

## IN BRIEF

- This paper provides a comprehensive review of evidence on the effectiveness of interventions by health professionals to encourage and assist smokeless tobacco users to stop.
- A series of recommendations are made concerning the recording of smokeless tobacco use in high risk groups and interventions to promote cessation
- These recommendations have been reviewed by a panel of experts and endorsed by key professional bodies and relevant agencies.

VERIFIABLE  
CPD PAPER

# Smokeless tobacco cessation guidelines for health professionals in England

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Smokeless tobacco is used in the UK predominantly by members of the Indian, Pakistani and especially Bangladeshi communities. The most commonly used form is tobacco mixed with lime and additional psychoactive compounds, most notably areca nut. The resulting 'quid' is chewed or held in the mouth. Studies from Asia indicate that use of this kind of product is linked with an increased risk of oral cancers and possibly low birth-weight infants. There is little high quality research evaluating interventions to promote cessation of smokeless tobacco use, especially of the forms used in the UK. However, what evidence there is suggests that advice to stop coupled with behavioural support and counselling may increase long-term abstinence rates by some 5–10%. It seems appropriate therefore to recommend that dentists, GPs and other relevant health professionals should routinely assess and record smokeless tobacco use in patients belonging to relatively high prevalence groups, that they ensure that smokeless tobacco users know the potential health risks (as well as the health risks of smoking) and that they advise them to stop and keep a record of the outcome. Dental professionals should also examine the oral cavity of smokeless tobacco users for lesions when the opportunity arises. Patients expressing an interest in stopping should be referred to specialist smoking cessation services for behavioural support and specialists in areas of high smokeless tobacco use will need to ensure that they are sufficiently knowledgeable and their services sufficiently accessible to these users. There is insufficient evidence to recommend the use of nicotine replacement therapy or bupropion to aid smokeless tobacco cessation. Research is needed in the UK to quantify the personal and population health risks from smokeless tobacco, the benefits of stopping, the effectiveness of interventions aimed at promoting cessation and patterns of use, knowledge and attitudes of users.

Cigarette dependence is recognised as a life-threatening disorder which responds to treatment in the form of behavioural support and medication. In the UK this has led to treatment services being made available

as part of the National Health Service.<sup>1</sup> The blueprint for the operation of these services was a set of guidelines funded by the Health Development Agency.<sup>2,3</sup> While cigarette smoking is the most hazardous and prevalent form of tobacco use, consideration also needs to be given to other forms.

This paper focuses on smokeless tobacco. It considers the prevalence of smokeless tobacco use in England and elsewhere, and its health effects. It examines evidence on how far smokeless tobacco use meets standard criteria for dependence and the effectiveness of interventions to promote cessation. Finally it makes recommendations for interventions by health professionals to

encourage and aid cessation of smokeless tobacco use.

The guidelines that comprise this paper were commissioned by the Health Development Agency for England. The development process was similar to that used for the smoking cessation guidelines mentioned above. A version was submitted to relevant organisations and agencies for conditional endorsement and comment and to a panel of experts for review (see Appendix). A revised version was prepared and submitted to the same bodies and individuals for final comments and endorsement.

In addition to publication in the *BDJ* the

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guidelines will be disseminated to dental and other health professionals through established networks, and the global email listserv set up for smoking cessation professionals: [www.globalink.org](http://www.globalink.org)

### PREVALENCE OF SMOKELESS TOBACCO USE

There are two main types of smokeless tobacco – snuff and chewing tobacco. Snuff contains finely ground or cut tobacco leaves and can be dry, moist or in sachets (like tea-bags). Snuff can be administered through the nose (nasal snuff) or the oral cavity (known as snuff dipping). Chewing tobacco comes in the form of loose leaf (in pouches of tobacco leaves), ‘plug’ or ‘twist’ form. Tobacco can also be mixed with other psychoactive ingredients and administered orally. One common ingredient, for example, is areca nut, which is itself psychoactive, possibly carcinogenic and potentially dependence forming.<sup>4,5</sup>

Smokeless tobacco use in one form or another is very prevalent worldwide. For example, it is estimated that there are some 600 million users of areca nut/tobacco mixtures (betel quid or paan), primarily in the Indian subcontinent and South East Asia.<sup>6</sup> Amongst South Asians tobacco is most commonly chewed by adding it to *paan* (The terminology can be confusing because it is not used consistently. For example, paan can be used to refer to the mixture including tobacco.). Paan consists of three basic ingredients: the betel leaf, betel nut or areca nut, and lime paste. To these are added a range of ingredients, one of which can be tobacco. Several large population-based epidemiological studies in India show almost all regular chewers of betel quid chew it with tobacco.<sup>7</sup> In the US it is estimated that there are some 5 million adult and 750,000 adolescent smokeless tobacco users (mainly chewing tobacco and moist snuff).<sup>8,9</sup> Manufactured smokeless tobacco products predominate in the USA and Sweden whereas in South Asia traditional tobacco products predominate which are more diverse in manufacture and complex in consumption, making identification of any impact more difficult.

In the European Union some forms of smokeless tobacco are banned. Council Directive 2001/37/EC (which superseded EU Directive 89/622/EEC as amended by Council Directive 92/41/EEC) bans tobacco for oral use (defined as ‘all tobacco products for oral use, except those intended to be smoked or chewed, made wholly or partly of tobacco, in powder or in particulate form or in any combination of those forms, particularly those presented in sachet portions or porous sachets, or in a form resembling a food product’). There is a derogation for Sweden where moist

snuff, known as ‘snus’, is popular with some 20% of men using it.<sup>9</sup> QUIT has produced a fact sheet on oral cancer which describes in detail the kinds of tobacco mixtures in use.<sup>10</sup> The CDC is also producing a series of fact sheets about different types of smokeless tobacco use around the world ([www.cdc.gov](http://www.cdc.gov)).

The 1999 annual Health Survey for England focused on black and minority ethnic groups and reported that some form of oral tobacco was used by 19% of Bangladeshi men, 6% of Indian men, 2% of Pakistani men, 26% of Bangladeshi women, 2% of Indian women and 2% of Pakistani women.<sup>11</sup> Hence, the use of smokeless tobacco is predominantly found amongst the Bangladeshi community in England. In the large majority of cases the tobacco was used with areca and/or betel nut (eg in 16% of Bangladeshi men and 23% of Bangladeshi women). There appear to be areas of quite high usage in parts of the UK.<sup>4,12</sup> For example, the largest grouping of the Bangladeshi community is resident in East London and Croucher and colleagues, using the same methodology as the Health Survey of England, have established a prevalence of tobacco/paan chewing of 49% among Bangladeshi women from a large random sample.<sup>13</sup> Paan chewing is very much a part of the Bangladeshi culture; for example research has shown that is a custom to offer a tray of paan to visiting guests and family members after tea or meals. Surveys have shown that some believe that chewing paan may have medicinal properties such as analgesic effects.<sup>14,15</sup> There may well be differences in social acceptability of smokeless tobacco use among the younger generations of Bangladeshis and Pakistanis, however.<sup>16</sup> Many smokeless tobacco users are also smokers.<sup>11</sup>

### HEALTH EFFECTS OF SMOKELESS TOBACCO USE

There have been a number of reviews on the health effects of smokeless tobacco. Some of these were carried out in the early 1980s and it is important to note that the constitution of some types of smokeless tobacco in some countries – such as the US and Sweden – have changed since that time.

In 1984 the International Agency for Research on Cancer (IARC) published a review of the carcinogenicity of some types of smokeless tobacco and concluded that there was sufficient evidence that the use of these types of tobacco was carcinogenic to humans. Although IARC have been asked to review and amend these findings, it appears that the organisation is not currently contemplating doing so<sup>17</sup> although IARC is reviewing areca nut products. In

1986 the US Surgeon General published a report concluding that use of chewing tobacco and moist snuff causes oral cancers and non-cancerous lesions at the site of application.<sup>18</sup> In 1988 a US National Institute of Health consensus panel concluded that moist snuff increases the risk of mouth cancer and periodontal disease.<sup>19</sup> The link between oral tobacco and oral lesions at the site of application (particularly leukoplakias which are thought to be pre-cancerous) is well-established.<sup>20</sup>

However, by no means all studies have found associations between smokeless tobacco use and cancers or other health problems and so the Health Development Agency recently commissioned a comprehensive systematic review of the area.<sup>21</sup> The review noted that all forms of smokeless tobacco contain known carcinogens and toxins, though there is considerable variation in the amounts and composition between different products. It concluded that epidemiological studies have found an association between oral forms of smokeless tobacco and dental health. There is limited and inconsistent evidence that smokeless tobacco may increase the risk of cardiovascular disease. For example some studies have shown an enhanced risk from dying of cardiovascular disease<sup>22</sup> and other have shown no increased risk of myocardial infarction.<sup>23,24</sup> Evidence from studies in Asia mostly find an association between smokeless tobacco use (mainly betel quid involving tobacco and areca nut mixtures) and risk of head and neck cancers but studies in the US and Scandinavia (mainly involving forms of smokeless tobacco different from those used in Asia) have not yielded this pattern of results. There is some evidence from India of a link between smokeless tobacco use and low birthweight babies.<sup>25</sup> In general, the quality of the epidemiological data is weak and important potential confounding factors (such as smoking) are often not controlled for. It should be noted that additives, such as lime, may themselves cause damage to the oral mucosa.

The conclusion is that the health risks of smokeless tobacco probably vary considerably from product to product and that relatively little has yet been established about serious health consequences arising from use of the products that now predominate in the US and Scandinavia. It may be noted however, that the incidence of oral cancers is low in Sweden despite the high prevalence of smokeless tobacco use.<sup>26</sup> This could be because the makers of Swedish snus, Swedish Match, have developed the Gothiatek standard which sets maximum permissible limits of certain undesired compounds and to which the product must conform (see [www.gothiatek.com](http://www.gothiatek.com)). In the

UK, because of the ban on some forms of smokeless and because chewing tobacco is largely confined to the communities of south Asian ethnic origin, the type of smokeless tobacco used is more similar to that in south Asian countries, being mixed with areca nut.<sup>27</sup>

Given the fact that the health risks of smokeless tobacco are likely to be considerably less than those of smoking, there has been some debate about whether smokers who cannot or will not quit smoking should be encouraged to switch to smokeless tobacco as part of a harm reduction strategy.<sup>28</sup> This is controversial and would require regulatory standards for smokeless tobacco as part of a nicotine regulatory framework. Currently such a framework does not exist, and as many types of smokeless tobacco are currently banned within the EU, this idea/strategy is not considered further here.

#### DEPENDENCE ON SMOKELESS TOBACCO

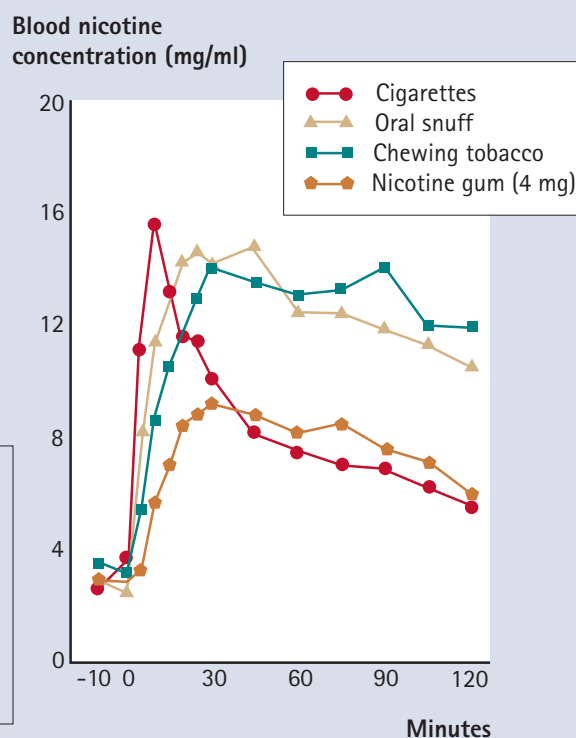
Modern definitions of dependence focus on impaired control over use.<sup>29</sup> Thus the ultimate arbiter is whether individuals who make serious attempts to stop using smokeless tobacco find that they are unable to do so, at least without help. Additional markers in common use include the presence of withdrawal symptoms and cravings during periods of abstinence, development of tolerance to at least some effects of the substance being used, and continued use despite knowledge of harmful consequences.<sup>30</sup>

In the case of smoking, a widely used index of dependence is the Fagerstrom Test for Nicotine Dependence (FTND).<sup>31</sup> A number of authors have noted that smokeless tobacco has the potential to cause dependence (eg references 32 and 33). This appears to be based on relatively high rates of self-reported dependence among users,<sup>34,35</sup> the fact that nicotine intake appears to be similar in amount to that from cigarettes,<sup>36</sup> that users can obtain relatively high scores on a smokeless tobacco version of the FTND,<sup>37</sup> and reports of cravings and withdrawal symptoms during abstinence.<sup>38</sup> Using questions generated from the FTND, variations in levels of dependence, beliefs, knowledge and attitudes were observed between women chewing tobacco in paan and those chewing paan alone.<sup>13</sup> It may be noted however, that assessing level of dependence based on frequency of usage can be problematic. For example, paan can be prepared or chewed to suit an individual's need for the nicotine. Users can use more paan, make bigger paans, chew more often, have more lime, or use higher grade tobacco.

Evidence on the success rates of attempts to stop using smokeless tobacco is more limited. However, the 12-month sus-

**Fig. 1 Nicotine absorption rates from tobacco smoke and smokeless tobacco in 10 male smokers after overnight abstinence (Adapted from Benowitz *et al.*<sup>33</sup>)**

**Note:**  
Cigarettes: 9 min smoking  
1.3 cigarettes  
Oral snuff: 30 min moist  
oral snuff 2.5 g  
Chewing tobacco: 30 min  
7.9 g on average  
Nicotine gum: 30 min  
2 pieces of 2 mg gum



tained abstinence rates in the control groups of trials of interventions aimed at helping smokeless tobacco users to stop average less than 20% which suggests at least a fair degree of dependence (see later).

A question naturally arises concerning the relative dependence potential of smokeless tobacco versus cigarettes. The question is difficult, if not impossible, to answer for a number of reasons. First of all, users of smokeless tobacco and cigarettes may not be comparable in terms of personal characteristics. Secondly, as has been noted before, smokeless tobacco covers a wide range of products with different modes of delivery and much smokeless tobacco use involves other psychoactive substances, especially areca nut. Thirdly, the perceived need to stop smokeless tobacco use may be different from stopping smoking because of perceived differences in the health benefits of stopping. However, it might be expected that some forms of smokeless tobacco would be somewhat less dependence-forming than cigarettes because of their slower rate of nicotine delivery (Fig. 1).<sup>36</sup> Thus it has been noted that different pure nicotine delivery systems appear to have different degrees of dependence potential according to how fast they deliver nicotine.<sup>39</sup>

#### INTERVENTIONS TO PROMOTE CESSATION OF SMOKELESS TOBACCO USE

The focus of this report is treatment interventions although we recognise that public health strategies such as taxation, advertis-

ing bans and health warnings are likely to play a role in motivating and encouraging smokeless tobacco users to make attempts to stop and stay stopped.<sup>40,41</sup>

In the case of cigarette smoking it has been noted that a brief intervention by a physician can lead to 1–3% of an unselected group of smokers to stop long term, use of medication (nicotine replacement therapy or bupropion) to aid quit attempts increases their chances of long term success by about 8% and that behavioural support also increases the long term abstinence rates for those attempting to stop by about 8%.<sup>3</sup>

Far less research has been carried out on interventions to promote and aid smokeless tobacco cessation. Hatsukami and Severson<sup>42</sup> conducted a thorough review of intervention studies and found four controlled trials of behavioural treatments, only one of which used biochemical verification of self-reported abstinence. They could find only two controlled trials evaluating nicotine replacement therapies. Ebbert and others have more recently reviewed the literature<sup>43</sup> and concluded that both behavioural interventions and nicotine replacement therapies increased 'point prevalence' abstinence rates in smokeless tobacco users attempting to stop ('Point prevalence' refers to not using at the time of the follow-up as distinct from 'continuous abstinence' which refers to not having used since the quit date.). We have updated the search using the electronic bibliographic databases *Medline* and *Embase* and searching all references con-

Table 1 Studies evaluating behavioural interventions to promote and/or aid cessation of smokeless tobacco use

Study*	Sample	Intervention type <sup>†</sup>	Biochemical verification	Longest follow-up	Outcome <sup>‡</sup>
Gupta <sup>46-48</sup>	8,878 smokeless tobacco and paan users, India	C = Oral examination and health advice at baseline, and 3-10 years (not concurrent with I) I = Oral examination, health advice, counselling and films annually	No	10 years	Point prevalence C = 6% (175/3199) I = 15% (850/5679) ( <i>P</i> < 0.001)
Greene <sup>49</sup>	96 professional baseball players using smokeless tobacco, US	C = Brief advice from dentist + self-help I = C+individual counselling	No	6 months	Point prevalence C = 0% (0/50) I = 10.9% (5/46) ( <i>P</i> < 0.05)
Stevens <sup>50</sup>	518 male smokeless tobacco users (moist snuff & chewing tobacco) aged 15+, US	C = Usual care I = Oral examination, advice to stop, video, self-help materials, telephone contact	No	12 months	Not using at 3 and 12 months C = 12.5% (34/273) I = 18.4% (45/245) ( <i>P</i> < 0.05)
Williams <sup>51</sup>	130 adolescents, US	I1 = Self-help manual, group counselling and exercises for 2 weeks I2 = Self-help manual, group counselling and exercises for 4 weeks	Yes	3 months	Point prevalence I1 = 10.6% (7/66) I2 = 14.7% (9/64) (ns)
Severson <sup>52</sup>	633 members of HMO, US	C = Oral examination + self-help materials I = C+video+quit date+telephone contact	No	12 months	Not using at 3 and 12 months C = 3.3% (8/239) I = 10.2% (40/394) (ns)
Walsh <sup>53,54</sup>	360 athletes in 16 colleges (spit tobacco), US	C = No intervention I = Oral examination by dental professional, advice to quit, counselling, telephone support	No	12 months	Point prevalence C = 16% (30/189) I = 35% (60/171) ( <i>P</i> < 0.01)
Severson <sup>55</sup>	1069 smokeless tobacco users, US	C = Self-help manual I = Self-help manual + video + 2 phone calls	No	6 months	Point prevalence C = 18.4% (98/535) I = 23.4% (125/534) ( <i>P</i> < 0.05)
Severson <sup>56</sup>	172 adult smokeless tobacco users, <sup>‡</sup> US	I1 = Gradual reduction programme (Lifesign computer-based system) + telephone support I2 = Manual + video + telephone support	No	6 months	Abstinence at 2 and 6 months I1 = 18.4% (14/76) I2 = 24.5% (23/96) (ns)

\*Studies are listed in date order

<sup>†</sup>C = control, I = intervention

<sup>‡</sup>Excluded subjects who quit before quit date, decided not to quit or experienced failure of the Lifesign computer system

taining the words 'smokeless tobacco' or 'oral tobacco' or 'snuff' or 'chewing tobacco'. We have included all studies with one or more control or comparison conditions. We have used abstinence at the longest follow-up point as the main outcome measure. Details of the included studies are given in Tables 1 and 2.

It is apparent that the quantity and quality of data on effectiveness of inter-

ventions against smokeless tobacco are lower than for cigarette smoking. In addition, much of the research has been carried out in populations and tobacco products very different from those in use in the UK. In general, there appears to be evidence that an oral examination, advice to stop and counselling/behavioural support for stopping can lead some smokeless tobacco users to stop long term who would not oth-

erwise have done so. This may be true both for smokeless tobacco on its own and smokeless tobacco mixtures. The results are generally positive although with minimal biochemical verification (through use of, for example, saliva cotinine measures) and focus on point-prevalence (as distinct from continuous abstinence), they must be viewed with caution. There is also evidence that adding counselling and/or other inter-

vention elements to brief advice may increase long-term cessation rates (A meta-analysis was not attempted for these studies because of the diverse nature of the interventions, some of which included smokeless tobacco users whether or not they had expressed an intention to stop while others included smokeless tobacco users wanting to stop). What little evidence there is (2 mg gum and patch studies only) does not support the effectiveness of nicotine replacement therapies as an aid to smokeless tobacco cessation (a meta-analysis of the studies with at least 6 months of follow-up using the longest follow-up point and the most rigorous definition of abstinence (see Table 2 for raw data) yielded an odds ratio of 1.17 in favour of NRT, 95% confidence interval 0.91–1.52, no evidence of heterogeneity). There has been no research using NRT products that permit a more rapid uptake of nicotine, such as the lozenge or nasal spray. Also NRT has been found to reduce withdrawal symptoms and it is possible that higher doses of nicotine might improve efficacy with regard to abstinence.<sup>42</sup>

Two small randomised controlled trials have been published that assessed the effect of bupropion (Zyban) on cessation of smokeless tobacco use in the US. Both found early evidence of an effect of bupropion that was not sustained or was no longer significant at the longest follow-up point.<sup>44,45</sup> A meta-analysis including the two studies did not find a significant benefit for bupropion at the longest follow-up point, OR = 1.52 (95% confidence interval 0.68–3.41, no evidence of heterogeneity).

A notable feature of the studies to date is the use of dental professionals in providing screening and supporting attempts to stop smokeless tobacco use. Dentists and dental hygienists are well placed to detect oral lesions which may be pre-cancerous or other problems associated with oral smokeless tobacco use.

Finally, the research has focused on encouraging smokeless tobacco users to stop. An alternative approach could be for example, to take the tobacco out of the paan, rather than to stop chewing paan altogether. This is controversial and has not been researched as an intervention.

## RECOMMENDATIONS

From the above review we propose the following recommendations. In the smoking cessation guidelines<sup>2,3</sup> each recommendation was associated with a letter denoting the strength of evidence supporting it. The letter A referred to many well designed randomised controlled trials yielding a consistent pattern of findings; B referred to some evidence from randomised controlled

trials but not optimal; C referred to no randomised controlled trials but the recommendation is based on published evidence and expert opinion. All of the following recommendations are ascribed C.

The recommendations take account of the following:

1. The recommendations supplement those in the smoking cessation guidelines<sup>3</sup> so that assessment of smokeless tobacco use should form part of a comprehensive assessment of tobacco use.
2. In England, smokeless tobacco use occurs primarily in members of the Indian, Pakistani and especially Bangladeshi community and the tobacco is usually mixed with areca nut which is itself psychoactive, possibly carcinogenic and potentially dependence forming.
3. The risks of smokeless tobacco, as it is used in England, are not well understood but are almost certainly substantially less than from smoking cigarettes. Therefore cessation interventions must not increase the risk of the ex-user taking up, increasing or relapsing to cigarette smoking.
4. Evidence on the prevalence and severity of dependence on smokeless tobacco as used in England is limited.
5. Oral cancer can be easily detected, even when lesions are small, with a careful mouth examination by a professional. Most forms of oral tobacco produce white lesions which represent a pre-cancerous stage and these can also readily be detected by visual inspection.
6. Most of the research on cessation of oral tobacco use has been carried out in North America and therefore maybe of little relevance to the types of tobacco use and the populations using them in England. In addition, there are nutritional and environmental differences existing between South Asia and England so what works in South Asia might not work over here and vice versa.
7. Evidence for the effectiveness of behavioural interventions to aid cessation of smokeless tobacco use is relatively weak.
8. There is currently no clear evidence that nicotine replacement therapies (the 2 mg gum and the patch) or bupropion aid cessation of smokeless tobacco use.
9. Given the potential of smokeless tobacco products to cause dependence and harm, the National Health Service should offer evidence-based advice and support to those wanting to stop smokeless tobacco use. Cultural sensitivities would need to be reflected in the cessation programmes.

## RECOMMENDATIONS FOR HEALTH PROFESSIONALS

**Dental professionals, GPs and other relevant health professionals should enquire about smokeless tobacco use in South Asian patients and record the outcome in patient notes. (C)**

Given the potential for oral smokeless tobacco to cause cancer and that there appears to be a fairly long pre-cancerous stage with visible leukoplakias, it is advisable to record smokeless tobacco use in those patient groups with a significant prevalence.

**Dental professionals should examine the oral cavity of smokeless tobacco users carefully for any mucosal changes when the opportunity arises. (C)**

The fact that pre-cancerous lesions are evident on examination means that in principle it should be possible with regular inspection to engage in effective secondary prevention.

**Dental professionals, GPs and other relevant health professionals should ensure that known smokeless tobacco users are aware of the potential health risks, advise them to stop and record their advice and the patient's response in the notes. (C)**

It is unclear how far smokeless tobacco users in England are aware of the potential health risks, and particularly the risk of oral cancers. Known users should be fully informed of the risks in order to help them determine whether they wish to stop. Given the potential risk, known users should be advised to stop, particularly if they are already showing evidence of oral lesions. We recommend that when giving advice about the health risks of smokeless tobacco use, practitioners also advise about the much greater risks of smoking, so as to prevent smokeless users switching or relapsing to smoking.

**Dental professionals, GPs and other relevant health professionals should recommend smokeless tobacco users who wish to make a cessation attempt to use trained counsellors for behavioural support. (C)**

Given that there is some evidence, although weak, that behavioural support can aid cessation of smokeless tobacco use, patients should be referred to specialist help. The model that has been adopted for smoking has worked well. This has involved setting up specialist services organised at the level of the Primary Care Trust or with Trusts combining resources. This means that health professionals such as GPs need not spend their own time attempting to deliver more intensive help, when they may not have the training, experience or time to do so.

**Other health professional groups should be aware of these guidelines as appropriate (C)**

Other health professionals may also have

Table 2 Studies evaluating the effects of medications as an aid to smokeless tobacco cessation

Nicotine Replacement Therapies					
Study	Sample*	Intervention type	Biochemical verification	Longest follow-up	Outcome*
Boyle <sup>57</sup>	100 adult male smokeless tobacco users, US	C = Behavioural support program + placebo gum I = Behavioural support programme + 2 mg nicotine gum	Yes	12 months	Point prevalence C = 24% (12/50) I = 20% (10/50) (ns)
Hatsukami <sup>58</sup>	210 smokeless tobacco users, US	CP = Minimal contact + placebo gum CN = Minimal contact + 2 mg gum IP = Group behavioural support + placebo gum IN = Group behavioural support + 2 mg nicotine gum	Yes	12 months	Point prevalence CP = 27.8% (15/54) CN = 17.6% (9/51) IP = 26.0% (13/50) IN = 34.5% (19/55) No significant differences
Howard-Pitney <sup>59</sup>	410 chewing tobacco users, US	P = Limited behavioural support + placebo patch N = Limited behavioural support + 15 mg nicotine patch	Yes	6 months	Point prevalence P = 34% (69/204) N = 38% (78/206) (ns)
Hatsukami <sup>60</sup>	402 smokeless tobacco users, US	CP = No mint snuff + placebo patch CN = No mint snuff + active patch IP = Mint snuff + placebo patch IN = Mint snuff + active patch	Yes	62 weeks	Continuous abstinence CP = 28% (28/101) CN = 29% (29/101) IP = 21% (21/100) IN = 33% (33/100) No significant differences
Croucher <sup>61</sup>	130 Bangladeshi women paan users, UK	C = Single session of brief advice and encouragement I = Weekly brief advice and encouragement + 15 mg nicotine patch Note: Subjects excluded from I for a range of reasons were assigned to C	Yes	4 weeks	Saliva cotinine validated self-reported use at end of 4 week treatment C = 15% (10/65) I = 20% (13/65) (ns)
Bupropion Sustained Release (SR)					
Study	Sample	Intervention type	Biochemical verification	Longest follow-up	Outcome*
Glover <sup>44</sup>	70 moist snuff users, US	P = minimal counselling plus placebo B = minimal counselling + 150 mg bupropion SR b.i.d.	Yes	12 weeks	Abstinence weeks 9–12 P = 26% (9/35) B = 40% (14/35) (ns)
Dale <sup>45</sup>	68 chewing tobacco and/or moist snuff users, US	P = brief counselling plus placebo B = brief counselling + 150 mg bupropion SR b.i.d.	Yes	23 weeks	Continuous abstinence from quit date P = 12% (4/34) B = 12% (4/34) (ns)

\*C = control; I = intervention; P = placebo; N = nicotine; B = bupropion SR.

contact with smokeless tobacco users who frequently also smoke. These health professionals can offer advice to stop and refer as appropriate to the specialist services.

**RECOMMENDATIONS FOR FUNDING AGENCIES**

**Agencies that currently fund smoking cessation services should include in the service**

**counselling for smokeless tobacco where there is a demand. (C)**

The current organisation of the smoking cessation services has been working well in most places and it would seem logical to incorporate smokeless tobacco support into those services where there is a demand. This will vary considerably from area to area but for the time being is always likely

to be low, even in areas with large Indian, Pakistani or Bangladeshi communities. In areas of high demand there may however be resource implications of this recommendation. An important potential advantage of including smokeless tobacco treatment into the smoking cessation services is that a large proportion of smokeless tobacco users also smoke and it may permit a more

comprehensive treatment of tobacco dependence problems in those individuals.

### RECOMMENDATIONS FOR SPECIALIST SERVICES

**Specialist smoking cessation services should provide counselling for smokeless tobacco use where there is a demand. (C)**

Smokeless tobacco users who seek help with stopping need a treatment service to which they can turn. Although the evidence for the effectiveness of behavioural support is weak, it would seem worthwhile ensuring that provision is included where there is a demand. It is not clear what the most effective treatment protocols are. Therefore, different models may be considered. For example, if there are very few smokeless tobacco users in treatment, these may be included in smoking cessation groups or seen individually using adapted protocols. If there are sufficient smokeless tobacco users it may be worthwhile setting up a special group. Different groups would probably be needed, for example of Pakistani men and Bangladeshi women.

However, specialist services in areas having significant populations of oral tobacco users will need to ensure that the specialists are informed about the different levels of knowledge and types of cultural practices amongst the various communities who chew tobacco. Culturally and linguistically accessible and appropriate services will need to be developed in these areas.

### RECOMMENDATIONS FOR RESEARCH

**Clearer evidence is required on the effects of smokeless tobacco as used in England on health**

In determining what resources to devote to this issue, it is essential to have a reasonably accurate figure of the health consequences of use and of cessation of use. Because of the large variation in products across the world, evidence from other countries may not provide the information needed.

**Clearer evidence is required of patterns of usage and knowledge and attitudes of smokeless tobacco users in England**

It is not known how far smokeless tobacco use in England is influenced by beliefs about the health risks, dependence or other factors. Neither is it known what the demand for treatment would be if such a treatment were fully available on the NHS.

**High quality clinical trials of behavioural support and medication to aid smokeless tobacco use are required.**

Research is under way elsewhere in the world, particularly in the US, but it is not clear how well this will generalise to England where the products are different.

### CONCLUSIONS

Smokeless tobacco is not used widely in England. Use is largely confined primarily to members of the Indian, Pakistani and especially Bangladeshi communities. The form of smokeless tobacco that predominates involves a mixture involving other psychoactive compounds such as areca nut. Evidence from studies in Asia strongly suggests that these kinds of product cause oral cancers but there are problems in separating the risks from smoking and from other factors. Therefore the average loss of healthy life years from usage cannot readily be estimated. There is very little high quality research into the effectiveness of interventions to promote and aid cessation of smokeless tobacco use and particularly the forms that predominate in England. However, what evidence there is suggests that behavioural support and counselling may have an effect broadly similar in magnitude to that found with smoking cessation. Studies to date have not found a clear effect of nicotine replacement therapies or bupropion. The reason for this is not clear and it may be that future studies will produce a more positive picture.

In summary, health professionals should:

- Assess and record smokeless tobacco use among high risk groups
- Inform known smokeless tobacco users about the potential health risks (as well as advice about the health risks of smoking), advise them to stop and keep a record
- Offer referral to or recommend the specialist treatment services for behavioural support
- Include smokeless tobacco as part of the specialist smoking cessation services where there is a demand.

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**Appendix:**

**Review panel**

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- Professor Ilana Crome, Royal College of Psychiatrists, UK
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- Professor Prakash C Gupta, Epidemiology Research Unit, Mumbai, India
- Professor Newell Johnson, Department of Oral Pathology, King's College Dental School, London, UK
- Professor Dorothy Hatsukami, Tobacco Use Research Center, University of Minnesota, Minnesota, USA
- Professor Martin Jarvis, Health Behaviour Unit of Cancer Research UK, Department of Epidemiology and Public Health, University College, London, UK
- Professor Lynn Kozlowski, Professor and Head of Department of Biobehavioral Health, Penn State University, Pennsylvania, USA
- Hamid Rehman, Ethnos Research and Consultancy, London, UK
- Kawaldip Sehmi, QUIT, UK
- Dr Herbert Severson, Oregon Research Institute, Eugene, Oregon, USA
- Claire Stott, British Dental Association, London, UK
- Professor Saman Warnakulasuriya, Guy's, King's & St Thomas' Dental Institute, London, UK
- Gordon Watkins, British Dental Association Executive Board, London, UK
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**Professional Endorsement**

At the time of going to press, the following organisations have endorsed these guidelines: ASH, ASH Scotland, British Dental Association, British Dental Health Foundation, British Dental Hygienists' Association, British Orthodontic Society, Cancer Research UK, Community Practitioners' & Health Visitors' Association, National Heart Forum, No Smoking Day, Pharmacy Health Link, QUIT, Royal College of General Practitioners, Royal College of Midwives, Royal College of Nursing, Royal College of Physicians, Royal College of Psychiatrists, Royal Pharmaceutical Society of Great Britain.