

VAPING: POSITIONING PACIFIC TO LEAD SMOKEFREE 2025

Rebecca Ruwhiu-Collins
Hapai Te Hauora / Auckland Council

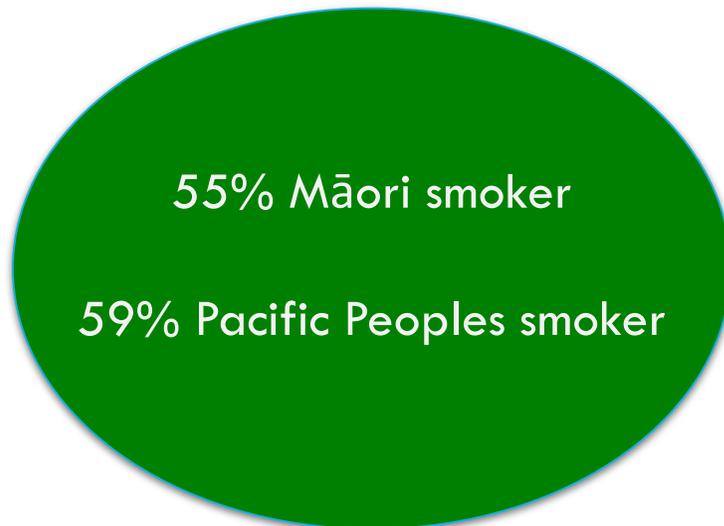
AUCKLAND



- 32,880 Māori regular smoker
- 33,810 Pacific Peoples regular smoker

8 target locations

- Glen Innes / Pt. England
- Henderson / Massey
- Mangere
- Ōtāhuhu
- Papatoetoe
- Manurewa
- Papakura



Pacific Men



Wahine Māori





E-CIGS / VAPES: WHAT IS IT?

- ◆ Vapes are electrical devices that heat a solution (or e-liquid) to produce a vapour that the user inhales or 'vapes'. The ingredients of the e-liquid may vary, but currently, most vapes contain propylene glycol (also used in asthma inhalers and nebulisers), vegetable glycerin and flavouring agents.
- ◆ Some, but not all, e-liquids contain nicotine.



WHAT IS E-LIQUID MADE FROM?

- ◆ **Vegetable Glycerin** also known as VG – is a non toxic compound extracted from plants like coconut, palm or soy. Is used in foodstuffs and cosmetics.
- ◆ **Propylene Glycol** also known as PG – is a non toxic synthetic organic compound in the form of colorless, almost odorless liquid. Used in foodstuffs and medical inhalers.
- ◆ **Nicotine** is a chemical compound that is present in tobacco plants.
- ◆ **Flavours** can be natural or artificial and they are the same as those used in food and drinks industry.
- ◆ **Water**



THE TYPES OF VAPES?

Generation 1



Cigalites

Generation 2



Vape Pens

Generation 3



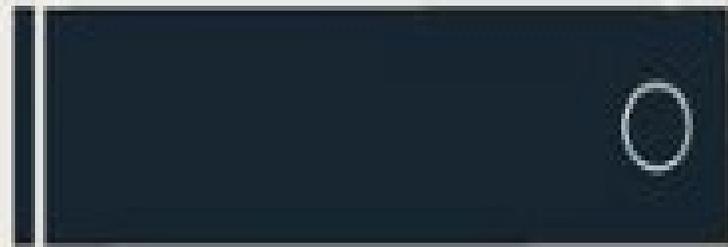
Box Mod

Generation 4



Pod mods

HOW DOES VAPING WORK ?



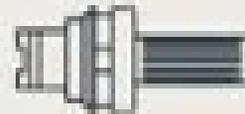
LI-ION BATTERY

(This is the power source & is charged through USB.)



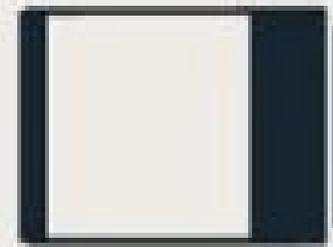
VARIABLE AIRFLOW

(For tighter-wider pull/drag)



COIL

(Responsible for heating up the vape juice and creating vapor that the user inhales & exhales.)



TANK

(Houses the Vape Juice)



MOUTHPIECE

(Can be changed & comes in different styles/designs.)

WHAT IS THE EVIDENCE ON HEALTH RISKS OF VAPING — SHOULD WE BE CONCERNED?

Hayden McRobbie MB ChB PhD FASLM

Professor in Public Health Interventions

INTRODUCTION

The health risks of smoking are well established

Vaping is highly **unlikely** to be *harmless*

However for smokers, vaping is likely to offer a reduction in health risk

How Tobacco Smoke Causes Disease

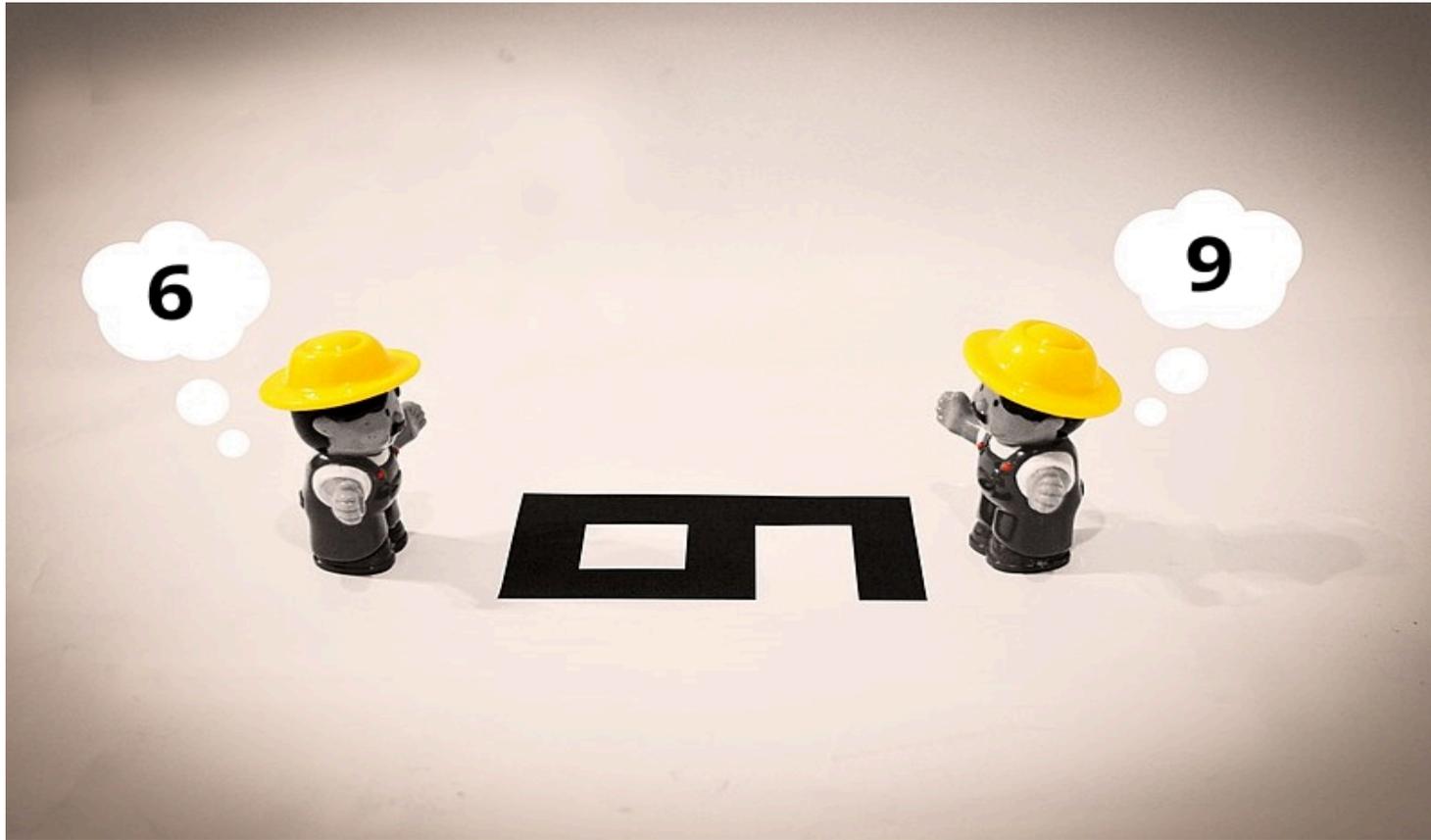
The Biology and Behavioral Basis for Smoking-Attributable Disease

A Report of the Surgeon General

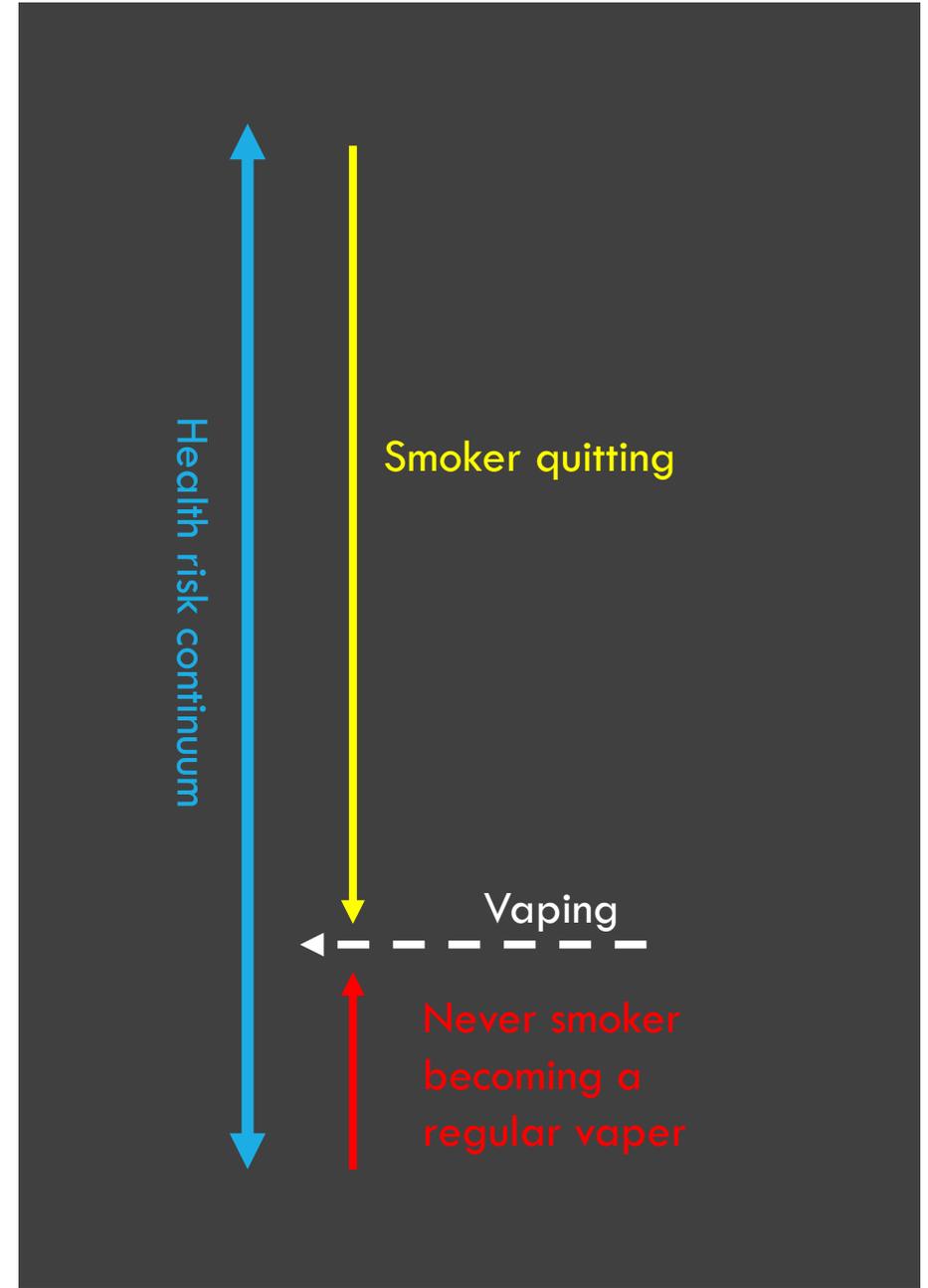
Executive Summary



U.S. Department of Health and Human Services



IT MIGHT DEPEND ON YOUR POINT OF VIEW



SUBSTANCES THAT ARE POTENTIALLY HARMFUL

Aerosol (vapour)

- At high temperatures & frequent puffing PG & VG can form:
 - Acetaldehyde
 - Formaldehyde
 - Acrolein
- Tobacco specific nitrosamines can be present with tobacco extracts & nicotine
- Oxidizing chemicals



Battery & coil

- Metals e.g. nickel, chromium, cadmium, lead, tin, silicates

Liquid

- Nicotine
- Flavouring
 - Benzaldehyde (cherry flavor)
 - Cinnamaldehyde (cinnamon flavours)
 - Diacetyl (butter flavours)

High exposure associated with 'popcorn lung', but there are no cases of 'popcorn lung' among vapers or smokers (cigarettes also contain diacetyl)

WHAT ARE THE POTENTIAL RISKS OF NICOTINE USE?

Cancer

Current evidence **does not support** the idea that nicotine is a human carcinogen

National Academy of Sciences concludes: “While there is a biologic rationale for how nicotine could potentially act as a carcinogen in humans there is no human evidence to support the hypothesis that nicotine is a human carcinogen”

A commonly expressed concern is ‘**damage to developing brains**’

- There are data to show that nicotine can have an impact on neural development, but the impact of this is unclear
 - Adolescents who smoke are exposed to nicotine (*there has been limited concern about this until recently*)
 - There is lack of evidence at the population level that there is mass brain damage occurring
- The evidence is stronger for the adverse effects of cannabis on young brains
 - e.g. daily cannabis use has been shown to be associated with increased odds of psychotic disorder compared with never users (adjusted odds ratio [OR] 3·2, 95% CI 2·2-4·1)

Adolescence

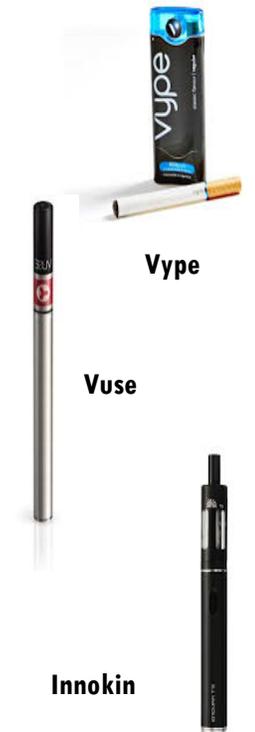
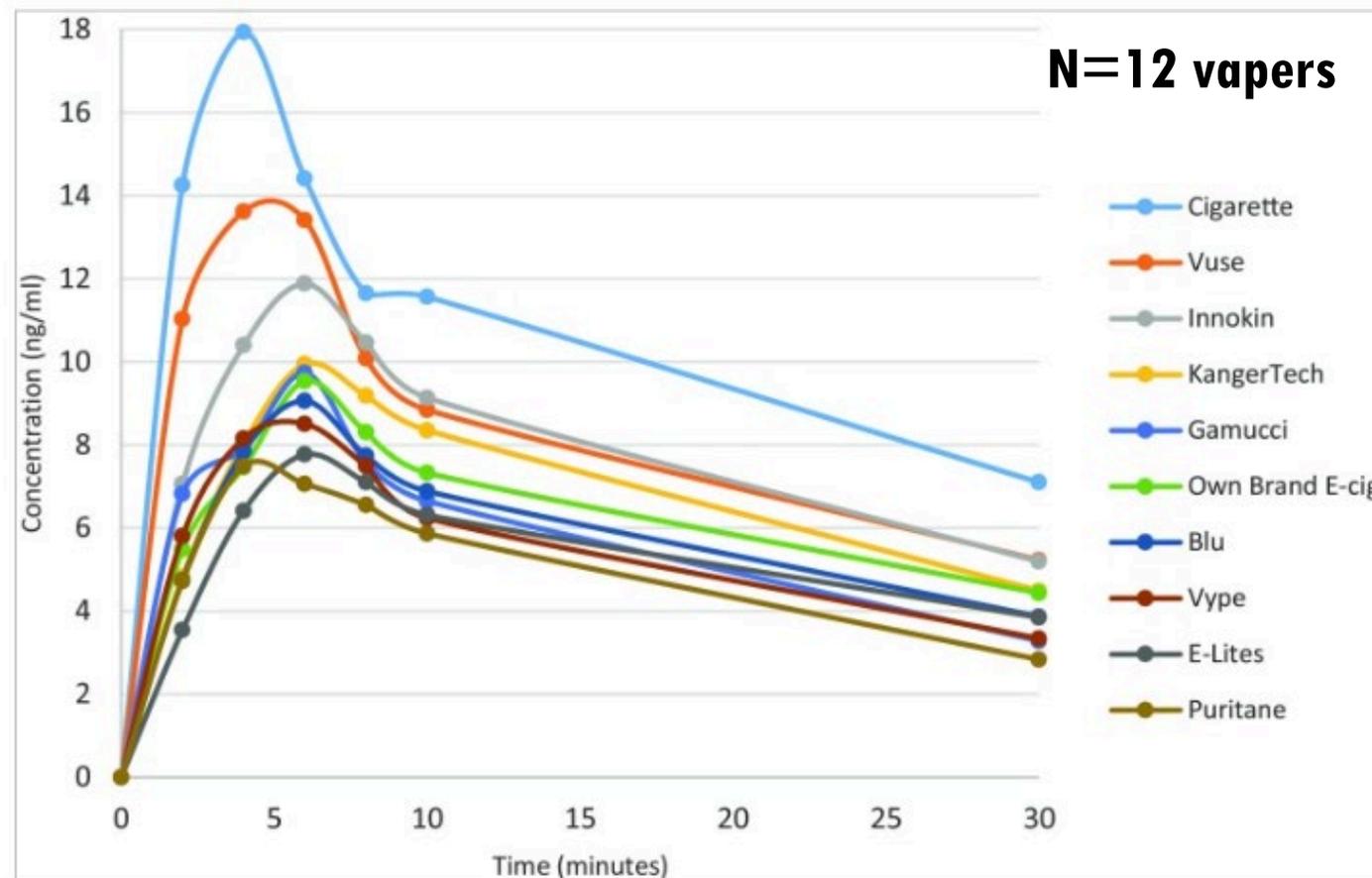
Smoking in adolescence has been associated with cognitive and attentional deficits and suggested to impact mental health

There is concern that nicotine exposure may predispose adolescents to later smoking and other drug use

Adolescents who don’t smoke should not vape

NICOTINE DELIVERY

- In general, the faster the nicotine delivery the product is likely to
- be more satisfying
 - be better at alleviating tobacco withdrawal symptoms
 - have greater dependence liability



EXAMPLES OF TOXICANT EMISSIONS

vaping versus cigarette smoke

Toxicant	Amount in aerosol	Amount in cigarette	Toxic effect
Acetaldehyde	2-14 mcg per 150 puffs	650 mcg per cigarette	Respiratory tract irritant, probable carcinogen
Acrolein	ND – 42 mcg per 150 puffs	60-140 mcg per cigarette	Respiratory and cardiovascular toxicant, possible carcinogen
Chromium	0.007 mcg per 10 puffs	0.004 mcg per cigarette	Lung cancer is a major long-term effect
Formaldehyde	3-56 mcg per 150 puffs	20-100 mcg per cigarette	Respiratory tract irritant, probable carcinogen
N-Nitrosamines	ND-28 mcg per 150 puffs	0.02-72 mcg per cigarette	Carcinogen
Toluene	ND-6 mcg per 150 puffs	0.02-73 mcg per cigarette	Headache, depression, cognitive impairment
Lead	0.03-0.57 mcg per 150 puffs	0.001 mcg per cigarette	Neurotoxin, cardio toxin

ND=not determined

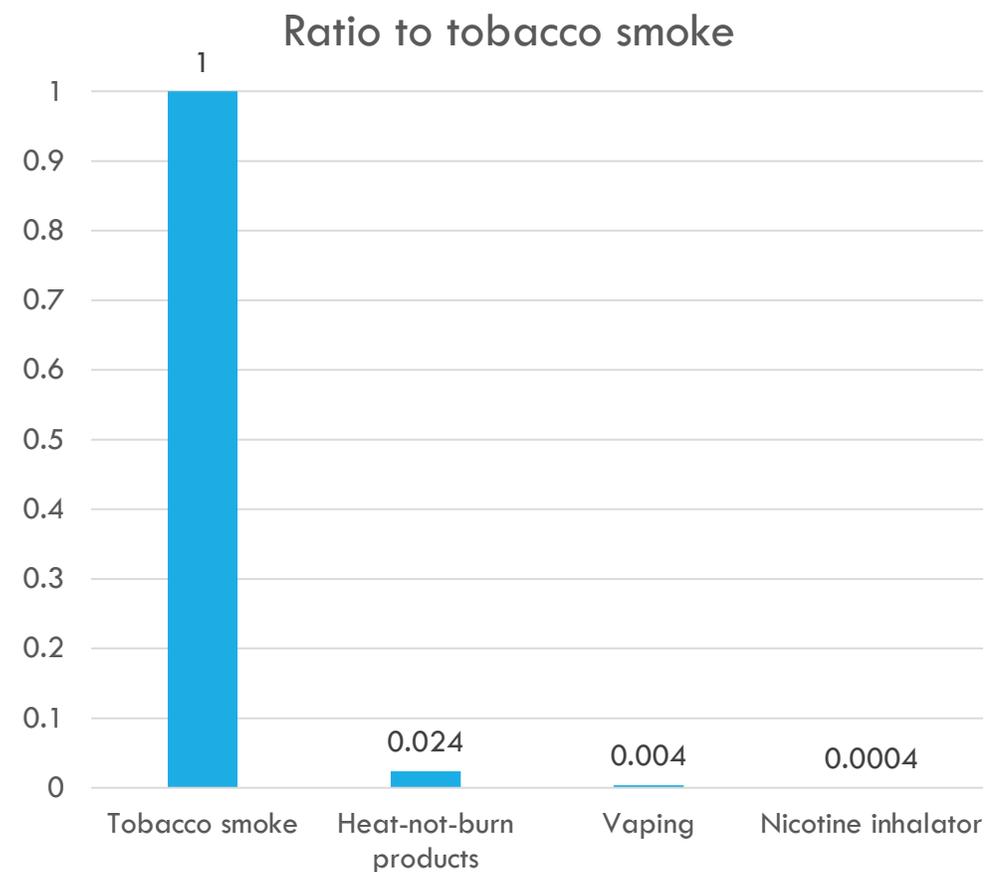
DOES THE PRESENCE OF THESE SUBSTANCES TRANSLATE TO HARM?

- The harm is largely related to exposure
- There is currently no evidence that vaping is associated with disease, **BUT** EC have not been around for long enough to observe this association
- A complicating factor is that most vapers are current or former smokers

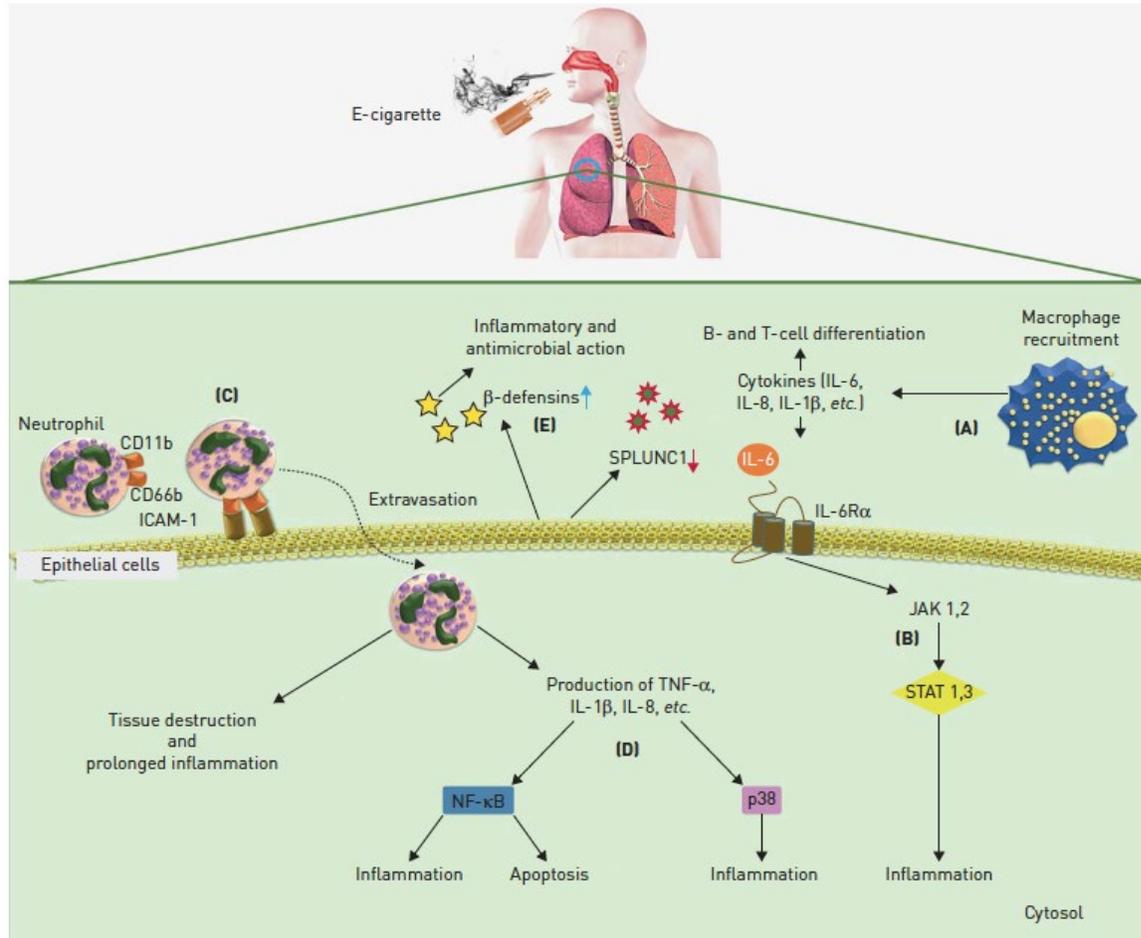
ESTIMATED CANCER RISK

Table 1 Unit risks and average concentrations for IARC type 1 and 2 carcinogens measured in tobacco smoke and other forms of nicotine delivery

Carcinogens			Tobacco smoke (n=309)	Heat-not-burn emission (n=44)	E-cigarette vapour (n=44)	Nicotine inhaler (n=1)
Compound	IARC type	OEHHA unit risk U_i ($\mu\text{g}/\text{m}^3$) ⁻¹	Mean concentration E_i ($\mu\text{g}/\text{mL}$)	Mean concentration E_i ($\mu\text{g}/\text{mL}$)	Mean concentration in first-generation and second- generation e-cigarettes C_i ($\mu\text{g}/\text{mL}$)	Mean concentration C_i ($\mu\text{g}/\text{mL}$)
Acetaldehyde	2B	2.7×10^{-6}	2.55×10^{-9}	3.33×10^{-1}	4.41×10^{-3}	1.05×10^{-4}
Formaldehyde	1	6.0×10^{-6}	1.54×10^{-1}	1.06×10^{-2}	8.07×10^{-3}	1.90×10^{-4}
Acrylonitrile	2B	2.9×10^{-4}	4.59×10^{-2}	2.96×10^{-4}	NR	NR
Benzene	1	2.9×10^{-5}	1.57×10^{-1}	9.32×10^{-4}	NR	NR
1,3-Butadiene	1	1.7×10^{-4}	1.83×10^{-1}	3.94×10^{-4}	NR	NR
2-Amino-naphthalene	1	5.14×10^{-4}	4.13×10^{-5}	4.82×10^{-8}	NR	NR
4-Amino-biphenyl	1	6.0×10^{-3}	8.68×10^{-6}	1.80×10^{-8}	NR	NR
Benzo[a]pyrene	1	1.1×10^{-3}	3.67×10^{-5}	2.12×10^{-6}	NR	NR
NNN	1	4.0×10^{-4}	4.63×10^{-4}	2.57×10^{-5}	1.94×10^{-7}	BDL
NNK	1	4.0×10^{-4}	2.88×10^{-4}	1.64×10^{-5}	8.39×10^{-7}	BDL
Cadmium	1	4.2×10^{-3}	1.99×10^{-4}	BDL	1.01×10^{-5}	9.52×10^{-7}
Lead	2B	1.2×10^{-5}	7.52×10^{-5}	4.09×10^{-6}	7.06×10^{-6}	1.90×10^{-6}
Chromium	1	1.5×10^{-1}	BDL	BDL	NR	NR
Nickel	2B	2.6×10^{-4}	BDL	BDL	6.98×10^{-6}	1.90×10^{-6}
Arsenic	1	3.3×10^{-3}	2.20×10^{-5}	2.14×10^{-6}	NR	NR
Mean cancer potency ratio (equation 5)			1.0	2.01×10^{-2}	1.81×10^{-3}	1.02×10^{-4}
Mean lifetime cancer risk (equations 6 and 7)	Consumption		15 cigarettes/day	15 sticks/day	30 L vapour/day	30 L vapour/day
	Risk		2.4×10^{-2}	5.7×10^{-4}	9.5×10^{-5}	8.9×10^{-6}
	Ratio to tobacco smoke		1.0	0.024	0.004	0.0004
	Ratio to nicotine inhaler		2697	64	10.7	1.0



POTENTIAL EFFECTS ON THE RESPIRATORY SYSTEM



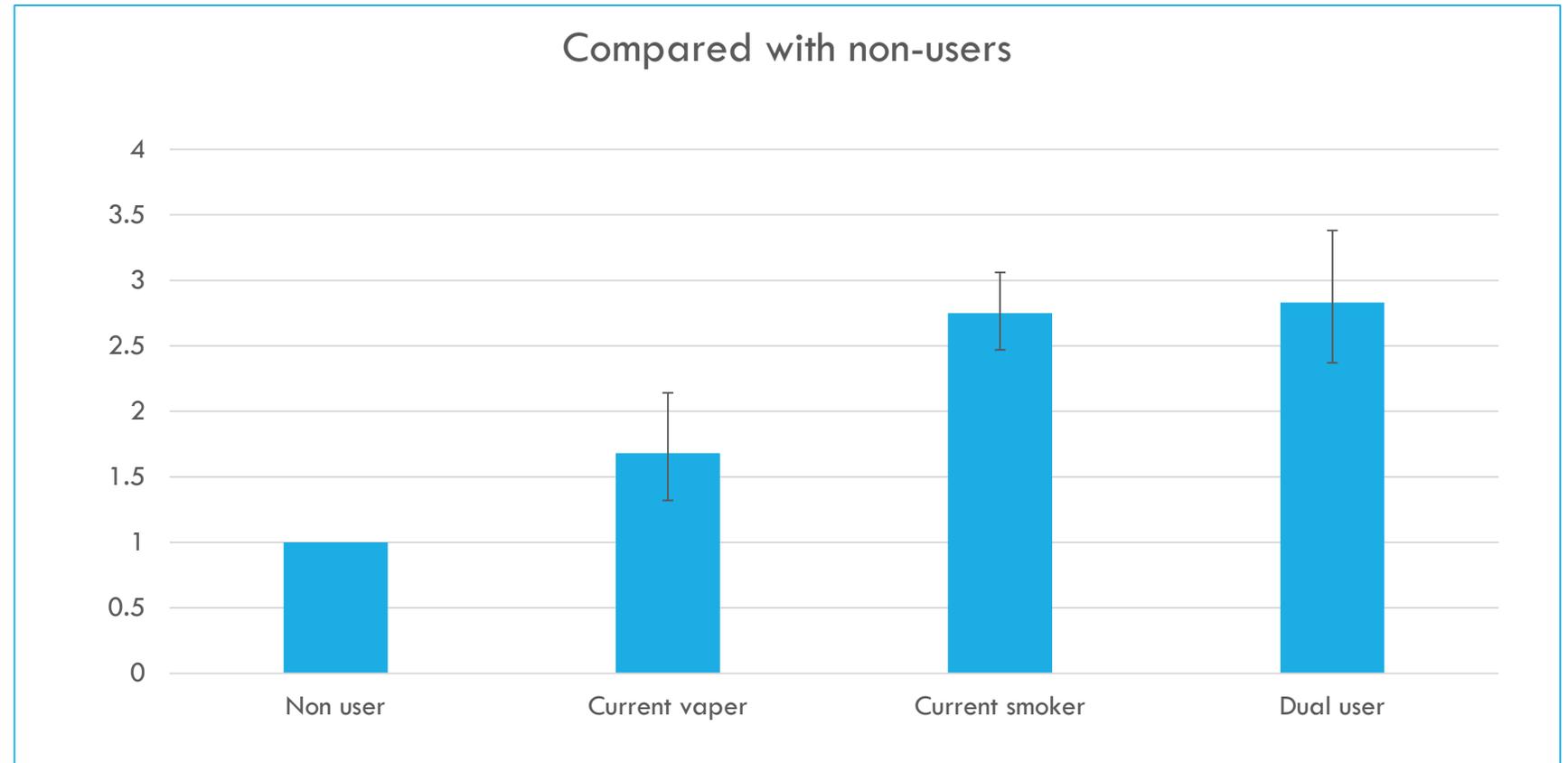
One of the main concerns is the **inflammatory response** associated with vaping

- immune cells attracted to the site of exposure
- activation of tissue macrophages, which release pro-inflammatory cytokines, and act on other pathways that result in inflammation
- neutrophils move into the tissue results and release of substances that (a) causes tissue destruction, (b) inflammation, and (c) apoptosis (cell death)

RESPIRATORY SYMPTOMS IN ADULTS

Wheezing or whistling in chest in past 12 months

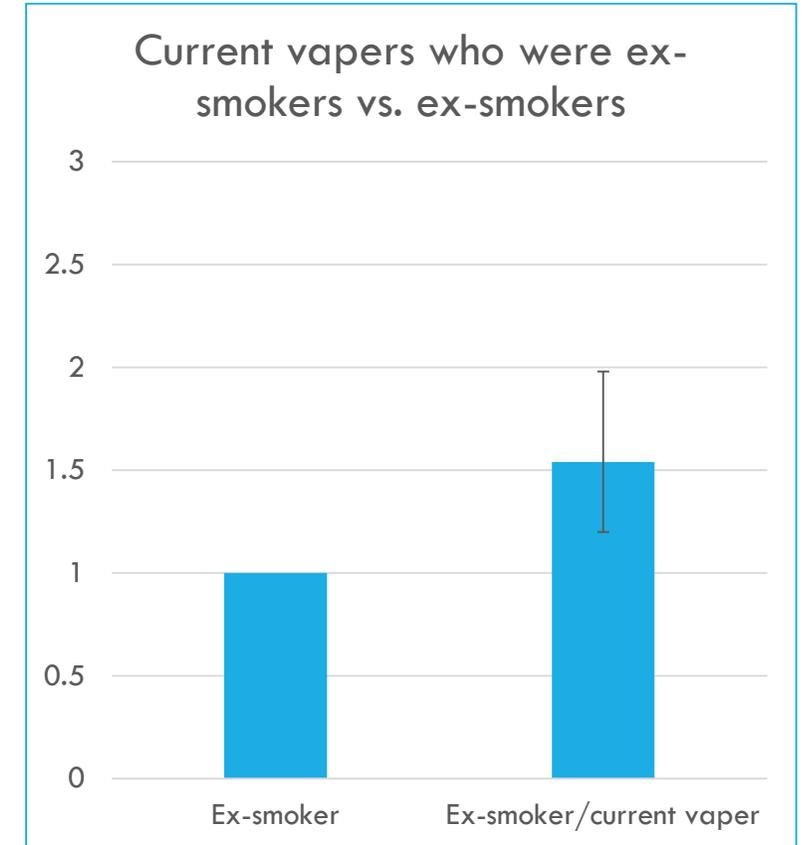
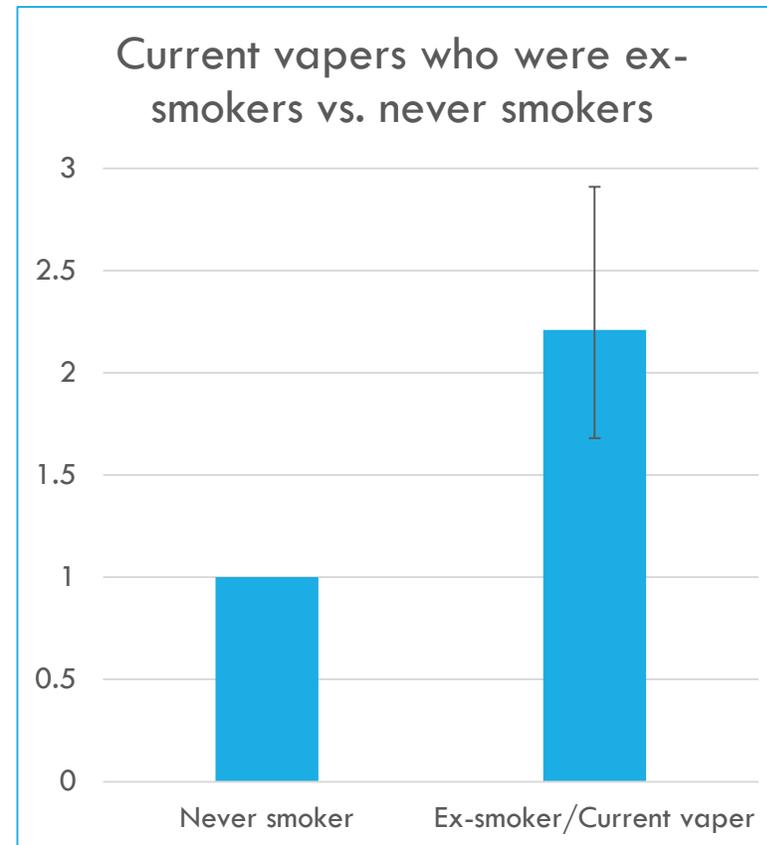
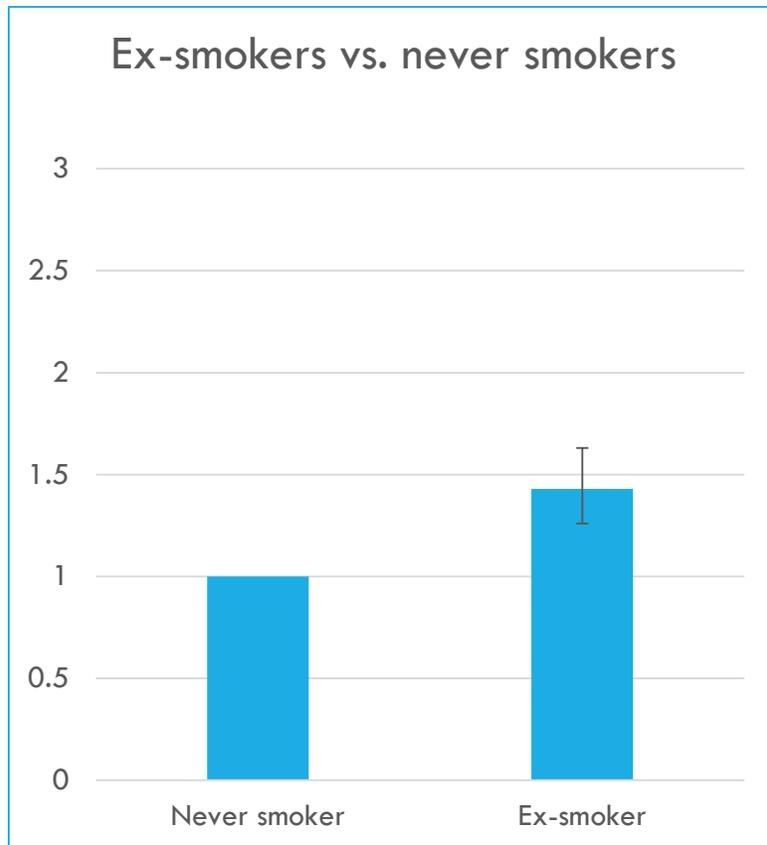
- Cross-sectional survey
~28,000 adults
 - 641 current vapers
 - 8525 current smokers
 - 1106 dual users
 - 17899 non users
- Self reported wheezing and other respiratory symptoms



Bars represent aOR and error lines represent 95% confidence intervals

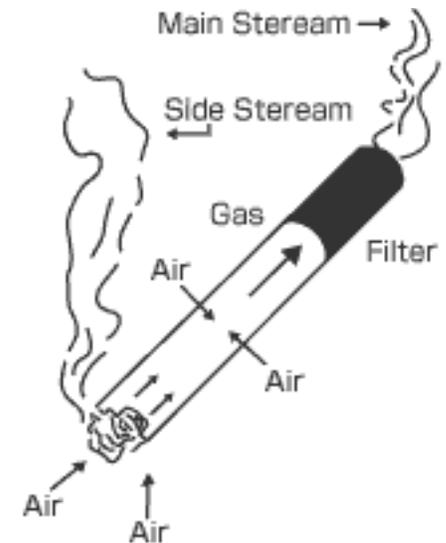
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WHAT ABOUT SECOND HAND VAPING?

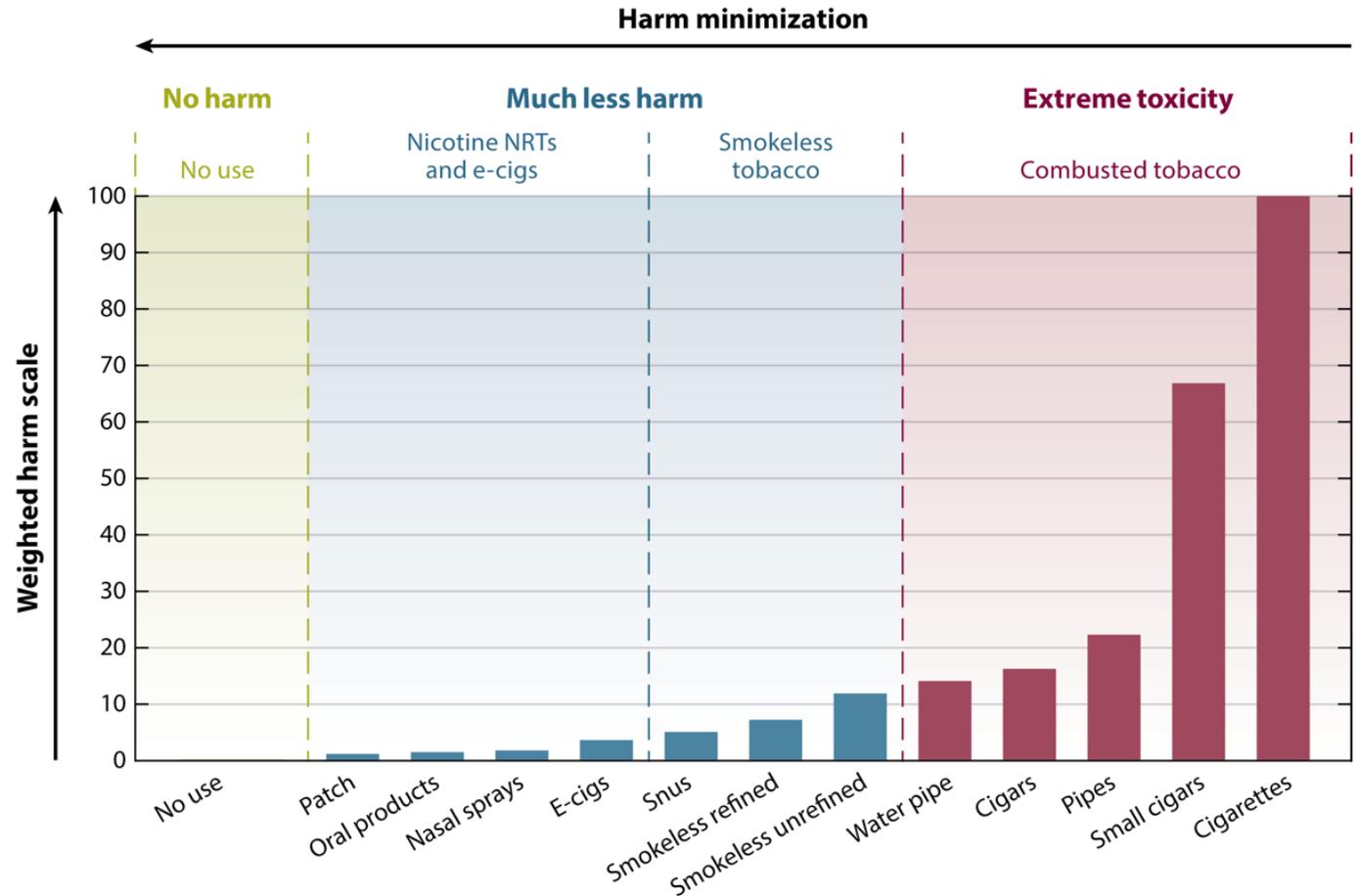
- There is no side stream smoke with vaping
- Some studies have demonstrated the presence of toxicants in second-hand vapour, but generally at much lower levels than second hand smoke
- The potential harm of second-hand vapour is not currently known



CONTINUUM OF HARM

In order of increasing *potential* long-term health risk

- Never smoker - no vaping
- Never smoker - vaping
- Ex-smoker - no vaping
- Ex-smoker - vaping
- Smoker (\pm vaping)



SO, SHOULD WE BE CONCERNED?

- There are likely to be some adverse health effects associated with long-term vaping, so concern is warranted.
- However, this concern needs to be balanced with the concerns for the health and wellbeing of people who continue to smoke.
- For smokers, switching to vaping (and stopping smoking completely) is likely to be associated with a reduction in health risks.
 - This is supported by the current literature
 - To mitigate concern over unknown health risks associated with long-term vaping, ex-smokers can be advised to stop vaping as soon as they feel able not to relapse to smoking



<https://www.tvnz.co.nz/shows/seven-sharp/clips/top-tips-for-parents-on-talking-about-vaping-with-teenagers>

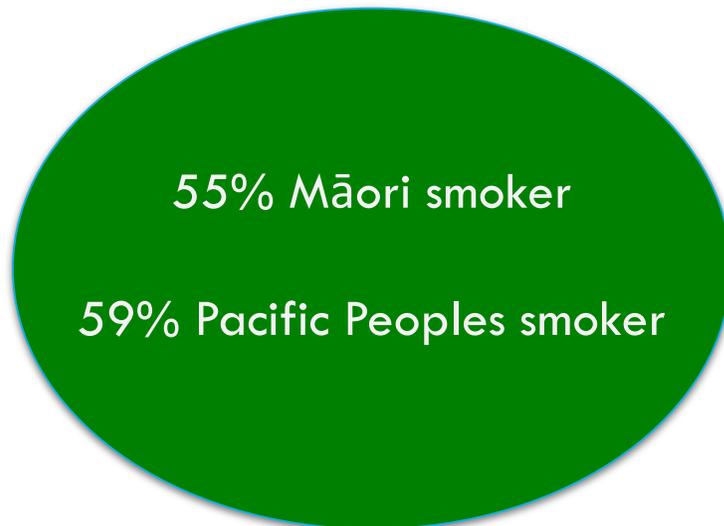
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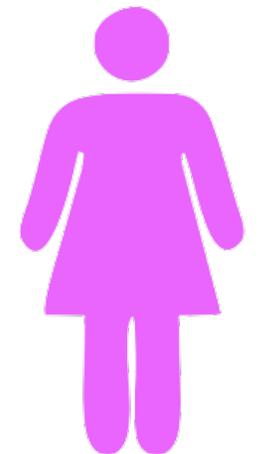
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- Henderson / Massey
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Pacific Men



Wahine Māori



Glen Innes / Pt. England
Henderson / Massey

PACIFIC MEN

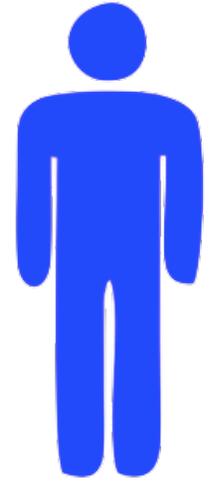
Community-led projects to support quitting

- Social groups – mentoring
- Camping retreats
- Vape sessions /cafe
- Car license
- Targeted group discussions - zoom
- Sports – ripper tag, touch, social games
- Biggest loser challenge – gym membership
- UMU tahi – language revitalisation, celebrate
- Free hair cutting sessions
- Online gaming competition – Fortnite, Call of Duty
- Carpool Karaoke with a celebrity
- BBQ



Top 4 WANTS

- Fun
- Family
- Food
- Sport



Events

- Pacific and Māori performances at the local bar
- Time capsule
- Music Festival
- Sports games, food stalls, stop smoking support
- Drag Queen extravaganza
- Celebrities – Buttabeen, Sela Aho, Joseph Parker