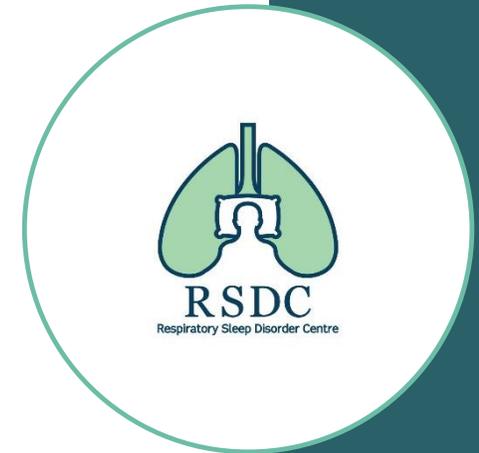


E-cigarettes Our position in 2019

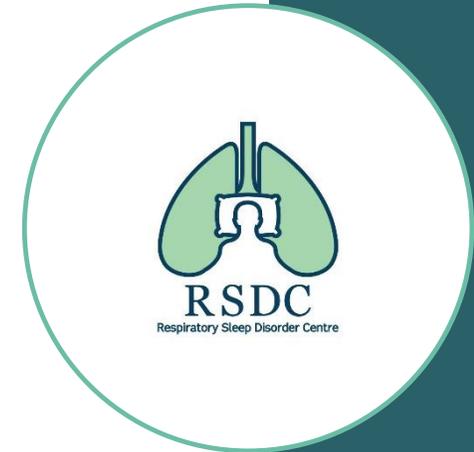
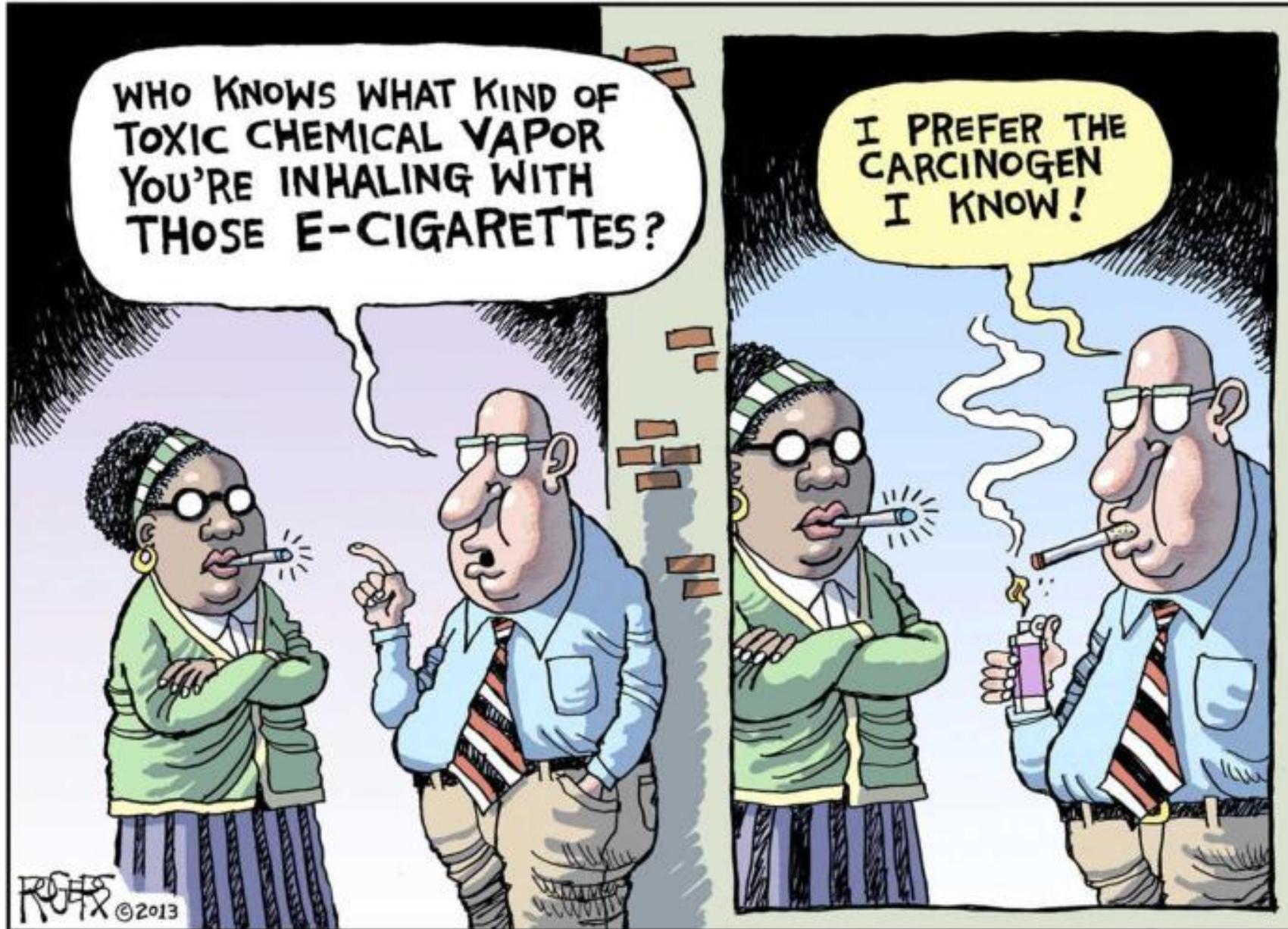
Dr Ali Aminazad MD,FRACP,FCCP,MClinResMeth

- NEJM series
- ERS 2019



SECOND OPINION

BY ROB ROGERS





JUUL LAUNCH MARKETING CAMPAIGN



Home E-Juice Pods And Kits Contact Us 0 Item - \$0.00 AUD

Home →



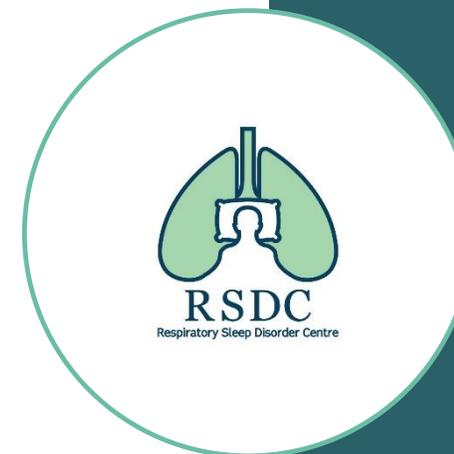
Adults only 18+

Click Enter only if you are at least 18 years of age.

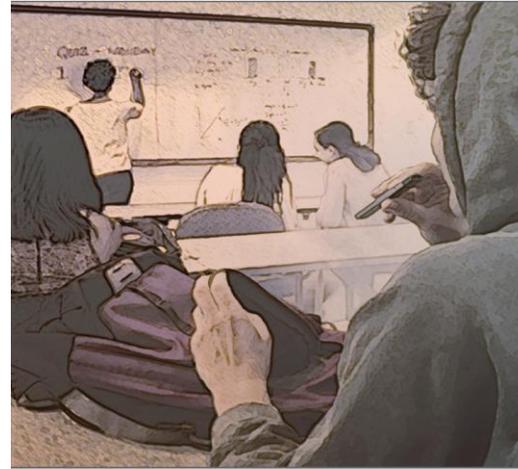
ENTER

Juul Compatible Pods In Australia

Message Us



FROM NEWS



Pod Mod Use in a Classroom.

- Philip Morris (Altria), bought a 35% stake in Juul (\$12.8 billion)
- The move allows them, to remain in the future of nicotine, as cigarette smoking declines
- Cigarette smoking by U.S. adults declined from 21% percent in 2005 to 15 % in 2016
- Altria has no interest in reducing the number of people who smoke cigarettes
- They see Juul as their failsafe in case the cigarette market keeps declining so that they remain profitable



FROM NEWS



- Juul's USB drive-shaped devices have quickly reshaped the market since launched in 2015.
- Juul had 600 % surge in sales (2016 to 2017), and present a number of risks for young people:
 1. High level of nicotine. A cartridge, or 'pod,' contains as 20 regular cigarettes
 2. Use nicotine salts, which allow high levels of nicotine inhaled more easily with less irritation
 3. Makes it easier to initiate nicotine use and also make it easier to progress to nicotine dependence
- But two-thirds of JUUL users aged 15-24 do not know that JUUL always contains nicotine.“



**E-Cigarette or Drug-Delivery Device? Regulating Novel
Nicotine Products**

Nathan K. Cobb, M.D., and David B. Abrams, Ph.D.

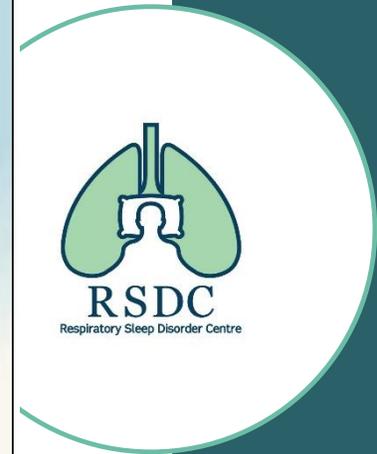
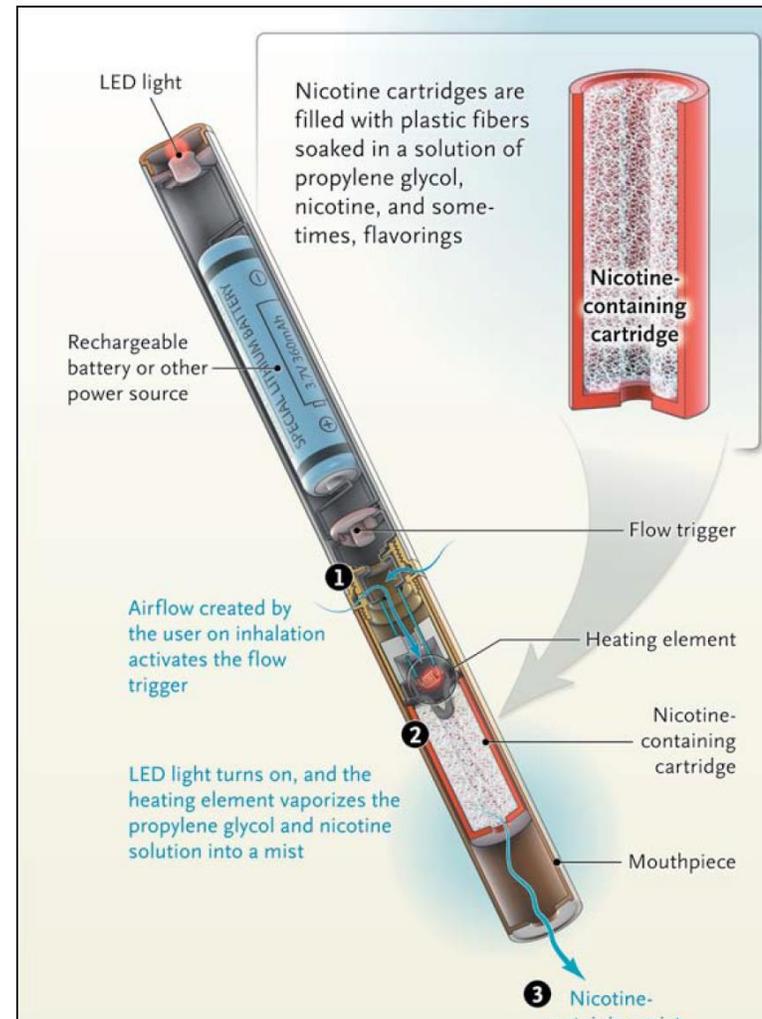
- Cigarettes typically contain 1 to 2 mg of nicotine. The lethal dose for a child is 10 mg, (half a pack of cigarettes)
- Cigarettes the most addictive drug of abuse, with tobacco eclipsing cocaine and heroin in terms of users' reported difficulty in abstaining



E-Cigarette or Drug-Delivery Device? Regulating Novel Nicotine Products

Nathan K. Cobb, M.D., and David B. Abrams, Ph.D.

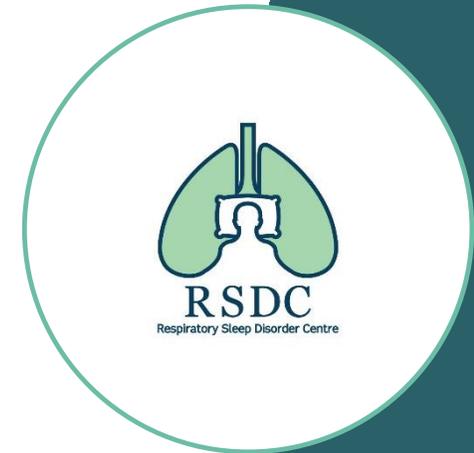
- The cartridge contains nicotine in solution, usually propylene glycol.
- Battery, a heating element, a power source, and a pressure switch, with a mouth piece
- When the user draws on the mouthpiece, the negative pressure causing the heating element to warm both the cartridge and passing air. The humectant to aerosolize, so that water vapor accumulates and forms a visible fog when exhaled.
- Nicotine, flavourings, and other additives or contaminants are carried with the aerosol into the oral cavity.



- Three products are being sold: delivery devices, cartridges, and refill solutions.
- Cartridges contain up to 20 mg of nicotine
- Refill kits, as much as a gram of nicotine, to fill used cartridges
- Propylene glycol- manufacturers claim that it's safe. ? safety of inhaling it, over an extended period
- Instructions for filling cartridges with marijuana hash oil can be found on YouTube.
- Not regulated/ Worrying uncertainty
- Devices will become “bridge products” for use in places where smoking is prohibited or as starter products
- Smokers and e-cigarette users have many alternatives: multiple nicotine products, approved, regulated, safe and effective

E-Cigarette or Drug-Delivery Device? Regulating Novel Nicotine Products

Nathan K. Cobb, M.D., and David B. Abrams, Ph.D.



A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy

Peter Hajek, Ph.D., Anna Phillips-Waller, B.Sc., Dunja Przulj, Ph.D.,

N ENGL J MED 380;7 NEJM.ORG FEBRUARY 14, 2019

Adults attending U.K. National Health Service stop-smoking services. weekly behavioural support for at least 4 weeks.

Nicotine-Replacement Group

- selected their preferred product. Use of combinations was encouraged,
- Supplies were provided for up to 3 months. The cost of a single nicotine-replacement product \$159 U.S.

E-Cigarette Group

- A starter pack, was provided, along with one 30-ml bottle of Tobacco Royale flavor e-liquid containing nicotine at a concentration of 18 mg/ ml. Participants were asked to purchase their future e-liquid online or from local vape shops. The original One Kit, was \$40 U.S.



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RESULTS

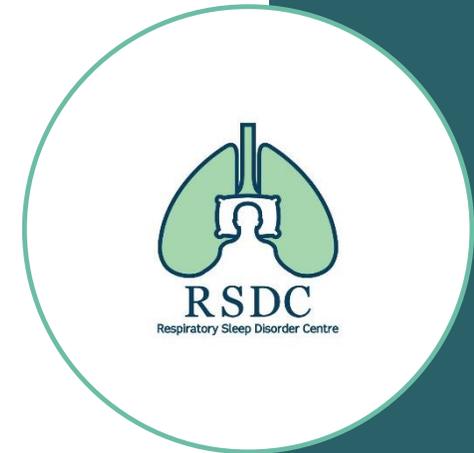
- 886 participants
- 1-year abstinence rate was 18% in the e-cigarette group, 10% in NRT

CONCLUSIONS

- E-cigarettes were more effective for smoking cessation than NRT

Among participants with sustained abstinence at 1 year, 80% in the e-cigarette group were still using e-cigarettes, whereas only 9% in the NRT were still using nicotine replacement.

And 31% of smokers in the e-cig arm were still using e-cig, compared with 4% on NRT group respectively



E-Cigarettes to Assist with Smoking Cessation

Belinda Borrelli, Ph.D., and George T. O'Connor, M.D.

N ENGL J MED 380;7 NEJM.ORG FEBRUARY 14, 2019

- e-cigarettes are not approved for smoking cessation, but people trying to quit smoking use these products more frequently than approved aids
- Treatment with NRT achieves abstinence rates of 20% at 1 year, higher rates for combination therapy
- The 1-year abstinence rate of 18% reported by Hajek et al. for the e-cigarette group is similar to these outcomes.
- This evidence of effectiveness must be balanced against the short-term and long-term safety of e-cigarettes.



E-Cigarettes to Assist with Smoking Cessation

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- Pattern of long-term use raises concerns
- E-cigarette vapor contains many toxins and exerts adverse biologic effects
- These are against accepting the transition from tobacco smoking to indefinite e-cigarette
- Effect of adult e-cigarette use on children
- Expose children to e-cigarette vapor but also models addictive behaviour
- e-cigarette use by youth increases the risk of smoking cigarettes
- A consensus has emerged that e-cigarettes are safer than traditional cigarettes, but should they be recommended as a first-line treatment to assist smoking cessation, and for how long?



REVIEW ARTICLE

Dan L. Longo, M.D., *Editor*

The Health Effects of Electronic Cigarettes

Chitra Dinakar, M.D., and George T. O'Connor, M.D.

N ENGL J MED 375;14 NEJM.ORG OCTOBER 6, 2016



Constituents of Liquids and Aerosols in E-Cigarettes.

Liquids

Listed ingredients

- Glycerol
- Propylene glycol
- Nicotine

Other compounds detected

- Acetone
- Acrolein
- 1,3-Butadiene
- Cyclohexane
- Diethylene glycol
- Ethylene glycol
- Ethanol
- Formaldehyde
- Tobacco alkaloids (nornicotine, myosmine, and anabasine have been detected in some products, although tobacco was not listed as an ingredient)

Aerosols

Listed ingredients

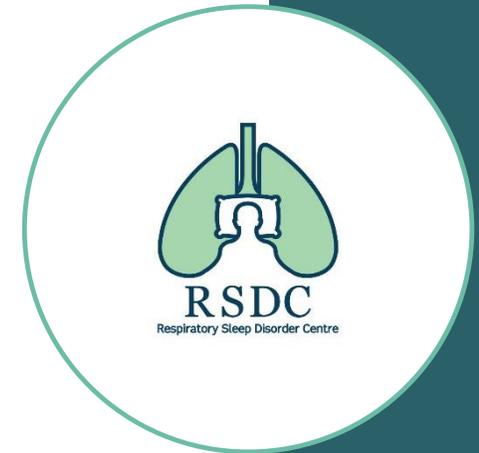
- Glycerol
- Propylene glycol
- Nicotine

Other compounds detected

- Acetaldehyde
- Acetone
- Acrolein
- Formaldehyde
- N'-nitrosonornicotine (NNN)
- 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)
- Metals (cadmium, lead, nickel, tin, copper)
- Toluene

ERS congress- Nothing to worry about?

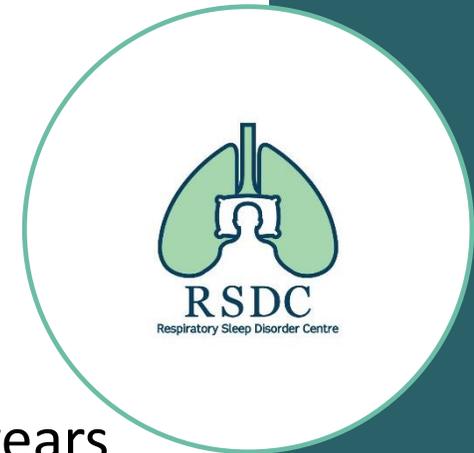
- Papers in favour of e-cig have potential conflict of interest
- In all papers that did not have conflict of interest show evidence of harm apart from only one that did not prove harm
- Low harm evidence was from a paper a few years ago which was a meeting conclusion (not more than an opinion)
- Some of those people may have had links with tobacco industry



ERS congress- Nothing to worry about?

Table 1. Prevalence of Nicotine Vaping among Adolescents, 2017–2019.*

Reporting Interval and Grade in School	Prevalence in 2017 (95% CI)	Prevalence in 2018 (95% CI)	Prevalence in 2019 (95% CI)	Change, 2018 to 2019 (95% CI)†
Past 30 days				
12th grade	11.0 (9.2–13.0)	20.9 (17.7–24.5)	25.4 (22.6–28.4)	4.5 (0.9–8.1)
10th grade	8.2 (6.6–10.2)	16.1 (14.0–18.6)	20.2 (17.8–22.8)	4.1 (0.9–7.2)
8th grade	3.5 (2.9–4.2)	6.1 (5.1–7.4)	9.0 (7.6–10.5)	2.8 (1.2–4.4)
Past 12 months				
12th grade	18.8 (16.5–21.4)	29.7 (26.1–33.6)	35.1 (31.8–38.6)	5.4 (1.1–9.6)
10th grade	15.8 (13.6–18.3)	24.7 (21.9–27.7)	31.1 (28.3–34.0)	6.4 (2.7–10.1)
8th grade	7.5 (6.6–8.5)	10.9 (9.4–12.6)	16.1 (14.1–18.2)	5.2 (2.8–7.6)
Ever				
12th grade	25.0 (22.4–27.7)	34.0 (30.3–38.0)	40.5 (37.3–43.8)	6.5 (2.3–10.7)
10th grade	21.4 (19.2–23.9)	28.6 (25.8–31.6)	36.4 (33.5–39.4)	7.7 (4.0–11.5)
8th grade	10.6 (9.5–11.8)	13.5 (11.8–15.3)	20.7 (18.5–23.1)	7.2 (4.6–9.9)
Daily‡				
12th grade	—	—	11.7 (9.8–14.0)	—
10th grade	—	—	6.9 (5.7–8.0)	—
8th grade	—	—	1.9 (1.4–2.5)	—

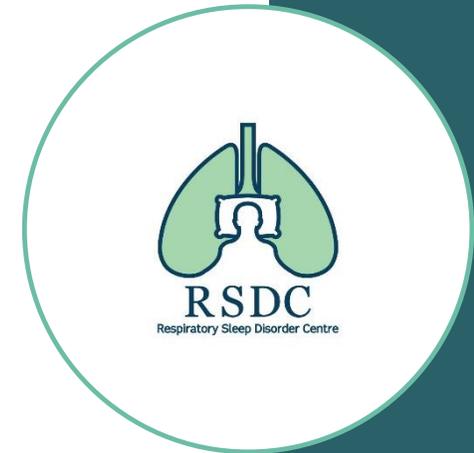


- 30% of 16-18 years in England use them
- Also young people that never smoked before but started E-Cig and then moving to smoking

The Dangerous Flavours of E-Cigarettes

n engl j med 380;7 February 14, 2019

- Smoking is not a natural behaviour, the manufacturers add flavouring to the liquid to make the initial exposures more pleasurable, especially teenagers
- The rates of vaping among teenagers are increasing. the creation of a generation of nicotine addicted teenagers will lead to a resurgence in the use of tobacco
- Nicotine is a gateway drug that lowers the threshold for addiction to other agents, opioid addiction.
- We do know that nicotine is as addictive as heroin, so once hooked, most young e-cigarette users will become long-term users



Pulmonary Illness Related to
E-Cigarette Use in Illinois and Wisconsin —
Preliminary Report

Jennifer E. Layden, M.D., Ph.D., Isaac Ghinai, M.B., B.S., Ian Pray, Ph.D.,

Cluster of cases

- 53 cases from July-August 2019
- Respiratory 98%; GI 81%; Constitutional 100%
- Median age: 19 years, 83% male, 83% white
- Reported nicotine use: 80%; reported THC use 61%; reported N & THC use 44%
- Abnormal CXR: 91%; Abnormal CT 100%
- Hospitalization: 94%; ICU 58%



Outbreak of lung injury linked to vaping (retrospective data)-ERS 2019

- 530 cases from CDC
- 72% male, 16% (<18 years); 67% (18-34 years)
- All reported vaping and had respiratory symptoms
- 13 death in US so far

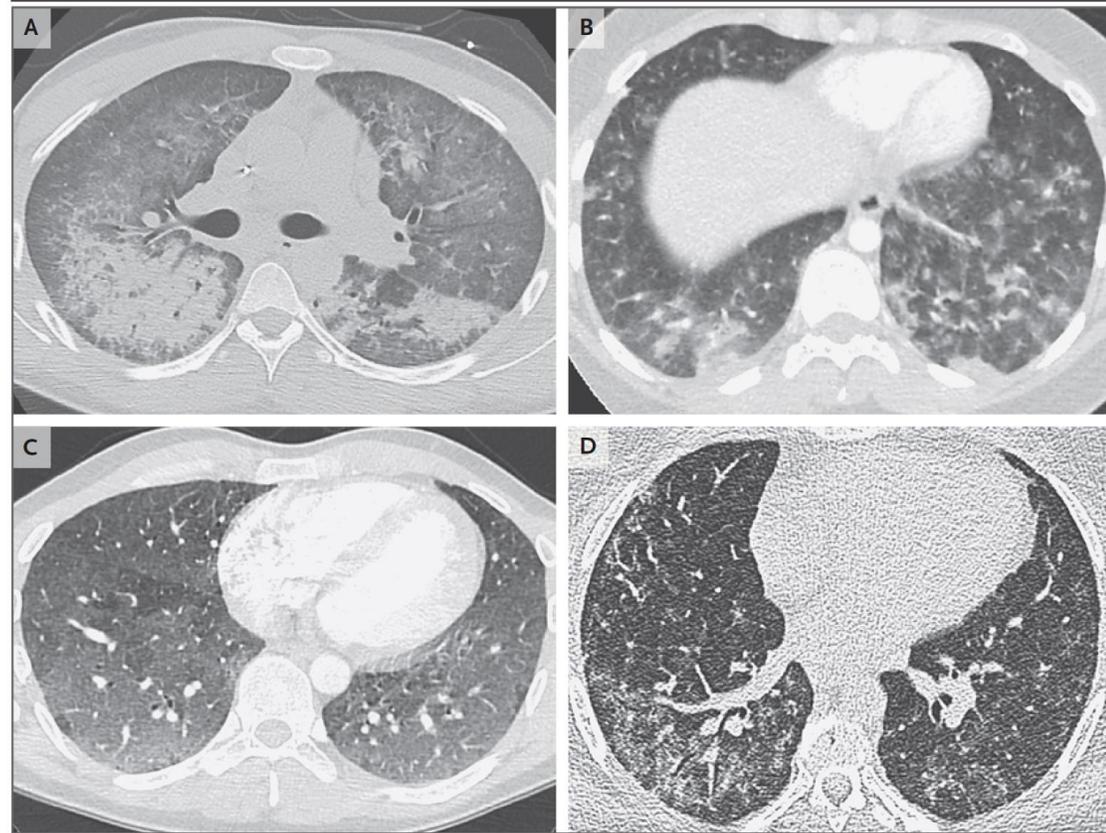


Imaging of vaping

- ENDS use solvents to heat and aerosolize various aldehydes and alcohols, mixing and aerosolization of these components create new compounds
- acute eosinophilic pneumonia, diffuse alveolar damage, organizing pneumonia, and lipoid pneumonia, giant-cell interstitial pneumonia, hypersensitivity pneumonitis, and diffuse alveolar hemorrhage

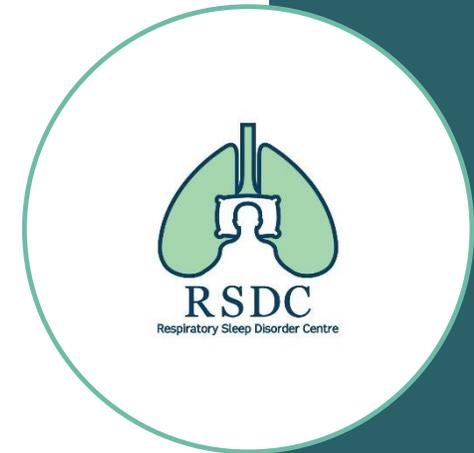
Computed Tomographic Scans of the Chest Obtained from Patients with Vaping-Associated Lung Injury.

- A: 20-year-old man with diffuse alveolar damage, underwent intubation eventually recovered after receiving glucocorticoid therapy.
- B: 19-year-old woman with acute eosinophilic pneumonia
- C: 35-year-old man with hypersensitivity pneumonitis
- D: 49-year-old woman with giant-cell interstitial pneumonia attributed to cobalt in her vape pen,



Explosions

- At our centre, from October 2015 through June 2016, we treated 15 patients with injuries from e-cigarette explosions due to the lithiumion battery component.



N ENGL J MED 375;14 NEJM.ORG OCTOBER 6, 2016



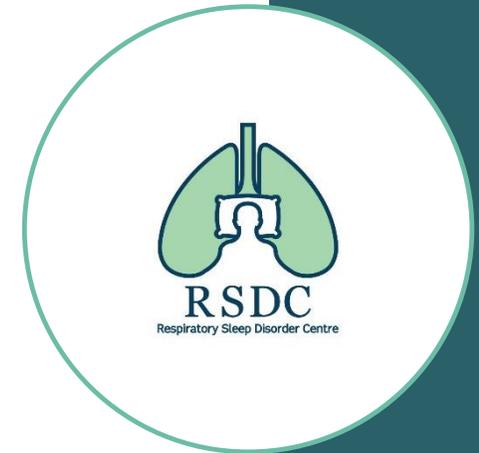
The chief executive of Juul stepped down as talks between Philip Morris collapsed due to regulatory backlash against vaping

- Juul Labs, facing scrutiny in its market. The company, would suspend all advertising
- Philip Morris, announcing the end of their \$187 billion merger talks



FROM NEWS

- The Trump administration announced plans to remove all flavoured e-cigarettes from stores
- Flavoured e-cigarettes represent 80% of Juul's sales. The plan have pushed Juul's valuation down to \$25 billion, from \$38 billion
- Howard Willard, CEO of Altria, called vaping a key component of harm reduction among smokers
- The FDA warned the company about marketing its products as safer than traditional cigarettes

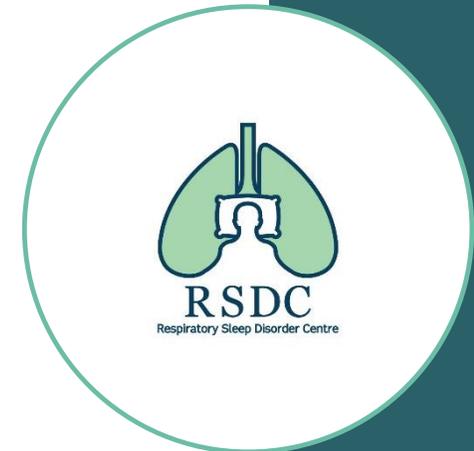


E-Cigarettes to Assist with Smoking Cessation

Belinda Borrelli, Ph.D., and George T. O'Connor, M.D.

Summary

- Don't!!!!
- We recommend that e-cigarettes be used only when approved treatments fail
- Patients be advised to use the lowest dose needed
- Use of e-cigarettes should be monitored by health care providers
- The efficacy and safety of e-cigarettes need to be evaluated in high-risk subgroups, and further research
- The sale of flavoured nicotine products should be banned
- Harm reduction through the use of e-cig must be avoided



SECOND OPINION

BY ROB ROGERS

