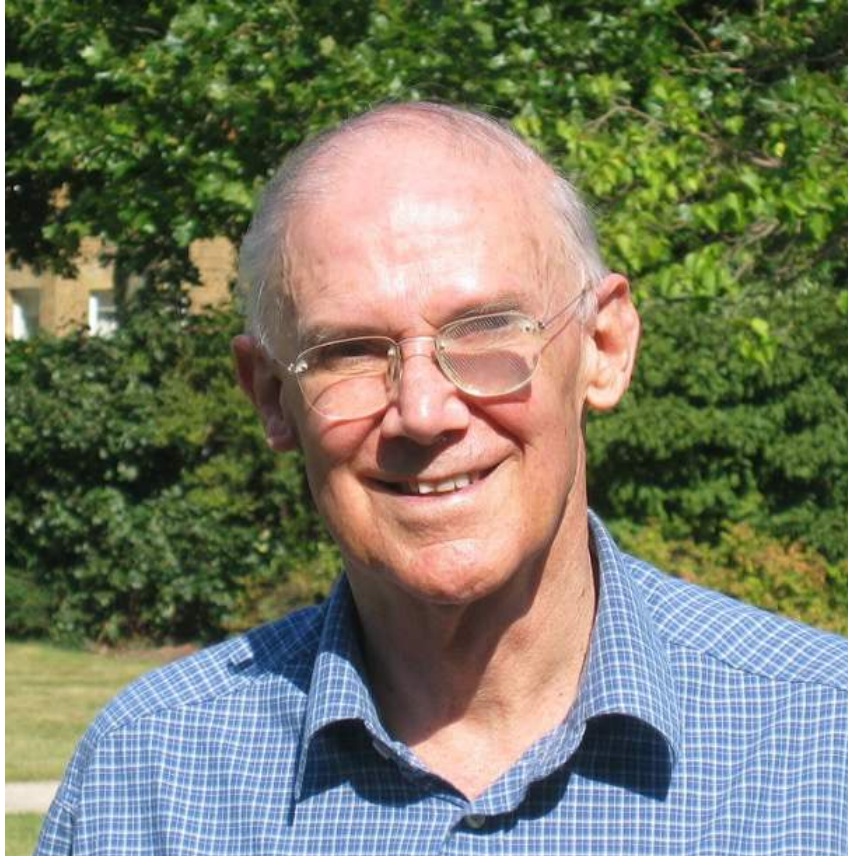


The majority of the predicted increase in the AFRO region is attributed to men.

Regulation for tobacco harm reduction

1. The problem is smoking
2. **Smoke-free alternatives**

The central insight in smoking and health



Professor Michael Russell 1932-2009

*“People smoke for
the nicotine but
die from the tar”
(1976)*

Pure nicotine based

Tobacco based

Heated aerosol

Vaping products



Heated tobacco products “Heat-not-burn”



Unheated

Oral nicotine products

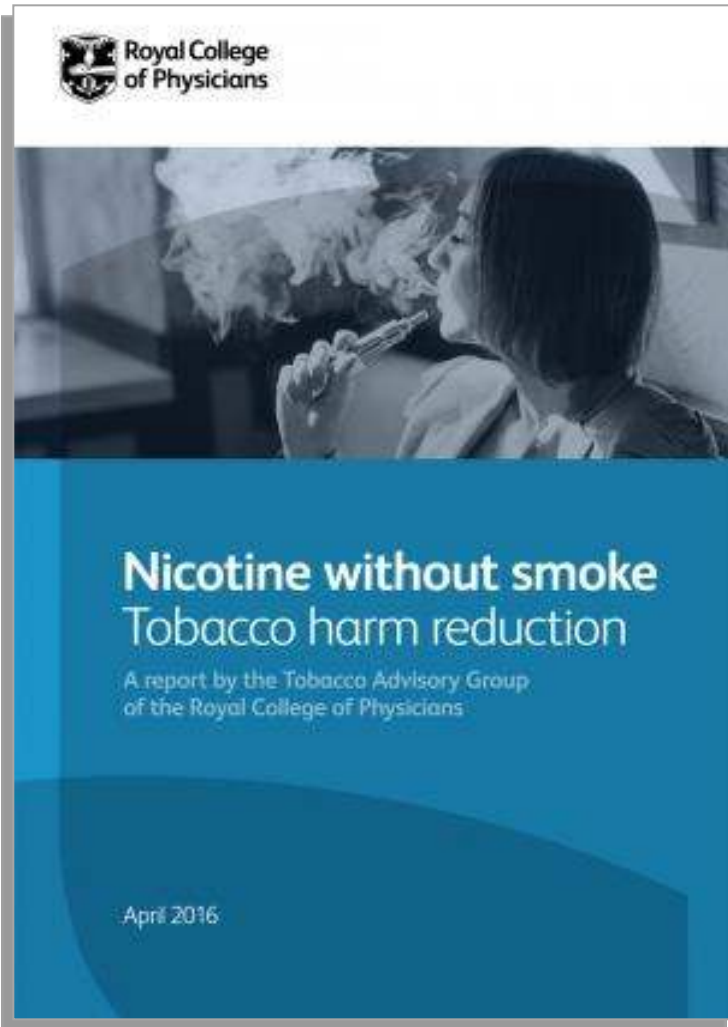


Smokeless tobacco



Items are not shown to scale

Royal College of Physicians – on relative risk



"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".

Department of Health (England) – on relative risk September 2022

Nicotine vaping in England: an evidence update including health risks and perceptions, 2022

A report commissioned by the Office for Health Improvement and Disparities

Published 29 September 2022

Authors: Ann McNeill, Eriks Simonavičius, Leonie Brose, Eve Taylor, Katherine East, Elizabeth Zulkova, Robert Calder, Debbie Robson

King's College London

International Institute for Health Research PROSPERO
International prospective register of systematic reviews

Print PDF

A systematic review of the health risks and health effects of vaping

Debbie Robson, Leonie Brose, Robert Calder, Eve Taylor, Linda Bauld, Ann McNeill, Eriks Simonavičius

Records were amended after registration. Please see the revision notes and previous versions for detail.

Leonie Brose, Robert Calder, Eve Taylor, Linda Bauld, Ann McNeill, Eriks Simonavičius. A review of the health risks and health effects of vaping. PROSPERO 2020 CRD42020215915 Available from: www.york.ac.uk/prospero/display_record.php?ID=CRD42020215915

Objectives

Does vaping (active and second-hand) have on the risk of getting cancers, respiratory disease, disease and other health conditions? If yes, with existing health conditions (as above), what are the effects of vaping on disease outcomes?

The following databases: CINAHL, Embase, MEDLINE, PsycINFO, and PubMed databases, from August 2021.

Search terms comprising terms to identify all the literature on e-cigarettes/vaping will be used to ensure the search implications and outcomes are included.

Peer-reviewed published papers and those in press. German language publications will be included.

Non-peer reviewed literature (e.g. posters, conference abstracts, PhD theses).

Study design

Randomised controlled trials, controlled and uncontrolled trials, cross over, single group, before and after, cohort, case control and cross-sectional and longitudinal studies, mixed methods, case studies.

Qualitative studies.

Peer-reviewed published papers and those in press. German language publications will be included.

Non-peer reviewed literature (e.g. posters, conference abstracts, PhD theses).

Population

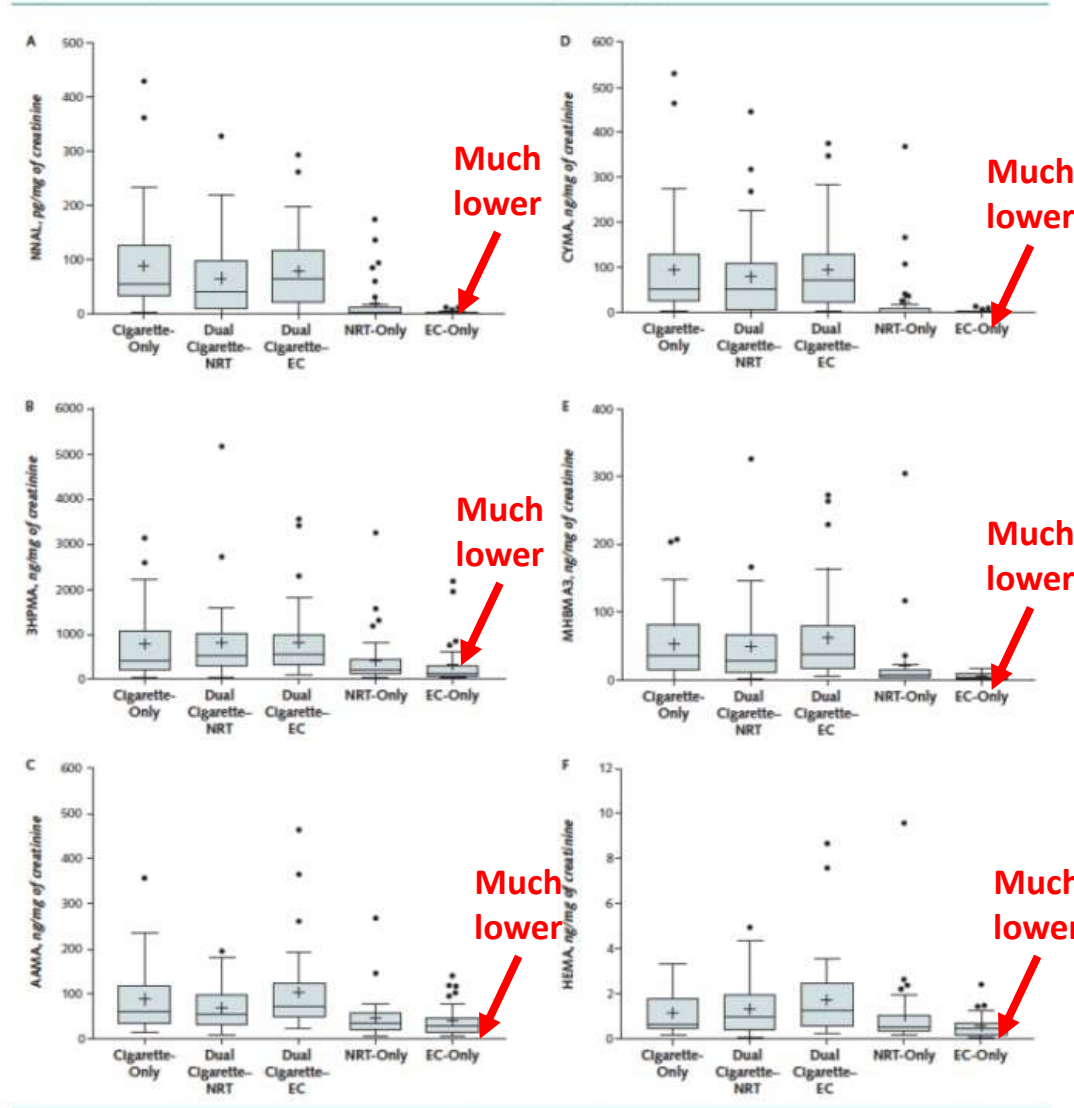
Vaping (first and second hand) in humans, cells and animals.

Definition of 'vaping' as the act of using an e-cigarette or vaping product, and the term 'vaping products' to refer to e-cigarettes and refill containers (e-liquids).

We use the term 'vapers' to refer to people who regularly use vaping products or e-cigarettes and we use the term 'vapour' for the aerosol resulting from use. Our terms do not include cannabis vaping or the vaping of other illicit substances and are not the subject of this review.

“...vaping poses only a **small fraction of the risks** of smoking”

The strongest evidence for reduced harm is reduced exposure



Evidence from randomised controlled trials

The screenshot displays the Cochrane Library interface for a systematic review. At the top, the Cochrane Library logo is on the left, and navigation links for 'Cochrane Reviews', 'Trials', 'Clinical Answers', 'About', and 'Help' are in the center. A search bar is on the right. The main content area features the title 'Electronic cigarettes for smoking cessation' and a list of authors. Below this, the 'Abstract' section is expanded, showing the 'Background' and 'Objectives' sections. The 'Background' text states: 'Electronic cigarettes (ECs) are handheld electronic vaping devices which produce an aerosol by heating an e-liquid. Some people who smoke use ECs to stop or reduce smoking, although some organizations, advocacy groups and policymakers have discouraged this, citing lack of evidence of efficacy and safety. People who smoke, healthcare providers and regulators want to know if ECs can help people quit smoking, and if they are safe to use for this purpose. This is a review update conducted as part of a living systematic review.' The 'Objectives' section states: 'To examine the effectiveness, tolerability, and safety of using electronic cigarettes (ECs) to help people who smoke tobacco achieve long-term smoking abstinence.' The 'Search methods' section states: 'We searched the Cochrane Tobacco Addiction Group's Specialized Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, and PsycINFO to 1 July 2022, and reference-checked and contacted study authors.' On the right side of the page, there is a 'Contents' sidebar with a list of sections: Abstract, PICOs, Plain language summary, Authors' conclusions, Summary of findings, Background, Objectives, Methods, Results, Discussion, Appendices, Figures and tables, References, Characteristics of studies, Data and analyses, and Download statistical data. Below the 'Contents' sidebar is a 'Related' section with a link to 'Cochrane Clinical Answers'.

Electronic cigarettes for smoking cessation

Jamie Hartmann-Boyce, Nicola Lindson, Ailsa R Butler, Hayden McRobbie, Chris Bullen, Rachna Begh, Annika Theodoulou, Caitlin Notley, Nancy A Rigotti, Tari Turner, Thomas R Fanshawe, Peter Hajek

Version published: 17 November 2022

Abstract

Available in English | Español | 한국어

Background

Electronic cigarettes (ECs) are handheld electronic vaping devices which produce an aerosol by heating an e-liquid. Some people who smoke use ECs to stop or reduce smoking, although some organizations, advocacy groups and policymakers have discouraged this, citing lack of evidence of efficacy and safety. People who smoke, healthcare providers and regulators want to know if ECs can help people quit smoking, and if they are safe to use for this purpose. This is a review update conducted as part of a living systematic review.

Objectives

To examine the effectiveness, tolerability, and safety of using electronic cigarettes (ECs) to help people who smoke tobacco achieve long-term smoking abstinence.

Search methods

We searched the Cochrane Tobacco Addiction Group's Specialized Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase, and PsycINFO to 1 July 2022, and reference-checked and contacted study authors.

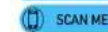
“There is high-certainty evidence that e-cigarettes with nicotine increase quit rates compared to NRT”

Evidence for beneficial population effect ‘triangulates’

Effectiveness for smoking cessation



1. Consistent evidence from RCTs that e-cigarettes can be at least as effective as licensed nicotine products when used in a quit attempt
2. Complementary evidence from comparative observational studies of e-cigarettes when used under real-world conditions, though may be context- and population-dependent
3. Supportive evidence from population trends in England and the US showing a positive association between prevalence of e-cigarette use in the population and smoking cessation rates



- *Also, user testimony*
- *And... it is what you would expect!!*

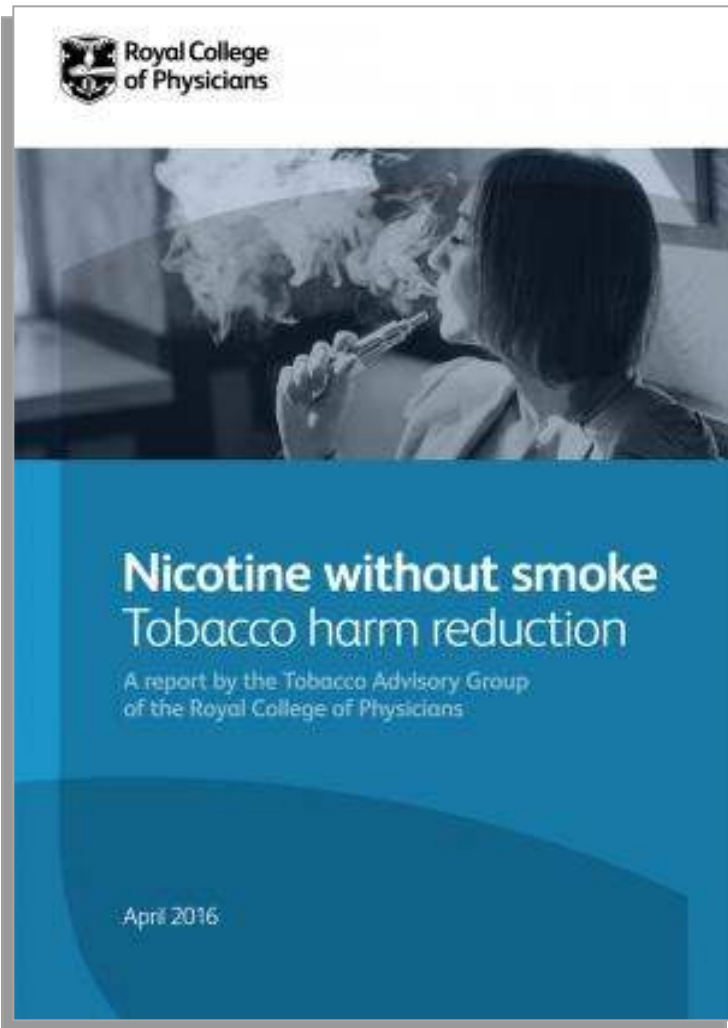
Regulation for tobacco harm reduction

1. The problem is smoking
2. Smoke-free alternatives
3. Policy and unintended consequences

The public health mechanism



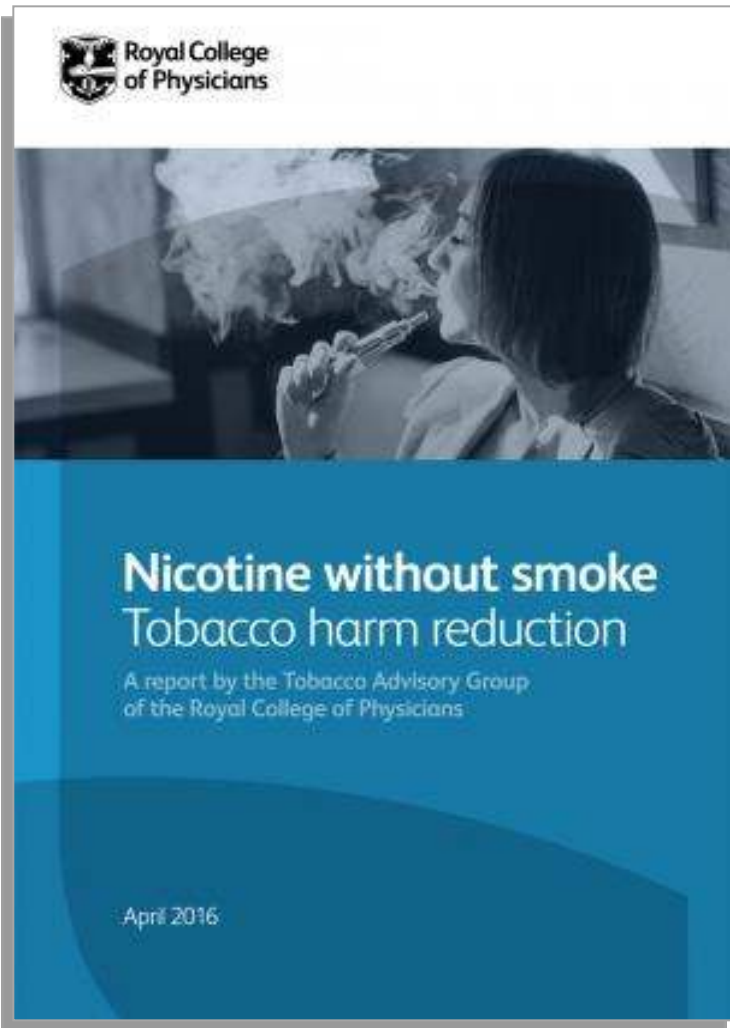
Royal College of Physicians – perverse unintended consequences



12.10 Regulation and harm reduction

It is difficult to determine, and more difficult still to apply, the right level of regulation for reduced-harm products. The wide range of different regulatory approaches adopted in different countries in relation to e-cigarettes, which spans a spectrum from freedom to market as a consumer product to complete prohibition, reflects a desire, on the one hand, to encourage as many smokers as possible to switch from tobacco to e-cigarettes and, on the other, to prevent harm to users or others from e-cigarette use. A risk-averse, precautionary approach to e-cigarette regulation can be proposed as a means of minimising the risk of avoidable harm, eg exposure to toxins in e-cigarette vapour, renormalisation, gateway progression to smoking, or other real or potential risks. However, if this approach also makes e-cigarettes less easily accessible, less palatable or acceptable, more expensive, less consumer friendly or pharmacologically less effective, or inhibits innovation and development of new and improved products, then it causes harm by perpetuating smoking. Getting this balance right is difficult.

Royal College of Physicians – perverse unintended consequences



...if a risk-averse, precautionary approach makes e-cigarettes:

- less easily accessible
- less palatable or acceptable
- more expensive
- less consumer friendly
- pharmacologically less effective
- inhibits innovation ...

...then it causes harm by perpetuating smoking.

1. Prohibition of vaping and other smokefree products



1. Prohibition of vaping and other smokefree products



South-East Asia

India



Health topics

Our work

News

Emergencies

Home / News / Feature stories / Detail / Dr Harsh Vardhan conferred WHO award for leadership in tobacco control

Dr Harsh Vardhan conferred WHO award for leadership in tobacco control

2 June 2021

New Delhi, 31 May 2021: Dr Harsh Vardhan, Union Health and Family Welfare Minister, was conferred the [WHO Director-General's Special Recognition Award](#) for his invaluable leadership in accelerating tobacco control efforts in India. He was awarded at a virtual event convened at Nirman Bhawan to mark the World No Tobacco Day on 31 May.

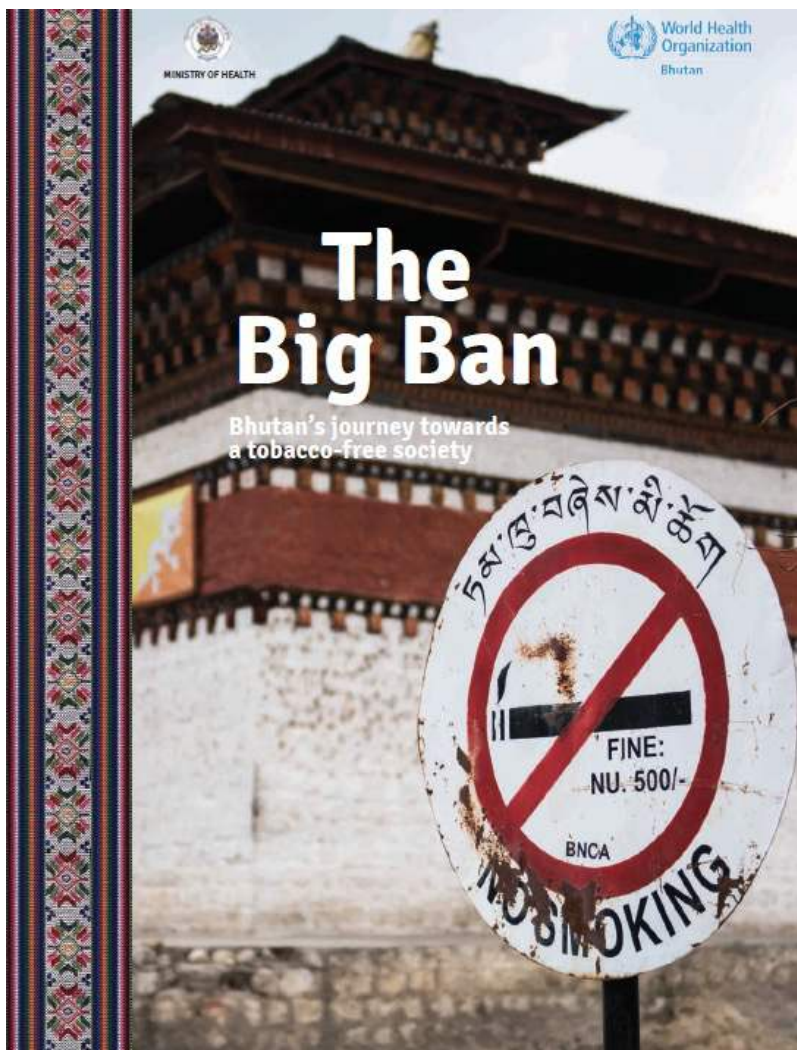
Dr Harsh Vardhan received the award for spearheading the Government of India's legislation to ban e-cigarettes and heated tobacco products in 2019.



Dr Harsh Vardhan received the award for his leadership in bringing in legislation to ban e-cigarettes and heated tobacco products in 2019.

“Dr Harsh Vardhan received the award for spearheading the Government of India’s legislation to ban e-cigarettes and heated tobacco products in 2019.”

1. Prohibition of vaping and other smokefree products



FOREWORD



including technical support to the country. The organisation was there to observe the country's first "No Tobacco Day" in 1989, it was there to support the legislation that drew its essence from WHO Framework Convention on Tobacco Control and it will continue to support Bhutan in its bid to stamp out this growing menace to its free healthcare.

Bhutan ratified WHO FCTC in 2004 and resolved on a nationwide ban of tobacco sale that same year in its bid to control tobacco use by the people, especially the youth.

Today, the country is faced with a greater challenge, that of illegal traffic in tobacco and its products. So long as the demand within the country persists, it will continue to fuel the illicit market that has expanded since the ban of its sale in early 2000. Unfortunately, as studies indicate, Bhutanese youth are at the centre of this growing illegal trade in tobacco and its products.

This gives the country all the more reason to step up measures and efforts to rein in on tobacco. It owes this to its youth.

WHO shares the country's concerns and it appears timely that Bhutan embraces the Protocol to Eliminate Illicit Trade in Tobacco Products the country is yet to ratify.

Dr Rui Paulo de Jesus
WHO Representative

A national ban on sale of tobacco and all its products is a bold decision, an achievement countries in other parts of the world can only hope and wish for.

That Bhutan has been able to do this, its people should realise, is an accomplishment, a giant step towards becoming, not just a tobacco free society, but ensuring a healthy, productive and brighter future.

In this endeavour, as has always been the case, WHO is happy to offer its assistance in terms of public advocacy and awareness.

Today, the country is faced with a greater challenge, that of illegal traffic in tobacco and its products.

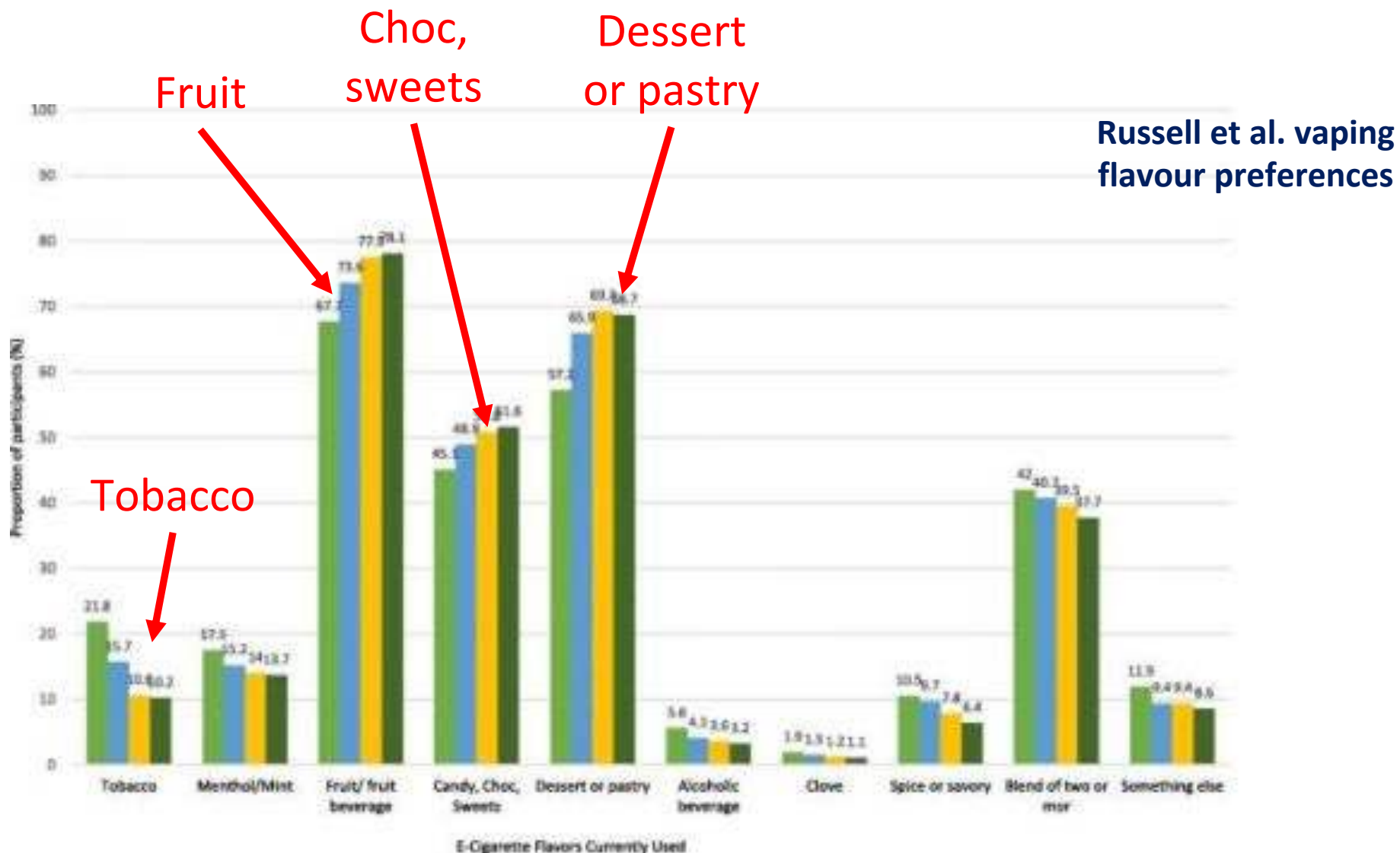
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2. Banning e-liquid flavours



2. Banning e-liquid flavours



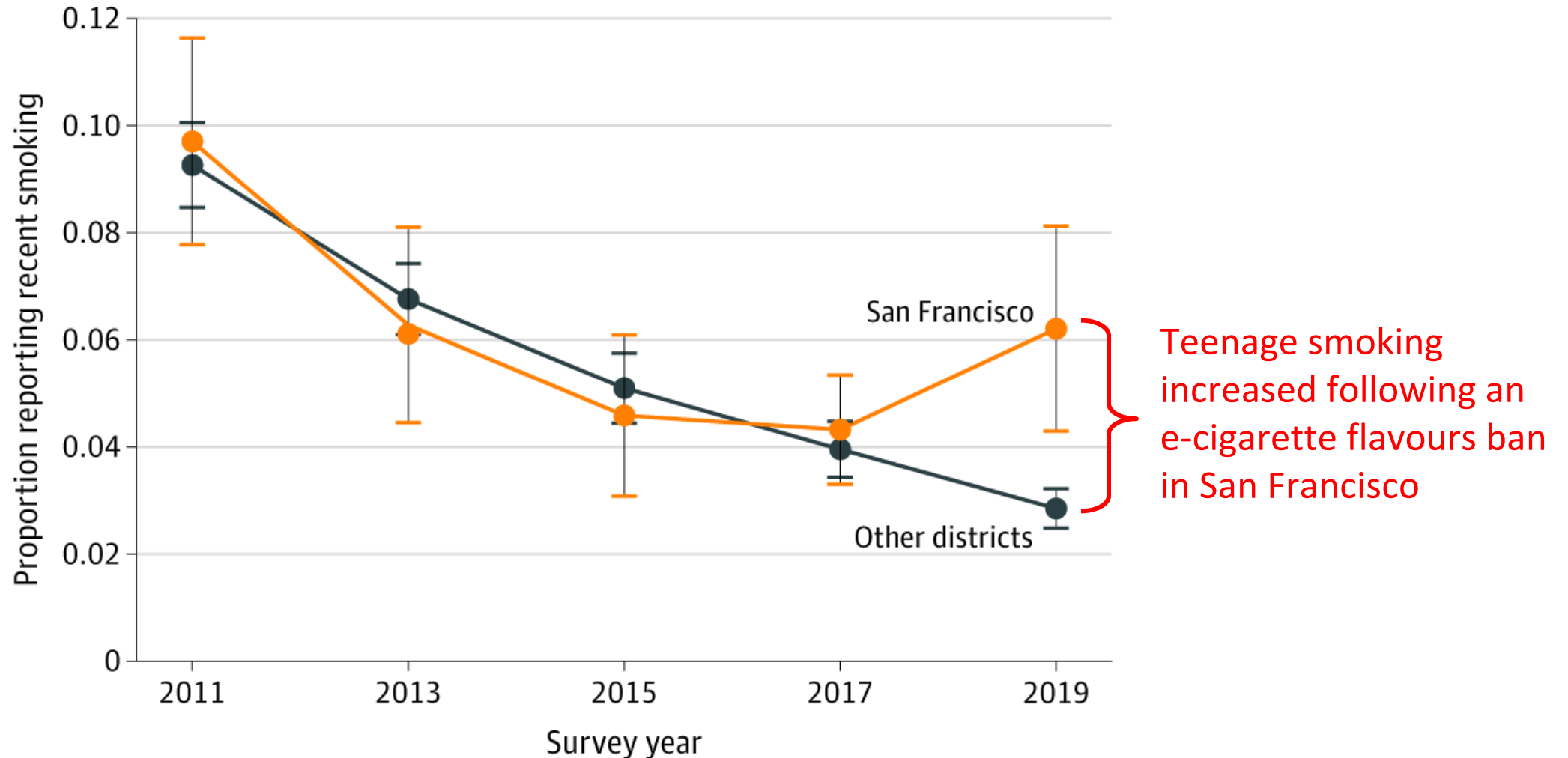
Russell C, et al. Changing patterns of first e-cigarette flavor used and current flavors used by 20,836 adult frequent e-cigarette users in the USA. *Harm Reduct J.* BioMed Central; 2018

2. Banning e-liquid flavours

- **The intended outcome: abstinence from nicotine, vaping, smoking and any other vice**
- Using tobacco flavoured vape products instead of other flavoured products
- Accessing flavoured vapes via an illicit supply chain (a black market)
- Relapsing back from vaping to smoking – both teenagers and adults
- Not switching from smoking to vaping and continuing to smoke
- Continuing to smoke or to start smoking as an adolescent because parents or adult role models smoke instead of vaping
- Using other tobacco or nicotine products – hand-rolling tobacco, smokeless tobacco, heated tobacco, or new nicotine pouches
- Buying from foreign suppliers in person or via the internet and importing for personal use
- Buying from foreign suppliers to resell to others through informal networks
- Making and mixing their own flavours at home or buying or selling home-mixed flavours
- Using vapes that are made to look tobacco flavoured but have other flavours
- Using flavour agents for food, drink or aromatherapy for adding to unflavoured nicotine liquids
- Using flavours made for vaping but ostensibly marketed for another purpose
- Switching to cannabinoid (THC or CBD) vapes
- Initiating smoking instead of initiating vaping
- Adopting another risk behaviour that may be worse

2. Banning e-liquid flavours

Past-30-Day Smoking Trends Among High School Students Younger Than 18 Years



3. Banning advertising of vapes



3. Banning advertising of vapes



ELSEVIER

Journal of Health Economics
Volume 68, December 2019, 102227



Does e-cigarette advertising encourage adult smokers to quit?

Dhaval Dave ^{a, b, c} ✉, Daniel Dench ^d ✉, Michael Grossman ^{b, c, d} ✉, Donald S. Kenkel ^{b, c} ✉, Henry Saffer ^b ✉

[✚ Show more](#)

<https://doi.org/10.1016/j.jhealeco.2019.102227> [Get rights and content](#)

3. Banning advertising of vapes

Set standards avoid bans



The screenshot shows the CAP website header with the logo and tagline: "Responsible for writing and maintaining the UK Advertising Codes and providing authoritative advice on the rules". A search bar is present. The main navigation menu includes: Home, About us, Advice and Training, Advertising Codes, News and reports, and Industry Zone. A secondary menu below includes: AdviceOnline database, Advertising Guidance, Bespoke Copy Advice, Website audits, Training and events, Copy Advice Team, and eLearning. The breadcrumb trail reads: CAP / Advice and Training / AdviceOnline database / Electronic cigarettes. Social media icons for Twitter, LinkedIn, Facebook, and YouTube are visible. The page title is "Electronic cigarettes" and the sub-header is "AdviceOnline Database" with a search bar.

- ✓ Don't be socially irresponsible
- ✓ Don't target or feature children
- ✓ Don't confuse e-cigarettes with tobacco products
- ✓ Don't make health or safety claims
- ✓ Don't make smoking cessation claims
- ✓ Don't mislead about product ingredients
- ✓ Don't mislead about where products may be use

4. Fear-based warnings

**This product contains
nicotine which is a highly
addictive substance.**

4. Fear-based warnings

Addictive Behaviors Reports 8 (2018) 136–139

Contents lists available at [ScienceDirect](#)

 **Addictive Behaviors Reports**

journal homepage: www.elsevier.com/locate/abrep



Messages matter: The Tobacco Products Directive nicotine addiction health warning versus an alternative relative risk message on smokers' willingness to use and purchase an electronic cigarette

Sharon Cox^{*}, Daniel Frings, Reeda Ahmed, Lynne Dawkins

Centre for Addictive Behaviours Research, School of Applied Sciences, London South Bank University, 103 Borough Road, London SE1 0AA, UK



“[Our findings] suggest that the TPD nicotine addiction e-cigarette health warning may reduce smokers' willingness to use, and likelihood of purchasing an e-cigarette.”

4. Fear-based warnings

*This product is likely to
be at least 95% safer
than smoking cigarettes*

*No product is completely
safe, but use of this
product is much less
harmful than smoking*

5. Taxing safer products



5. Taxing safer products



DEPARTMENT OF ECONOMICS

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Atlanta, Georgia 30303

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Department of Economics
P.O. Box 3992
Atlanta, Georgia 30302-3992

November 8, 2021

Dear Members of Congress:

My name is Michael Pesko and I am an Associate Professor in the Department of Economics at Georgia State University ([website](#)). I have a \$1.4 million dollar grant from the National Institutes of Health to conduct e-cigarette policy evaluation research, including evaluation of e-cigarette taxes. I do *not* receive funding from the tobacco industry, or related groups.

Congress: raise e-cigarette taxes to a level comparable to cigarette taxes...

- Reduce teen e-cigarette use by 2.7 percentage points, but that 2 in 3 teens who do not use e-cigarettes due to the tax would smoke cigarettes instead.
-approximately a half million extra teenage smokers overall.
- ... raise the number of daily adult cigarette smokers by 2.5 million nationally and reduce adult e-cigarette users by a similar number.
- For every e-cigarette pod eliminated by an e-cigarette tax, more than 5.5 extra packs of cigarettes are sold instead

The solution: Risk-Proportionate Regulation

Measure	Cigarettes, hand-rolling tobacco and other combustibles
Taxation	Relatively high taxes
Advertising	Prohibit other than within trade
Warnings	Graphic warnings depicting disease
Public places	Legally mandated controls
Plain packaging	Yes
Ingredients	Control reward-enhancing additives
Age restrictions	No sales to under-21s
Internet sales	Banned
Product standards	Control risks and reduce appeal

The solution: Risk-Proportionate Regulation

Measure	Cigarettes, hand-rolling tobacco and other combustibles	Vaping, heated tobacco smokeless and oral nicotine
Taxation	Relatively high taxes	Low or zero tax (sales tax only)
Advertising	Prohibit other than within trade	Control themes and placement
Warnings	Graphic warnings depicting disease	Messages encouraging switching
Public places	Legally mandated controls	Up to the discretion of the owner
Plain packaging	Yes	No
Ingredients	Control reward-enhancing additives	Blacklist material health hazards
Age restrictions	No sales to under-21s	No sales to under-18s
Internet sales	Banned	Permitted with age controls
Product standards	Control risks and reduce appeal	Control risks

Regulations for tobacco harm reduction

1. The problem is smoking
2. Smoke-free alternatives
3. Policy and unintended consequences
4. Innovation (and its enemies)

A technology transition - cars



A technology transition - electricity



Innovation and its enemies...

“Claims about the promise of new technology are at times greeted with skepticism, vilification or outright opposition—often dominated by slander, innuendo, scare tactics, conspiracy theories and misinformation.

“The assumption that new technologies carry unknown risks guides much of the debate. This is often amplified to levels that overshadow the dangers of known risks.”

Regulation for tobacco harm reduction

1. The problem is smoking
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4. Innovation (and its enemies)

Thankyou!



Counterfactual

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