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CLINICAL FOCUS **THERAPY UPDATE**

A GP guide to vaping and nicotine prescribing

With recent changes to TGA regulations, GPs are likely to see an increasing number of patients seeking advice on vaping and nicotine prescriptions

🕒 10 minutes to read | 1st October 2021
By Dr Colin Mendelsohn

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Need to know:

- GPs can write prescriptions for nicotine e-liquids under new regulations in place from 1 October 2021.
- Vaping nicotine is a second-line quitting aid for smokers who are unable to quit with first-line treatments.
- Vaping nicotine is a more effective quitting aid than nicotine replacement therapy.
- Patients can legally import nicotine liquid from overseas or purchase it from an Australian pharmacy with a prescription from their GP.
- Patients should aim to quit smoking as soon as possible and try to stop vaping within 3-6 months.
- Long-term vaping is discouraged but is safer than relapsing to smoking

Under new regulations, in place from 1 October 2021, consumers who want to purchase liquid nicotine for vaping will need to get a valid prescription from an Australian medical practitioner in order to do so legally.¹

As a result, GPs can expect to be asked to write nicotine prescriptions and give advice on vaping.

At the same time, GPs will also play an increasing role in supporting smokers to quit using nicotine vaping.

Vaping devices heat a nicotine liquid into an aerosol, which is inhaled and exhaled as a visible mist.



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 **Vaping delivers nicotine, in most cases, and replicates the familiar hand-to-mouth action, rituals and sensations of smoking.**

It is used as a short-term quitting aid or as a long-term substitute to prevent relapse to smoking (tobacco harm reduction).

Most smokers want to quit and have tried and failed repeatedly with first-line treatments — that is, nicotine replacement therapy, varenicline and bupropion.

The RACGP guidelines recognise vaping as a second-line quitting aid for some — in particular, smokers who have tried to quit unsuccessfully using approved pharmacotherapies, who are still motivated to quit and who have brought up e-cigarette use with their GP.²

This article outlines the latest evidence on the safety and effectiveness of vaping, discusses vaping devices and e-liquids, and advises how to counsel smokers about vaping and how to write nicotine prescriptions under the new regulations.

Resources:

- **[Supporting smoking cessation: A guide for health professionals, RACGP 2020](#)**
- **[Electronic cigarettes: A briefing for stop smoking services, UK National Centre for Smoking Cessation and Training](#)**
- **[The Australian Tobacco Harm Reduction Association](#)**
- **[Authorised prescriber streamlined applications](#)**

Is vaping safe?

Vaping nicotine is almost exclusively carried out by smokers and former smokers.

As such, any risk assessment should compare vaping with the risk of continuing to smoke.

Comprehensive reviews by leading independent health organisations agree that vaping is substantially less harmful than smoking.³⁻⁵

Almost all the harm from smoking is caused by the 7000 toxins and carcinogens created by burning tobacco.

Most of these chemicals are absent from vapour, and those that are present are mostly under 1% of the levels found in smoke.⁶

When smokers switch to vaping, systemic toxic biomarkers are also substantially reduced.⁷

After switching to vaping, the risk of a heart attack decreases, blood pressure falls and asthma and COPD symptoms improve.⁸⁻¹¹

The risk of developing cancer from vaping is estimated to be less than one two-hundredth the risk of cancer from smoking.¹²

1

Like all new products, the long-term risk of vaping has not yet been established.

Read more *AusDoc: App Review - Quit Vaping, designed by an ex-vaper*

The UK Royal College of Physicians estimates that the hazards of long-term vaping are unlikely to exceed 5% of the harm associated with smoking, although this figure is contested.³

Vaping nicotine is not risk free and is not recommended for non-smokers or young people.

Vapour contains low doses of toxic chemicals — such as heavy metals, carbonyls and volatile organic compounds — and studies have found some harmful effects from these.⁴

Additionally, some non-smokers who vape will become dependent on nicotine, and there are rare reports of battery explosions.

The risk from nicotine

Nicotine is habit forming but is otherwise relatively benign in the doses used in vaping. According to the UK Royal Society for Public Health, nicotine by itself is fairly harmless.¹³

Nicotine does not cause cancer or lung disease and only plays a small role in cardiovascular disease.¹⁴⁻¹⁶

In animal studies, nicotine has been linked to harmful effects on the fetus and on the adolescent brain, but there is so far no evidence that these findings apply to humans.

Nicotine from vaping or nicotine replacement therapy is not completely safe, but it is always safer than smoking.¹⁷

Nicotine dependence reduces when smokers switch to vaping, because nicotine from vapour is generally absorbed more slowly, reaches lower levels in the brain, and vapour does not contain monoamine oxidase inhibitors, which enhance addiction from smoking.¹⁸

Does vaping help smokers quit?

Vaping nicotine is not a 'silver bullet', but there is growing evidence that it helps many smokers to quit.

Meta-analyses have found that vaping is more effective than nicotine replacement therapy, with moderate confidence levels.^{19,20}

These findings are supported by observational and large population studies, as well as the rapid decline in smoking rates in countries where vaping is widely available.²¹⁻²³

Vaping devices

A wide range of vaping devices (e-cigarettes, vaporisers, electronic nicotine delivery systems [ENDS]) is available.

All consist of a tank or 'pod' (detachable cartridge) for e-liquid, a heating coil and a battery (usually rechargeable). 1

Pre-filled pod vapes are popular starting models. They use replaceable sealed pods and are very easy to operate.

Most new users vape with a two-stage inhalation style known as 'mouth-to-lung' (MTL) vaping.

This involves first drawing vapour into the mouth and then inhaling into the lungs as a second step.

It is the same technique used by most smokers and makes the transition to vaping easier.

The devices demonstrated in table 1 are all suitable for MTL vaping.

Direct-to-lung inhalation involves taking a breath directly into the lungs and is used with more advanced devices.



Table 1. Suitable starting models

Pre-filled pod vape with replaceable pods



Refillable pod vape showing refilling of pod and bottle of e-liquid



Vape pen**1****Disposable (fully sealed unit)****Nicotine e-liquids**

E-liquid consists of four ingredients: nicotine and flavourings (both optional), propylene glycol (PG) and vegetable glycerine (VG).

Nicotine is usually measured in mg/mL or as a percentage by volume. Twelve mg/mL is equivalent to 1.2%.

Pre-mixed, ready-to-vape e-liquids are available in sealed pods for pod vapes and in bottles for refillable devices.

Some experienced vapers mix their own e-liquid, adding concentrated nicotine (100mg/mL) to other ingredients.

Two types of nicotine are used for vaping. Freebase nicotine is used in low concentrations in high-powered devices, such as vape pens and the more advanced box mods, with doses typically in the range of 3-18mg/mL.

Nicotine salts are smoother to inhale and allow the use of higher doses with less throat irritation.

Nicotine salts are absorbed more quickly and are used in pod models and disposables, with doses typically in the range of 20-60mg/mL. 1

Not all vapers need nicotine. Some find the behavioural and sensory aspects sufficiently satisfying.

The initial choice of nicotine concentration and type is based on the level of nicotine dependence and the vaping device used.

Table 2 provides guidelines for choice of nicotine for MTL vaping with different devices.

| Table 2. Nicotine for mouth-to-lung vaping | | |
|---|---------------------------------------|--------------------------------------|
| Device | High dependence / heavy smoker | Low dependence / light smoker |
| Pre-filled pod vapes | 20-60mg/mL nicotine salt | 20-30mg/mL nicotine salt |
| Refillable pod vapes | 20-30mg/mL nicotine salt | 20-25mg/mL nicotine salt |
| | 6-18mg/mL freebase nicotine | 6-9mg/mL freebase nicotine |
| Vape pens | 12-18mg/mL freebase nicotine | 3-12mg/mL freebase nicotine |
| Disposables | 50-60mg/mL nicotine salt | 25-30mg/mL nicotine salt |

Lower levels of nicotine are used for direct-to-lung vaping, usually 3-6mg/mL of freebase nicotine.

Vapers will use different ratios of PG/VG depending on the desired effect. Fifty-fifty is a good starting point.

The GP consultation

Adult smokers who are interested in vaping should be assessed for suitability. Useful questions to consider are listed in box 1.

| Box 1. Assessment of suitability for vaping |
|---|
| <ul style="list-style-type: none"> ● Has the patient tried first-line quitting methods? ● If so, were first-line quitting methods used correctly, and should a retrial be considered? ● Is the patient nicotine dependent?² |

Discuss the risks and benefits of vaping so the patient can make an informed decision. Counselling points are outlined in table 3.

| Table 3. Counselling guide |
|-----------------------------------|
| |

| | |
|---|--|
|  Advice | <ul style="list-style-type: none"> ● No TGA-approved vape products are available ● The long-term health effects of vaping are unknown ● Coughing is common at first but usually settles over the first week ● The other common side effects are throat or mouth irritation, headache and nausea, but these reactions are usually mild and tend to settle ● Keep spare coils, adequate e-liquid supplies and a spare charged device available <p style="text-align: right;">1</p> |
| Correct use | <ul style="list-style-type: none"> ● Use when there is an urge to smoke or to relieve withdrawal symptoms ● Take puffs of about 3-4 seconds each ● Take 10-12 puffs like a cigarette or have a puff or two when needed ● If you are experiencing urges to smoke, increase the nicotine concentration or puff more often ● Vape courteously around others and only where vaping is permitted |
| Duration of use | <ul style="list-style-type: none"> ● Stop smoking as soon as possible; long-term dual use should be avoided ● Try to stop vaping as well within 3-6 months |
| Nicotine safety | <ul style="list-style-type: none"> ● Only buy e-liquids from reputable suppliers ● Keep nicotine out of reach of children and pets, and store in child-safe containers ● Use gloves when handling concentrated nicotine (100mg/mL), and clean up spills promptly |
| Battery safety | <ul style="list-style-type: none"> ● Always follow the manufacturer's instructions on charging ● Do not leave devices unattended when charging ● Always use the charging cable supplied with the device ● Charging in a computer, TV or game console is safe ● Use a low-amp wall plug, usually 0.5-1 amps (phone or tablet chargers are rated ≥ 2 amps output) |

Advise the patient to quit smoking as soon as possible and to quit vaping within 3-6 months. Long-term use should be discouraged but is less harmful than relapsing to smoking.

Quit rates can be increased by adding a nicotine patch and providing standard smoking cessation support.²

Follow up within 3-4 weeks to review progress.

Nicotine prescriptions

Nicotine e-liquids for vaping can be legally accessed from overseas websites or participating Australian pharmacies with a private prescription.

1. Imported nicotine

All registered doctors can write prescriptions for patients to import nicotine e-liquid from overseas under the TGA Personal Importation Scheme.²⁵ **1**

The scheme allows the importation of up to three months' supply at a time to quit smoking and up to 15 months' supply in a 12-month period.

Patients must send a copy of the prescription to the overseas vendor so it can be enclosed with the order.

Prescriptions should include the information outlined in box 2.

Box 2. Required information for nicotine prescriptions for overseas importation

- Note: "Nicotine liquid for inhalation for smoking cessation."
- Nicotine concentration (3-100mg/mL).
- Volume OR number of pods for up to three months' supply.
- Up to three repeats.

2. Pharmacy-dispensed nicotine

Nicotine e-liquid can be purchased from participating Australian community or online pharmacies with a prescription from a doctor who is registered as an authorised prescriber for nicotine or under the Special Access Scheme.

The application process for becoming an authorised prescriber for nicotine has been streamlined (see online resources for a link for applications). Authorised prescribers can write unlimited prescriptions for five years.

Read more *AusDoc: [Hard-to-treat smokers need our time and a lot more NRT](#)*

Pharmacies can supply commercial nicotine e-liquid in pre-filled pods for pod vapes, in bottles for refillable devices and in sealed disposable devices.

Prescriptions for commercial products should include the information outlined in box 2, as well as the brand name, flavour and size (for a disposable).

Compounding pharmacies can also prepare customised preparations from the base ingredients. Prescriptions for compounding should also include the information shown in box 3.

Box 3. Additional information required for compounded prescriptions for nicotine

- PG/VG ratio (usually 50/50).
- Whether freebase or nicotine salt.
- Flavour.

Table 4 shows examples of nicotine e-liquid prescriptions.

Table 4. Sample prescriptions

Pre-mixed commercial products

Nicotine liquid for inhalation for smoking cessation

12mg/mL

500mL repeat x3

(For pharmacy scripts, include brand and flavour)

Pods

Nicotine liquid pods for inhalation for smoking cessation

1-2mL pod

50mg/mL

90 pods repeat x3

(For pharmacy scripts, include brand and flavour)

Disposable vapes

ABC brand of vaping device

30mg/mL nicotine

Specify size of model if required

30 devices repeat x3

(For pharmacy scripts, include flavour)

Concentrated nicotine liquid for mixing

Nicotine liquid for inhalation for smoking cessation

100mg/mL

Must be diluted before use

100mL repeat x3

Compounded nicotine e-liquid

Nicotine liquid for inhalation for smoking cessation

6mg/mL nicotine

500mL repeat x3

(Indicate if freebase nicotine or nicotine salt; flavour and PG/VG ratio)

Conclusion

Vaping nicotine is recognised as a second-line quitting aid for smokers who are unable to quit with other methods and as a safer long-term alternative to smoking (tobacco harm reduction). ¹

With recent changes to TGA regulations, GPs are likely to see an increasing number of patients seeking advice about vaping and requesting nicotine prescriptions to legally obtain these products.

GPs need to be able to discuss vaping with patients who smoke and write nicotine prescriptions if appropriate.

Dr Colin Mendelsohn is a GP with a special interest in smoking cessation. He is a member of the RACGP Expert Advisory Group for smoking cessation guidelines and is the founding chairman of the Australian Tobacco Harm Reduction Association.

Declaration: Dr Mendelsohn has never received any funding or benefits from the vaping or tobacco industries. He was a board member of the Australian Tobacco Harm Reduction Association until January 2021. The association has publicly declared receiving unconditional funding from the vape industry to help set up the charity but has never accepted funding from the tobacco industry.

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