

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

DRAFT GUIDELINE

Oral health promotion: general dental practice

What is this guideline about?

This guideline makes recommendations on how general dental practice teams can effectively convey the ‘advice for patients’ set out in [Delivering better oral health: an evidence-based toolkit for prevention](#) (Public Health England). This includes recommendations on how to deliver those messages so that people leave the dentist satisfied about their visit and motivated to follow the advice.

The aim is to encourage people to:

- improve their oral hygiene and use of fluoride
- reduce their consumption of sugary food and drinks, alcohol and tobacco and so improve their general, as well as their oral health.

This will:

- Reduce their risk of tooth decay, gum disease and oral cancer.
- Help reduce people’s risk of heart disease, stroke, diabetes and rheumatoid arthritis by addressing risk factors common to both poor oral health and these conditions.
- Improve people’s quality of life, including their social and emotional wellbeing.
- Reduce inequalities in both oral and general health.

Definitions

Oral health problems tend to be more prevalent among people who are socially or economically disadvantaged. Local authorities (and other agencies)

DRAFT

define disadvantaged areas in a variety of ways. An example is the government's Index of Multiple Deprivation 2010 (IMD 2010). This combines economic, social and housing indicators to produce a single deprivation score. See [English indices of English deprivation 2010](#) (Department for Communities and Local Government).

Tooth decay, also known as dental caries or dental decay, occurs when bacteria breaks down sugar in the mouth. This produces acid which removes minerals from the outer layers of the teeth.

Gum disease is when the gums become inflamed or swollen and may bleed when brushed. This early stage is known as gingivitis. If gingivitis is not treated, periodontitis can develop. If periodontitis is not treated it can lead to a loss of bone in the jaw that surrounds teeth and eventually teeth may fall out.

Who is the guideline for?

The guideline is for all members of the dental practice team. It is also for commissioners of dental services and those responsible for the education and training of dental professionals. (For further details, see [Who should take action?](#)) In addition it may be of interest to members of the public.

See [About this guideline](#) for details of how the guideline was developed and its current status.

Contents

1	Draft recommendations	4
2	Who should take action?	8
3	Context	8
4	Considerations.....	17
5	Recommendations for research.....	23
6	Related NICE guidance	24
7	References	24
8	Summary of the methods used to develop this guideline	25
9	The evidence	32
10	Membership of the Public Health Advisory Committee and the NICE project team.....	33
	About this guideline.....	35

1 Draft recommendations

Recommendation wording

The Guideline Committee makes recommendations based on an evaluation of the evidence, taking into account the quality of the evidence and cost effectiveness.

In general, recommendations that an action 'must' or 'must not' be taken are included only if there is a legal duty (for example, to comply with health and safety regulations), or if the consequences of not following it could be extremely serious or life threatening.

Recommendations for actions that should (or should not) be taken use directive language such as 'agree', 'offer', 'assess', 'record' and 'ensure'.

Recommendations use 'consider' if the quality of the evidence is poorer, there is a closer balance between benefits and risks or there may be other options that are similarly cost effective.

1 Offer brief oral health advice during all routine examinations

Dentists and dental care professionals should:

- Give all patients (or their parents or carers) brief advice during routine dental examinations, based on the oral health messages in 'Delivering better oral health' (see [box 1](#)). This includes:
 - advice on oral hygiene practices and the use of fluoride products
 - advice about the links between oral health and general health and wellbeing. This includes the impact that diet, smoking, smokeless tobacco and alcohol intake can have on both.
- Ensure the advice is tailored to meet individual needs. For example, it should:
 - be based on someone's age, physical and mental ability, behaviours such as smoking, use of smokeless tobacco and consumption of alcohol and their diet

- take account of social, economic and environmental factors and the resulting impact they may have on someone’s ability to take the advice (see recommendation 2 in this guideline and recommendation 8 in NICE’s guideline on [behaviour change: individual approaches](#)).
- Consider delivering oral health promotion messages in a variety of formats and using different media to meet the needs of different groups. For example, in addition to brief verbal advice, this could include telling people about other suitable resources.
- Identify and record whether someone uses tobacco and, if necessary, offer brief advice on how to stop and refer them to the local NHS stop smoking service (see recommendation 6 in NICE’s guideline on [smoking cessation services](#)).
- Provide details of other local services that can help improve their general health and wellbeing, as appropriate.

2 Adopt a patient-centred approach to oral health

Dentists and dental care professionals should:

- Adopt a patient-centred approach that helps build a relationship with patients and supports and encourages them to maintain and improve their own oral health. This includes listening to patients’ needs and offering tailored advice without judging them if their oral health is poor, or because some of their behaviours adversely affect their health (see NICE’s [quality standard for patient experience in adult NHS services](#)).
- Create an individually tailored dental care plan with the patient or their parent or carer. This should combine strategies to prevent as well as treat oral health problems. To develop the preventive part of the plan, ask about:
 - the patient’s personal circumstances and their oral health (in the past and now) to gauge their risk of poor oral health
 - their oral hygiene practice and how often they use fluoride toothpaste
 - behaviours that may affect their oral health in the short or long term, such as their diet, smoking, using smokeless tobacco, or using alcohol

- factors that might prevent them from maintaining or improving their own oral health, or the oral health of someone they care for (for example, existing health conditions or any disabilities or other difficulties).
- Ensure the patient or their parent or carer understands the plan to maintain or improve their oral health.
- Understand the cultural, environmental and economic barriers to good oral health. This includes:
 - links between poor oral health and socioeconomic deprivation
 - the fact that some people may not think it is important to go to the dentist on a regular basis
 - the fact that some parents or carers may not realise that it is important to keep children’s primary teeth healthy
 - being aware that people may need help to use the dental service
 - being aware that people may need help to find out if they qualify for free or subsidised NHS dental care and how to make a claim.
 - being aware that not all patients will find it easy to understand or remember information about oral health.
- Encourage the whole team to develop a good relationship with patients so they can help them maintain good oral health. All staff, including reception and support staff, should understand the importance of creating a welcoming environment for everyone. This includes:
 - families with babies or very young children
 - people who do not go to the dentist on a regular basis.

3 Train dentists and dental care professionals to deliver patient-centred oral health advice

The General Dental Council (for initial training) and Health Education England (for post-registration and continuing professional development) should ensure dentists and dental care professionals:

- Receive detailed information on, and develop skills in, conveying advice on improving and maintaining good oral health. This should be in line with

recommendation 12 in NICE's guideline on [behaviour change: individual approaches](#). It includes:

- adopting a person-centred approach when assessing people's needs and planning and developing a preventive care plan for them
 - communicating effectively, for example, by using reflective listening and knowing how to show empathy and how to develop a rapport with people
 - understanding the factors that may affect behaviour change, including psychological, social, cultural and economic factors
 - addressing health inequalities by tailoring interventions to people's specific needs, including their cultural, social and economic needs and other 'protected characteristics'
 - understanding behaviour change techniques and communication styles
 - knowing how to tailor interventions to meet the needs and preferences of different groups.
- Learn about oral health promotion messages (see [box 1](#)). This includes:
 - the proven benefits of improving people's oral health
 - the most effective methods of delivering oral health promotion advice
 - links between health inequalities and oral health
 - the needs of groups at high risk of poor oral health
 - how good oral health contributes to people's overall health and wellbeing.
 - Learn about how to work effectively with other members of the dental team to promote patients' oral health.
 - Recognise their own responsibility for keeping up to date with the evidence on, and their understanding of, oral health prevention throughout their career.

4 Commission services that give dental practices an incentive to maintain and improve people's oral health

Local commissioners of dental services should:

- Provide dental practices with incentives to encourage patients to look after their own oral health.
- Ensure dental practices have access to data to compare their performance on prevention with other local dental practices.
- Provide case studies using dental practices that operate a successful business model and deliver preventive care for all NHS patients.
- Align services with local and national oral health activities. See NICE's guideline on [oral health: approaches for local authorities and their partners to improve the oral health of their communities](#).

2 Who should take action?

Introduction

The guideline is for:

- dentists
- dental care professionals – this includes dental hygienists, dental nurses, dental therapists and orthodontic therapists
- practice owners
- practice managers
- administrative staff.

In addition, it is aimed at commissioners of primary dental services and those responsible for the education and training of dental professionals. It will also be of interest to members of the public.

3 Context

Background

Oral health is important to general health and wellbeing. Poor oral health can be painful. It can also affect people's ability to eat, speak and socialise normally ([Dental quality and outcomes framework](#) Department of Health).

Poor oral health can lead to absences from school and workplaces. It can also affect the ability of children to learn, thrive and develop ([Local authorities](#)

DRAFT

[improving oral health: commissioning better oral health for children and young people – an evidence informed toolkit for local authorities](#) Public Health England).

Oral health in England has improved significantly over recent decades.

The [Adult dental health survey 2009](#) (Health and Social Care Information Centre) reports that the proportion of adults in England without natural teeth has dropped from 28% to 6% in the past 30 years.

In addition, the number of children with signs of previous decay in permanent teeth has dropped. For example, in 2013, 46% of young people aged 15 – and 34% of those aged 12 – had ‘obvious decay experience’ in permanent teeth. This compares with 56% and 43% respectively in 2003.

But as the figures above (and below) show, there is still considerable room for improvement for many groups and individuals, as both tooth decay (dental caries) and gum (periodontal) disease remain widespread, even though they are largely preventable (Levine and Stillman-Lowe 2014).

The 2009 dental health survey found that just under 31% of adults had obvious tooth decay. In addition, over half of all adults in the UK are affected, to some degree, by gum disease. Most people experience it at least once and up to 15% of adults in the UK are estimated to have severe periodontitis ([NHS Choices](#)). Left unchecked, it can be expensive to treat.

In addition, oral cancer is one of the UK’s fastest growing cancers – and dentists have an important role in identifying these cancers as early as possible ([Oral cancer – UK incidence statistics](#) Cancer Research UK 2010). The main risk factors are alcohol and tobacco use. But there is growing evidence that oral human papilloma virus (HPV) is also a factor ([Potentially HPV-related head and neck cancers](#) National Cancer Intelligence Network).

Each year the NHS in England spends around £3.4 billion on primary and secondary dental services ([Improving dental care and oral health – call to action](#) NHS England).

Variations in oral health

Wide variations in oral health exist across England. For example, the prevalence of tooth decay among children aged 5 ranges from 12.5% in Brighton and Hove to 53.2% in Leicester ('National Dental Epidemiology Programme for England, oral health survey of 5 year old children 2012'). Factors associated with severe tooth decay include:

- social deprivation (Levine and Stillman-Lowe 2014)
- belonging to a family of Asian origin, including children of non-English speaking mothers (Levine and Stillman-Lowe 2014)
- having a chronic medical condition ([Valuing people's oral health: a good practice guide for improving the oral health of disabled children and adults](#) Department of Health).

NICE has published a guideline on approaches for local authorities and their partners to improve the oral health of their communities. In addition, a guideline on oral health in nursing and residential care is in development. NICE hopes that implementing this guideline on people who attend dental practices, along with the other 2 pieces of work, will reduce the risk of poor oral health among all at-risk groups.

NHS dental services

NHS dental services have more than a million contacts with patients each week ('[Improving dental care and oral health – call to action](#)'). In 2013, 52.5% of adults in England had seen an NHS dentist in the past 2 years. In 2013, 69.1% of children in England (aged under 18 years) had seen an NHS dentist in the past 2 years. ([NHS dental statistics for England 2012–13](#) Health and Social Care Information Centre.)

This means that dental practice teams are ideally placed to advise on how to prevent many chronic, non-communicable diseases – including oral health disease. (Risk factors include tobacco use, alcohol consumption and a poor diet.) But in the 'Adult dental health survey 2009', only 9% of adults with teeth

DRAFT

and 7% of adults without teeth recalled being asked about smoking. Similarly, 64% of adults in the survey did not recall being asked about their diet.

According to the survey, 78% of adults recalled being given advice at the dentist on cleaning their teeth or gums. And 75% of adults with natural teeth in England reported that they brush their teeth at least twice a day (76% using high or medium strength¹ fluoride toothpaste).

But 66% of adults in the same survey had plaque on at least 1 tooth and 68% had calculus (tartar or hardened dental plaque) in at least 1 sextant² of the dental arch. In addition, 37% of people who regularly go to the dentist said they do not use oral hygiene products such as dental floss and interspace brushes.

Over 90% (91%) of participants felt that the dentist they saw most recently listened carefully to them. Most (89%) felt they were given enough time to discuss their oral health and were involved in decisions about their care or treatment and most (94%) understood the answers they were given.

However, 20% were not satisfied with the dentist. This group tend to rate their own oral health lower, leave longer intervals between visits to the dentist and are more likely to be extremely anxious about going to the dentist.

Reforms to the NHS dental contract are likely to focus more on preventing poor oral health and enabling patients to take responsibility for their own health ('Local authorities improving oral health: commissioning better oral health for children and young people – an evidence informed toolkit for local authorities').

Delivering better oral health toolkit

Box 1 is an edited extract from: [Delivering better oral health: an evidence-based toolkit for prevention](#) (Public Health England). This toolkit provides

¹ The coding frame used in the [Adult dental health survey 2009](#) classified over-the-counter toothpastes by fluoride concentration. This was divided into 3 levels: high (1350 to 1500 parts per million), medium (1000 to 1350 parts per million) and low (550 parts per million or less).

² One of the six equal parts into which the dental arch (the curved structure formed by the teeth in their normal position) may be divided.

practical, evidence-based guidance to help dentists and their teams promote oral health and prevent oral disease among their patients.

Box 1 Summary guidance for primary care dental teams: advice for patients

Prevention of caries in children aged 0–6 years

Children aged up to 3 years:

- Breastfeeding provides the best nutrition for babies
- From 6 months of age infants should be introduced to drinking from a free-flow cup, and from age 1 year feeding from a bottle should be discouraged
- Sugar should not be added to weaning foods or drinks
- Parents or carers should brush or supervise toothbrushing
- As soon as teeth erupt in the mouth brush them twice daily with a fluoridated toothpaste
- Brush last thing at night and on one other occasion
- Use toothpaste containing no less than 1000 parts per million (ppm) fluoride
- It is good practice to use only a smear of toothpaste
- The frequency and amount of sugary food and drinks should be reduced
- Sugar-free medicines should be recommended

All children aged 3–6 years:

- Brush at least twice daily, with a fluoridated toothpaste
- Brush last thing at night and on one other occasion
- Brushing should be supervised by a parent or carer
- Use fluoridated toothpaste containing more than 1000 ppm fluoride. It is good practice to use a pea-sized amount
- Spit out after brushing and do not rinse, to maintain fluoride concentration levels
- The frequency and amount of sugary food and drinks should be reduced
- Sugar-free medicines should be recommended

Children aged 0–6 years giving concern (for example, those likely to develop caries, those with special needs). All advice as above, plus:

- Use fluoridated toothpaste containing 1350–1500 ppm fluoride
- It is good practice to use only a smear or pea-sized amount
- Where medication is given frequently or long term, request that it is sugar free, or used to minimise cariogenic effects

Prevention of caries in children aged from 7 years and young adults

All children and young adults:

- Brush at least twice daily, with a fluoridated toothpaste
- Brush last thing at night and on at least 1 other occasion
- Use fluoridated toothpaste (1350–1500 ppm fluoride)
- Spit out after brushing and do not rinse, to maintain fluoride concentration levels
- The frequency and amount of sugary food and drinks should be reduced

Those giving concern (for example, those with obvious current active caries, those with ortho appliances, dry mouth, other predisposing factors, those with special needs). All the above, plus:

- Use a fluoride mouth rinse daily (0.05% NaF⁻) at a different time to brushing

Prevention of caries in adults

All adults

- Brush at least twice daily with fluoridated toothpaste
- Brush last thing at night and on at least 1 other occasion
- Use fluoridated toothpaste with at least 1350 ppm fluoride
- Spit out after brushing and do not rinse, to maintain fluoride concentration
- The frequency and amount of sugary food and drinks should be reduced

Those giving concern (for example, with obvious current active caries, dry mouth, other predisposing factors, those with special needs). All the above, plus:

- Use a fluoride mouth rinse daily (0.05% NaF-) at a different time to brushing

Prevention of periodontal disease – to be used in addition to caries prevention

All adults and children:

Self-care plaque removal

- Remove plaque effectively using methods shown by dental team. This will prevent gingivitis and reduce the risk of periodontal disease
- Daily effective plaque removal is more important to periodontal health than tooth scaling and polishing by the clinical team

Tooth brushing and toothpaste

Brush gum line **and** each tooth twice daily (before bed and at least on 1 other occasion). Use either:

- a manual or powered toothbrush
- small toothbrush head, medium texture

All adults and ages 12–17

Interdental plaque control

Clean daily between the teeth to below the gum line before toothbrushing:

- For small spaces between the teeth use dental floss or tape
- For larger spaces use interdental or single tufted brushes
- Around orthodontic appliances and bridges use kit suggested by the dental professional

Risk factor control
<i>Tobacco</i> All adults and adolescents: <ul style="list-style-type: none">• Do not smoke• Smoking increases the risk of periodontal disease, reduces the benefits of treatment and increases the chance of losing teeth
<i>Diabetes</i> Patients with diabetes should try to maintain good diabetes control as they are: <ul style="list-style-type: none">• At greater risk of developing serious periodontal disease• Less likely to benefit from periodontal treatment if the diabetes is not well controlled
<i>Medications</i> Some medications can affect gingival health
<i>Prevention of peri-implant disease</i>
All adults with dental implants: <ul style="list-style-type: none">• Dental implants require the same level of oral hygiene and maintenance as natural teeth• Clean both between and around the implants carefully with interdental kit and toothbrushes• Attend for regular checks of the health of gum and bone around implants

All adolescents and adults:

Tobacco use, both smoking and chewing tobacco, seriously affects general and oral health. The most significant effect on the mouth is oral cancers and pre-cancers.

- Do not smoke or use shisha pipes
- Do not use smokeless tobacco (such as, paan, chewing tobacco, gutkha)

If the patient is not ready or willing to stop they may wish to consider reducing how much they smoke using a licensed nicotine-containing product to help reduce smoking. The health benefits to reducing are unclear but those who use these will be more likely to stop smoking in the future.

All adolescents and adults:

- Drinking alcohol above the recommended levels adversely affects general and oral health with the most significant oral health impact being the increased risk of oral cancer.
- Reduce alcohol consumption to low risk (recommended) levels.

Recommended levels (May 2014)

- Men should not regularly consume more than 3 to 4 units per day
- Women should not regularly consume more than 2 to 3 units per day
- All drinkers should avoid alcohol for 2 days following a heavy drinking session to allow the body to recover
- Pregnant women or women trying to conceive should avoid drinking alcohol but if they choose to drink they should limit this to no more than 1 to 2 units once or twice a week and avoid getting drunk

All ages:

- The frequency and amount of consumption of sugars should be reduced
- Avoid sugar containing foods and drinks at bedtime when saliva flow is reduced and buffering capacity is lost.

4 Considerations

This section describes the factors and issues the Public Health Advisory Committee (PHAC) considered when developing the recommendations.

Please note: this section does **not** contain recommendations. (See [Recommendations](#).)

Background

- 4.1 This guideline focuses on how to effectively deliver oral health advice in general dental practices. The Committee noted that the evidence on larger scale oral health interventions, such as water fluoridation, suggest such interventions may achieve relatively greater improvements in oral health. However, population and community-level schemes were beyond the remit of this guideline.
- 4.2 The Committee was aware that the NHS dental contract is under review. The aim is to shift the focus from treatment to prevention. During development of this guideline, key elements of the proposed reforms were being piloted, including changes to software and weighted capitation payments to support a preventive approach. So the recommendations were written on the assumption that the revised dental contract will recognise the value of good self-care and will reward clinical teams that focus on oral health improvement.
- 4.3 The Committee discussed ways of giving general dental practices an incentive to adopt a more preventive approach. This included, for example, using the [Dental Quality and Outcomes Framework](#) to reward practices who adopt this approach. However, making recommendations on the type of incentives needed to encourage a more preventive approach was beyond the remit of the guideline.
- 4.4 The Committee recognised that dentists have an opportunity to offer a range of health promotion advice, for example why it is important to stop smoking – and what support is available to help

them stop. They also have the opportunity to refer patients on, for example, to local alcohol and smoking cessation services. But members heard that dentists can be reluctant to offer such advice, because patients who do not follow it are less likely to return to the practice.

Behaviour change

- 4.5 The Committee recognised interventions need to support patients to change their own behaviour. It was not possible to identify the specific behavioural components of interventions that might be effective in helping people to improve their oral hygiene practices
- 4.6 No direct evidence was identified on how to effectively change the way dental practitioners, or other oral health professionals, promote oral health with their patients. However, the Committee was aware that behaviour change techniques have been successfully used to help healthcare professionals in other areas change their practice. For example, such techniques have been used to train practitioners to help people stop smoking.
- 4.7 The Committee discussed the importance of providing training on good oral health promotion for dental practitioners, from undergraduate level and throughout their career. Members agreed that this should be based on the principles of behaviour change science to increase the likelihood that preventative interventions will be effective in promoting good oral health.
- 4.8 The Committee recognised that people's belief in their ability to manage their own health is an important factor in whether or not they will take oral health advice.
- 4.9 The Committee agreed that the social context of people's lives will influence how they view the importance of good oral self-care practices. For example, concerns about getting enough food to eat,

or shelter, would naturally take precedence over any oral health concerns.

4.10 The Committee noted the importance of helping children establish life-long oral health-promoting behaviours. Members also noted the important influence of parents' attitudes and behaviours, in setting oral health behaviours in children.

4.11 The Committee was aware that patients' views of the impact of poor oral health may differ from practitioners. For example, a patient may focus on the social impact of having poor oral health, such as being unable to speak or socialise normally. Dentists, on the other hand, tend to focus more on clinical outcomes such as decayed, missing or filled teeth.

Evidence

4.12 There was limited and inconsistent evidence from the review of effectiveness. It identified several interventions that have changed people's knowledge about oral health hygiene. But only interventions that involved the use of fluoride reduced tooth decay.

4.13 Most of the data identified in the effectiveness review related to oral hygiene. The Committee noted that the promotion of tooth brushing among children and young people can help establish life-long habits that will protect people from gum disease and caries. Members also noted evidence that changes in other behaviours, for example, related to diet and smoking, will also impact on oral health. But this was outside the scope of the guideline.

4.14 The Committee acknowledged that sugary food and drinks are the major cause of tooth decay. But no evidence was identified on effective methods to change people's diet to reduce tooth decay. This may be because the studies did not include a long enough period for follow-up (see 4.15 below).

- 4.15 Generally, the Committee noted that the interventions in the effectiveness review only tended to measure short-term outcomes (1 year or less). This would not allow enough time to see an effect on clinical outcomes (especially tooth decay).
- 4.16 There is growing interest in the use of new technology, including phone and tablet apps, to deliver behaviour change interventions. But the Committee noted there was a lack of formal evaluations of their effectiveness.

Health inequalities

- 4.17 The Committee recognised that the cost of toothbrushes and toothpaste could be prohibitive for some people. But members also noted that certain retail outlets sell them very cheaply – and that there may be a role for dentists to tell people where to get them from.
- 4.18 The Committee noted that there are large inequalities in oral health. These vary according to factors such as age, ethnicity, socioeconomic group and geographical location. ‘Delivering better oral health’ states that everyone should be given advice, regardless of how good or bad their oral health is. The Committee agreed that consistent messages benefit everyone.

Health economics

- 4.19 Published economic evaluations of methods used by general dental practice teams to deliver oral health promotion messages are scarce and generally poor quality. The Committee heard that there was a lack of evidence on health state utility values related to oral health, so a valuation study was conducted to inform the economic modelling. Based on other effectiveness reviews, the economic models and the valuation study used measures of Decayed, Missing and Filled Teeth (DMFT), Decayed, Missing and Filled Surfaces (DMFS), measures of gum problems and dental pain as the oral health outcomes.

- 4.20 The economic review identified 2 studies for children (1 on children with primary teeth and 1 on children with permanent teeth) and 1 for adults that were sufficiently robust for economic modelling.
- 4.21 The economic model for children showed that group counselling and 6 follow-up sessions over 2 years for parents of children aged 1 to 5 (plus the provision of at least 2 tubes of fluoride toothpaste and toothbrushes as needed) can reduce dental decay in primary teeth. This is compared with providing just 1 session and 1 tube of fluoride toothpaste. The Committee acknowledged that this intervention was clinically effective for all children but was expensive. It was cost-effective if only used with those at high risk of tooth decay (that is, with a mean incremental DMFT of 1.05 over 2 years). In reality, however, the Committee felt that the proportion of people completing the intervention is likely to be less than in the primary teeth study, so it is unlikely to be as cost effective in routine practice.
- 4.22 An exploratory analysis was conducted, based on the Committee's suggestions and expert opinion. The aim was to estimate whether 3 levels of intervention were cost effective: brief advice from a dentist as a 5-minute extension to an existing consultation; a one-off 20-minute advice session by a dental nurse with additional skills in prevention; and a programme of 8 advice sessions with a dental nurse with additional skills in prevention over 2 years. Costs and effects were estimated over a 3-year period for children aged 5 and 12 using a range of scenarios provided by the Committee. These included varying key assumptions such as: the risk of tooth decay over 3 years; the reduction in risk associated with the interventions; the proportion of extractions performed under general anaesthetic; and non-attendance rates for appointments with a dental nurse with additional skills in prevention. This suggested that extending an existing consultation by 5 minutes to give brief advice from a dentist might be cost-effective if: the children were 2 or more times at risk

of tooth decay than average; and it led to a 10% risk reduction in tooth decay over 3 years. However, the Committee felt there was not sufficient evidence of effectiveness to recommend a standalone intervention. A 20-minute appointment with a dental nurse with additional skills in prevention might also be cost-effective for high-risk groups. But this depends on the cost and how effective it is: more evidence is needed on this. The exploratory analysis suggested that a more intensive programme of oral health advice, consisting of a series of appointments, was unlikely to be cost effective.

- 4.23 The baseline risks of tooth decay were re-estimated in the children's model to take into account results from the Health and Social Care Information Centre's [Children's dental health survey 2013](#). This survey showed a general improvement in children's oral health, although wide variations persist and some sections of the population are still at high risk of tooth decay. This might be expected to reduce the relative cost-effectiveness of preventive interventions for children at average risk, but targeted interventions for children at high risk, if effective, might well be cost-effective.
- 4.24 For adults, the model estimated the effect of adding an oral education programme to standard non-surgical treatment for gum disease based on the study found by the economic review. This suggested that the benefits associated with a reduction in gingivitis were outweighed by the estimated costs of the intervention.
- 4.25 The results of the economic analysis were mixed and highly uncertain. It showed that the cost–benefit of dental practice teams delivering oral health promotion messages to patients depends on what information is provided, to whom, and in what context. So it was not possible to make specific recommendations because the Committee was not confident that they would be cost effective.

- 4.26 The economic models did not consider future benefits because there was insufficient effectiveness evidence on the long-term effect of oral health promotion. The Committee discussed whether fluoride in tap water would have been an appropriate comparator, but acknowledged that this was outside the remit of the guideline.

This section will be completed in the final document.

5 Recommendations for research

The Public Health Advisory Committee (PHAC) recommends that the following research questions should be addressed. It notes that 'effectiveness' in this context relates not only to the size of the effect, but also to cost effectiveness and duration of effect. It also takes into account any harmful or negative side effects and includes sufficient follow-up to assess clinical outcomes.

All the research should aim to identify differences in effectiveness among groups, based on characteristics such as socioeconomic status, age, gender and ethnicity.

- 5.1 How effective and cost effective are brief oral health promotion interventions integrated into routine dental examinations, compared with standalone interventions of varying length, intensity and duration for groups at high risk of poor oral health?
- 5.2 What behaviour change methods and supporting resources (such as phone apps, leaflets and messaging) can dentists and dental care professionals use to help people improve their own oral health?
- 5.3 What triggers and other factors encourage groups at high risk of poor oral health to change their behaviours in response to oral health messages? This includes, for example, identifying times when people are open to learning. It also includes the role of social support from family and friends.

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- 5.4 What motivates dentists and dental care professionals to take a preventive approach to oral health and how does this fit into the business model for dental practices?

More detail identified during development of this guideline is provided in [Gaps in the evidence](#).

6 Related NICE guidance

Published

- [Oral health: local authority oral health improvement strategies](#) (2014) NICE guideline PH55
- [Behaviour change: individual approaches](#) (2014) NICE guideline PH49
- [Patient experience in adult NHS services](#) (2012) NICE guideline CG138
- [Smokeless tobacco cessation –South Asian communities](#) (2012) NICE guideline PH39
- [Maternal and child nutrition](#) (2008) NICE guideline PH11
- [Behaviour change: the principles for effective interventions](#) (2007) NICE guideline PH6
- [Dental recall](#) (2004) NICE guideline CG19

Under development

- [Oral health in nursing and residential care](#) (publication expected June 2016)

7 References

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8 Summary of the methods used to develop this guideline

Introduction

The reviews, primary research and economic analysis include full details of the methods used to select the evidence (including search strategies), assess its quality and summarise it.

The minutes of the Public Health Advisory Committee (PHAC) meetings provide further detail about the Committee's interpretation of the evidence and development of the recommendations.

Guideline development

The stages involved in developing public health guidelines are outlined in the box below.

1. Draft scope released for consultation
2. Stakeholder comments used to revise the scope
3. Final scope and responses to comments published on website
4. Evidence reviews and economic modelling undertaken and submitted to PHAC
5. PHAC produces draft recommendations
6. Draft guideline (and evidence) released for consultation (and for fieldwork)
7. PHAC amends recommendations
8. Final guideline published on website
9. Responses to comments published on website

Key questions

The key questions were established as part of the [scope](#). They formed the starting point for the reviews of evidence and were used by the PHAC to help develop the recommendations. The overarching questions were:

Question 1: What are the most effective and cost-effective approaches that dental teams can use to convey oral health promotion messages to patients?

Question 2: Are oral health promotion messages more likely to have an effect on patients if they are linked with wider health outcomes, such as heart and lung disease or diabetes?

Question 3: What helps dental teams to deliver oral health promotion messages? What prevents effective delivery?

Question 4: What helps patients to understand and act upon oral health promotion messages? What stops them from understanding or taking action – or not following the full advice – even if they do understand the messages?

Question 5: How can oral health promotion messages be delivered in a way that ensures people leave the dentist satisfied about their visit and motivated to follow the advice given?

These questions were made more specific for each review.

Reviewing the evidence

Effectiveness reviews

One review of effectiveness was conducted:

- Review 1 [Oral health: approaches for general dental practice teams on promoting oral health](#).

DRAFT

Identifying the evidence

Several databases were searched in July 2014 for any intervention or observational study from January 1994. See review 1.

Relevant literature was also identified from references in documents found in the initial database searches.

Key documents were citation-tracked using Web of Science and the PubMed related articles option. Experts were identified from the search findings and contacted for any further unpublished information.

A call for evidence was made to encourage others who have carried out unpublished studies to submit them.

In addition to database searching, tailored web searching was undertaken.

Selection criteria

Studies were included in the effectiveness review if they:

- included oral health promotion messages
- included the perspective of dental patients, members of the public, dental staff, or staff in dental practices who are not dentally trained (for example, receptionists, practice managers)
- included adults and children attending general dental practices
- compared different modes of delivery, presentation or framing of oral health messages by different members of the dental team
- compared specific oral health messages with oral health messages incorporating wider health issues
- reported outcomes of health- or oral health-related or covered changes in knowledge, attitudes or behaviours
- reported outcomes including the barriers and facilitators to delivering oral health messages and their acceptability.

Studies were excluded if they:

- were published before 1994

DRAFT

- were not primary research studies
- only outlined expert opinions.

Quality appraisal

Included papers were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in [Methods for the development of NICE public health guidance](#). Each study was graded (++, +, -) to reflect the risk of potential bias arising from its design and execution.

Study quality

++ All or most of the checklist criteria have been fulfilled. If they have not been fulfilled, the conclusions are very unlikely to alter.

+ Some of the checklist criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are unlikely to alter the conclusions.

- Few or no checklist criteria have been fulfilled. The conclusions of the study are likely or very likely to alter.

The evidence was also assessed for its applicability to the areas (populations, settings, interventions) covered by the scope of the guideline. Each evidence statement concludes with a statement of applicability (directly applicable, partially applicable, not applicable).

Summarising the evidence and making evidence statements

The review data were summarised in evidence tables (see the reviews in [Supporting evidence](#)).

The findings from the review were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements were prepared by the external contractor (see [Supporting evidence](#)). The statements reflect their judgement of the strength (quality, quantity and consistency) of evidence and its applicability to the populations and settings in the scope.

Cost effectiveness

There was an [economic analysis](#) consisting of 3 parts: a review of economic evaluations, a valuation survey and an economic modelling exercise.

Review of economic evaluations

Identifying the evidence

A systematic search to identify relevant studies for this review was carried out using a range of databases (see review 2). The searches were confined to English language studies published since 1994.

Supplementary searches were undertaken of grey literature, conference proceedings and abstracts. References in key systematic reviews of economic evaluations were also searched. In addition, experts and stakeholders were contacted to locate unpublished studies, and registers of ongoing research were examined.

Selection criteria

The same selection criteria were used as for review 1.

Quality appraisal

The same quality appraisal was followed as for review 1.

Valuation study

There was a lack of evidence on the effect that improving people's oral health will have on their quality of life. It was not possible to calculate quality-adjusted life years (QALY) using generic measures such as EQ-5D because these measures are not sufficiently sensitive to detect some important oral health outcomes.

The Newcastle and York External Assessment Centre considered this problem in its [Economic analysis of oral health improvement programmes and interventions](#) for NICE's guideline on oral health: approaches for local authorities and their partners to improve the oral health of their communities. It used a published equation to map the 14 item Oral Health Impact Profile

DRAFT

(OHIP-14) – the disease-specific measure of oral health – to the EQ-5D utility score.

But there were concerns about the accuracy of the published mapping algorithm. Also, the population used to derive it mostly report 'never' or 'hardly ever' having oral health problems – and it did not include detail such as number of decayed or missing teeth or gum disease. So this mapping exercise was used to only define the ranges of utility loss associated with dental decay for use in a sensitivity analysis.

Given the lack of data on the quality of life associated with oral health and concerns over using generic measures to judge this, the valuation study used a 'discrete choice experiment approach'. This aimed to determine society's willingness to pay to prevent oral health problems. The study followed good practice guidelines for experimental design and reporting of conjoint analysis studies (Johnson et al. 2013; Bridges et al. 2011):

- 1) Identification of dimensions of outcomes to be valued.
- 2) Development of the survey materials and design.
- 3) Piloting of survey materials.
- 4) Administration of the survey.
- 5) Analysis of the data.

Economic modelling

Assumptions were made that could underestimate or overestimate the cost effectiveness of the interventions.

Economic models were constructed that incorporated data from the review of effectiveness, the review of cost effectiveness and the valuation study. The results of the valuation survey were used to estimate a value for the oral health benefits in the economic evaluations conducted for this guideline.

The aim was to evaluate oral health promotion messages to prevent tooth decay among children and adults, and to prevent gum disease among adults.

DRAFT

The results are reported in: economic modelling report 1 [Oral health guidance – economic analysis of oral health promotion approaches for dental health teams](#).

How the PHAC formulated the recommendations

At its meeting in January 2015, the Public Health Advisory Committee (PHAC) considered the evidence and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of strength and applicability) to form a judgement
- if relevant, whether (on balance) the evidence demonstrates that the intervention, programme or activity can be effective or is inconclusive
- if relevant, the typical size of effect
- whether the evidence is applicable to the target groups and context covered by the guideline.

The PHAC developed recommendations through informal consensus, based on the following criteria:

- Strength (type, quality, quantity and consistency) of the evidence.
- The applicability of the evidence to the populations/settings referred to in the scope.
- Effect size and potential impact on the target population's health.
- Impact on inequalities in health between different groups of the population.
- Equality and diversity legislation.
- Ethical issues and social value judgements.
- Cost effectiveness (for the NHS and other public sector organisations).
- Balance of harms and benefits.
- Ease of implementation and any anticipated changes in practice.

If possible, recommendations were linked to evidence statements (see [The evidence](#) for details). If a recommendation was inferred from the evidence, this was indicated by the reference 'IDE' (inference derived from the evidence).

9 The evidence

Introduction

The [evidence statements](#) from 1 review are provided by external contractors.

This section lists how the evidence statements link to the recommendations and sets out a brief summary of findings from the economic analysis.

How the evidence links to the recommendations

The evidence statements are short summaries of evidence. Each statement has a short code indicating which document the evidence has come from.

Evidence statement number 1.1 indicates that the linked statement is numbered 1 in review 1, **1.2** indicates that it is numbered 2 in review 1. If a recommendation is not directly taken from the evidence statements, but is inferred from the evidence, this is indicated by **IDE** (inference derived from the evidence).

Recommendation 1: evidence statements 1.1, 1.2, 1.3, 1.5; IDE

Recommendation 2: evidence statements 1.6, 1.10; IDE

Recommendation 3: evidence statements 1.1, 1.5, 1.6, 1.7, 1.9, 1.10; IDE

Recommendation 4: IDE

Economic modelling

Overall, the cost–benefits of dental practice teams delivering oral health promotion messages depends on what information is provided, to whom and in what context.

Messages delivered by dental practitioners to parents of children aged between 1 and 6 at high risk of dental caries may be cost effective. An individual programme, including preventive activities and advice for children aged 11–12 with active caries, is also cost effective, but not for those at low risk of dental caries.

DRAFT

The economic analysis also looked at the cost of providing an oral health education programme for adults in addition to standard, non-surgical treatment for periodontal disease. It estimated that the 'willingness to pay' for the benefits associated with a reduction in gingivitis was outweighed by the estimated costs.

The specific scenarios considered and the full results can be found in economic modelling report 1 [Oral health guidance – economic analysis of oral health promotion approaches for dental health teams](#).

10 Membership of the Public Health Advisory Committee and the NICE project team

Public Health Advisory Committee A

NICE has set up several Public Health Advisory Committees (PHACs). These standing committees consider the evidence and develop public health guidelines. Membership is multidisciplinary, comprising academics, public health practitioners, topic experts and members of the public. They may come from the NHS, education, social care, environmental health, local government or the voluntary sector. The following are members of PHAC A:

Chair

Susan Jebb

Professor of Diet and Population Health, University of Oxford

Core members

Mireia Jofre Bonet

Professor of Health Economics, City University (London)

Alison Lloyd

Community Member

Chris Packham

Associate Medical Director, Nottinghamshire Healthcare NHS Trust

DRAFT

Toby Prevost

Professor of Medical Statistics, King's College London

Joyce Rothschild

Independent Education Consultant

Amanda Sowden

Deputy Director, Centre for Reviews and Dissemination, University of York

Lucy Yardley

Professor of Health Psychology, University of Southampton

Topic members

Ben Atkins

Clinical Director, Revive Dental Centre, Manchester

Perpetua Chisenga

Community Member

Gillian Davies

Specialist in Dental Public Health, Public Health England

Rebecca Harris

Professor of Dental Public Health, University of Liverpool

Mandy Murdoch

Independent Health Strategist

Michael Wheeler

Dental Tutor, Health Education South West

NICE project team

Mike Kelly (until December 2014)

CPH Director

Gillian Leng (from January 2015)

Deputy Chief Executive and Health and Social Care Director

DRAFT

Simon Ellis

Associate Director

Clare Wohlgemuth

Lead Analyst

Lakshmi Murthy

Analyst

Linda Shepperd

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Patricia Mountain

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Senior Editor

Susan Burlace

Editor

Declarations of interests

The members of the Public Health Advisory Committee made [declarations of interest](#).

About this guideline

What does this guideline cover?

The Department of Health (DH) asked the National Institute for Health and Care Excellence (NICE) to produce this guideline on oral health promotion: general dental practice(see the [scope](#)).

DRAFT

This guideline does not provide detail on:

- Local authority oral health improvement strategies, oral health in nursing and residential care, or dental recall. (See [Related NICE guidance](#) for other recommendations that may be relevant to oral health.)
- The evidence base underpinning oral health advice for patients. This is covered in [Delivering better oral health: an evidence-based toolkit for prevention](#) (Public Health England).
- Clinical dental treatment.
- Approaches to tackling clinical diagnoses of dental anxiety and phobia (as listed in the [Diagnostic and Statistical Manual of Mental Disorders 5](#)).
- Oral health needs assessments.

The absence of any recommendations on interventions that fall within the scope of this guideline is a result of lack of evidence. It should not be taken as a judgement on whether they are cost effective.

Safeguarding children

Remember that child maltreatment (including neglect and abuse):

- is common
- can present anywhere, such as emergency departments and primary care or on home visits.

Be aware of, or suspect, abuse as a contributory factor to, or cause of, the symptoms or signs of poor oral health in children. Abuse may also coexist with poor oral health. Child neglect may arise in the form of missed appointments for dental care. See the NICE guideline on [child maltreatment](#) for clinical features that may be associated with maltreatment.

Other guidance and policies

The guideline should be implemented alongside other guidance and regulations as follows:

- Public Health England guidance to support dental teams in improving their patients' oral and general health, [Delivering better oral health: an evidence-](#)

DRAFT

[based toolkit for prevention](#). Note: the NICE guideline will focus on how dental teams can convey the 'advice for patients' set out in this toolkit.

How was this guideline developed?

The recommendations are based on the best available evidence. They were developed by the Public Health Advisory Committee (PHAC).

Members of the PHAC are listed in [Membership of the Public Health Advisory Committee and the NICE project team](#).

For information on how NICE public health guidelines are developed, see the NICE [public health guideline process and methods guides](#).

What evidence is the guideline based on?

The [evidence](#) that the PHAC considered included:

- Evidence review:
 - Review 1 'Oral health: approaches for general dental practice teams on promoting oral health' was carried out by Plymouth University Peninsula/SERIO. The principal authors were: Elizabeth Kay, Allice Hocking, Mona Nasser, Helen Nield, Donna Vascott, Charlie Dorr and Helen Scales
- Economic modelling report 1 'Oral health guidance – economic analysis of oral health promotion approaches for dental health teams' was carried out by Birmingham & Brunel Consortium. The principal authors were: Joanne Lord, Louise Longworth, Jehsika Singh, Oluchukwu Onyimadu, Julie Fricke, Sue Bayliss and Catherine Meads.

In some cases the evidence was insufficient and the PHAC has made recommendations for future research, see [Recommendations for research](#).

Status of this guideline

This is a draft guideline. The recommendations made in section 1 are provisional and may change after consultation with [stakeholders](#).

DRAFT

This document does not include all sections that will appear in the final guideline. The stages NICE will follow after consultation are summarised below.

- The Committee will meet again to consider the comments, reports and any additional evidence that has been submitted.
- After that meeting, the Committee will produce a second draft of the guideline.
- The draft guideline will be signed off by the NICE Guidance Executive.

The key dates are:

- Closing date for comments: 25 June 2015.
- Next PHAC meeting: 7 July 2015.

All healthcare professionals should ensure people have a high quality experience of the NHS by following NICE's recommendations in [Patient experience in adult NHS services](#).

The recommendations should be read in conjunction with existing NICE guidance unless explicitly stated otherwise. They should be implemented in light of duties set out in the [Equality Act 2010](#).

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Implementation

NICE guidelines can help:

DRAFT

- Commissioners and providers of NHS services to meet the requirements of the [NHS outcomes framework 2013–14](#). This includes helping them to deliver against domain 1: preventing people from dying prematurely.
- Local health and wellbeing boards to meet the requirements of the [Health and Social Care Act \(2012\)](#) and the [Public health outcomes framework for England 2013–16](#).
- Local authorities, NHS services and local organisations determine how to improve health outcomes and reduce health inequalities during the joint strategic needs assessment process.

NICE will develop tools to help organisations put this guideline into practice. Details will be available on our website after the guideline has been issued.

Updating the recommendations

This section will be completed in the final document