Very Brief Advice on Smoking for Dental Patients

NCSCT

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What is Very Brief Advice on Smoking?

Very Brief Advice on Smoking (VBA) is a simple piece of advice that is designed to be used opportunistically in less than 30 seconds in almost any situation with a smoker. What may be surprising is that you do not advise smokers to stop, and you do not ask how much they smoke or even if they want to stop.

The figure overleaf shows the three elements to VBA: establishing and recording smoking status (**ASK**); advising on how to stop (**ADVISE**) and offering help (**ACT**).

Offering VBA is the single most cost effective and clinically proven preventative action a healthcare professional can take[1] and it is important to keep giving advice at every opportunity, as smokers may take several attempts to stop smoking successfully.[2]

In addition, by referring a patient to a local stop smoking service, they are four times more likely to stop smoking.[3] Research shows that 95% of patients expect to be asked about smoking and a short intervention can make all the difference.[4,5]

Very Brief Advice on Smoking

30 seconds to save a life

ASK

AND RECORD SMOKING STATUS

"Do you smoke?"

ADVISE

ON THE MOST EFFECTIVE WAY OF QUITTING

"Did you know that the best way of stopping smoking is with a combination of medication and specialist support. If you are interested I can refer you to our local friendly stop smoking service that many of my patients have found useful?"

ACT

ON PATIENT'S RESPONSE

INTERESTED	NOT INTERESTED
Give information. Prescribe medication and refer to local stop smoking service. Patients are four times more likely to quit with support	*"It's your choice of course. Help will always be available. Do let me know if you change your mind."*
REFER to local stop smoking service	**REASSESS at future visits**

The important role of dental team in smoking cessation

Dental professionals have a unique opportunity to address smoking with patients in a manner that will make a difference and won't damage your relationship with patients.

Brief advice from a dentist or member of the dental team has been shown to increase your patient's motivation to quit and can double a patient's success with quitting.[6]

Addressing tobacco use with patients should be a priority for all members of the dental team and will result in improved oral health and outcomes for patients. It is important for dental professionals to be aware of simple techniques for motivating your patients who smoke to quit and informing them of the availability of evidence-based treatments such as quit smoking medications and counselling support.

How does smoking affect the mouth?[7]

- Tar deposited in the mouth causes discolouration to teeth enamel, a coated tongue and halitosis
- Alterations in taste and smell
- 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-iB74 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, tongue, lips, and throat use).[7,8] Cancer risk is significantly associated with the amount of cigarettes smoked.[7] Tobacco smoke works synergistically with alcohol to increase the risk of oral cancer.[7]
- **Oral leukoplakia and epithelial dysplasia**[9,10]
- **Periodontal disease, dental caries and tooth loss** – cigarette smoking is a major risk factor for periodontal disease onset and progression.[7,11–16] 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.[7,11–16] Rate of bone loss almost four times greater than in non-smokers.[13]
- **Oral candidosis**[7]
- **Impaired treatment response and healing**[7] – 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

- 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 survey
- Bad breath (halitosis)
- Alterations to taste and smell

Benefits of stopping smoking to oral health

Successfully stopping smoking will not only benefit a patient's long term health by reducing the risk of developing other disease,[17] abstinence from smoking may help a patient heal faster by eliminating the acute effects of smoking on the body and stopping smoking has also been associated with improved dental outcomes.

The clinical case for providing stop smoking support to dental patients

Stopping smoking will:

- Improve composition of oral microflora and periodontal health.[7,18–21]
- Reduce risk of tooth loss.[22–24] Risk reduces after stopping smoking, but it takes at least 15 years to return to that of a non-smoker.[25]
- Reduce risk of implant failure.[26] Patients who stop smoking one week before treatment and eight weeks following have success rates identical to non-smoking patients.[27]
- Significantly reduce risk of heart disease, stroke, lung, mouth and throat cancers, other cancers, respiratory disease including and COPD, emphysema, and bronchitis.[8]

Carbon monoxide (CO) testing in dental practice

Carbon monoxide (CO) testing can be used in dental and other clinical settings to assess patients smoking status.

Importantly, CO monitoring can serve as a valuable motivational tool for smokers and takes just a few minutes to conduct. These simple devices are easy to use and allow patients to understand the harm smoking is causing to their health. CO testing can assist with introducing discussions about quitting smoking with patients and can also be used to track progress after patient's stop smoking.

CO has a short half-life and is usually undetectable around 24 hours after the last cigarette.

Image supplied by MD Diagnostics Ltd. www.mdd.org.uk

How to conduct CO testing in dental settings

Explain that carbon monoxide (CO) is a poisonous gas contained in cigarette smoke and that there is a simple test that can be carried out to determine CO levels.

> *"Carbon monoxide is a poisonous gas inhaled by smokers when they smoke a cigarette. Carbon monoxide reduces oxygen levels in the body and causes heart disease, stroke, reduced lung function and can also affect your dental health. The good news for you is that shortly after stopping smoking the level of carbon monoxide in your body returns to that of a non-smoker. This machine measures the amount of carbon monoxide in your lungs in parts per million and if you have not been smoking then we would expect it to be below 10 parts per million. Would you like to measure your carbon monoxide levels?"*

It is worth emphasising that patients should hold their breath for a minimum of 15 seconds before blowing into the CO monitor. This allows the pressure in the lungs to equalise and for the carbon monoxide in the blood to pass into the air in the lungs; it is this that is then measured by the monitor in parts per millions.

> *"What I am going to ask you to do in a minute is to take a big deep breath, hold your breath and then exhale into this machine. You will need to hold your breath for about 15 seconds. After you have taken your breath I will hand the machine to you, the machine will count down and I will then tell you when to exhale into it."*

After the test:

If reading was 10 parts per million or above:

"The monitor is showing a reading of over 10 parts per million. The normal range for a non-smoker is between 1 and 5 ppm and so you can see that your reading is ... times higher than what we would expect from a non-smoker. These levels of carbon monoxide are considered poisonous – they are ... times the levels that are considered safe. High levels of carbon monoxide affects the amount of oxygen in your body and causes serious disease. The good news is quitting smoking you can get this down to the levels of a non-smoker."

If reading was below 10 parts per million (and the patient is known to be a smoker):

"This reading is classed as that of a non-smoker; although the normal range for a non-smoker is between 1 and 5 ppm. However, carbon monoxide accumulates in the body and I'm sure that if we were to repeat the test later today or sooner after you've smoked it would be much higher. The good news is if you stop smoking then you can get this permanently down to the levels of somebody who doesn't smoke."

How to use the CO monitor

1. Both the client and the stop smoking practitioner should use non-alcoholic sanitiser gel on their hands before the test
2. Attach a clean, disposable filtered mouthpiece (a fresh one for each client) to the monitor
3. Turn the machine on
4. Ask the client to take a deep breath
5. The monitor will count down 15 seconds
6. The client needs to blow slowly into the mouthpiece aiming to empty their lungs completely
7. The parts per million (ppm) of carbon monoxide in the lungs will be displayed on the screen
8. The mouthpiece should be removed by the client (for infection control reasons) and disposed of in a refuse sack, which is tied before being placed in another bag for collection (double bagging) to prevent domestic staff touching the mouth pieces
9. The CO monitor should be cleaned between tests using a non-alcoholic wipe

Our bodies produce small amounts of carbon monoxide and there is also carbon monoxide in the atmosphere around us, e.g. in car exhaust fumes, so the reading will almost never be zero; it will also fluctuate slightly depending upon what air you have been exposed to. A reading of below 10 parts per million is considered to be that of a non-smoker.

Readings above 10 parts per million are not normally caused by being in the company of smokers; this can increase exposure to carbon monoxide, but does not normally push the reading above 10.

What else can raise CO?

- Exposure to CO fumes from a faulty gas boiler, car exhaust or paint stripper.
- Lactose intolerance where the high reading is a consequence of consuming dairy products that can produce gases in the breath.
- Exposure to passive smoking. Although readings above 10 ppm are not normally caused by being in the company of smokers.
- Unusually high ambient CO concentrations due to weather conditions or air pollution.

Other resources

The NCSCT offers a variety of online training and face-to-face courses, and resources in smoking cessation.

For further training in Very Brief Advice on Smoking you may access the NCSCT Online Training Module

http://elearning.ncsct.co.uk/vba-launch

If you are interested in learning more about providing behavioural support to assist with quit attempts you should access the NCSCT Online Practitioner Training: Core competencies in helping people stop smoking

http://elearning.ncsct.co.uk/practitioner_training-registration

Electronic cigarettes (e-cigarettes)?[28]

What are e-cigarettes?

E-cigarettes are devices that deliver nicotine within an inhalable aerosol by heating a solution that typically contains nicotine, propylene glycol and/or glycerol, plus flavours. There is a wide range of e-cigarettes and people may need to try various types, flavours and nicotine dosages before they find a product that they like.

What is the evidence on the safety of e-cigarettes?

Short-term exposure to e-cigarettes appears to pose few if any risks. Mouth and throat irritation are most commonly reported symptoms and these subside over time. Low levels of toxicants and carcinogens have been detected in e-cigarette liquid and vapour, but these are much lower than those found in cigarette smoke. There are no high quality safety data from long-term e-cigarette use, but there is no good reason to expect that their use would be anywhere near as risky as smoking. Although some health risks from e-cigarette use may yet emerge, there is no good reason to expect that their use would be anywhere near as risky as smoking. This is because e-cigarette vapour does not contain the products of combustion (burning) that cause lung and heart disease, and cancer.

What do I recommend to my patients who ask about using e-cigarettes?

Some people find e-cigarettes helpful for quitting, cutting down their nicotine intake and/or managing temporary abstinence. While combing quit smoking medications and behavioural counselling has the strongest evidence for increasing quit rates, Public Health England supports the use of e-cigarettes as a quit smoking aid, ideally in combination with a first line quit smoking medication and counseling support.[29] For any patients who are using or are planning to use e-cigarettes to quit smoking or cutback on their smoking it is recommended that they also be referred to their local stop smoking service to give them the best chances of quitting.

References

1. Anczakj, Nogler (2003). Tobacco cessation in primary care: maximizing intervention strategies. Clinical Medicine & Research 2003; 1: 201–216.
2. Fu S, Partin M, Snyder A, An LC, Nelson DB, Clothier B, Nugent S, Willenbring ML, Joseph AM. (2006) Promoting repeat tobacco dependence treatment: are relapsed smokers interested? American Journal of managed Care 2006; 12 235–243.
3. Smoking Toolkit Study (2001) Available at: http://www.smokinginengland.info/
4. Slama KJ, Redman S, Cockburn J, Sanson-Fisher R. Community views about the role of general practitioners in disease prevention. Family Practice 1989; 6: 203–209.
5. Department of Health (2009), Stop Smoking Interventions in Secondary Care. Available online: www.ncsct.co.uk/Content/FileManager/documents/NCSCT-CIC-Delivery-Projects/Secondary-care/stop-smoking-interventions-in-secondary-care-guidance-oct09.pdf
6. Carr AB, Ebbert J. Interventions for tobacco cessation in the dental settings. Cochrane Database of Systematic Reviews 2012, Issue 6. Art. No.: CD005084. DOI: 10.1002/14651858.CD005084.pub
7. Warnakulasuriya S, Dietrich T, Bornstein MM, Casals PE, Preshaw PM, Walter C et al. Oral health risks of tobacco use and effects of cessation. International Dental Journal 2010; 60(1):7–30.
8. The health consequences of smoking – 50 Year of Progress. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014. https://www.surgeongeneral.gov/library/reports/50-years-of-progress/full-report.pdf
9. Morse DEK. Smoking and drinking in relation to oral epithelial dysplasia. Cancer Epidemiology Biomarkers and Prevention 1996; 5(10):769–777.
10. Kulasegaram R, Downer MC, Jullien JA, et al. Care-control study of oral dysplasia and risk habits among patients of a dental hospital. Eur J Cancer B Oral Oncol 1995; 31B(4):227–231.
11. Bergstrom J. Periodontitis and smoking: an evidence-based appraisal. Review. J Evid Based Dent Pract 2006;6:33–41.
12. Johnson GK, Guthmiller JM. The impact of cigarette smoking on periodontal disease and treatment. Periodontol 2000 2007;44:178–94.
13. Chatzopoulos G. Smoking, Smokeless Tobacco, and Alcohol Consumption as Contributing Factors to Periodontal Disease. Northwest Dent. 2016 Jan–Feb;95(1):37–41.
14. Tomar SL, Asma S, Tomar SL, Asma S. Smoking-attributable periodontitis in the United States: findings from NHANES III. National Health and Nutrition Examination Survey. Journal of Periodontology 2000; 71(5):743–751.
15. Ismail AI, Burt BA, EKlund SA. Epidemiological patterns of smoking and periodontal disease in the United States. J Am Dent Assoc 1983; 106:617–612.

16. Bergstrom JE. A 10-year prospective study of tobacco smoking and periodontal health. Journal of Periodontology 2000; 71(8):1338–1347.

17. Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. BMJ 2004; 328:1519.

18. Preshaw PM, Heasman L, Stacey F, Steen N, McCracken GI, Heasman PA et al. The effect of quitting smoking on chronic periodontitis. Journal of Clinical Periodontology 2005; 32(8):869–879.

19. Hilgers KK, Kinane DF, Hilgers KK, Kinane DF. Smoking, periodontal disease and the role of the dental profession. International journal of dental hygiene 2004; 2(2):56–63.

20. Delima SL, McBride RK, Preshaw PM, Heasman PA, Kumar PS, Delima SL et al. Response of subgingival bacteria to smoking cessation. Journal of Clinical Microbiology 2010; 48(7):2344–2349.

21. Fullmer SC, Preshaw PM, Heasman PA, Kumar PS, Fullmer SC, Preshaw PM et al. Smoking cessation alters subgingival microbial recolonization. Journal of Dental Research 2009; 88(6):524–528.

22. Bolin A, Eklund G, Frithiof L, Lavstedt S, Bolin A, Eklund G et al. The effect of changed smoking habits on marginal alveolar bone loss. A longitudinal study. Swedish dental journal 1993; 17(5):211–216.

23. Krall EA, Dawson-Hughes B, Garvey AJ, Garcia RI, Krall EA, Dawson-Hughes B et al. Smoking, smoking cessation, and tooth loss. Journal of Dental Research 1997; 76(10):1653–1659.

24. Arora M, Schwarz E, Sivaneswaran S, Banks E, Arora M, Schwarz E et al. Cigarette smoking and tooth loss in a cohort of older Australians: the 45 and up study. Journal of the American Dental Association 2010; 141(10):1242–1249.

25. Krall EA, Dietrich T, Nunn ME, Garcia RI, Krall EA, Dietrich T et al. Risk of tooth loss after cigarette smoking cessation. Preventing chronic disease 2006; 3(4):A115.

26. Hinode D, Tanabe, S, Yokoyama M, et al. Influence of smoking on osseointegrated implant failure: a meta-analysis. Clin Oral Implants Res 2006; 17(4):473–478.

27. Bain CA. Smoking and implant failure – benefits of a smoking cessation protocol. Int J Oral Maxillofac Implants 1996; 11(6):756–759.

28. National Centre for Smoking Cessation and Training. Electronic cigarettes: a briefing for stop smoking services, 2016. ISBN 978-0-9565243-4-8

29. McNeill A, Brose LS, Calder R, Bauld L & Robson D (2018). Evidence review of e-cigarettes and heated tobacco products 2018. A report commissioned by Public Health England. London: Public Health England.