



Ross M Keat

Jean-Christophe Fricain, Sylvain Catros, Luis Monteiro, Luis Martins da Silva, Marcio Diniz Freitas, Angel Brandariz, Giovanni Lodi, Alberto Pispero,

Saman Warnakulasuriya, Zahid Khan and Rui Albuquerque

# The Dentist's Role in Smoking Cessation Management – A Literature Review and Recommendations: Part 2

**Abstract:** By utilizing the 'stages of change' approach to smoking cessation an individual's willingness to quit smoking can be ascertained, with provision of knowledge on potential interventions empowering patients to make their own decisions on cessation modalities. Nicotine Replacement Therapy (NRT) can reduce physical cravings, pharmacotherapies can reduce the desire to smoke, stop smoking services can provide smokers with interpersonal support and electronic cigarettes are increasing in popularity but cannot be recommended as a completely safe way of delivering nicotine. Interpersonal support in combination with NRT and/or pharmacotherapy is the safest and most successful method of smoking cessation.

The authors are developing an online resource to assist with smoking cessation advice. It is available at <http://www.smokingcessationtraining.com/>.

**CPD/Clinical Relevance:** For a patient who is amenable to brief cessation advice, the stages of change model allows the dentist to adapt brief advice to the patient's current circumstances. By improving knowledge of smoking cessation modalities, the dentist can answer any simple questions the patient may have, signposting them towards specialist cessation centres when appropriate.

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**Ross M Keat**, BDS, MFDS, PgCert, Birmingham Dental Hospital/School of Dentistry, **Jean-Christophe Fricain**, DDS, PhD, Université de Bordeaux, **Sylvain Catros**, DDS, PhD, Université de Bordeaux, 33000 Bordeaux Cedex, France, **Luis Monteiro**, DDS, PhD, Instituto Universitário de Ciências da Saúde (IUCS), **Luis Martins da Silva**, DDS, PhD, Instituto Universitário de Ciências da Saúde (IUCS), 4585-116 Gandra PRD, Portugal, **Marcio Diniz Freitas**, DDS, PhD, School of Medicine and Dentistry, University of Santiago de Compostela, **Angel Brandariz**, DDS, PhD, School of Medicine and Dentistry, University of Santiago de Compostela, Spain, **Giovanni Lodi**, DDS, PhD, Dipartimento di Scienze Biomediche Chirurgiche e Odontoiatriche, **Alberto Pispero**, DDS, Dipartimento di Scienze Biomediche Chirurgiche e Odontoiatriche, Milan 20142, Italy, **Saman Warnakulasuriya**, OBE, BDS, PhD, FDS RCS, DSc, King's College London Dental Institute, Department of Oral Medicine and Pathology, London SE5 9RW, **Zahid Khan**, BDS, MFDS, PgCert, Birmingham Dental Hospital/School of Dentistry and **Rui Albuquerque**, DDS, PhD, Birmingham Dental Hospital/School of Dentistry, University of Birmingham, 5 Pebble Mill Road, Birmingham B5 7EG, UK.

During the second part of this article the 'Transtheoretical Model' of smoking cessation is discussed, which allows an understanding of the 'stage' of smoking or cessation patients currently occupy. Dental professionals can then tailor their brief advice to patients' individual needs.

Most tobacco users continue their use because they are addicted to nicotine. By smoking, long-term users modify their brain chemistry, meaning that it can be very difficult for individuals to stop.<sup>1</sup> This can be replaced with 'clean nicotine' via nicotine replacement therapy (NRT), or the pleasurable effects of nicotine can be removed through utilization of pharmacotherapies.





Although nicotine plays a large part in an individual smoking, the process is undoubtedly multi-factorial. Pharmacology, genetics, learned habits and social/environmental factors all play their part.<sup>2</sup> By smoking, users feel they can regulate their mood alongside their mental and physical

abilities.<sup>3</sup> Stop smoking services attempt to address these barriers during an individual's smoking cessation attempt.

We also have many smokers currently utilizing electronic cigarettes as an adjunct to, or instead of, smoking cigarettes. It is therefore important for dentists to understand the current best evidence on these devices.

## Five stages of change model

The suggestion that smoking cessation could be split into five different stages was first described by Prochaska and DiClemente.<sup>4</sup> In this article it is assumed that the model is in relation to smoking cessation, although it can be used with any potentially harmful behaviour (eg drug use, alcoholism). A chart showing the five stages of change, with recommended interventions for the dentist, is shown in Table 1.

Stage of Change	Patient's View	Interventions to Move to Next Stage of Change	Dental Team Involvement
<b>Pre-contemplation</b>   	No intention of quitting	'Consciousness Raising'	If patient wants to discuss media campaigns
		'Dramatic Relief'	If patient wants to discuss media campaigns, or is amenable to receiving a stop smoking leaflet
		'Environmental Re-evaluation'	May damage dentist-patient relationship
<b>Contemplation</b>	Intending to quit in next 6 months	'Self-re-evaluation'	If patient wants to discuss reduction of oral and general health risks following cessation
<b>Preparation</b>	Intending to quit in 30 days	'Self-liberation'	Encouragement and reassurance of patient's decision and health benefits
<b>Action</b>   	Has quit in last 6 months	'Contingency Management'	Suggest self-reward for patient quitting ('treating' themselves), and offer praise for decision
		'Helping Relationships'	Offer support or reassurance based on patient's questions regarding smoking cessation
		'Counter-conditioning'	Difficult to engage with, but can recommend referral if patient enquires
		'Stimulus-control'	Difficult to engage with, but dentists can keep any treatment stress-free, avoiding creation of possible prompts associated with smoking
<b>Maintenance</b>	Has quit for over 6 months	N/A	Congratulate and re-affirm decision
<b>Relapse</b>	Has started smoking following a quit attempt	Identify where patient's location is on 'stages of change' model	Remain non-judgemental. Reassure of normality of this – smokers can relapse 30+ times during cessation attempts! Engage in cessation attempts when patient is ready

**Table 1.** The stages of change, with techniques for the dental team to interact with patients who smoke.

**1. Pre-contemplation**

The individual has no intention of stopping smoking within the next six months.<sup>4</sup> It can therefore be difficult for dental professionals to engage successfully with this cohort of smokers, as attempts to promote cessation are met with a defensive stance. Dental professionals must remain non-judgemental to individuals who are pre-contemplative and reassure smokers that they can discuss quitting whenever they are ready.

Smokers may be in this stage because they are demoralized at previous quit attempts, do not understand the consequences of smoking, or believe that the consequences are insignificant. The individual views that the benefits of smoking outweigh the potential negative effects. To progress from this stage, individuals must become aware that their actions are problematic and potentially harmful to themselves and others.<sup>5</sup>

To transition individuals from the pre-contemplation to contemplation stage, education in the form of 'consciousness raising', 'dramatic relief' and 'environmental re-evaluation' have been shown to be most effective.

**Consciousness raising**

Consciousness raising is where the individual's awareness is raised about potential negative consequences. Dental professionals can be involved in this stage by discussing oral risks of smoking or making individuals aware of media campaigns.

**Dramatic relief**

Dramatic relief involves individuals expressing their emotions regarding their behaviour. A dramatic event, such as the death of a family member from smoking, is particularly effective at producing this form of transition.<sup>4</sup> Techniques such as role play

can also be used to elicit a similar emotional response, but may be weaker. Such techniques may be inappropriate for the dentist to undertake, however, emotive stop smoking campaigns can be introduced to the patient through brief discussion and, if appropriate, provision of stop smoking leaflets.

**Environmental re-evaluation**

Environmental re-evaluation is how individuals may view their problem behaviour within their social environment. It may be awareness of how their smoking impacts on their position as a role model. For example, if an intervention is staged within a whole family, smokers may realize that loved ones have very negative views of their smoking habits.<sup>5</sup> It may be inappropriate for dentists to utilize this intervention, as it could damage the dentist-patient relationship, but should be aware of its use in smoking cessation.

## 2. Contemplation

The individual is aware of the risks, and intends to stop smoking within the next six months.<sup>4</sup> The individual is now aware of the health risks of continuing to smoke, weighing up the benefits of quitting and continuing his/her habit. Despite knowledge of the risks, the individual is still not ready to stop smoking imminently and the dental team should remain supportive and non-judgemental during this stage. There is a risk of remaining in a chronic stage of contemplation, where benefits never truly outweigh risks to the individual.

To transition individuals from the contemplation to preparation stage of change, the most effective intervention is in the form of 'self-re-evaluation.'

### Self-re-evaluation

Self-re-evaluation is where the individual compares potential outcomes both with and without change. Techniques such as imagery can be used to allow the individual to identify a healthy role model, aspiring to be like him/her.<sup>5</sup> The dental team can engage in this approach by, when prompted by the patient, discussing the reduction in harm following smoking cessation against the oral and general risks of continued smoking.

## 3. Preparation

The individual aims to stop smoking in one month. Owing to the risk of relapse following smoking cessation, individuals at this stage have often attempted quitting previously.<sup>4</sup> Due to this, the smoker may be making another attempt with a different nicotine replacement therapy or pharmacotherapy to try and find his/her best cessation strategy. Dental professionals should encourage those who are preparing to quit. They can discuss beneficial simple cessation support conversationally ('So, have you set a quit date?') and reiterate the benefit of stop smoking services to the unassisted quitter.

To transition individuals from preparation to the action stage of change, the most useful intervention is 'self-liberation'.

### Self-liberation

Self-liberation is when individuals truly believe that they are committed, and prepared to act, to change their behaviour. Successful self-liberation strategies must have two options for individuals; they can continue to smoke if they wish to, however, they are aware that cessation is a better option for their

health. Individuals who are committed to self-liberation will act upon their decision to quit smoking. The dentist can offer support and encouragement for self-liberation and remind individuals that quitting is ultimately beneficial for their health.

## 4. Action

The individual has quit smoking in the last six months.<sup>4</sup> Withdrawal symptoms will be at their greatest within this period, so the dental team should offer encouragement alongside reiterating the health benefits of quitting. Individuals will remain in the action phase until they move towards a state of 'self-efficacy,' (ie a self-belief in oneself to succeed) and this is stronger than any temptation to start smoking again

To transition individuals to the maintenance stage of smoking cessation, 'contingency management,' 'helping relationships,' 'counterconditioning' and 'stimulus control' are the most effective methods to continue smoking cessation and prevent relapse.

### Contingency management

Contingency management can be used either to reward the individual for continuing to remain abstinent from the problem behaviour, or to threaten punishment for relapse.<sup>5</sup> Reward for continued abstinence is preferable to any form of punishment. Individuals can self-reward if they remain abstinent, or if working within a group can receive praise from their peers. Dental professionals can therefore praise an individual who has recently stopped smoking.

### Helping relationships

Helping relationships involve open, frank and trusting discussions between smokers and anyone able to help and encourage them. Such support can come from friends, family, self-help groups or phone services.<sup>6</sup> Individuals who have recently stopped smoking may start a conversation regarding their quit attempt, and this gives dental professionals an opportunity to engage on patients' terms.

### Counter-conditioning

Counter-conditioning involves the individual substituting problem behaviour for healthy behaviour.<sup>4</sup> Relaxation and meditation techniques are examples of counter-conditioning. This may not be possible for dental professionals to be involved in,

however, they can recommend such an approach if directly asked by the patient.

### Stimulus control

Stimulus control involves removing any cues which promote the risky behaviour, and adds prompts for healthy alternatives. For smokers, this may be being in a social situation with other smokers, particularly in combination with alcohol; this is a common cue in men.<sup>7</sup> The dental team can therefore ensure treatment is stress-free to avoid creating any prompts to smoke.

## 5. Maintenance

The individual has not smoked for over six months and is in a state of 'self-efficacy'. Continued cessation therefore focuses on the individual's satisfaction in quitting. If temptation to smoke is too great, or the pros of cessation begin to be outweighed, the individual will relapse from the maintenance state. It is shown that most relapses from maintenance state happen in the presence of other smokers and, to be successful, ex-smokers should try to avoid social situations with other smokers.<sup>8</sup> Those who never smoke again remain in the maintenance stage; for a person addicted to nicotine, there is always a potential for relapse. Members of the dental team should therefore always reinforce the importance of successful cessation, alongside congratulating those who remain abstinent.

### Relapse

Whilst not one of the five stages in the change model, it is important to note that not every individual manages to reach the maintenance stage, and those that do may not remain there. All individuals who fail to reach the maintenance stage, or smoke whilst at this stage, are said to have 'relapsed'. Those that relapse tend to be individuals who do not have strong self-belief or conviction.<sup>9</sup> To reverse relapse, it is important for individuals to remember why they quit in the first place. Relapses are a normal part of the change process and those that have relapsed should be reassured as such by the dental team. Individuals may relapse 30 times during their attempts to stop smoking.<sup>10</sup> Dentists and others within the team can therefore reassure those who do relapse of the normality of this event.

When appropriate, they can be involved in the next cessation attempt and, if requested, provide details of local Stop Smoking Services.

### Stop Smoking Services

Stop Smoking Services utilize multiple cessation methods and it is important for dental professionals to understand the role of interpersonal interaction in smoking cessation, as this is unique to Stop Smoking Services.

#### Individual counselling

It has been shown that individual counselling via the medium of a smoking cessation specialist helps make a successful attempt to stop smoking. The more intense this advice is, the more likely an individual is to quit successfully.<sup>11</sup> There is no increased incidence in cessation associated with counselling from non-medical clinicians or medically qualified clinicians.<sup>12</sup> The effect of individual counselling in isolation is usually confounded by Nicotine Replacement Therapy (NRT) use.

#### Group counselling

Group-based therapy is another successful way of delivering pro-cessation support. Again, group cessation has been shown to be beneficial in improving cessation attempt success.<sup>13</sup> Whilst individual therapy has been shown to be slightly better in encouraging cessation than group treatment, it is difficult to state conclusively that this is due to the counselling in isolation.<sup>13</sup> Data are again frequently confounded by use of NRT in cessation trials, however, cessation rates with group therapy are superior to unaided cessation attempts.<sup>13</sup>

#### Telephone counselling

There is also limited evidence which would indicate that telephone support aids quitting. Three or more calls have been shown to increase effective cessation compared to self-help materials and other brief intervention.<sup>14</sup> However, it is unknown if this intervention would be successful in isolation, as studies often show its efficacy as in tandem with NRT.<sup>14</sup>

#### Internet and smartphone counselling

A comparatively new, novel and inexpensive approach to cessation is through

Question	Answers	Points
How soon after waking up do you smoke your first cigarette?	Within 5 mins	3
	6–10 mins	2
	31–60 mins	1
	After 60 mins	0
Do you find it difficult to refrain from smoking in places where it is forbidden?	Yes	1
	No	0
Which cigarette would you hate most to give up	The first in the morning	1
	Any other	0
How many cigarettes/day do you smoke?	0–10	0
	11–20	1
	21–30	2
	31+	3
Do you smoke more frequently during the first hours after waking than the rest of the day?	Yes	1
	No	0
Do you smoke if you are so ill that you are in bed most of the day?	Yes	1
	No	0
<b>TOTAL (/10)</b>		

**Table 2.** A chart to assess nicotine dependence in patients, from Heather-ton's adaptation of Fagerström.<sup>17</sup>

Dependence Level	NRT Dosage	Combination Therapy
High	<b>Patches:</b> 21mg/24 hr or 15mg/16hr <b>Inhaler:</b> 6–12 cartridges/day <b>Lozenge:</b> 4mg every 1–2 hours, sucked* <b>Gum:</b> 4mg every 1–2 hours. Should be chewed then 'parked' in cheek.*	<b>Patches:</b> 21mg/24hr or 15mg/16hr <b>AND</b> <b>Lozenge/Gum:</b> 2mg every 1–2 hours**
Moderate	<b>Patches:</b> 21mg/24 hr or 15mg/16hr <b>Inhaler:</b> 6–12 cartridges/day <b>Lozenge:</b> 4mg every 1–2 hours, sucked* <b>Gum:</b> 4mg every 1–2 hours. Should be chewed then 'parked' in cheek.*	<b>Patches:</b> 21mg/24hr or 15mg/16hr <b>AND</b> <b>Lozenge/Gum:</b> 2mg every 1–2 hours*
Low to moderate	<b>Patches:</b> 14mg/24 hr or 10mg/16hr <b>Inhaler:</b> 6–12 cartridges/day <b>Lozenge:</b> 2mg every 1–2 hours, sucked* <b>Gum:</b> 2mg every 1–2 hours. Should be chewed then 'parked' in cheek.*	<b>Patches:</b> 14mg/24hr or 10mg/16hr <b>AND</b> <b>Lozenge/Gum:</b> 2mg every 4–6 hours*
Low	<b>May no require NRT, but if withdrawal symptoms present:</b> <b>Patches:</b> 7mg/24hr or 5mg/16hr <b>Lozenge:</b> 2mg every 4–6 hours* <b>Gum:</b> 2mg every 4–6 hours. Should be chewed then 'parked' in cheek*	

**Table 3.** A chart to show suggested dosages of nicotine replacement therapies depending on dependence. This figure should only be used as a suggestion, with practitioners identifying local guidelines if necessary, adapted from Government of Western Australia Department of Health Guidance.<sup>18</sup>

\* Maximum 20 lozenges in a 23-hour period when used in isolation.

\*\* Maximum of 12 lozenges or gum on 24-hour period during combination therapy.

internet and smart phone-based support. There are smartphone 'apps' to help with cessation, however, these have been shown

to be of limited benefit and are currently not particularly well thought out, implemented or utilized.<sup>15</sup> The main body of evidence which

Product	Pros	Cons
Inhaler	Gives psychological addiction relief More effective than nicotine gum Flexible dosing Rapid nicotine absorption	Reinforces psychological smoking addiction, which may ultimately be detrimental Comparatively costly Cannot be used discretely Can irritate mouth and throat Can't be used before eating/drinking as reduces efficacy
Oral Sprays	Flexible dosing More effective than nicotine gum Rapid nicotine absorption	Flavour isn't particularly nice Must hold spray in mouth; difficult to talk whilst using Can irritate mouth and throat Can't be used before eating/drinking as reduces efficacy
Chewing Gum	Dosing more flexible than adhesive patches Chewing can be a distraction from cravings Discrete; people will assume chewing regular gum	'Gum' can be misleading – should be chewed then 'stored' in buccal sulcus, not chewed like normal gum Must be used frequently to maintain nicotine levels Can't be used before eating/drinking as reduces efficacy
Lozenges	Easy to use Flexible dosing Delivers more nicotine than gum	Lozenges must be sucked and not be chewed or swallowed Users commonly complain to nausea
Nasal Spray	More effective than nicotine gum Flexible dosing Rapid nicotine absorption Not affected by food or drink unlike oral NRT	Can cause nasal and ocular irritation Frequent use required to maintain nicotine levels
Adhesive Patch	Easy to use Cheap Only needs to be applied once a day Limited side-effects Discrete	Dosing not flexible Nicotine uptake can be slow Highest rates of relapse whilst using this NRT

**Table 4.** A chart of pros and cons of over-the-counter nicotine replacement therapy.

suggests technologically-centred support is beneficial comes from increased cessation rates in those that receive text message support.<sup>16</sup> The dental team can therefore recommend this intervention to motivated individuals, whilst appreciating that further research is needed to ascertain the most efficient use of this cessation modality.

The authors recommend that dentists advise self-referral to stop smoking services for individuals who are interested in quitting. Cessation rates are the highest amongst individuals who utilize these services.

### Nicotine Replacement Therapy

Currently, UK dentists are not able to prescribe NRT or pharmacotherapy to patients and this is unlikely to change. However, NRT is available over the counter and awareness of these medications is useful in supporting a cessation attempt. Readers may also work in countries where a dentist can

prescribe NRT. If practitioners are aware of the level of addiction (Table 2), this facilitates more accurate advice.

Heatherton *et al's* adaptation of the Fagerström nicotine dependence test gives us insight into how addicted an individual is, and is demonstrated in Table 2.<sup>17</sup> Suggested dosages of NRT are available from the Government of Western Australia Department of Health.<sup>18</sup> This information should be used in an advisory context. Ultimately, practitioners should read local guidelines prior to suggesting or prescribing any medication to smoking patients. A chart of this data is displayed in Table 3. All forms of NRT increase the rate of successful cessation by 50%–70%, regardless of the setting in which they are implemented.<sup>19</sup> NRT can take the form of gum, skin patches, inhalers, lozenges alongside nasal and oral sprays. NRT is a frequent component of smoking cessation strategies as it reduces the physiological effects of cessation, providing nicotine to

reduce the effects of withdrawal. Pros and cons of over-the-counter cessation aids are shown in Table 4.

#### Nicotine gum, lozenges and oral sprays

Nicotine gum is widely available. It typically comes in two dosages, 2mg and 4mg, although a 6 mg gum has recently been introduced as an over-the-counter medicine in the UK. Issues have been noted with nicotine gum, however. Nicotine does not cross the oral mucosa well in acidic environments so that food and drinks that may reduce salivary pH will reduce the amount of nicotinic absorption.<sup>20</sup> This reduces the efficacy of the gum as a cessation aid and can increase the risk of relapse. There is a similar issue with nicotine lozenges, as these require a suitable oral pH (7) to ensure that nicotine can cross mucous membranes covering the mouth. The same is true for oral sprays. As such, patients utilizing these NRTs may have to be advised of maintaining a non-acidic diet during their use.



There can be misunderstandings on how to use gum and lozenges. For the best transfer of nicotine, these should be chewed/sucked and 'parked' in the buccal mucosa.

#### Nicotine patches

Transdermal patches are another method of delivery which have been shown to be effective in delivering even high doses of nicotine.<sup>21</sup> As the nicotine is absorbed through the dermis, the user cannot impact the delivery, meaning that nicotine transfer is much more predictable and consistent when compared to lozenges and gum.<sup>22</sup> It should be noted that gum and patches in isolation may not provide the nicotine replacement required by the individual, meaning that combinations of different NRT may help heavy smokers reduce their nicotine intake; for example, gum and patches together.<sup>19</sup>

#### Nicotine nasal sprays

Nasal sprays have had differing outcomes, with studies stating that they are beneficial in high nicotine users.<sup>23</sup> Users of nicotine spray also complain of negative side-effects, such as nasal irritation and nasal blockage. However, delivery via the nasal passage also negates the risk of any acidic foodstuffs impairing nicotinic absorption, so may therefore be beneficial to some users.

#### Nicotine inhaler

The nicotine inhaler has seemingly been replaced by 'electronic-cigarettes', in regards to patient perception of satisfaction and benefit, however, it still holds a role as an NRT.<sup>24</sup> Nicotine inhalers aid in the habitual element of smoking addiction (as the individual has something to hold and inhale), but they do not provide a similar arterial bolus of nicotine as very little nicotine actually reaches the bronchioles of the lungs.<sup>25</sup> Users of inhalers often choose this modality of nicotine delivery over an electronic cigarette because there is evidence that medicinal nicotine inhalers are likely to be less dangerous than electronic cigarettes.<sup>26</sup>

Despite the large body of evidence supporting NRT in smoking cessation, recent analysis with meta-regression to accommodate for 'multiple sources of bias' has introduced doubt into the efficacy of this treatment modality.<sup>27</sup> Smokers and dentists alike should therefore not believe that NRT is a 'magic cure'

which will always result in successful cessation. By informing individuals who are considering quitting that they will still require a great deal of willpower, and that relapse is normal if it does happen, expectations of patients using NRT can be better managed.

## Pharmacotherapy

#### Varenicline (Champix®)

Varenicline is a first line systemic medication which acts as a partial nicotine receptor agonist useful for assisting in successful smoking cessation attempts.<sup>28</sup> Part of the mechanism of action of this drug is to block the nicotinic receptors in the brain, removing the pleasurable sensations experienced upon having a cigarette.<sup>28</sup> Compared to unassisted cessation attempts, users of varenicline are two to three times more likely to quit.<sup>29</sup> Despite the overlap of mechanisms of action, NRT (nicotine patch) in combination with varenicline increases the chances of successful cessation.<sup>30</sup>

Varenicline's most common side-effect is nausea, which is experienced by 33.5% of users.<sup>31</sup> There are anecdotal reports of more severe, neuropsychiatric adverse events such as depression and suicidal behaviour, however, there are no published reports of this.<sup>32</sup> Varenicline users do often report less adverse neurological side-effect, however, such as abnormal dreams and sleep disturbances.<sup>32</sup> These lesser side-effects are documented and accepted throughout the literature, and are generally tolerated well by patients.<sup>32</sup>

#### Bupropion (Zyban®)

Another first line systemic medication which assists with smoking cessation when compared to will power alone. Indeed, people attempting to quit through using bupropion were 20% more likely to be successful.<sup>33</sup> Bupropion exerts its effect primarily through the inhibition of dopamine reuptake, which reduces withdrawal symptoms by prolonging the presence of this neurotransmitter within neuronal synaptic vesicles.<sup>34</sup> Bupropion has been shown to be slightly more effective combined with NRT.<sup>35</sup> Again, this medication has been associated with manageable side-effects such as nausea, dizziness and vomiting.<sup>36</sup> More serious side-effects include hallucinations and seizures, although these are very rare, with the risk of

seizures being reported by GlaxoSmithKline<sup>37</sup> at 0.1% of users.

Varenicline (44%) has been shown to be slightly more efficacious than bupropion (29.5%) in assisting successful cessation and abstinence at 12 weeks.<sup>38</sup>

#### Clonidine and nortriptyline

These are given as second line pharmacotherapy; they are given when the two first line therapies don't work or are contra-indicated.<sup>39</sup> They have both been shown to be as effective as the first line medications, but have an increased number of side-effects.<sup>39</sup> In isolation, clonidine has been shown to double quitting success, and nortriptyline has been shown to triple success rates.<sup>39</sup> Side-effects are common in users and include clonidine causing hypotension and drowsiness and nortriptyline causing sedation, nausea, dry mouth, constipation and urinary retention.<sup>40</sup>

#### Electronic cigarettes

Electronic cigarettes, or e-cigarettes, are designed to facilitate 'smoking', without the physical combustion of tobacco. Despite the novel method of delivery, electronic cigarettes allow an arterial bolus of nicotine to be transmitted through the lungs in much the same way as cigarettes, creating an arterial nicotine concentration similar to that of a smoker.<sup>41</sup> Such is the recent increase in popularity of electronic cigarettes that Google recorded a 5000% increase in searches for them between 2008–2010.<sup>42</sup> It has also been shown that non-nicotine containing e-cigarettes can help improve the success of quitting attempts, showing that they are effective in maintaining the aspect of psychological addiction, whilst weaning off the physical addiction.<sup>43</sup> The recent Cochrane review by Hartmann-Boyce *et al*<sup>44</sup> showed that nicotine containing e-cigarettes are better than nicotine free e-cigarettes for promoting cessation. Their use can increase the likelihood of quitting, but often simply leads to a reduction of cigarette use as opposed to complete cessation.<sup>45</sup>

Unfortunately, there may be some negative aspects to electronic cigarette use due to the constituents of the liquid which is 'vaped' during e-cigarette use. The glycerol and nicotine mix which is inhaled does contain toxic substances which are also found in cigarette smoke.<sup>46</sup> These toxic substances

are at a significantly lower concentration than in traditional cigarette smoke, therefore considered by some as a 'harm reduction' device.<sup>46</sup> We feel that, based on current evidence, individuals that use an e-cigarette exclusively reduce health risks compared to smoking tobacco, but their use still carries risks to the user. Their use should therefore not be advised.

At this stage, the mechanism of action and safety of conventional NRT is better understood and should be recommended as the gold standard cessation aid by practitioners. It should be noted that electronic cigarettes may be of some benefit to smokers who are unwilling to quit.<sup>46</sup> Ultimately, more research is needed into these as a possible adjunct to cessation; however, until this point, electronic cigarettes have not been shown to invoke any serious adverse events.<sup>44</sup> To ensure that patients are being given gold-standard advice, the authors advise that e-cigarettes should not be viewed as safe NRT and only be viewed as a risk reduction strategy.

Users of electronic cigarettes should therefore be encouraged to stop using them eventually, but their use is (currently) believed to be preferable when compared to smoking conventional cigarettes.

## Conclusions

Patients who are independently looking to stop smoking are more successful in their quit attempts than those who are recruited by healthcare professionals.<sup>47</sup> Additionally, it is those individuals who have high initial baseline motivation to quit who are usually successful.<sup>48</sup> As smokers have varying levels of motivation towards cessation (for example depending on their stress levels), healthcare professionals must ensure that they are always proactive in offering cessation advice to smokers to ensure the highest possible impact on potential quitters.<sup>49</sup> By utilizing the 'stages of change' model, dentists can address relevant oral health concerns and provide the correct support when appropriate to do so.

Brief interventions by dentists are often well tolerated by patients. There is no evidence that such intervention, if delivered well, damages the dentist-patient relationship. Indeed, it could be that well delivered advice improves this dyad.<sup>50</sup> Offering brief advice, alongside an appropriate understanding of smoking cessation modalities, provides a

smoker with the greatest chance of quitting.

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