Session E
Smoking Prevention and Cessation

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Smoking is the largest single preventable cause of mortality and morbidity in the world today. Previous and recent dental literature has provided sufficient evidence to indicate that smokers have reduced chances of undergoing successful periodontal treatment compared to non-smokers or ex-smokers. The impact of smoking on periodontal health, the progression of periodontal disease and the outcomes of periodontal therapy are discussed extensively in session B 'Periodontal Risk Management (PRM)' of the same workshop.

If smoker patients with periodontal disease are to be treated causally, it is appropriate to conduct an additional intervention dealing with their smoking behavior. Given that physically healthy patients visit dental offices repeatedly and relatively frequently, it is quite reasonable for smoking cessation sessions to be carried out by the dental team. Dentists, dental hygienists, dental therapists (in Great Britain) and prophylaxis assistants (in Switzerland) can be educated and trained to perform so-called short interventions of 5 or 10 to 15 minutes at each consultation.

Until recently, smoking cessation was not considered as a task for dental professionals. In various countries, however, some efforts have already been undertaken to incorporate different forms of anti-smoking interventions into the daily routine of a dental practice (Christen et al, 1990; Secker-Walker et al, 1987; Stevens et al, 1995; Sandhu, 2001; Guba, 1990; Gelskey, 2001; Orschel et al, 1997; Want and Robinson, 1999; Watt et al, 2000; Secker Walker et al, 1989; O'Keefe et al, 1995; Smith et al,1998).

In particular, certain authors have addressed the dental hygienists' role in smoking prevention and cessation (Secker-Walker et al, 1988; O'Shea et al; 1987; Bronson et al, 1989; Ohman and Kellerman, 1997). However, no textbook or journal paper has been found that could provide the educators of dental hygienists with appropriate teaching material. Consequently, this paper was written in order to present a transparent and teachable method for smoking prevention and cessation in dental offices; one that can be incorporated into the teaching curriculum for both dental hygienists and dentists.

SMOKING CESSATION METHODS AND STRATEGIES

It is well reported from previous literature (U.S. Public Health Service 2000) that smoking intervention provided by physicians has a successful impact on the smoking abstinence rate of patients (see Table 1).

However, non-physician clinicians, such as psychologists, nurses or dentists, can also be successful in providing smoking cessation interventions (see Table 2).

The abstinence rate for smoking cessation is related to the time spent by the clinician addressing tobacco dependence in a single contact (see Table 3).

Methods used in these studies consisted of motivational interviewing and the use of the so-called 5 A principles: Ask, Advise, Assess, Assist and Arrange (U.S. Public Health Service 2000; Miller and Rollnick, 2002). Other methods and strategies, such as acupuncture, hypnosis, physiological feedback and restricted environmental stimulation therapy, are also widely used, but there are still insufficient studies to address their predictability on positive abstinence rates (U.S. Public Health Service 2000).

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Table 1 Meta-analysis: Estimated abstinence rates for advice to quit given by a physician (n = 7 studies) (U.S. Public Health Service 2000)

Advice	Estimated abstinence rate (95% C.I.)
No advice to quit (reference group)	7.9
Physician's advice to quit	10.2

Table 2 Meta-analysis: Estimated abstinence rates for interventions provided by various types of clinicians (n = 29 studies) (U.S. Public Health Service 2000)

Type of clinician	Estimated abstinence rate (95% C.I.)
No clinician	10.2
Self-help	10.9
Non-physician clinician	15.8
Physician clinician	19.9

Table 3 Meta-analysis: Estimated abstinence rates for various intensity levels of person-to-person contact (n = 43 studies) (U.S. Public Health Service 2000)

Level of contact	Estimated abstinence rate (95% C.I.)
No contact	10.9
Minimal counseling (< 3 minutes)	13.4
Low-intensity counseling (3 – 10 minutes)	16.0
Higher-intensity counseling (> 10 minutes)	22.1

Table 4 Meta-analysis: Estimated abstinence rates for Bupropion SR (n = 2 studies) (U.S. Public Health Service 2000)

Pharmacotherapy	Estimated abstinence rate (95% C.I.)
Placebo	17.3
Bupropion SR	30.5

However, pharmacotherapy can be successfully used as a method, as reported for Sustained-Release Bupropion (Bupropion SR) (see Table 4). In various countries, though, Bupropion SR may not be prescribed by the dental team. Patients with a possible indication for Bupropion SR should therefore be referred to their physician or psychiatrist for pharmacotherapy.

ORGANIZATION OF THE DENTAL OFFICE TEAM

Every member of a dental office team may be involved in the smoking cessation scheme (see Table 5). After a brief period of teaching and instruction, dental assistants and dental secretaries can enhance the teamwork as well, by handing out forms and brochures and marking the patients' histories.

Dentists, dental hygienists and prophylaxis assistants can give a chair-side, short intervention to smoker patients lasting up to 5 minutes. This aspect of smoking cessation schemes in dental offices should be offered free of charge. The focus of this intervention should be to bring smoker patients from the so-called 'pre-contemplation stage' to the 'contemplation stage', and from there on to the 'preparation stage' (see Fig 2).

The dental hygienist should, however, play a major role in the smoking cessation activities within the dental team. He or she should perform the short intervention lasting 10 to 15 minutes. The dentist, the dental therapist and the prophylaxis assistant can then refer smoker patients who are willing to quit to their dental hygienist or to an appropriate smoking cessation centre.

SMOKER HISTORY

It is recommended that a smoker history check (see Table 6) is carried out on a routine basis for every new patient in the dental office (Ramseier, 2003; Watt and Robinson, 1999). A simple form can be handed out together with the general health questionnaire at the patient's first visit. For patients whose records are already

Table 5 Organization of the dental office team			
Dentist	Short intervention up to 5 minutes	→	Short intervention 10 to 15 minutes
Dental hygienist	**Short intervention up to 5 minutes**	→	**Short intervention 10 to 15 minutes**
Dental therapist	Short intervention up to 5 minutes	→	Short intervention 10 to 15 minutes
Prophylaxis assistant	Short intervention up to 5 minutes	→	Short intervention 10 to 15 minutes
Dental assistant	Hand out forms and brochures		
Dental secretary	Patient folder administration		

held by the dental office, the smoker history form can be handed out either at their next visit, or it may be sent them to by mail.

The form should seek to ascertain from the patient if he or she is a smoker, a non-smoker, an ex-smoker or a passive smoker. In the case of smokers, each answer should include checkboxes for quantifying various aspects, such as the number of cigarettes smoked per day or per week. Even if patients smoke only a small number of cigarettes occasionally throughout the week, they should be treated as smokers.

Passive smokers must note the number of cigarettes smoked by the person(s) who share(s) the same household/office, etc., (members of their family and/or their work colleagues).

Smokers have to indicate the number of years they have smoked and the number of cigarettes they usually smoke per day. The following questions are aimed at assessing their capacity to change their smoking habit: “Are you thinking of giving up smoking soon?”; “Do you think that any health problems you may have at the present time might have anything to do with smoking?”; and “Do you think that your health would benefit from your giving up smoking?”

The next three questions ask the smoking patient about experiences he or she might have had with smoking cessation: “How often have you already tried giving up smoking?”; “If you have already tried giving up and failed, why did you start smoking again?”; and “Have you ever used nicotine substitute products?” Some personal data may also be useful to complete the form, such as age and gender.

The smoker history form should be used as a starting point to perform a short intervention by the dentist, the dental hygienist, the dental therapist (in Great Britain) and the prophylaxis assistant (in Switzerland).

SHORT INTERVENTION OF 5 MINUTES

(For patients at the ‘pre-contemplation stage’ and ‘contemplation stage’)

The following guidance, developed in 2002 by a Swiss task force called ‘Smoking – intervention in the dental practice’ (Ramseier, 2003), describes the possible direction of a conversation with every patient (smoker, ex-smoker and non-smoker) at the beginning of a consultation. The discussion process follows the flow chart shown in Fig 1 based on the change of behavior model modified according to Prochaska and Di Clemente (1983) (see Fig 2), and should be recorded for documentation during follow-up consultations (see Table 7).

Dentists, dental hygienists, dental therapists and prophylaxis assistants should start by asking their patients the following question:

“Are you a smoker?”

They should not ask: 'Do you smoke?', as there is a notable difference between the two questions. The former will identify the patient as a smoker in person and will make the following discussion and short intervention much more personal and more effective.

Table 6 Smoker history

Smoker history	Last name/First name: _____ Date of birth: _____
1. I am a non-smoker	☐ I have never smoked in my life
2. I am an ex-smoker	☐ Yes, for less than 6 months ☐ Yes, for more than 6 months
3. I am a passive smoker	
a. How many cigarettes does/do the person(s) who share(s) the same household/office, etc. (members of your family and/or your work colleagues) smoke a day?	☐ Less than 10 ☐ 10 – 20 ☐ 20 – 30 ☐ More than 30
4. I am a smoker	
a. For how many years have you been a smoker?	_____ years
b. How many cigarettes do you smoke?	☐ Less than 10 a week ☐ Less than 10 a day ☐ 10 – 20 a day ☐ 20 – 30 a day ☐ More than 30 a day
c. Are you thinking of giving up smoking soon?	☐ No, not really ☐ I am thinking of giving up in the next 6 months ☐ I am planning to tackle giving up in the next 4 weeks
d. Do you think that any health problems you may have at the present time might have anything to do with smoking?	☐ Yes ☐ No ☐ Don't know
e. Do you think that your health would benefit from your giving up smoking?	☐ Yes ☐ No ☐ Don't know
f. How often have you already tried giving up smoking?	☐ Never ☐ Once ☐ 2 – 4 times ☐ More than 4 times
g. If you have already tried giving up and failed, why did you start smoking again?	☐ Strong craving ☐ Stress situation ☐ Social smoking or under the influence of drinking ☐ Any other situation
h. Have you ever used nicotine substitute products?	☐ No ☐ Yes: Chewing gum Patches other
5. Personal data	
a. Age	_____
b. Sex	☐ M ☐ F
Thank you for having taken the time to complete this questionnaire.	

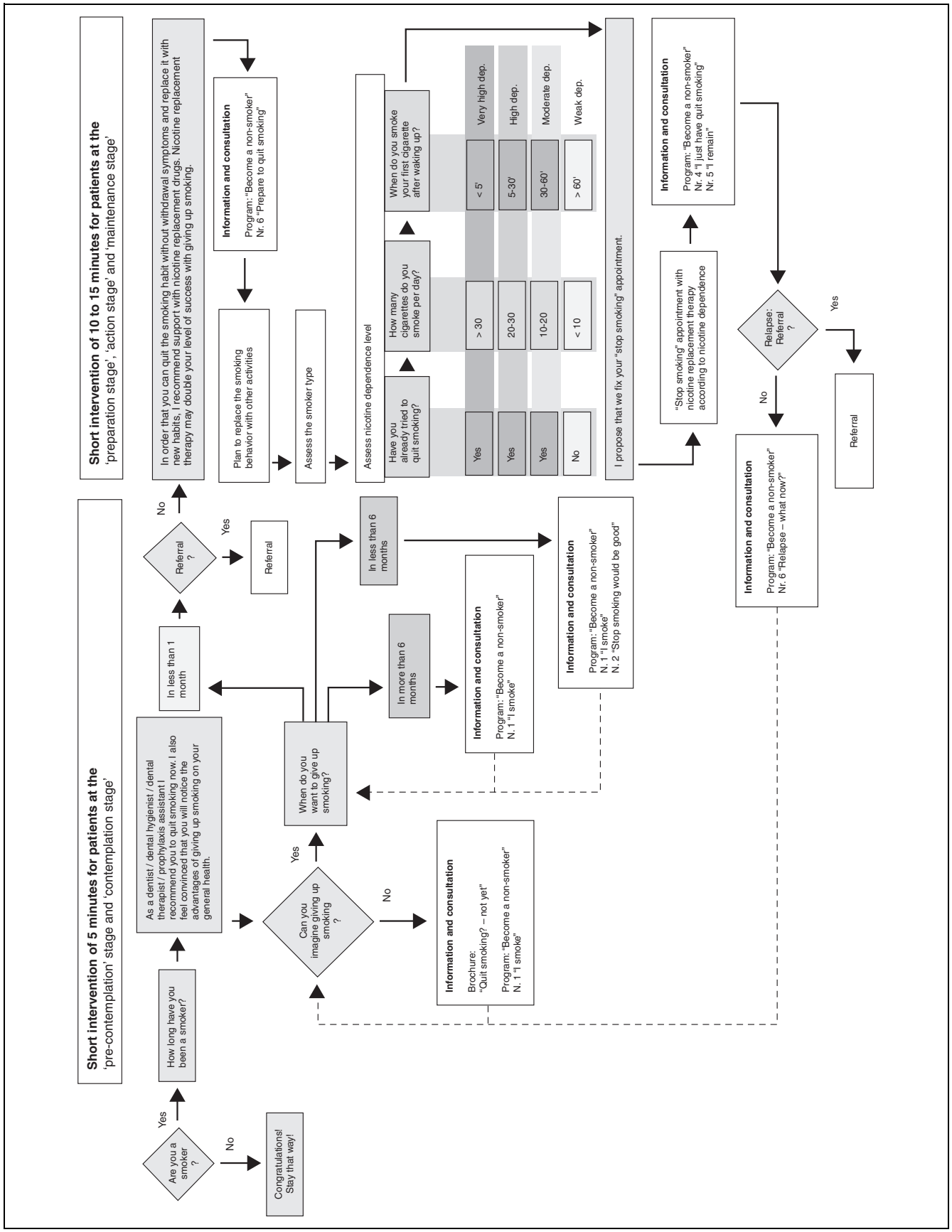

Fig 1 Smoking prevention and cessation, survey.

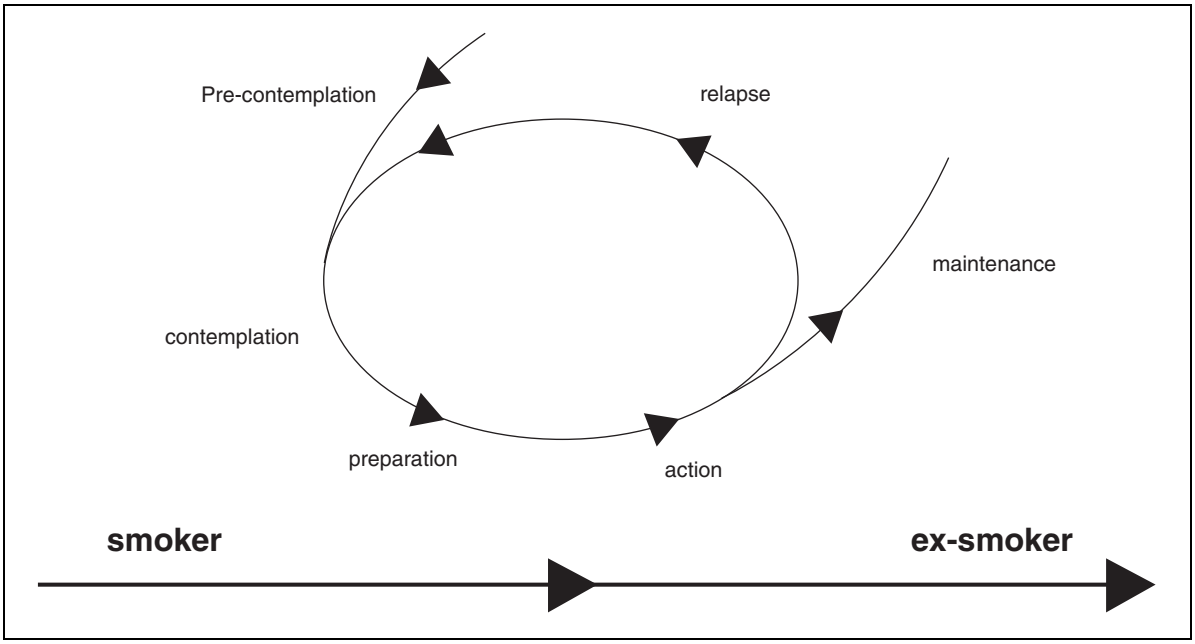

Fig 2 Change of behavior modified according to Prochaska and Di Clemente 1983.

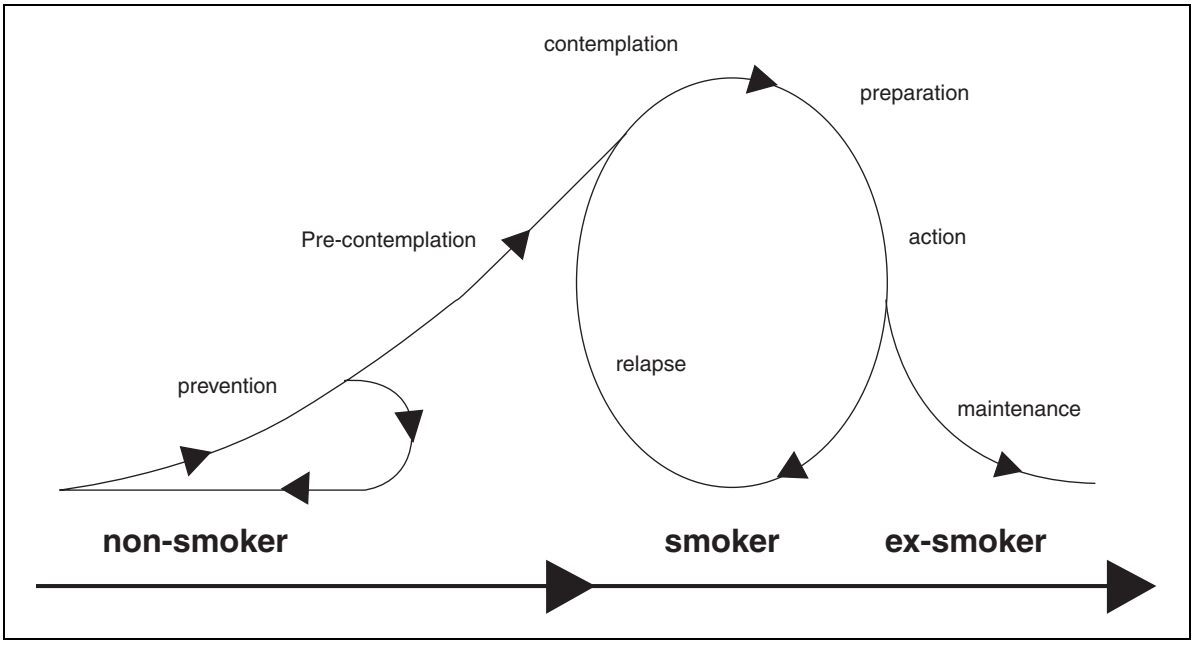

Fig 3 Prevention for non-smokers.

The patent's smoking status should be registered and marked with a color-coded sticker on the patient's history. Three colors may be used for immediate recognition of the patient's smoking status at his/her next visit. A white-colored sticker identifies non-smokers, a blue-colored sticker should be used for smokers and passive-smokers, and a yellow-colored sticker marks ex-smokers.

"Congratulations! Stay that way!"

Non-smokers should be congratulated and motivated to remain as non-smokers (see Fig 3). It is extremely important that non-smoking teenagers should be praised and motivated not to start smoking. Ex-smokers should also be congratulated and motivated to remain as ex-smokers.

Table 7 Record sheet for smoking patients: interventions

Record sheet for smoking patients: interventions

Last name/first name: _____

Date of consultation	Intervention Has the patient been advised to give up smoking? (Yes/No)	Inquiry Has the patient been asked about his/her willingness to give up smoking? (Yes/No)	Appropriate brochures handed out * (Please tick) 0	1	2	3	4	5	6	Information Has the patient been told about the advantages of giving up/gradually cutting down? (Yes/No)	Motivation Has the patient weighed up the pros and cons for him/her personally? (Yes/No)	Follow-up Has a date been fixed for the next consultation? (Yes/No)	Quitting smoking Has a date been fixed for the patient to give up smoking? (Yes/No)	Nicotine substitution D Patch G Gum N Nasal spray S Sublingual tablet I Inhaler	Maintenance Have the possible risk situations of a relapse been discussed with the patient? (Yes/No)	Relapse Has the procedure been discussed with the patient if he/she does start smoking again? (Yes/No)

* **0** = "Quit smoking? – not yet!" **1** = "I smoke" **2** = "Giving up smoking would be good" **3** = "Prepared to quit smoking" **4** = "I just have quit smoking" **5** = "I remain" **6** = "Relapse – what now?"

"How long have you been a smoker?"

Smokers will be asked about how long their smoking habit has been going on, since it is well known that the longer patients have smoked, the more complicated it will be to help them quit (U.S. Public Health Service 2000). This question will aid in assessing the approximate workload required for an appropriate and effective smoking cessation program.

The answer given by the patients will be noted in the patient's history. After this, the following advice has to be given to every smoker:

"As a dentist/dental hygienist/dental therapist/prophylaxis assistant, I recommend you to quit smoking now. I also feel convinced that you will notice the advantages of a giving up smoking on your general health."

Dentists, dental hygienists, dental therapists and prophylaxis assistants should be well qualified and trained to justify this recommendation. They should give their patients appropriate information about the negative effects of smoking on both the patient's general health and on the tissues in the oral cavity and respiratory system.

Positive effects of smoking cessation should be listed, such as: no longer having to wait for a smoking break, a rapid increase in physical fitness, protection of the patient's social environment from passive smoking, improved dental aesthetics, etc.

Negative effects of smoking cessation such as weight gain may also be discussed. Patients should be informed that the health risks of weight gain are small when compared to the risks of continued smoking (U.S. Public Health Service 2000). In addition, physical activities and healthy diet should be recommended. Weight control will be appropriate for ex-smokers who are confident of not resuming smoking.

Immediately after that, patients must be asked whether they can imagine giving up smoking or not:

"Can you imagine giving up smoking?"

The simple answer "yes" or "no" given by the patients to this question helps to ascertain whether further interventional dialogue will be appropriate or not. If the answer is "no", an easy-reading brochure with a title such as 'Quit smoking – not yet?' or 'Become a non-smoker' should be handed out. To end the short intervention here, patients should be informed that they will be reminded and recommended to stop smoking at their next visit again.

If the answer is "yes" the following question then has to be asked:

"When do you want to give up smoking?"

Patients should be asked to choose one out of three possible answers to the question above: "in more than six months"; "in less than six months"; or "in less than one month."

Patients giving the first or second answer are in the 'contemplation' or 'preparation' stages (see Fig 2). It may still be too early for them to quit at this time. More interventional dialogue is therefore needed, and other easy-reading brochures may be handed out. To end the short intervention here, patients should be informed that they will be reminded and recommended to stop smoking at their next visit again.

Patients giving the answer "in less than one month" are ready to stop their smoking habit. They should be further assisted to move from the 'action' stage through to the 'maintenance' stage (see Fig 2).

Dentists, dental hygienists, dental therapists and prophylaxis assistants should be well qualified and efficiently trained to give this part of the short intervention described thus far. If they ask, advise, assess and assist their patients who smoke on a routine basis to progress from the 'pre-contemplation stage' to the 'action stage', their commitment will have been worthwhile and their short intervention of no more than 5 minutes for each consultation will have proved to be a success.

Dental hygienists may be more highly trained for carrying out any further smoking cessation counseling that may be required. In addition, they have more time available for motivational and interventional dialogue with their patients. It is therefore reasonable for patients to be referred to them at this stage.

REFERRAL?

Dentists and prophylaxis assistants may refer their smoking patients for further smoking cessation counseling to their dental hygienists or to any other professional smoking cessation agency. However, dentists, dental therapists and prophylaxis assistants can, of course, continue to the next stage if they wish, namely the smoking cessation counseling, which consists of short interventions of 10 to 15 minutes at each consultation.

SHORT INTERVENTION OF 10 TO 15 MINUTES

(For patients at the 'preparation', 'action' and 'maintenance' stages)

Patients who smoke should be diagnosed as being at the 'action' stage if they are to achieve success with the interventional dialogue of 10 to 15 minutes at each appointment. The cessation process continues to follow the flow chart shown in Fig 1.

The 'stop smoking' event has to be arranged. First, patients should be assessed for their nicotine dependence by providing them with the following advice and information:

"In order that you can quit the smoking habit without withdrawal symptoms and replace it with new habits, I recommend support with nicotine replacement drugs. Nicotine replacement therapy may double your level of success with giving up smoking."

As mentioned earlier in this paper, easy-reading brochures with additional and appropriate information should be handed out.

Plan to Replace Smoking Behavior with other Improving Activities

Planning the replacement of habitually smoked cigarettes with other activities is very important, but it is both difficult and time-consuming. It may be necessary to spend more than one appointment to find out the appropriate improving activities. Patients should therefore be asked to compile a list of improving activities for the next consultation. On that occasion, the replacement will be meticulously planned and arranged.

Assess the Smoker Type

Every smoker has different smoking habits. There are, however, basically two types of smokers that can be found: those who smoke regularly through the day and others who smoke only at specific times through the day. To identify the smoker type, patients should note down the cigarettes that they smoke per day on a self-monitoring sheet for 20 cigarettes (see Table 8) and collect the following information: Date, Time, Location or activity, Accompanied by, Mood or reason, "How much did I need it?" and Alternative.

To decide whether nicotine replacement drugs should be used or not, it is important to know whether patients smoke regularly through the day and are, therefore, used to having a constant nicotine blood level, or whether they are more accustomed to having nicotine blood peaks because they smoke only at specific times throughout the day. The former category will primarily be given recommendations for nicotine patches, and the latter will be treated mostly with nicotine gums or sublingual tablets.

The assessed smoker type will be checked in the 'Recommendation for use of Nicotine Replacement Therapy' see Table 10.

Assess Nicotine Dependence Level

To assess patients' nicotine dependence level, the three following questions should be asked (see Table 9): "Have you already tried to quit smoking?"; "How many cigarettes do you smoke per day?"; and "When do you smoke your first cigarette after waking up?" Four levels of nicotine dependence should be identified: very high dependence, high dependence, moderate dependence and weak dependence (Fagerstrom, 2002). The overall nicotine dependence can be determined from the answer giving the highest nicotine dependence.

"I propose that we fix your 'stop smoking' appointment" and "I propose we fix your 'stop smoking' appointment with nicotine replacement therapy according to nicotine dependence."

It is suggested that a 'stop smoking' appointment should be fixed where patients will walk out as 'first-day' ex-smokers with their own individual plan to replace the smoking behavior with other activities and the personal recommendation form for the use of nicotine replacement drugs filled in by the dentist or the dental hygienist (see Table 10).

Relapse: referral?

Experience has shown that smoking patients need four to five attempts to become non-smokers (U.S. Public Health Service 2000). Consequently, relapses are quite normal and should be dealt with in a professional manner. At that point, however, patients may be referred to a professional smoking cessation agency.

NICOTINE REPLACEMENT THERAPY

The withdrawal symptoms (physical symptoms such as headache, digestion complaints, sleep disturbances, intensified appetite etc., and in particular the strong demand for cigarettes, the 'craving') are one of the major reasons for smokers not to quit.

Nicotine replacement therapy improves the smoking cessation success rate compared with a placebo control group (see Tables 11, 12, 13 and 14).

There are various nicotine replacement products on the market. In this paper a short summary of instructions is given for products such as gum, patch, sublingual tablet, inhaler and nasal spray.

Table 8 Self-monitoring sheet for 20 cigarettes, front and back

Self-monitoring sheet Date: _____

Cig.	Time	Location or activity	Accompanied by	Mood or reason	How much did I need it?	Alternative
1						
2						
3						
3						
4						
5						
6						
7						
8						
9						
10						

Self-monitoring sheet Date: _____

Cig.	Time	Location or activity	Accompanied by	Mood or reason	How much did I need it?	Alternative
11						
12						
13						
13						
14						
15						
16						
17						
18						
19						
20						

Gum

Very high and high nicotine dependence
- As soon as craving starts
- 4 mg-strength gum
- Chew the piece of gum slowly for 10 seconds
- Rest it for one minute in the vestibule
- Chew the piece of gum again for 10 seconds
- Rest it again for one minute in the vestibule elsewhere in the mouth
- Carry on doing this for approx. 30 minutes
- approx. 8 – 12 gums per day (maximum 15 gums per day)
- To be used over a three-month period

Moderate and low nicotine dependence
- 2 mg-strength gum
- Same mode of use as described above

Patch

The nicotine peak plasma concentration is achieved between 4 – 9 hours after application.

Very high, high and moderate nicotine dependence
- Attach the patch in the morning to a clean, dry and hairless area of skin
- Apply pressure on it for 10 – 15 seconds
- Remove the patch before going to sleep
- Apply the patch to a different area every day (upper arm, hip, chest)
- 1 month 15 mg-strength/16 hours per day
- 1 month 10 mg-strength/16 hours per day
- 1 month 5 mg-strength/16 hours per day
- To be used over a three-month period

Table 9 Assessing patients' nicotine dependence level

"Have you already tried to quit smoking?"	
Yes	Moderate to very high dependence
No	Weak dependence
"How many cigarettes do you smoke per day?"	
> 30 cigarettes/day	Very high dependence
20 – 30 cigarettes/day	High dependence
10 – 20 cigarettes/day	Moderate dependence
< 10 cigarettes/day	Low dependence
"When do you smoke your first cigarette after waking up?"	
< 5'	Very high dependence
5' – 30'	High dependence
30' – 60'	Moderate dependence
> 60'	Low dependence

Table 11 Meta-analysis: Estimated abstinence rates for 2 mg nicotine gum (n = 13 studies) (U.S. Public Health Service 2000)

Pharmacotherapy	Estimated abstinence rate (95% C.I.)
Placebo	17.1
Nicotine gum	23.7

Table 12 Meta-analysis: Estimated abstinence rates for nicotine inhaler (n = 4 studies) (U.S. Public Health Service 2000)

Pharmacotherapy	Estimated abstinence rate (95% C.I.)
Placebo	10.5
Nicotine inhaler	22.8

Table 13 Meta-analysis: Estimated abstinence rates for nicotine nasal spray (n = 3 studies) (U.S. Public Health Service 2000)

Pharmacotherapy	Estimated abstinence rate (95% C.I.)
Placebo	13.9
Nicotine nasal spray	30.5

Table 14 Meta-analysis: Estimated abstinence rates for nicotine patch (n = 13 studies) (U.S. Public Health Service 2000)

Pharmacotherapy	Estimated abstinence rate (95% C.I.)
Placebo	10.0
Nicotine patch	17.7

Sublingual Tablet

Very high and high nicotine dependence

- 2 mg-strength tablet should be taken hourly or every two hours
- Place the tablet under the tongue and allow it to dissolve for 30 minutes
- 2 tablets per time or in combination with a patch
- 8 – 12 tablets per day (maximum 24 per day)
- To be used for a three-month period

Possible side effects:

- If the effect feels too powerful, remove the tablet from the mouth (users become more accustomed to the tablets after a few days)
- If tablet is swallowed, stomach pain may occur

Inhaler

Takes into account the 'hand-to-mouth' habit.

Table 10 Recommendation for use of Nicotine Replacement Therapy

Last name: _____ First name: _____

Level of nicotine dependency:

☐ very high
☐ high
the day
☐ moderate
☐ low

Smoking behavior:

☐ smokes regularly through the day
☐ smokes only at specific times through

From Day 1 of quitting:

	Patch (mg per day)	**Gum** (number per day)	**Others** (number per day)
1st month			
2nd month			
3rd month			
After month 4			

Place, Date: _____ Signature: _____

Nicotine replacement	Low nicotine dependency	Moderate nicotine dependency	High nicotine dependency	Very high nicotine dependency
Patch		■	■ in combination with another nicotine preparation	■ in combination with another nicotine preparation
Gum	■ 2 mg	■ 2 mg	■ 4 mg	■ 4 mg
Sublingual tablet	■	■	■ in combination with patch	■ in combination with patch
Inhaler	■	■	■ in combination with patch	■ in combination with patch

- Nicotine cartridges with 10 mg of nicotine; 1 cartridge is equivalent to 5 cigarettes
- Used in combination with patches or gum
- 1 cartridge is equivalent to 5 cigarettes
- 6 – 12 inhaler cartridges per day for 8 weeks; after this, the dosage is halved and then reduced to zero
- To be used over a three-month period

Nasal Spray

Very high and high nicotine dependence

- 1 spray contains 0.5 mg nicotine
- Spray into 1 nostril at the correct angle (with head tipped back slightly!)
- Breathe slowly through mouth; do not inhale!

- Wait for the effect to subside before spraying into the other nostril – if required
- 1 – 2 doses per hour, as and when necessary

Very high and high nicotine dependence
- Maximum 3 doses per hour or 40 doses per day
- 1 spray bottle contains approx. 200 doses
- To be used over a three-month period

Possible side effects
- For 2 – 3 days: nasal irritation, cold, sneezing, watery eyes

ACKNOWLEDGMENT

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ONLINE SOURCES

Tables 6, 7, 8 and 10 have already been published on the Internet and are available as a free download on the following link: http://www.dental-education.ch/smoking They are presented in Microsoft Word format and could therefore be re-formatted and re-edited, depending on the requirement.

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