



ST VINCENT'S  
HEALTH AUSTRALIA

# I just can't talk about e-cigarettes anymore ... smoking cessation in 2023

Nexus Dual Diagnosis March 2023

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# Outline

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## Epidemiology

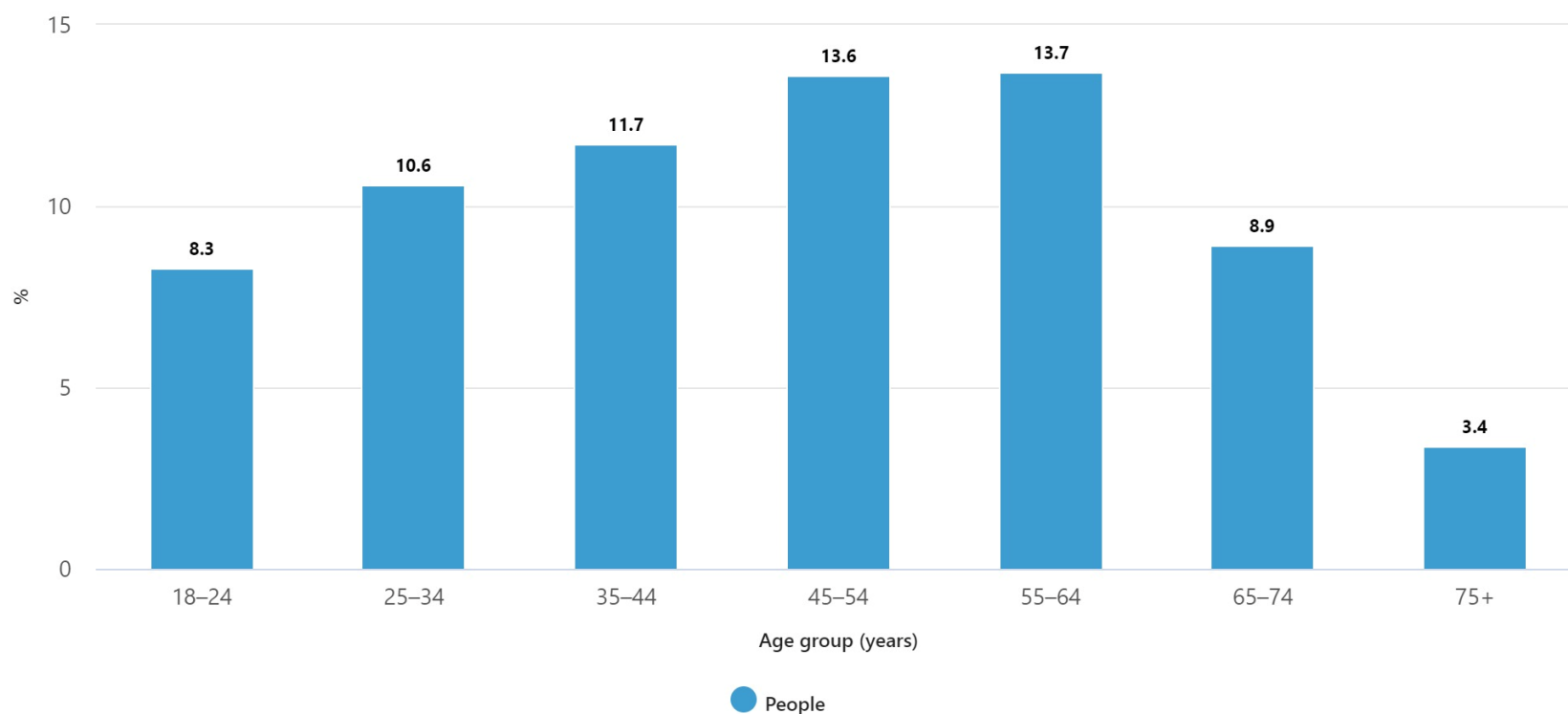
### E-cigarettes – current state of play

### Other equally (if not more) important things

- counselling approaches
- online/electronic
- on varenicline
- cytisine

# Australia: National Health Survey

Proportion of current daily smokers by age, 2020-21



Source: Australian Bureau of Statistics, Smoking 2020-21 financial year

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In 2020-21, current daily smokers aged 18 years and over had higher rates of the following long-term health conditions compared to those who had never smoked:

One in three (32.0%) had a mental health and/or behavioural diagnosis

One in four (26.2%) had back pain

One in seven (14.8%) had asthma

# cigg/day approx. 10 but increased with age

# Divisive



**E-CIGARETTES**  
**GET THE FACTS**

**E-CIGARETTES CAN BE HARMFUL**  
They contain chemicals and toxins that can cause serious health issues.

**People are MORE LIKELY TO TAKE UP TOBACCO SMOKING** if they use e-cigarettes.

**E-CIGARETTES ARE NOT PROVEN SAFE AND EFFECTIVE CESSATION AIDS**  
There are other proven safe and effective options to help smokers quit.

**www.nhmrc.gov.au/ecigs**



## Vaping is 95% less harmful than smoking

2014

### NUTT AND COLLEAGUES

An expert group led by Professor David Nutt estimated vaping carried only 4% of the harm of cigarette smoking

2015

### PUBLIC HEALTH ENGLAND

"E-cigarettes are 95% less harmful to your health than normal cigarettes" based on a comprehensive review of the scientific evidence in 2015 and again in 2018

2016

### UK ROYAL COLLEGE OF PHYSICIANS

A detailed independent review concluded health risks "are unlikely to exceed 5% of those associated with smoked tobacco products, and may well be substantially lower"

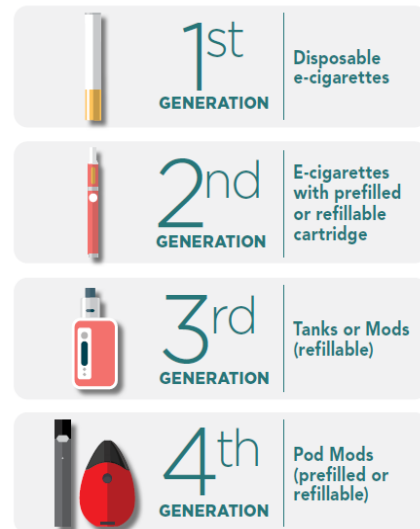
2018

### NASEM

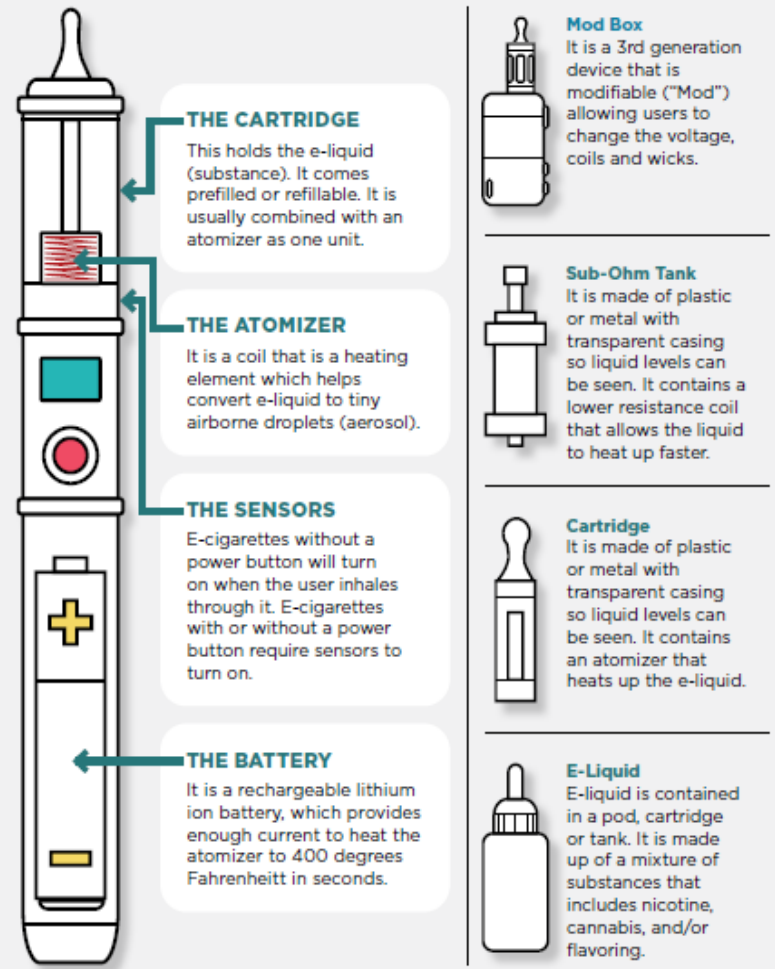
The US National Academies of Sciences, Engineering and Medicine: "while e-cigarettes are not without risks, they are likely to be far less harmful than conventional cigarettes"

# US CDC E-cigarette, or Vaping, products visual dictionary

## The Evolution of E-Cigarette, or Vaping, Products



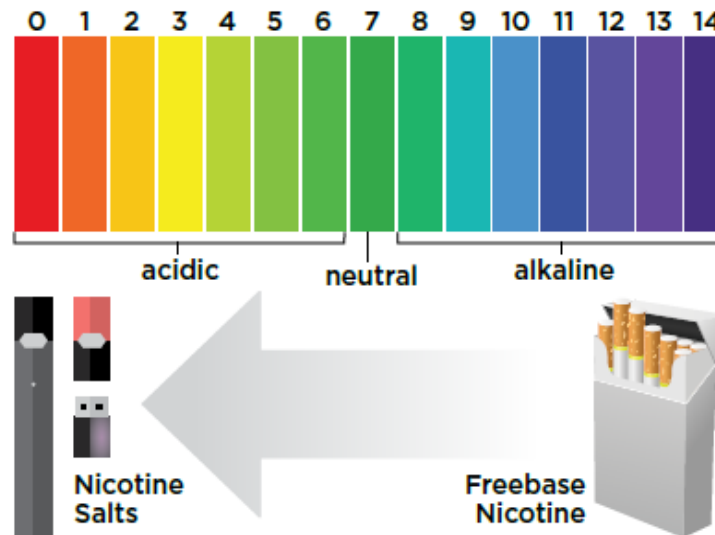
## THE E-CIGARETTE



# Evolving Quickly



# Evolving Quickly



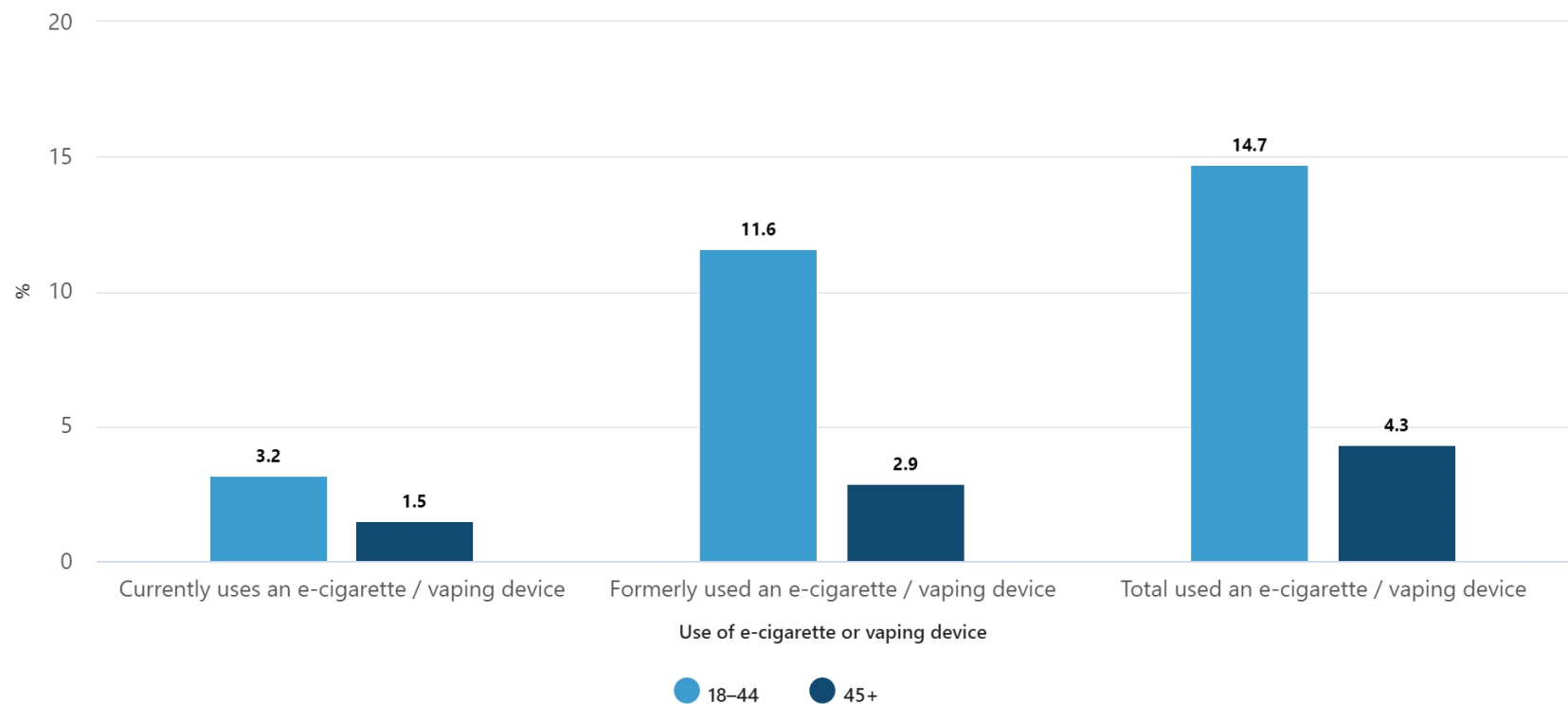
For accessibility, explanation of graphic can be found in [Appendix page 25](#).

## Pod Mods

- Pod Mods typically use nicotine salts rather than the freebase nicotine used in most other e-cigarette, or vaping, products.
- Nicotine salts, which have a lower pH than free base nicotine, allow particularly high levels of nicotine to be inhaled more easily and with less irritation to the throat than freebase nicotine.



Proportion of people who used an e-cigarette or vaping device by age, 2020-21



Source: Australian Bureau of Statistics, Smoking 2020-21 financial year

## **Age > 18**

- **Men > women (2.9% vs 1.6%)**
- **More common in 18-24 (4.8%) than older age groups**

## **Of smokers**

- **8.9% currently use an e-cigg and 23.8% have formerly used**

## **US data**

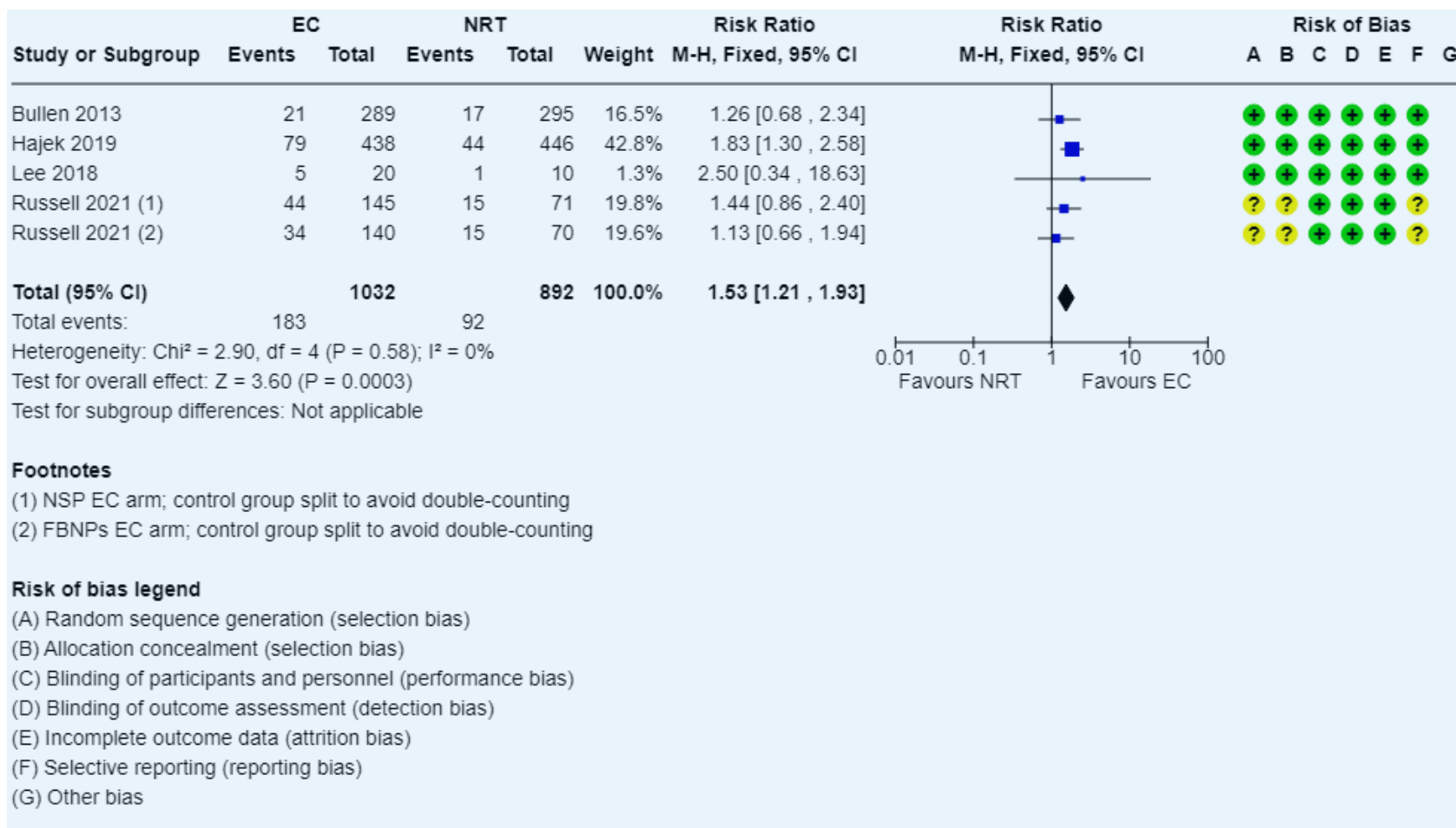
- **US 3.7% current use adults, 11.3% high school students used in last 30 days**
- **Current ecigg users 36.9% currently smoke combustible tobacco, 39.5% ex-smokers, 23.6% never combustible tobacco smokers**
- **56% of ecigg users aged 18-24 never smoked combustible tobacco**

# Australia Legal Status

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- Vaping with or without nicotine covered by tobacco product legislation (i.e everything that pertains to tobacco pertains to non-nicotine vapes – age, therapeutic claims, marketing etc...)
- Nicotine containing are S4 products but none on ARTG so pathways for unapproved therapeutic use
- Product standard TGO 110 (child resistant closures, warning labels, max concentration 2%) – overseas supplier, script available, 3 months supply at a time. SAS authorised prescriber streamlined. (Sale of nicotine e-cigarettes and liquid nicotine illegal without a doctors prescription)
- Most e-cigarettes contain nicotine (easy access +++)
- Not allowed to vape anywhere where you can not have combustible tobacco (except in WA)
- Described as a grudging tolerance; hard to match product and supply, liability re: unapproved medicine
- Restriction to smokers vs poor enforcement

# Cochrane Sep 2021 – Electronic Cigarettes for Smoking Cessation



# Conclusions

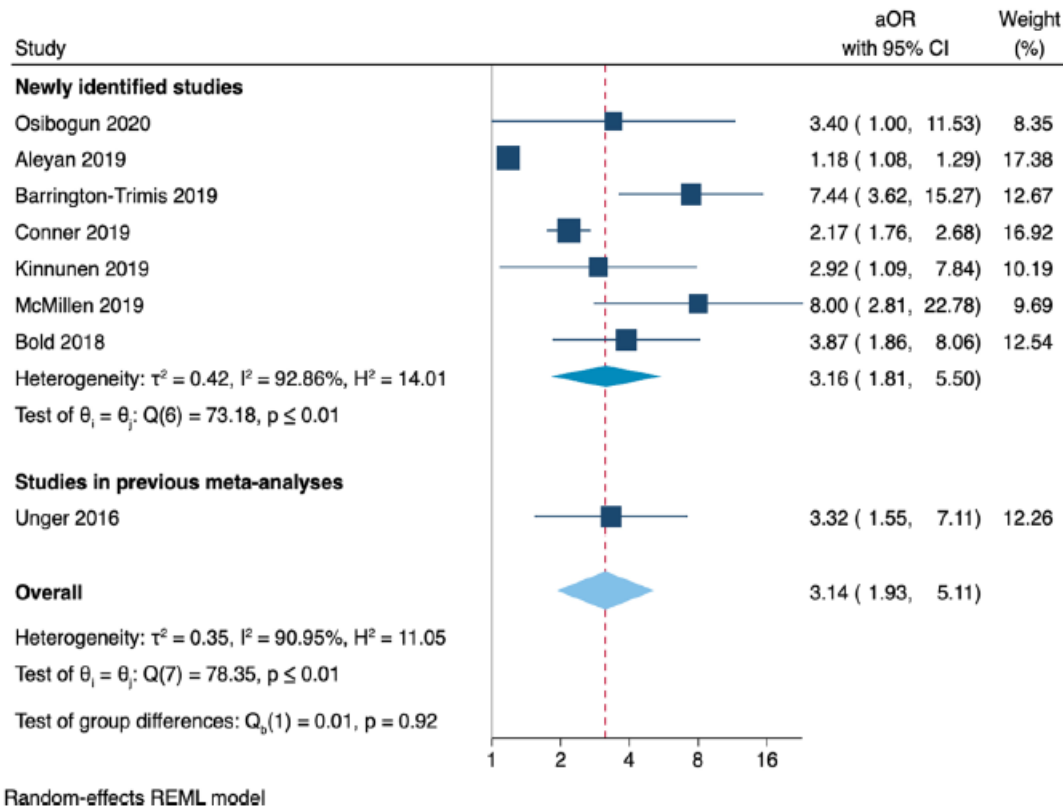
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- approximately extra 3 quitters per 100 (95% CI 1 - 6) compared with NRT to six months
- similar AEs rate (low precision)
- Better results when compared to either non-nicotine eciggs or behavioural supports alone (6-7 extra quitters/100)
- Confidence intervals were wide
- No trials of nicotine salts

## However

- people are unlikely to stop using electronic cigarettes (c/w NRT)
- In smokers randomised to ENDS; dual use was more likely than quitting
- high, effective delivery of nicotine makes them 'addictive' themselves

# Vaping to Combustible Tobacco



**Figure 3** Forest plot and random-effects meta-analysis for the adjusted odds of current (past 30-day) smoking at follow-up among non-current smokers and current e-cigarette users at baseline compared with non-current e-cigarette users at baseline. aOR, adjusted OR; REML, Restricted Maximum Likelihood

# Health implications

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- Lower levels of known toxins than combustible cigarettes
- Some unique/devastating but likely fleeting risks (EVALI) – regulation, constituents etc...
- Approx. 200 episodes of burns in US (unlikely to be more than tobacco?)
- Acutely – no AE on cardiac function, but some effect on endothelial progenitor cells, markers of oxidative stress increase (greater increase in tobacco smokers)

# Pregnancy and vaping

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## Developing foetus

- Nicotine itself is a known teratogen
- No trials vaping in pregnancy



# Harm reduction? - Longer cohort studies are not reassuring

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*The Health Effects of Real-World Dual Use of Electronic and Conventional Cigarettes versus the Health Effects of Exclusive Smoking of Conventional Cigarettes: A Systematic Review* Pisinger and Rasmussen in International Journal of Environmental Research and Public Health Oct 2022

## Dual Use vs exclusive cigarette smoking

- # of cigarettes/day may not have been different
- Health outcomes tended to worse (13 studies/10 prospective)
- Longest follow up 6 years
- Dual use at least as harmful

*Tobacco vs Electronic cigarettes: absence of harm reduction after six years follow up.* Flacco et al ... European Review for Medical and Pharmacological Sciences 2020 – 6 year prospective follow up

- 228 ecigg, 469 tobacco, 215 dual use (adult users)
- 9.9% (n=90) smoking related disease, 1.2% mortality, no difference between groups

# Discussion

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## Monitoring and Evaluation

- good data
- willingness to change approach/regulation if situation changes

Skewing products to older age groups (diminish influence of bad actors)

Monitoring for harm – acknowledging if there is little

Monitoring for benefit – acknowledging if there is little

Development of practical prescribing-dispensing if appropriate

We also need to consider the next steps in tobacco control ....

# What else?

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Changing rapidly in line with market and regulatory forces rather than research...

Individual clinician involvement will depend on risk appetite, approach to individual patient, what it means to have exhausted other options etc...

Has this debate diverted attention from other methods of reducing tobacco related harm ... on a treatment level and on a regulatory level

-eg. NZ no sales tobacco to anyone born after Jan 1 2009 (due for implementation 2027)



# Easy things we don't do very much

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**Old and new technology**

**Quit dates and financial incentives**

**Mental Health considerations**

**CO monitoring**

## Telephone counselling for smoking cessation (Review)

Matkin W, Ordóñez-Mena JM, Hartmann-Boyce J

### Interventions for callers to quitlines - effect of additional proactive calls for smoking cessation

**Patient or population:** callers to quitlines

**Intervention:** additional proactive calls

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Additional proactive calls				
<b>Smoking cessation</b> Self-reported abstinence (majority) Follow-up: 6+ months	<b>Study population</b>		<b>RR 1.38</b> (1.19 to 1.61)	32,484 (14 studies)	⊕⊕⊕⊖ <b>moderate</b> <sup>b,c</sup>	-
	<b>72 per 1000</b>	<b>100 per 1000</b> (85 to 116)				

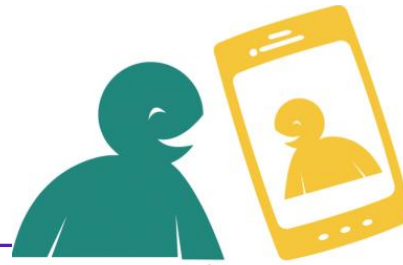
### Proactive telephone counselling for smokers not calling quitlines

**Patient or population:** smokers not calling quitlines

**Intervention:** proactive telephone counselling

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Proactive telephone counselling				
<b>Smoking cessation</b> Self-reported abstinence (majority) Follow-up: 6+ months	<b>Study population</b>		<b>RR 1.25</b> (1.15 to 1.35)	41,233 (65 studies)	⊕⊕⊕⊖ <b>moderate</b> <sup>a,b</sup>	
	<b>110 per 1000<sup>a</sup></b>	<b>137 per 1000</b> (127 to 149)				

# My quitbuddy



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## Quit Now: My QuitBuddy

Automated text messaging - quitcoach

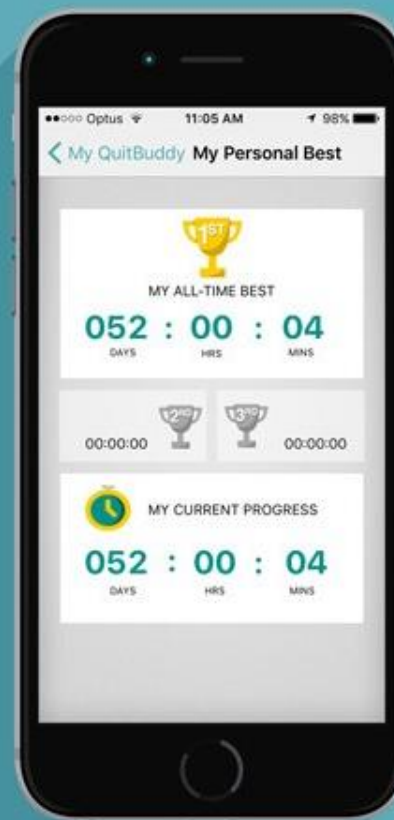
### 4 functional domains

1. Rational eg. Savings, health costs
2. Emotional eg. Positive influence on family
3. Social eg. Community forums and links
4. Gamification

### Small RCT (n=64)

- acceptable, increased motivation to quit,  
4 quitters in intervention arm vs 2 in control

# myquitbuddy



# Quit date vs cutting down

## Clear effectiveness data for quit dates

Original Investigation

**Understanding the Association Between  
Spontaneous Quit Attempts and Improved  
Smoking Cessation Success Rates: A Population  
Survey in England With 6-Month Follow-up**

*Nicotine & Tobacco Research, 2020, Vol. 22, No. 9*

**Table 4.** Adjusted Models Between Quit Success and Spontaneous Quit attempts and Potential Confounder

	Adjusted		
	OR (95% CI)	<i>p</i>	BF <sub>(HN)</sub>
<b>Model 1</b>			
Spontaneous quit attempt (not spontaneous <sup>a</sup> )	1.18 (0.96 to 1.46)	.113	0.94 <sup>c</sup>
Quit attempt made without cutting down first (with cutting down first <sup>a</sup> )	3.15 (2.54 to 3.91)	<.001	>10 000 <sup>d</sup>
<b>Model 2</b>			
Spontaneous quit attempt (not spontaneous <sup>a</sup> )	1.28 (1.04 to 1.57)	.017	3.86 <sup>d</sup>
Strength of urges			
None <sup>a</sup> ( <i>n</i> = 154)			
Slight ( <i>n</i> = 272)	1.32 (0.87 to 2.02)	.199	1.18 <sup>c</sup>
Moderate ( <i>n</i> = 944)	0.75 (0.52 to 1.09)	.127	1.46 <sup>c</sup>
Strong ( <i>n</i> = 468)	0.55 (0.37 to 0.84)	.005	24.33 <sup>d</sup>
Very strong ( <i>n</i> = 135)	0.62 (0.36 to 1.05)	.079	2.73 <sup>c</sup>
Extremely strong ( <i>n</i> = 45)	0.66 (0.29 to 1.41)	.302	1.24 <sup>c</sup>
<b>Model 3</b>			
Spontaneous quit attempt (not spontaneous <sup>a</sup> )	1.25 (1.02 to 1.54)	.029	2.16 <sup>c</sup>
Daily cigarette consumption	0.80 (0.71 to 0.89)	<.001	136.82 <sup>d</sup>
<b>Model 4</b>			
Spontaneous quit attempt (not spontaneous <sup>a</sup> )	1.36 (1.11 to 1.67)	.003	31.70 <sup>d</sup>
Social grade			
AB <sup>a</sup> ( <i>n</i> = 260)			
C1 ( <i>n</i> = 465)	1.10 (0.79 to 1.54)	.561	0.40 <sup>c</sup>
C2 ( <i>n</i> = 438)	0.81 (0.57 to 1.14)	.216	0.83 <sup>c</sup>
D ( <i>n</i> = 349)	0.71 (0.49 to 1.02)	.064	2.25 <sup>c</sup>
E ( <i>n</i> = 506)	0.48 (0.33 to 0.68)	<.001	1114.57 <sup>d</sup>



# Contingency management

## (financial incentives)

### Incentives for smoking cessation (Review)

Notley C, Gentry S, Livingstone-Banks J, Bauld L, Perera R, Hartmann-Boyce J

## Summary of findings for the main comparison. Incentives vs no incentives for smoking cessation in mixed populations

### Smoking cessation: Incentives compared to no incentives in mixed populations

**Patient or population:** Adult smokers

**Setting:** Mixed

**Intervention:** Incentives for smoking cessation

**Comparison:** No incentives

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	Nº of participants (studies)	Certainty of the evidence (GRADE)	Comments
	Risk with control	Risk with Incentives: mixed populations				
<b>Smoking cessation in mixed populations - Longest follow-up</b>  Follow-up: 6 months to 24 months)	71 per 1000	106 per 1000 (91 to 123)	RR 1.49 (1.28 to 1.73)	21,627 (adjusted n = 20,097) (30 studies, 33 comparisons)	⊕⊕⊕⊕ HIGH <sup>a</sup>	For 1 included study extractable data were available but did not contribute anything to the analysis as no events (episodes of smoking cessation) occurred in either arm; we excluded a further two studies from the formal analysis, since no extractable data were available on programme participants at follow-up. More recent studies were higher quality and routinely included longer-term follow up beyond 6 months assessment

## Smoking cessation for improving mental health (Review)

Taylor GMJ, Lindson N, Farley A, Leinberger-Jabari A, Sawyer K, te Water Naudé R, Theodori A, King N, Burke C, Aveyard P

### Associations between quitting smoking and change in mental health symptoms

**Patient or population:** various, including general population, pregnant people, psychiatric populations (AD/der, anxiety disorder, depression, psychosis, PTSD, various SMI) and populations with chronic health conditions (AIDS, AS, brain injury, cancer, CHD, COPD, HIV)

**Setting:** Australia, Belgium, Canada, China, Japan, Netherlands, Portugal, South Korea, Spain, Turkey, UK, US

**Intervention:** Quitting tobacco smoking

**Comparison:** Continuing to smoke tobacco

Outcomes	Probable outcome with intervention	Nº of participants (studies)	Certainty of the evidence (GRADE)
<b>Change in anxiety</b> assessed with various anxiety symptom scales follow-up: range 6 weeks to 2 years  Higher score indicates higher-intensity anxiety symptoms	The mean change in anxiety score was 0.28 SDs lower (95% CI: -0.43 to -0.13) in people who quit smoking compared to people who continued smoking	3141 (15 observational studies)	⊕⊕⊕⊕ LOW <sup>a,b,c</sup>
<b>Change in depression</b> assessed with various depression symptom scales follow-up: range 6 weeks to 6 years  Higher score indicates higher-intensity depression symptoms	The mean change in depression score was 0.3 SDs lower (95% CI: -0.39 to -0.21) in people who quit smoking compared to people who continued smoking	7156 (34 observational studies)	⊕⊕⊕⊕ VERY LOW <sup>d,e,f</sup>
<b>Mixed anxiety and depression</b> assessed with various mixed anxiety and depression symptom scales follow-up: range 3 months to 6 years	The mean change in mixed anxiety and depression score was 0.31 SDs lower (95% CI: -0.40 to -0.22) in people who quit smoking compared to people who continued smoking	2829 (8 observational studies)	⊕⊕⊕⊕ MODERATE <sup>g</sup>

# Pharmacological interventions for smoking cessation among people with schizophrenia spectrum disorders: a systematic review, meta-analysis, and network meta-analysis

Dan J Siskind, Brian T Wu, Tommy TWong, Joseph Firth, Steve Kisely

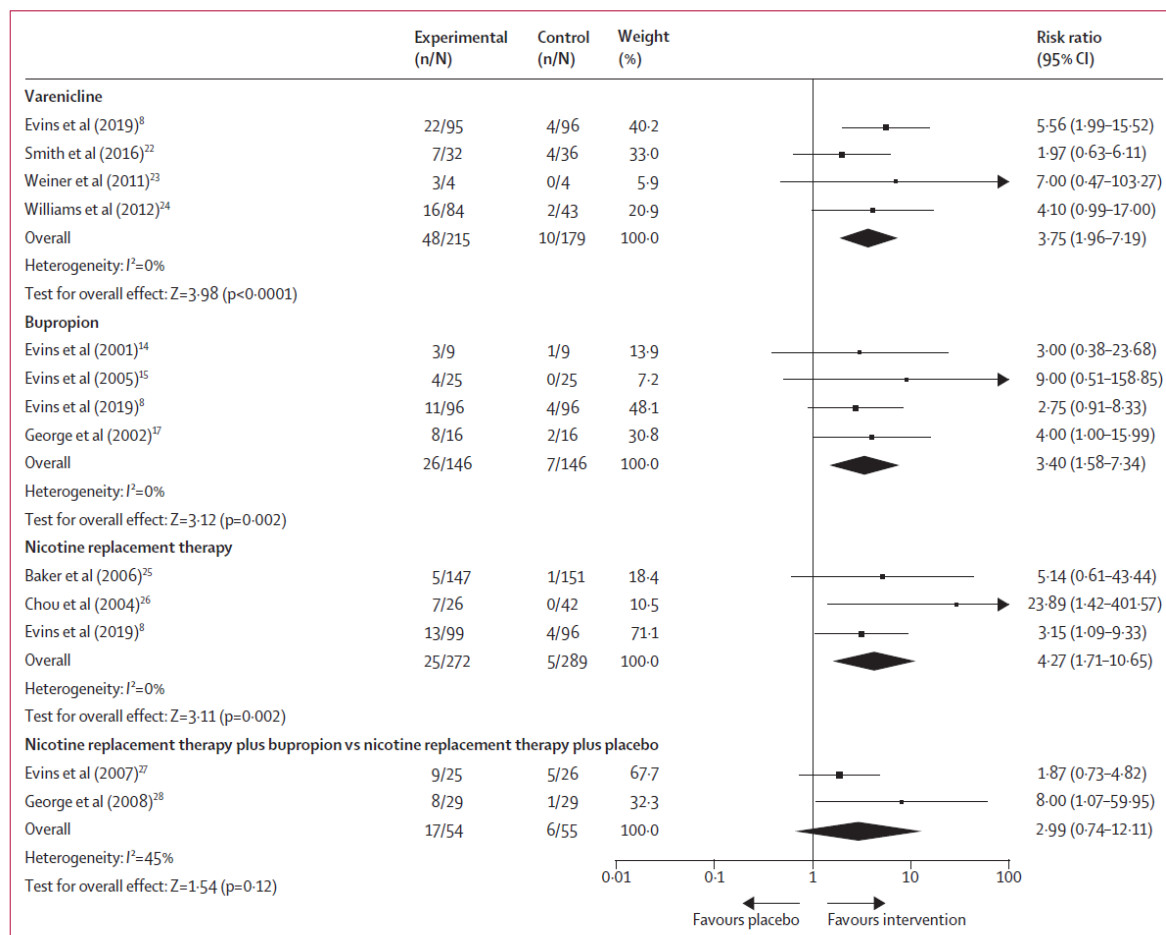


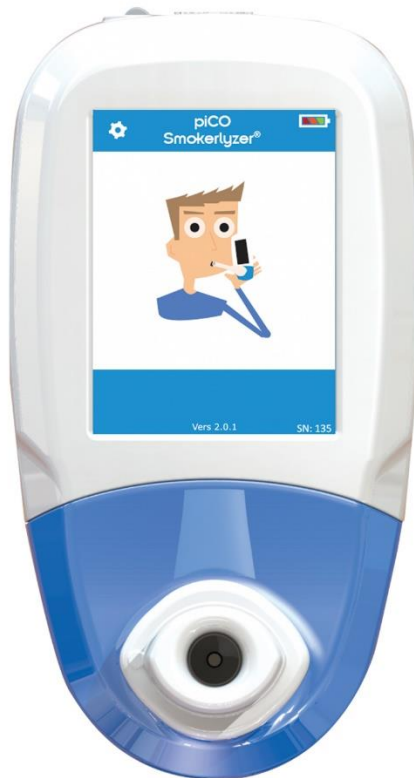
Figure 2: Forest plots of pairwise meta-analyses of smoking abstinence with varenicline (A), bupropion (B), nicotine replacement therapy (C) and nicotine replacement therapy plus bupropion versus nicotine replacement therapy plus placebo (D) in people with schizophrenia spectrum disorders

# CO monitoring

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**level of < 4ppm separates tobacco smokers from non smokers**

**mixed studies for biofeedback for improving tobacco cessation**





# Questions

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