

## The clinical case for providing stop smoking support to dental patients

Contact with a dental health care provider provides an opportune time to intervene and provide both brief advice and support to stop smoking to patients, including making a referral on to available stop smoking support.

### Why intervene with dental patients?

**Dental health professionals are well positioned to encourage patients to stop smoking for three main reasons:**

- Firstly, this time is often a 'teachable moment' where patients are more receptive to intervention and are more motivated to quit.
- Secondly, patients are ideally placed to be given information about treatment options, supported through withdrawal and signposted to specialist services.
- Finally, stopping smoking can lead to improved dental outcomes and health benefits.

### How does smoking affect the mouth?<sup>1</sup>

- Tar deposited in the mouth causes discolouration to teeth enamel, a coated tongue and halitosis
- Impairment of salivary function, immune responses and blood flow
- Reduced periodontal blood flow results in a change in oral microflora composition, favouring the presence of anaerobic bacteria
- Changes in bone metabolism such as an increased secretion of the bone resorbing factors PGE2 and IL-1β or a decrease in intestinal uptake of calcium
- Carcinogens present in tobacco smoke can cause changes that give rise to oral cancers

## What is the relationship between smoking and oral health?

Research has shown that, compared to those who have never smoked, smokers have an increased risk of developing:

- **Oral cancer** – smoking causes 80–90% of oral cancers (mouth, gums, lips, salivary gland, throat, and tongue).<sup>1,2</sup> Cancer risk is associated with both the amount of cigarettes smoked and years the patient has smoked.<sup>1,2</sup> Tobacco smoke works synergistically with alcohol to increase the risk of oral cancer.<sup>2</sup>
- **Oral leukoplakia and epithelial dysplasia**<sup>3,4</sup>
- **Periodontal disease, dental caries and tooth loss**<sup>1,5</sup> – cigarette smoking is a major risk factor for periodontal disease onset and progression.<sup>2,6–9</sup> The risk of tooth loss is about two to four times greater in current smokers compared to never smokers and there is a dose dependent association between the amount smoked and risk of tooth loss.<sup>2,6–8</sup> Rate of bone loss is almost four times greater than in non-smokers.<sup>8</sup>
- **Dental implant failure**<sup>10–13</sup> – smoking is associated with significantly increased risk of implant failure.
- **Oral candidosis**<sup>2</sup>
- **Impaired treatment response and healing**<sup>2</sup> – smoking causes a lack of oxygen in the bloodstream, leading to the infected gums not being able to heal.

### Effects of smoking on oral health<sup>1</sup>

- Increased risk of oral cancer
- Higher risk of periodontal disease
- Teeth discoloration
- Reduced blood supply to mouth
- Increased build up of dental plaque
- Delayed healing following tooth extraction, periodontal treatment or oral surgery
- Higher risk of dental implant failure
- Bad breath (halitosis)
- Alterations to taste and smell

## What are the benefits of stopping smoking to oral health?

Successfully stopping smoking will help a patient heal faster by eliminating the acute effects of smoking on the body and stopping smoking has been associated with improved dental outcomes. Stopping smoking is also one of the most important things a patient can do to improve their overall long-term health.

Stopping smoking has been associated with:

- **Improved composition of oral microflora and periodontal health.**<sup>1,2,14-16</sup>
- **Reduced risk of tooth loss**<sup>1,17-20</sup> – the risk of tooth loss is about two to four times greater in current smokers compared to never smokers. Risk reduces after stopping smoking, but it may take years to return to that of a non-smoker.<sup>21</sup>
- **Reduced risk of implant failure**<sup>1,22</sup> – patients who stop smoking one week before treatment and eight weeks following have success rates identical to non-smoking patients.<sup>23</sup>
- **Reduced risk of smoking-related illness**<sup>1,24</sup> – stopping smoking significantly reduces the risk of developing smoking-related disease including heart disease, stroke, lung and other cancers, and respiratory illness.

### General health benefits of stopping smoking<sup>1</sup>

- Within 20 minutes heart rate and blood pressure drops.
- Within 12 hours carbon monoxide levels in the blood return to normal.
- Within 24 hours the chance of a heart attack decreases.
- Within 2 weeks to 3 months circulation improves and lung function increases.
- Within 1 to 9 months lungs regain normal ciliary function, reducing infection risk.
- Within 1 year risk of heart attack is reduced by half.
- Within 5 to 15 years risk of stroke is reduced to that of a non-smoker.
- By 10 years the risk of lung cancer is approximately half that of a smoker. The risk of cancers of the mouth, throat, bladder, kidney and pancreas also decrease.
- By 15 years risk of heart attack is that of a non-smoker.

## Main acute effects of smoking on the body (estimated time of recovery, if known)

- Increase in sympathetic tone leading to an increase in blood pressure, heart rate and peripheral vasoconstriction leading to an increased demand for oxygen and cardiac function<sup>25</sup> **(24 – 48 hours)**
- Formation of carboxyhaemoglobin leading to a reduction in oxygen delivery to the tissues<sup>26</sup> **(8 – 24 hours)**
- Formation of carboxymyoglobin leading to reduction in oxygen storage in the muscles<sup>27</sup> **(8 – 24 hours)**
- Increase in red blood cell production, which leads to an increase in blood viscosity, a decrease in tissue perfusion, a decrease in oxygen delivery to the tissues and potentiation of thrombotic process<sup>28,29</sup>
- Hypersecretion of mucus, narrowing of the small airways, decrease in ciliary function and change in mucus rheology leading to a decrease in mucociliary transport<sup>28,29</sup> **(12 – 72 hours)**
- Changes in functioning of a range of immune cells (pro- and anti-inflammatory cytokines, white blood cells, immunoglobulins) which lead to decreased immunity and are associated with atherosclerosis<sup>28,29</sup> **(1 week – 2 months)**
- Induction of hepatic enzymes which increases drug metabolism through both pharmacokinetic and pharmacodynamic mechanisms<sup>30,31</sup> **(6 – 8 weeks)**

## What do we know about how to help dental patients quit?

Smoking cessation interventions delivered by dental health care professionals have been proven effective for supporting patients with quitting.<sup>32</sup> Smoking cessation interventions increase the rate of long-term quitting if they include:<sup>33,34</sup>

- **behavioural support,**
- **stop smoking medication including nicotine replacement therapy (NRT) or varenicline**

Dental practices should introduce **systems to address tobacco use and ensure best practice intervention** is delivered to support patients who smoke with quitting. These systems screen and document the smoking status of all patients and provide advice and support with quitting, including the initiation of first line stop smoking pharmacotherapy and a referral system to link patients to specialised stop smoking support.

## Vaping

E-cigarettes provide nicotine without combustion and are popular among UK smokers as an alternative to smoking. While e-cigarettes are not risk-free, Public Health England estimates they are 95% safer than smoking cigarettes.<sup>35</sup> There is also evidence to indicate that e-cigarettes are effective in helping patients stop smoking.<sup>35,36</sup> Evidence on safety and the role vaping plays in supporting quitting is reviewed regularly. Policies related to the use of e-cigarettes in inpatient settings will vary by trust and organisation.

### Best practices for managing tobacco withdrawal in preparation for dental procedures

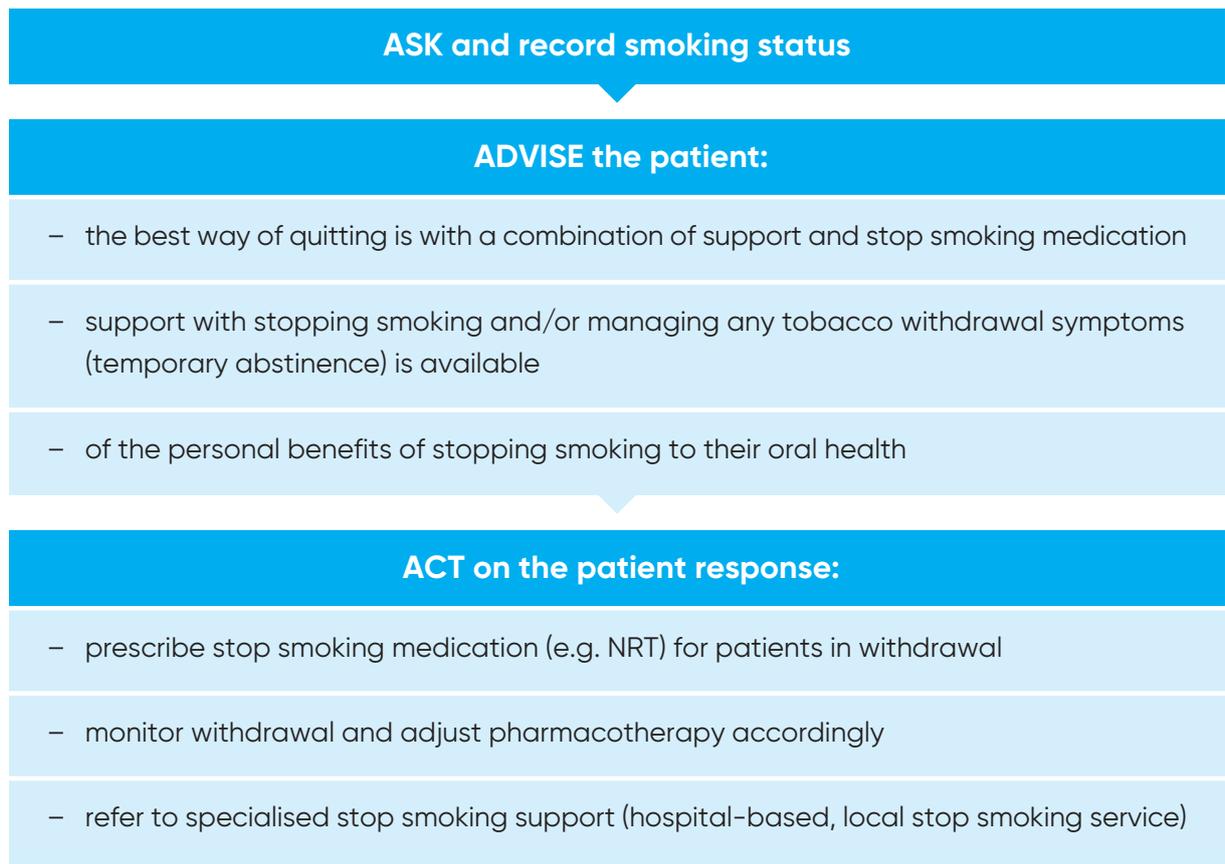
Most regular smokers will experience tobacco withdrawal symptoms within hours of their last cigarette and can range from mild to severe.<sup>37</sup> Withdrawal symptoms include aggression and hostility and can affect the care of the patient. Offering immediate support for temporary abstinence can be useful to assist with managing withdrawal symptoms and can lead to long-term quitting. The use of varenicline (Champix) or a combination of the NRT patch with a short-acting oral NRT product (e.g. gum, inhaler, spray) is a recommended evidence-based practice for managing tobacco withdrawal.<sup>34,38</sup> The combination of two NRT products has been shown to be superior to NRT monotherapy.<sup>37</sup> At the earliest opportunity patients should also be referred to an available stop smoking service, who can provide behavioural support which has been shown to significantly enhance rates of quitting.<sup>33</sup>

#### **Tobacco withdrawal symptoms include:**<sup>38</sup>

- Urges to smoke or cravings
- Restlessness or difficulty concentrating
- Irritability, aggression, anxiety, crying, sadness or depression
- Difficulty sleeping or sleeping disturbances
- Increased appetite and weight gain
- Coughing
- Mouth ulcers
- Constipation
- Light headedness

**Providing 'Very Brief Advice' to hospital patients: the '3 As'**

NICE outlines a care pathway for supporting smoking cessation that can be adopted for dental patients.<sup>34,39</sup> In essence, the care pathway incorporates the 3As:



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