

Oral health: local authorities and partners

Public health guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should [assess and reduce the environmental impact of implementing NICE recommendations](#) wherever possible.

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This guideline is the basis of QS139.

Overview

This guideline covers improving oral health by developing and implementing a strategy that meets the needs of people in the local community. It aims to promote and protect people's oral health by improving their diet and oral hygiene, and by encouraging them to visit the dentist regularly.

NICE has also produced [guidelines on promoting oral health in general dental practice](#) and [oral health for adults in care homes](#).

Who is it for?

- Health and wellbeing boards, commissioners and directors of public health
- Consultants in dental public health
- Frontline practitioners working more generally in health, social care and education
- Members of the public

What is this guideline about?

This guideline makes recommendations on undertaking oral health needs assessments, developing a local strategy on oral health and delivering community-based interventions and activities.

Oral health is important for general health and wellbeing. Poor oral health can affect someone's ability to eat, speak, smile and socialise normally, for example, due to pain or social embarrassment (see the [Department of Health's dental quality and outcomes framework](#)).

Oral health problems include gum (periodontal) disease, tooth decay (dental caries), tooth loss and oral cancers.

Many of the risk factors – diet, oral hygiene, smoking, alcohol, stress and trauma – are the same as for many chronic conditions, such as cancer, diabetes and heart disease. As a result, interventions that aim to tackle these risk factors (taking a 'common risk factor approach') will improve general health as well as oral health (Watt and Sheiham 2012).

The recommendations in this guideline aim to:

- promote and protect oral health by improving diet and reducing consumption of sugary food and drinks, alcohol and tobacco (and so improve general health too)
- improve oral hygiene
- increase the availability of fluoride (water fluoridation is outside the scope of this guideline. See [water fluoridation: health monitoring report for England 2014](#) (Public Health England 2014).
- encourage people to go to the dentist regularly
- increase access to dental services.

This guideline focuses, in particular, on people whose economic, social, environmental circumstances or lifestyle place them at high risk of poor oral health or make it difficult for them to access dental services. It is not possible to provide a comprehensive list of all these groups, but they include people:

- who are homeless or frequently move, such as traveller communities
- who are socially isolated or excluded
- who are older and frail
- who have physical or mental disabilities
- who are from a lower socioeconomic group
- who live in a disadvantaged area
- who smoke or misuse substances (including alcohol)
- who have a poor diet
- from some black, Asian and minority ethnic groups for example, people of [South Asian origin](#)
- who are, or who have been, in care.

This guideline is for local authorities, health and wellbeing boards, commissioners, directors of public health, consultants in dental public health and frontline practitioners working more generally in health, social care and education. (For further details, see [who should take action?](#)) In addition it may be of interest to members of the public.

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

1 Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

Recommendation 1 Ensure oral health is a key health and wellbeing priority

Health and wellbeing boards and directors of public health should:

- Make oral health a core component of the joint strategic needs assessment and the health and wellbeing strategy. Review it as part of the yearly update.

- Set up a group that has responsibility for an oral health needs assessment and strategy. Ensure the following contribute to the work of the group:
 - a consultant in dental public health
 - a local authority public health representative
 - an NHS England commissioner of local dental services
 - a representative from a local professional dental network
 - a representative from the local dental committee
 - representatives from children and adult social care services
 - a local Healthwatch representative
 - a senior local government representative to lead on, and act as an advocate for, oral health
 - representatives from relevant community groups.

Recommendation 2 Carry out an oral health needs assessment

The group responsible for the oral health needs assessment and strategy (see recommendation 1) should:

- Define the scope of an oral health needs assessment for the local population. This should include:
 - What the assessment will and will not cover, for example, access to services for groups at high risk of poor oral health, certain age groups or in certain settings (see recommendation 3).
 - The responsibilities of each partner organisation and how they will work together to make best use of resources (for example, detailing how data could be collected across organisations).
 - The need to consider recommendations and outcomes from any previous oral health needs assessment (if available).

- Ensure the oral health needs assessment is an integral part of the joint strategic needs assessment and clearly linked to strategies on general health and wellbeing (see recommendation 1).
- Conduct the oral health needs assessment as part of a cyclical planning process geared towards improving oral health and reducing health inequalities. It should not be a one-off exercise that simply describes the target population.

Recommendation 3 Use a range of data sources to inform the oral health needs assessment

The group responsible for the oral health needs assessment and strategy should:

- Use local demographic and deprivation profiles to identify groups that may be at high risk of poor oral health.
- Use national surveys of oral health (adult and child) and NHS dental epidemiological programme data to gain an idea of local oral health needs relative to the national picture and comparator areas.
- Use national demographic and socioeconomic data and the established link between these factors and oral disease to determine likely local needs.
- Use local expertise and local health and lifestyle surveys and consultations to understand local oral health needs in the context of general health.
- Consider seeking advice on survey design and the collection, analysis and interpretation of epidemiological data relevant to oral health.

Recommendation 4 Develop an oral health strategy

The group responsible for the oral health needs assessment and strategy (see recommendation 1) should:

- Develop an oral health strategy based on an oral health needs assessment (see recommendations 2 and 3). This should set out how the local authority and its health and wellbeing commissioning partners will:
 - Address the oral health needs of the local population as a whole (universal approaches).
 - Address the oral health needs of groups at high risk of poor oral health (targeted approaches).
 - Address any oral health inequalities within the local population and between the local population and the rest of England.
 - Identify and work in partnership with people who are in a position to improve oral health in their communities. This includes those working in adult, children and young people's services, education and health services and community groups.
 - Set a good example through their own policies and the policies of organisations they commission to provide services. For example, by ensuring access to free drinking water in all workplaces and public areas and through healthy catering and food policies (see recommendations 5 and 6).
 - Set out the additional support that people working with groups at high risk of poor oral health will be given, including training or resources. (See the NICE guideline on community engagement: improving health and wellbeing and reducing health inequalities.)
 - Get all frontline staff in health, children and adult services to use every opportunity to promote oral health and to emphasise its links with general health and wellbeing.
 - Ensure easy access to services to help prevent oral disease occurring in the first place and to prevent it worsening or recurring for everyone, throughout their lives.
 - Evaluate what works for whom, when and in what circumstances.
 - Monitor and evaluate the effect of the local oral health improvement strategy as a whole.

Recommendation 5 Ensure public service

environments promote oral health

Local authorities and other commissioners and providers of public services should:

- Ensure all public services promote oral health by:
 - Making plain drinking water available for free.
 - Providing a choice of sugar-free food, drinks (water or milk) and snacks (including fresh fruit), including from any vending machines on site (see the [NICE guidelines on obesity](#) and [obesity: working with local communities](#))
 - Encouraging and supporting breastfeeding (see the [NICE guideline on maternal and child nutrition](#)).

This includes services based in premises wholly or partly owned, hired or funded by the public sector such as: leisure centres; community or drop-in centres; nurseries and children's centres; other early years services (including services provided during pregnancy and for new parents); schools; and food banks.

- Review other 'levers' that local authorities can use to address oral health and the [wider social determinants of health](#), for example, local planning decisions for fast food outlets (see recommendation 11 in the [NICE guideline on prevention of cardiovascular disease](#)).
- Explore the possibility of linking with local organisations in other sectors (for example, local shops and supermarkets) to promote oral health. This could be part of a broader approach to promoting healthier lifestyles including helping people to reduce their tobacco and alcohol consumption.

Recommendation 6 Include information and advice on oral health in all local health and wellbeing policies

Local authorities and other commissioners and providers of public services should:

- Ensure all health and wellbeing and disease prevention policies for adults, children and young people (including local government health and social care policies and strategies) include advice and information about oral health. This should be based on the 'advice for patients' in [Delivering better oral health](#). It should be included with information about the common risk factors for ill health.
- Ensure health and wellbeing and disease prevention policies for children and young people cover oral health. For example, this may include policies covering:
 - nutrition, including breastfeeding and weaning practices (see the [NICE guideline on maternal and child nutrition](#))
 - nutrition and the health and wellbeing of looked after babies, children and young people (including care leavers) (see the [NICE guideline on looked-after children and young people](#))
 - obesity (see the [NICE guidelines on obesity](#) and [obesity: working with local communities](#))
 - local food, drink and snacks policies in a range of settings, including nurseries and children's centres
 - private and voluntary providers of childcare services (including childminding services)
 - primary and secondary education (see recommendations 17 to 21)
 - local child and young person safeguarding policies
 - care delivered at home
 - providers of care services offered to children and young people in their own home.

- Ensure health and wellbeing and disease prevention policies for adults cover oral health. For example, this may include policies covering:
 - health and social care assessments
 - nutrition and health and wellbeing
 - care delivered at home
 - local food, drink and snacks policies in a range of settings, including drop-in centres, lunch clubs, leisure centres and food banks
 - local adult safeguarding policies
 - carer centres
 - providers of adult care services offered in someone's own home.

Recommendation 7 Ensure frontline health and social care staff can give advice on the importance of oral health

Local authorities and other commissioners and providers of public services should:

- Ensure service specifications include the requirement for frontline health and social care staff to receive training in promoting oral health. This should include:
 - the 'advice for patients' in [Delivering better oral health](#)
 - the fact that tooth decay and gum disease are preventable
 - the importance of regular tooth brushing
 - links between dietary habits and tooth decay
 - how fluoride can help prevent tooth decay
 - links between poor oral health and alcohol and tobacco use including the use of smokeless tobacco.
 - where to get advice about local dental services, including costs and transport links

- Ensure staff understand the links between health inequalities and oral health and the needs of groups at high risk of poor oral health.
- Ensure frontline health and social care staff can advise carers on how to protect and improve the oral health and hygiene of those they care for.

Recommendation 8 Incorporate oral health promotion in existing services for all children, young people and adults at high risk of poor oral health

Commissioners of health and social care services, including those that support people to live independently in their own home, should:

- Review all community health and social care service specifications to ensure oral health is included in care plans and is in line with safeguarding policies.
- Ensure service specifications include a requirement to promote and protect oral health in the context of overall health and wellbeing. Relevant services include substance misuse services and those supporting people living independently in the community. (For example, people who are homeless or living in hostels, those who experience physical or mobility problems, people with learning difficulties, and people experiencing mental health problems.)
- Ensure service specifications include:
 - an assessment of oral health, including a referral, or advice to go to a dentist or other clinical services (this may be because of pain, concerns about appearance or difficulty in eating)
 - making oral health care, including regular dental check-ups, an integral part of care planning – through self-care or clinical services
 - support to help people maintain good oral hygiene (including advice about diet)
 - staff training in how to promote oral health – during inductions and then updated on a regular basis (see recommendations 7 and 9).

Recommendation 9 Commission training for health and social care staff working with children, young people and adults at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Commission regular, training for frontline health and social care staff working with groups at high risk of poor oral health. This should be based on 'advice for patients' in the Office for Health Improvement and Disparities' toolkit for delivering better oral health. The aim is to ensure they can meet the needs of adults, children and young people in groups at high risk of poor oral health. The training should include:
 - Basic assessment and care planning to promote and protect oral health.
 - How good oral health contributes to people's overall health and wellbeing.
 - The consequences of poor oral health, for example, dental pain and infection. (This can exacerbate symptoms associated with dementia and can also contribute to malnutrition among older people.)
 - How the appearance of teeth contributes to self-esteem.
 - Causes, symptoms and how to prevent tooth decay (including root caries in older people), gum disease and oral cancer, for example:
 - ◇ the role of plaque in gum disease and how it can affect the immunity of people with diabetes
 - ◇ the role of high-sugar diets
 - ◇ the link between the use of sugar-sweetened methadone and poor oral health
 - ◇ smoking and other tobacco products as a risk factor for oral diseases such as gum disease and oral cancer (see the NICE guideline on tobacco: preventing uptake, promoting quitting and treating dependence).
 - Techniques for helping people maintain good oral hygiene (including the use of fluoride toothpaste).
 - Local pathways for accessing routine, urgent and home care and specialist services.
 - How to encourage and support people to register with a dentist and how to act as an advocate to ensure others can use services.
 - Entitlements to free dental treatment or help with costs.
 - Information on local voluntary sector organisations that may be able to offer additional advice, help or advocacy services.

- What advice to give to carers.

Recommendation 10 Promote oral health in the workplace

Public sector employers including local authorities and the NHS should:

- Work with occupational health and human resource services to promote and protect oral health using the 'advice for patients' in the [Office for Health Improvement and Disparities' toolkit for delivering better oral health](#). This should be part of efforts to improve general health and wellbeing at work and should be tailored to local needs. (See the [sections on promoting stop smoking support and policy, commissioning and training in the NICE guideline on tobacco: preventing uptake, promoting quitting and treating dependence](#), and the [NICE guideline on preventing type 2 diabetes: population and community-level interventions](#).)
- Consider ways to raise awareness of evidence-based oral health information and advice and ways to improve access to dental services, for example, by giving people information about local advocacy services.
- Consider allowing people time off work to go to the dentist without losing pay (as is common practice for GP appointments).

- Make information available to staff about local dental services and about national guidelines on oral health. For example, include this information at health promotion events, in leaflets and posters and on noticeboards and the intranet. This information should be written in plain English and should include details of:
 - the links between diet, alcohol and tobacco use and oral health
 - effective oral hygiene techniques, including the use of fluoride products and tooth brushing techniques
 - the benefits of going to the dentist and regular check-ups
 - eligibility for reduced-cost or free treatment
 - how to obtain appropriate forms (for example, for people receiving certain benefits, including pregnancy and maternity benefits)
 - local advocacy services
- Ensure the workplace environment promotes oral health (see recommendation 6).

Recommendation 11 Commission tailored oral health promotion services for adults at high risk of poor oral health

Local authorities, health and wellbeing commissioning partners and NHS England area teams should:

- Use information from their oral health needs assessment to identify local areas and groups at high risk of poor oral health (see recommendation 2)
- Provide tailored interventions to help people at high risk of poor oral health who live independently in the community. This could include outreach services, for example, for people who are homeless or who frequently change location, such as traveller communities. Ensure services deliver evidence-based advice in line with the 'advice for patients' in the Office for Health Improvement and Disparities' toolkit for delivering better oral health.

- Ensure services promote and protect oral health, for example, by:
 - giving demonstrations of how to clean teeth and use other oral health and hygiene techniques (as appropriate)
 - promoting the use of fluoride toothpaste
 - providing free or discounted materials including fluoride toothpaste and manual and electric toothbrushes
 - explaining the links between oral health and diet, alcohol and tobacco use.
- Ensure local care pathways encourage people to use dental services.

Recommendation 12 Include oral health promotion in specifications for all early years services

Local authorities and health and wellbeing commissioning partners should:

- Ensure all contract specifications for early years services include a requirement to promote oral health and train staff in oral health promotion (see recommendations 7 to 9 and 13 to 14). This includes services delivered by:
 - Midwives and health visiting teams.
 - Early years services, children's centres and nurseries.
 - Child care services (including childminding services).
 - Frontline health and social care practitioners working with families who may be at high risk of poor oral health. (For example, families with complex needs, teenage parents and families from minority ethnic communities where poor oral health is prevalent and people may find it difficult to use services.)
- Ensure all frontline staff in early years services, including education and health, receive training at their induction and at regular intervals, so they can understand and apply the principles and practices that promote oral health.

Recommendation 13 Ensure all early years services

provide oral health information and advice

Local authorities and health and wellbeing commissioning partners should:

- Ensure all early years services include advice about oral health in information provided on health, wellbeing, diet, nutrition and parenting. This should be in line with the 'advice for patients' in the [Office for Health Improvement and Disparities' toolkit for delivering better oral health](#). If possible, oral health activities such as tooth brushing should be listed with other general routines recommended for children by established [parenting programmes](#) (such as Parenting UK).

- Ensure all frontline staff can help parents, carers and other family members understand how good oral health contributes to children's overall health, wellbeing and development. For example, by:
 - promoting breastfeeding and healthy weaning, including how to move from breast or bottle feeding to using an open cup by 12 months (see [box 1](#))
 - promoting food, snacks (for example, fresh fruit) and drinks (water and milk) that are part of a healthier diet
 - explaining that tooth decay is a preventable disease and how fluoride can help prevent it
 - promoting the use of fluoride toothpaste as soon as teeth come through (see the [Office for Health Improvement and Disparities' toolkit for delivering better oral health](#) for appropriate concentrations)
 - encouraging people to regularly visit the dentist from when a child gets their first tooth
 - giving a practical demonstration of how to achieve and maintain good oral hygiene and encouraging tooth brushing from an early age
 - advising on alternatives to sugary foods, drinks and snacks as pacifiers and treats
 - using sugar-free medicine
 - giving details of how to access routine and emergency dental services
 - explaining who is entitled to free dental treatment
 - encouraging and supporting families to register with a dentist
 - providing details of local advocacy services if needed.

Recommendation 14 Ensure early years services provide additional tailored information and advice for groups at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Use information from the oral health needs assessment to identify areas and groups where children are at high risk of poor oral health (see recommendation 2).
- Provide tailored services to meet the oral health needs of these groups (this includes young children who are not attending nursery).
- Ensure early years services identify and work in partnership with relevant local community organisations (see recommendation 1) to develop and deliver tailored oral health advice and information for families (see the NICE guideline on community engagement: improving health and wellbeing and reducing health inequalities).
- Ensure health and social care practitioners can provide culturally appropriate advice and information on oral health for families with babies and young children.
- Consider giving midwives and health visitors free tooth brushing packs to offer to families in groups at high risk of poor oral health. (See Childsmile for an example of these packs.) Distribution of packs should be combined with information on when and how to brush teeth, a practical demonstration and information about local dental services.

Recommendation 15 Consider supervised tooth brushing schemes for nurseries in areas where children are at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Use information from the oral health needs assessment to identify areas where children are at high risk of poor oral health (see recommendation 2).

- Consider commissioning a supervised tooth brushing scheme for early years settings (including children's centres) in these areas. The scheme should include:
 - arrangements for getting informed consent from parents or carers
 - supervised daily tooth brushing with fluoride toothpaste on the premises
 - collaborative working with parents or carers to encourage tooth brushing both at home and at the nursery
 - providing free toothbrushes and fluoride toothpaste (1 set to use on the premises and 1 set to take home)
 - a designated lead person for the scheme at all establishments
 - access to a dental professional for advice if needed
 - support and training for staff to deliver the scheme (this should be recorded and monitored)
 - performance monitoring at least once every school term (that is, at least 3 times a year), against a checklist drawn up and agreed with the group responsible for the local oral health needs assessment and strategy (see recommendations 1 and 4).

Recommendation 16 Consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Use information from the oral health needs assessment to identify areas where children are at high risk of poor oral health (see recommendation 2).
- If a supervised tooth brushing scheme is not feasible (see recommendation 15), consider commissioning a community-based fluoride varnish programme for nurseries as part of early years services for children aged 3 years and older. The programme should provide at least 2 applications of fluoride varnish a year.

- Ensure early years services work in collaboration with parents and carers to gain parental consent for as many children as possible to take part in the fluoride varnish programme.
- Ensure families of children who do not visit the dentist regularly are encouraged and helped to use dental services.
- Monitor uptake and seek parental feedback on the fluoride varnish scheme.
- If resources are available, consider commissioning both a supervised tooth brushing scheme and a fluoride varnish programme.

Recommendation 17 Raise awareness of the importance of oral health, as part of a 'whole-school' approach in all primary schools

Local authorities (where they have a role in the governance of a school), school governors and head teachers should:

- Promote a 'whole-school' approach to oral health by:
 - Ensuring, wherever possible, that all school policies and procedures promote and protect oral health (for example, policies on diet and nutrition, health and safety and anti-bullying should include oral health; see the [Department for Education's standards for school food in England](#)).
 - Making plain drinking water available for free and encouraging children to bring refillable water bottles to school.
 - Providing a choice of sugar-free food, drinks (water and milk) and snacks (for example, fresh fruit). These should also be provided in any vending machines.
 - Displaying and promoting evidence-based, age-appropriate oral health information for parents, carers and children (this should be relevant to local needs and include details of how to access local dental services).
 - Ensuring opportunities are found in the curriculum to teach the importance of maintaining good oral health and highlighting how it links with appearance and self-esteem. This should use age-appropriate information, adapted to meet local needs and based on the 'advice for patients' in the [Office for Health Improvement and Disparities' toolkit for delivering better oral health](#).
 - Identifying and linking with relevant local partners to promote oral health (see the [NICE guideline on community engagement: improving health and wellbeing and reducing health inequalities](#)). This could include oral health promotion schemes commissioned by the local authority and local community networks (see recommendation 3).

Recommendation 18 Introduce specific schemes to improve and protect oral health in primary schools in areas where children are at high risk of poor oral health

Local authorities (where they have a role in the governance of a school), school governors and head teachers should:

- Use information from the oral health needs assessment to identify areas where children are at high risk of poor oral health (see recommendation 2).
- Ensure primary schools in these areas, identify school staff who could be trained to provide advice and support to promote and protect pupils' oral health. Train these staff to give:
 - age-appropriate information adapted to meet local needs and based on the 'advice for patients' in the Office for Health Improvement and Disparities' toolkit for delivering better oral health
 - advice and information about where to get routine and emergency dental treatment, including advice about costs (for example, transport costs)
 - advice and help to access local community networks offering information, advice and support about general child health and development.
- Ensure trained staff set up and run tooth brushing schemes and support fluoride varnish programmes commissioned by local authorities (see recommendations 19 and 20).
- Provide opportunities for staff to talk with parents or carers about, and involve them in, improving their children's oral health. For example, opportunities might arise at parent-teacher evenings, open days or by encouraging parents and carers to get involved in developing the school food and drinks policy.

Recommendation 19 Consider supervised tooth brushing schemes for primary schools in areas where children are at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Use information from the oral health needs assessment to identify local areas where children are at high risk of poor oral health (see recommendation 2).
- Consider commissioning a supervised tooth brushing scheme for primary schools in these areas (for details of these schemes see recommendation 15). If resources are limited, prioritise reception and year 1 (up to age 7).

Recommendation 20 Consider fluoride varnish programmes for primary schools in areas where children are at high risk of poor oral health

Local authorities and health and wellbeing commissioning partners should:

- Use information from the oral health needs assessment to identify areas where children are at high risk of poor oral health (see recommendation 2).
- If a supervised tooth brushing scheme is not feasible (see recommendation 15), consider commissioning a community-based fluoride varnish programme for primary schools. This should provide at least 2 applications of fluoride varnish a year (see recommendation 16).
- Consider commissioning both a supervised tooth brushing scheme and a fluoride varnish programme, if resources are available.

Recommendation 21 Promote a 'whole school' approach to oral health in all secondary schools

Local authorities (where they have a role in the governance of a school), school governors and head teachers should:

- Promote a 'whole-school' approach to oral health by:
 - Ensuring, wherever possible, that all school policies and procedures promote and protect oral health (for example, policies on diet and nutrition, health and safety and anti-bullying).
 - Making plain drinking water available free and encouraging children to bring refillable water bottles to school.
 - Providing a choice of sugar-free food, drinks (water and milk) and snacks (including fresh fruit). These should also be provided in any vending machines.
 - Ensuring opportunities are found in the curriculum to teach the importance of maintaining good oral health and highlighting how it links with appearance and self-esteem. This should use age-appropriate information, adapted to meet local needs and based on 'advice for patients' in the [Office for Health Improvement and Disparities' toolkit for delivering better oral health](#).
- Ensure school nursing services encourage good oral health, including effective tooth brushing, use of fluoride toothpaste and regular dental check-ups.
- Ensure all school leavers know where to get advice and help about oral health, including dental treatment and help with costs. They should be provided with details of relevant services, including links to local community networks.
- In areas where children and young people are at high risk of poor oral health consider identifying and training secondary school staff to advise on dental issues (see recommendation 7). This includes giving advice about dental treatment and costs, and promoting oral health among students (for example, by explaining the links between diet, alcohol, tobacco, sexual practices and oral health).
- Work with local authorities to influence planning decisions on new buildings (for example, to ensure drinking fountains are installed) and fast food outlets (for example, ice cream vans, burger vans and shops).

2 Who should take action?

Introduction

The guideline is for: local authorities, health and wellbeing boards, directors of public health, consultants in dental public health, commissioners and decision makers in local authorities and the NHS, school governors and head teachers.

It is also for front-line practitioners working more generally in health, social care and education. They could be working in local authorities, the NHS and other organisations in the public, private, voluntary and community sectors. In addition, it will be of interest to dentists, dental hygienists and other dental care professionals.

Who should do what at a glance

| Who should take action | Recommendation |
|-------------------------------------|---|
| Clinical commissioning groups | 9 |
| Commissioners of public services | 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 20 |
| Consultants in dental public health | 1, 2, 3, 4 |
| Directors of public health | 1, 2, 3, 4 |
| Head teachers | 17, 18, 21 |
| Health and wellbeing boards | 1, 2, 3, 4 |
| Local authorities | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 |
| Local community groups | 1, 2, 3, 4 |
| Local dental committee | 1, 2, 3, 4 |
| Local Healthwatch | 1, 2, 3, 4 |
| Local professional dental network | 1, 2, 3, 4 |
| NHS England area teams | 1,2,3,4,11 |
| Providers of public services | 5, 6, 7 |

| Who should take action | Recommendation |
|---|-----------------------|
| Public sector employers including local authorities and the NHS | 10 |
| School governors | 17, 18, 21 |
| Social care services (children and adults) | 1, 2, 3, 4 |

3 Context

Introduction

Oral health is important to general health and wellbeing. Poor oral and dental health can affect a person's ability to eat, speak and socialise normally, for example, due to social embarrassment or pain ([Department of Health Dental quality and outcomes framework](#)). Oral diseases are also associated with coronary heart disease (Humphrey et al. 2008; Mathews 2008); diabetes complications (Grossi and Genco 1998; Stewart et al. 2001; Taylor 2001); rheumatoid arthritis (Ortiz et al. 2009); and adverse pregnancy outcomes (Xiong et al. 2006).

Tooth decay (dental caries) and gum disease (periodontal disease) are the most common dental problems in the UK. They can be painful, expensive to treat and can seriously damage health if left unchecked ('Dental quality and outcomes framework'). However, both problems are largely preventable (Levine and Stillman-Lowe 2009).

Oral health in England

While oral health in England has improved significantly across the population as a whole over recent decades, marked inequalities persist. The [Health and Social Care Information Centre adult dental health survey 2009](#) reported that the proportion of adults in England without any natural teeth fell over the last 30 years from 28% to 6%. However, the survey also showed a clear socioeconomic gradient. For example, people from managerial and professional occupation households had better oral health (91%) compared with people from routine and manual occupation households (79%).

The NHS dental epidemiology programme for England oral health survey of children aged 12 showed that levels of dental disease among this group are decreasing, in line with previous survey years. However, from May 2006, data are collected about children only if written information and consent has been provided. Previously, consent was assumed if a letter was sent to the parents or guardians and no objection was received. These consent arrangements suggest a bias towards the participation of those who are less likely to have tooth decay (Davies et al. 2011).

Data collected between 2008 and 2009 show 66.6% of 12 year old children were free from visually obvious dental decay. However, 33.4% are reported as having dental caries (with 1 or more teeth severely decayed, extracted or filled). The same survey reported a higher prevalence and severity of oral disease among those living in Yorkshire and the Humber, the north west and north east compared to those in the midlands and south west; with the lowest levels of disease reported in the south and east ([The NHS dental epidemiology programme for England: oral health survey of 12 year old children 2008/2009](#)).

The [National dental epidemiology programme for England oral health survey of 5 year old children 2012](#) indicates wide variations in dental health across the general population. A significant proportion of children (72.1%) are free from obvious dental decay, with 27.9% having at least 1 decayed, missing or filled tooth. However, at the local authority level, the prevalence of dental caries ranges greatly: from the lowest reported of 12.5% in Brighton and Hove to the highest of 53.2% in Leicester.

Improving the oral health of local populations

The risk factors for poor oral health – diet, smoking, alcohol use, hygiene, stress and trauma – are the same as those for many chronic conditions (Watt and Sheiham 2012).

Risk factors for severe dental caries in the UK include: living in a deprived area; being from a lower socioeconomic group or living with a family in receipt of income support; belonging to a family of Asian origin; or living with a Muslim family where the mother speaks little English (Rayner et al. 2003). Other risk factors include substance misuse or having a chronic medical condition ([Department of Health valuing people's oral health: a good practice guide for improving the oral health of disabled children and adults](#)).

The oral health of local communities is important for their general health and wellbeing and their quality of life. It may be improved by adopting a 'common risk factor' approach and by providing evidence-based oral health promotion programmes and interventions. The aim of the latter is to improve people's:

- diet – this includes reducing the amount of sugar consumed and how frequently
- oral hygiene
- access to fluoride products
- access to a dentist.

The role of local authorities in improving oral health

Since April 2013, NHS England (previously the NHS Commissioning Board) has been working with local authorities and Public Health England to develop and deliver oral health improvement strategies and commissioning plans specific to the needs of local populations ([NHS Commissioning Board securing excellence in commissioning primary care](#); [Public Health England commissioning better oral health for children and young people](#)).

Oral health needs assessments are required to inform joint strategic needs assessments. Local authorities have the responsibility for commissioning surveys of dental health, dental screening and improving the oral health of their populations.

Delivering better oral health toolkit

Below (box 1) is an edited extract from [Public Health England's delivering better oral health: an evidence-based toolkit for prevention](#). This toolkit provides 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 at least 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

Tobacco

All adults and adolescents:

- Do not smoke
- Smoking increases the risk of periodontal disease, reduces the benefits of treatment and increases the chance of losing teeth

Diabetes

Patients with diabetes should try to maintain good diabetes control as they are:

- At greater risk of developing serious periodontal disease
- Less likely to benefit from periodontal treatment if the diabetes is not well controlled

Medications

Some medications can affect gingival health

Prevention of peri-implant disease

All adults with dental implants:

- 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

Prevention of oral cancer

- Do not smoke
- Do not use smokeless tobacco (such as, paan, chewing tobacco, gutkha)
- Reduce alcohol consumption to lower risk levels
- Increase intake of non-starchy vegetables and fruit

Evidence-based advice and professional intervention about smoking and other tobacco use

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.

Evidence-based advice and professional intervention about alcohol and oral health

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.

The Chief Medical Officers' guidelines for alcohol consumption (2016)

- **All adults:** you are safest not to drink regularly more than 14 units per week, to keep health risks from drinking alcohol to a lower level. If you do drink as much as 14 units per week, it is best to spread this evenly over 3 days or more.
- **Young people:** young people under the age of 18, should normally drink less than adult men and women.
- **Pregnant women:** if you are pregnant or planning a pregnancy, the safest approach is not to drink alcohol at all, to keep risks to your baby to a minimum.
- The risk of harm to the baby is likely to be low if a woman has drunk only small amounts of alcohol before she knew she was pregnant or during pregnancy.

Evidence-based advice and professional intervention about healthier eating

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.

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 needs assessments and community oral health promotion programmes, in particular, for vulnerable groups at risk of poor oral health (see the [scope](#)).

This guideline does not provide detail on oral health promotion and dental treatment in residential or care settings or preventive information, or cover treatments and advice provided by dentists.

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.

Status of this guideline

The draft guideline, including the recommendations, was released for consultation in May and June 2014. At its meeting in June 2014, the PHAC amended the guideline in light of comments from stakeholders and experts and the fieldwork. The guideline was signed off by the NICE Guidance Executive in September 2014.

The guideline complements [NICE guidelines on oral health promotion: general dental practice](#) and [oral health for adults in care homes](#).

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

All health and social care providers working with people using adult NHS mental health services should follow [NICE's guideline on service user experience in adult mental health](#).

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](#).

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 the [recommendations](#).

Background

- 4.1 There is a lack of good quality evidence on the effectiveness and cost effectiveness of community oral health programmes in England. Generally studies do not provide enough detail about local service delivery or the frequency or intensity of particular interventions within programmes. There is a lack of patient-reported outcome measures on quality of life, with studies often reporting only clinical outcomes (such as the number of cavities in teeth). Reported outcomes are confounded by poorly designed community studies implemented over a short timeframe, and longitudinal studies (carried out over long periods of time) that rarely take into account changes in the broader national and local policy context.
- 4.2 Despite improvements in oral health in England over recent decades, marked inequalities persist. A clear sociodemographic gradient is associated with poor oral health outcomes for children, young people and adults. Risk factors for dental caries (tooth decay) may include: living in a deprived area; experiencing socioeconomic deprivation, social exclusion or isolation; belonging to a particular minority ethnic group; experiencing mental health problems; having impaired physical mobility; or having a chronic medical condition. Those with complex needs, such as older people who are frail, or people who misuse alcohol or drugs, are also at high risk of poor oral health and longer-term oral conditions including oral cancer.
- 4.3 The term 'high-risk groups' refers to groups in which high levels of oral disease are seen, compared with the national average. It includes 'vulnerable' populations that may have relatively low levels of disease but are badly affected by it. Examples include: people living in relative social

deprivation, people who are homeless, traveller communities and older people who are frail but living independently in the community.

- 4.4 The PHAC agreed that, for the purposes of this guideline, groups of people at high risk of poor oral health could be described as 'vulnerable' populations. Members also agreed that it was important to recognise the general factors that lead people to be vulnerable. This includes socioeconomic deprivation, physical disability and some cultural factors (the latter includes not having English as a first language).
- 4.5 The risk factors for poor oral health – diet, smoking, alcohol use, hygiene, stress and trauma – are the same as those for many chronic conditions. The PHAC therefore took a 'common risk factor approach' (Watt and Sheiham 2012). As a result, many of the recommendations are relevant not only to improving oral health, but to improving health in general. Members also noted that several pieces of existing NICE guidance are relevant to oral health, including those on maternal and child nutrition, breastfeeding and smoking cessation.
- 4.6 The effect of sugar on oral health is influenced by when and how often it is consumed, as well as the amount consumed. The PHAC also noted that the level of acidity in the diet affects oral health. For example, fruit juices can be part of a healthier diet, but would be bad for oral health if drunk frequently over a long period of time because they contain natural acids.
- 4.7 The PHAC noted that the easy availability of sugary drinks and snacks in most environments (school, work and leisure) presents a risk to oral health. Members also noted that it is not always clear which foods and drinks are high in sugar. For example, sports drinks are usually associated with health but often contain a lot of sugar.
- 4.8 The PHAC noted that there is a lack of evidence on interventions that can reduce sugar intake to within NHS recommended levels ('How much sugar is good for me', NHS Choices).
- 4.9 Dietary changes can help reduce the risk of tooth decay. Changing behaviours related to alcohol, smoking and unprotected sexual practices,

in particular, oral sex, can help prevent periodontal disease and oral cancers. (The human papilloma virus, transmitted by all types of unprotected sexual intercourse, has been linked to oral cancers.)

- 4.10 The PHAC agreed that tooth decay (dental caries) is seen as a particular problem among children. But it is also a significant problem among adults, particularly older people and vulnerable adults (including people with learning disabilities or mental health problems). Members discussed the use of both traditional promotional materials and social marketing to get oral health messages across to adults. However, evidence is lacking on whether or not the latter would be effective.
- 4.11 The PHAC noted that the original DH referral was to develop guidance for local authorities about community oral health programmes. Below are additional areas they believed to be important that were not included in the final scope:
- training for dentists on the importance of children attending the dentist when their first tooth erupts, and on how to encourage parents and carers to ensure this happens
 - policies and interventions that help prevent injury to the jaw and mouth
 - national policies and population-based interventions to promote and protect oral health.

Overarching strategy

- 4.12 The PHAC adopted a 'life course' approach, examining the evidence on oral health for a defined sequence of events that people are expected to pass through as they progress from birth to death. The aim was to examine the effectiveness of community-based oral health interventions at key 'life course' stages determined by age, common life events (such as getting a job or becoming a parent) and social changes that affect people's lives.
- 4.13 The PHAC identified whether an intervention should be delivered to everyone (universal) or to particular high-risk groups (targeted). This is in

line with the notion of proportionate universalism: interventions are delivered to everyone, with the intensity adjusted according to the needs of specific groups. This approach was used because it can help to reduce the social gradient and benefit everybody.

- 4.14 The PHAC was clear that interventions for high-risk groups should avoid singling out and selecting specific individuals. For example, the PHAC heard evidence that, to be effective, a school tooth brushing scheme would be offered to all pupils of a particular age – not just some pupils in a particular class.
- 4.15 The PHAC decided that some interventions are likely to have a beneficial effect on groups only if poor oral health is prevalent in that group. They were unlikely to be cost effective for other groups. The PHAC also noted that an oral health needs assessment was an important way to identify groups at high risk and determine where to invest.
- 4.16 The PHAC considered partnership working and how current roles, capacity and resources could be used to promote evidence-based oral health.
- 4.17 The PHAC noted that adults, children and young people with mobility difficulties, or learning or physical disabilities may need help brushing their teeth. In addition, they may need to use aids such as electric toothbrushes and other methods of getting fluoride onto their teeth (such as fluoride varnish). The PHAC also noted that carers who help someone with their daily personal grooming may need training to help them promote and protect the person's oral health.
- 4.18 The PHAC noted that poor oral health – and a failure to provide access to dental services for adults, children and young people – is recognised as a form of neglect. Sometimes it is classed as abuse.
- 4.19 Members advised that any relevant NICE guidelines currently in development (or being updated) should consider oral health.
- 4.20 The PHAC recommended that when the NICE guideline on looked-after children and young people (PH28) is updated, it should include evidence

on preventing and responding to poor oral health.

- 4.21 The PHAC discussed how important it was to take cultural differences into account when promoting oral health. Members also discussed the need to work with local communities to identify culturally appropriate products (such as kosher toothpaste). In addition, they noted that although fluoride varnish contains alcohol, it may be acceptable to people from Muslim communities because it is not intoxicating and is not swallowed.

Oral health needs assessment

- 4.22 The PHAC acknowledged that undertaking an oral health needs assessment that reflects the effect of poor oral health on quality of life can be hampered by the available evidence and the type of surveys commissioned. It noted that most evidence is based on counting cavities in teeth, rather than measuring quality of life outcomes such as pain and the ability to eat.
- 4.23 The PHAC discussed how often an oral health needs assessment should be repeated. Members agreed this would vary depending on factors such as the data available, population covered in original assessment and changes to services. The PHAC noted the importance of having criteria in place to decide when and why another assessment should be undertaken.

Early years

- 4.24 The PHAC agreed that collaboration with families to establish healthier dietary patterns (including a sugar-free diet) is important for both oral and general health. Establishing good oral health routines early in life is also crucial. Members noted that health practitioners, including the dental team and early years workers, can play a key part by creating a welcoming environment and providing evidence-based information and advice. Members also noted the importance of dental appointments for babies from when the first tooth erupts, or from 6 months onwards. The PHAC discussed the potential use of this time to educate parents, carers

and other family members as well about oral health.

- 4.25 The PHAC discussed the feasibility of using established parenting programmes (that teach parents behavioural management techniques) to reinforce good oral healthcare. Although it may not be feasible to add oral health education to current programmes, the PHAC agreed that it might be possible to include tooth brushing as an example of how to improve children's general routines.

Tooth brushing schemes, fluoride varnish programmes and fluoride milk schemes in early years and primary schools

- 4.26 The PHAC noted that tooth brushing schemes can establish life-long habits that will promote and protect oral health, whereas fluoride varnish programmes do not. Members emphasised that, although beneficial, fluoride varnish is not a solution to poor oral health. They agreed that if both interventions cannot be provided, tooth brushing programmes are preferable.
- 4.27 The PHAC was aware of several implementation issues for tooth brushing schemes, including safe storage of equipment, staff training and parental consent. Working in partnership with families to promote and protect the oral health of their children was seen as key. Members noted that lessons can be learnt from existing programmes such as Childsmile.
- 4.28 The PHAC discussed the potential unintended consequences of tooth brushing schemes. For example, members noted that children should not think of tooth brushing as only a school-based activity. To combat this, the PHAC agreed that schemes would need to promote and support tooth brushing in the home as well as school.
- 4.29 There is limited and inconclusive evidence about the effectiveness of schemes that provide primary schoolchildren with milk containing added fluoride to improve their oral health ('fluoride milk schemes'). The PHAC also discussed the fact that these schemes do not establish good lifelong oral health practices in the same way as tooth brushing schemes.

- 4.30 Fissure sealant is a thin plastic protective film painted on the chewing surfaces of back teeth. The aim is to make the pits and grooves (fissures) of the teeth into a smooth surface to prevent plaque accumulating. There is limited evidence on the effectiveness and cost effectiveness of using fissure sealants for children and young people in a community setting. Most comes from clinical settings, where it has been shown to reduce dental decay. This is difficult to extrapolate to a community setting where, as a minimum, a mobile dental clinic and dental hygienist would be needed.
- 4.31 The PHAC was aware of ongoing research into the acceptability, effectiveness and cost effectiveness of using fluoride varnish in community settings, compared with fissure sealants, to improve oral health. The results were not available when this guideline was published.

Adults

- 4.32 There was limited evidence on the effectiveness and cost effectiveness of community-based oral health promotion programmes among adults in England, particularly for interventions aimed at vulnerable populations. However, there is strong evidence that diet, access to dental services and use of fluoride affects oral health. Hence recommendations were made on increasing access to services and fluoride products, and on training to promote and protect oral health.
- 4.33 The PHAC noted that the workplace is an environment where oral health could be promoted. Members also noted that local authorities and the NHS could help reduce oral health inequalities: they are large employers, with many of their employees on low incomes.

Specific groups

- 4.34 The PHAC agreed that young people aged 16 to 24 may need help and encouragement to register with a dentist, to eat a healthier, balanced diet to promote oral health and to maintain oral hygiene. This includes young people leaving care. (Oral hygiene includes regular dental check-ups.) Members acknowledged that this is a period of change – leaving

school, leaving home, starting further education or looking for work – and appears to coincide with a decrease in the numbers of young people in this age range who are registered with a dentist. The PHAC noted that young adults who are not in education, employment or training are particularly vulnerable to poor oral health and in particular need of encouragement and support.

- 4.35 The PHAC noted that pregnant women are at a slightly increased risk of oral health problems and are therefore entitled to free dental treatment. Members highlighted that pregnancy (and just after a baby is born) might be an opportune time to encourage families to use dental services and establish good oral health routines that will benefit both them and their children.

Economic analysis

- 4.36 The PHAC noted that the 16 relevant studies identified in the systematic review all had methodological weaknesses and limited applicability to England. Therefore a new economic model was developed.
- 4.37 Because of a lack of evidence on two of the main health outcomes – oral cancer and periodontal disease – the PHAC accepted that the model should focus on the effects of interventions on dental caries.
- 4.38 As with any modelling exercise undertaken during NICE guideline development, the results are subject to uncertainty and numerous assumptions. For this topic, some members of the PHAC expressed serious concerns about a number of inputs to the model, in particular, the lack of data on the effect of tooth decay on quality of life. The latter meant that the effect on quality of life had to be estimated using a regression analysis, which mapped oral health impact profile (OHIP-14) scores to utility scores (EQ-5D). However, some members felt that neither of these measures captured the effect of different aspects of oral health on quality of life. (For example, they did not capture the effect of the stage and severity of decay, or the effect in terms of the number of teeth affected and where in the mouth.)
- 4.39 The PHAC noted that the long-term impact of interventions on oral

health, including levels of tooth decay and gum disease, is rarely evaluated. No published studies were identified that demonstrate a causal relationship between oral health interventions in very young children and a reduced risk of dental caries throughout life. The lack of evaluation studies meant that, during the economic modelling exercise, a number of the assumptions made were based on professional opinion. For example, oral health professionals generally accept that improving oral health behaviours in young children with primary teeth may reduce their likelihood of experiencing oral disease throughout life. This includes caries and gum disease and the need for surgery for tooth extraction. This is especially true for children from vulnerable groups.

- 4.40 The PHAC was concerned that most interventions identified were for children. Generally, it is considered difficult to accurately measure how children's quality of life is affected by their oral health – making it difficult, in turn, to estimate the cost effectiveness of interventions. Committee members also noted that research is underway to develop a child-centred questionnaire to measure the impact of caries and its related treatment among children aged 5–16 years.
- 4.41 Some committee members felt that the lack of suitable oral health data to input into the model severely limited the conclusions about cost effectiveness. In addition, the use of some non-UK based data was considered to limit the transferability of the findings. Nevertheless, some committee members felt that the scenarios in the sensitivity analyses could be used to determine whether future interventions might be cost effective.

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 duration of effect and cost effectiveness. It also takes into account any harmful or negative side effects.

An important focus of oral health research should be to identify differences in effectiveness among various groups, based on characteristics such as socioeconomic status, age, gender and ethnicity in a range of settings (such as schools or workplaces). It should include studies with sufficient follow-up to consider the long term impact of poor oral health.

Research should include patient-reported outcome measures to assess health and quality of life outcomes as well as clinical and non-clinical outcomes. Examples of clinical outcomes should include dental caries, periodontal health, prevalence of oral cancer and pre-cancer, and non-dental clinical outcomes such as the prevalence of pneumonia and malnutrition in the elderly.

Non-clinical outcomes should include the use of non-dental health and social care services by children and adults, such as numbers admitted to hospital to have teeth taken out, and the effect on independent living such as admissions to care homes, work related effects including sickness absence.

- 5.1 What community-based interventions are effective and cost effective in improving oral health and reducing oral health inequalities among groups of adults at high risk of poor oral health?
- 5.2 What community-based interventions are effective and cost effective in improving oral health and reducing oral health inequalities among groups of children at high risk of poor oral health?
- 5.3 What community-based interventions are effective and cost effective at improving the uptake of, and reducing inequalities in the use of, dental services by groups of adults and children at high risk of poor oral health?
- 5.4 How can healthy habits that promote oral health be supported and

encouraged in families with children at high risk of poor oral health?

- 5.5 What community-based interventions are effective and cost effective in improving dietary habits affecting the oral health of children and adults, and in particular those at high risk of poor oral health?
- 5.6 What is the relative effectiveness and cost effectiveness of the different components of multi-component, community-based oral health improvement programmes?
- 5.7 How cost effective are fluoride varnish programmes and tooth-brushing schemes?

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

6 Glossary

Health inequalities

Health inequalities are the result of a complex and wide-ranging set of factors. These include: material disadvantage, poor housing, low educational attainment, insecure employment and homelessness. People who experience 1 or more of these factors are more likely to have problems with their health. They are also likely to die earlier than average for the rest of the population.

High risk

People at high risk of poor oral health generally live in areas that are described as socially and economically disadvantaged. Local authorities (and other agencies) 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 'Indices of English deprivation 2010' Department for Communities and Local Government (2011).

Parenting programmes

Parenting programmes teach parents and carers how to set effective boundaries and how to reward and praise children and young people in a way that promotes positive relationships and self-esteem. The aim is to improve children and young people's behaviour.

South Asian origin

The phrase 'of South Asian origin' refers to people with ancestral links to Bangladesh, India, Nepal, Pakistan or Sri Lanka.

Targeted approaches

Interventions that adopt a targeted approach may be distinct from, or an adaptation of, a

universal approach. For example, an oral health home visiting service provided by a health visitor for all new parents may be adapted to meet the needs of young parents living in a disadvantaged area. The resulting service may offer longer visits and provide parents with more detail about other health services.

Wider social determinants of health

The wider social determinants of health encompass a range of social, economic, cultural and environmental factors known to be the main causes of poor health and inequalities between – and within – countries. They may include: unemployment, housing, unsafe workplaces, urban slums, globalisation and lack of access to healthcare.

7 References

- Davies GM, Jones CM, Monaghan N et al. (2011) The caries experience of 5 year-old children in Scotland, Wales and England in 2007–2008 and the impact of consent arrangements. Reports of co-ordinated surveys using BASCD criteria. *Community Dental Health* 28: 5–11
- Grossi SG, Genco RJ (1998) Periodontal disease and diabetes mellitus: a two-way relationship. *Annals of Periodontology* 3: 51–61
- Humphrey LL, Fu R, Buckley DI et al. (2008) Periodontal disease and coronary heart disease incidence: a systematic review and meta-analysis. *Journal of General Internal Medicine* 23: 2079–86
- Levine RS, Stillman-Lowe CR (2009) *The scientific basis of oral health education: sixth edition*. London: British Dental Journal
- Mathews D (2008) Is there a relationship between periodontal disease and coronary heart disease? *Evidence-Based Dentistry* 9: 8
- Ortiz P, Bissada NF, Palomo L et al. (2009) Periodontal therapy reduces the severity of active rheumatoid arthritis in patients treated with or without tumor necrosis factor inhibitors. *Journal of Periodontology* 80: 535–40
- Rayner J, Holt R, Blinkhorn F et al. (2003) British Society of Paediatric Dentistry: A policy document on oral health care in preschool children. *International Journal of Paediatric Dentistry* 13: 279–85
- Stewart JE, Wager KA, Friedlander AH et al. (2001) The effect of periodontal treatment on glycaemic control in patients with type 2 diabetes mellitus. *Journal of Clinical Periodontology* 28: 306–10
- Taylor GW (2001) Bidirectional interrelationships between diabetes and periodontal disease: an epidemiological perspective. *Annals of Periodontology* 6: 99–112
- Watt RG and Sheiham A (2012) Integrating the common risk factor approach into a social determinants framework. *Community Dentistry and Oral Epidemiology* 40: 289–96

Xiong X, Buekens P, Fraser WD et al. (2006) Periodontal disease and adverse pregnancy outcomes: a systematic review. *British Journal of Obstetrics and Gynaecology* 113: 135–43

8 Summary of the methods used to develop this guideline

Introduction

The reviews, commissioned reports and economic modelling report 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.

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 programmes and interventions to promote, improve and maintain the oral health of a local community? In particular, what are the most effective and cost-effective approaches for groups of people who are disadvantaged and at high risk of poor oral health?

Question 2: What methods and sources of information will help local authorities identify the oral health needs and severity of oral health problems in their local community?

These questions were made more specific for each review.

Reviewing the evidence

Effectiveness reviews

One review of effectiveness was conducted. See [evidence review 1: review of evidence of](#)

the effectiveness of community-based oral health improvement programmes and interventions.

Identifying the evidence

Several databases were searched in May 2013 for papers published since May 1993 that related to the effectiveness of programmes and interventions aiming to promote, improve and maintain the oral health of a local community. The review included studies from May 2003, with older studies (May 1993–May 2003) used to inform any gaps in the evidence. In addition, the grey literature was searched and supplemental searching was undertaken. See evidence review 1.

Selection criteria

Studies were included in the effectiveness reviews if they covered:

- community based oral health promotion programmes and interventions that aimed to reduce and prevent dental and periodontal disease, oral cancer or other oral disease and promote oral health
- programmes and interventions aimed at children, adults or older people living in the community, including people from disadvantaged populations such as homeless people.

Studies were excluded if they were conducted:

- in a non-Organisation for Economic Cooperation and Development (OECD) country
- with children or adults not living independently in the community, such as those living in residential care, prisons, or hospitals.

See evidence review 1 for details of the inclusion and exclusion criteria.

Other reviews

One review of the barriers and facilitators to implementing community-based oral health programmes was conducted. See evidence review 2: qualitative evidence review of barriers and facilitators to implementing community-based oral health improvement programmes and interventions.

Identifying the evidence

Several databases were searched in May 2013 for qualitative and quantitative studies from May 1993. Studies were included from May 2003, with older studies (May 1993–May 2003) used to inform any gaps in the evidence. In addition, the grey literature was searched and supplemental searching was undertaken. See evidence review 2 for details of the databases searched.

Selection criteria

Studies were included if:

- they described user or provider views of the barriers or facilitators to the implementation, or uptake, of community-based oral health programmes.

Studies were excluded if they:

- were conducted in a non-Organisation for Economic Cooperation and Development (OECD) country
- focused on children or adults living in residential care, prisons, hospitals or other institutions.

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. Where 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, and 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 reviews 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 contractors (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.

Commissioned reports

Oral health needs assessments

A structured review and survey of oral health needs assessments was conducted:

- [Report 1: An overview of oral health needs assessments.](#)

Identifying the evidence

A mixed method approach was undertaken to identify the evidence relating to oral health needs assessment. This included a survey of public health consultants and a structured literature review. For the literature review, a range of databases was searched in June 2013 for studies from June 1946. See report 1 for details of the databases searched.

Selection criteria

Studies were included if they described how oral health needs assessment was carried out among vulnerable groups from a population perspective.

Studies were excluded if they focused on care provision or attitudes to specific treatments.

See report 1 for details of the inclusion and exclusion criteria and quality appraisal methods.

Overview of systematic reviews

An overview of relevant systematic reviews was undertaken to supplement and contextualise the effectiveness review:

- [Report 2: Commentary on selected systematic reviews.](#)

Relevant systematic reviews were identified by the searches undertaken for the effectiveness reviews and by topic experts on the PHAC. These papers were appraised and summarised by a topic expert and described in a short report. See report 2 for details.

Expert papers

Two [expert papers](#) were presented to the PHAC:

- Expert paper 1 'Working with vulnerable adults and older people at greater risk of poor oral health'.
- Expert paper 2 'Overview of the Childsmile programme'.

Cost effectiveness

There was a [review of economic evaluations and an economic modelling exercise](#). See 'Literature review of economic evaluations on oral health improvement programmes and interventions' and 'RX058: Economic analysis of oral health improvement programmes and interventions'.

Review of economic evaluations

The search strategy developed for the effectiveness review ([report 1](#)) was adapted to identify research for the cost effectiveness review.

Eight databases were searched from 1993 onwards. In addition, reference lists of reviews and studies included in the review were scanned to identify any further relevant studies. Citation searches and named author searches were also carried out to identify other publications by the authors of studies selected for inclusion.

Studies were included if they met the inclusion criteria for evidence review 1 and reported on a full economic evaluation with the same populations and interventions. Included studies were then quality-assessed.

Economic modelling

Assumptions were made that could underestimate or overestimate the cost effectiveness of the interventions (see review modelling report for further details).

Due to a paucity of data from the review of economic evaluations, an economic model was constructed to provide an idea of which interventions would be cost effectiveness.

Due to the large number of assumptions that had to be made, rather than report a single incremental cost effectiveness ratio (ICER), the model was used to undertake 2 analyses. Both provided a range of cost-effectiveness estimates. In addition, the probability that an intervention is cost effective in each given scenario was tested.

The results are reported in [RX058: Economic analysis of oral health improvement programmes and interventions](#).

Fieldwork

Fieldwork was carried out to evaluate how relevant and useful NICE's recommendations are for practitioners and how feasible it would be to put them into practice. It was conducted with practitioners and commissioners who are involved in oral health services. They included those working in: early years services, local authorities, the NHS, social care and the voluntary and community sector.

The fieldwork comprised:

- 10 focus groups were carried out in Birmingham, London, Manchester and York by Word of Mouth: 2 groups in Birmingham (total of 26 people); 3 groups in London (total of 29 people); 3 groups in Manchester (total of 37 people); and 2 groups in York (total of 25 people). They involved: local and national commissioners; consultants in dental public health, local authority public health and oral health representatives, people from local professional dental networks and community dentistry; representatives from children and adult social care services; frontline staff working in early years and primary care services; people working in local education authorities and schools; representatives from the local Healthwatch; and from voluntary and community groups.
- One-to-one in-depth telephone interviews with 15 people, carried out by Word of Mouth.

The study was commissioned to ensure there was ample geographical coverage. The main issues arising from the study are set out in [section 9 under fieldwork findings](#). Or see the full [fieldwork report](#).

How the PHAC formulated the recommendations

At its meetings between July 2013 and January 2014, the Public Health Advisory Committee (PHAC) considered the evidence, expert testimony and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of strength and applicability) to form a judgement
- where relevant, whether (on balance) the evidence demonstrates that the intervention, programme or activity can be effective or is inconclusive
- where 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 effect on the target population's health.
- Effect 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.

Where possible, recommendations were linked to evidence statements (see the [section on the evidence](#) for details). Where 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 2 reviews and a report are provided by external contractors (see [supporting evidence](#)).

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

How the evidence and expert papers link to the recommendations

The evidence statements are short summaries of evidence, in a [review, report or paper](#) (provided by an expert in the topic area). Each statement has a short code indicating which document the evidence has come from.

Evidence statement 1.1 indicates that the linked statement is numbered 1 in review 1.

Evidence statement 2.1 indicates that the linked statement is numbered 1 in review 2.

Evidence statement ER 1 indicates that the linked statement is numbered 1 in the expert report 1. **EP 1** indicates that expert paper 1 is linked to a recommendation.

Where 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).

Recommendation1: evidence statements ER 1.1, ER 1.2, ER 1.5; EP 1

Recommendation2: evidence statements ER 1.2, ER 1.3, ER 1.4, ER 1.6; EP 1; EP 2

Recommendation3: evidence statements ER 1.6

Recommendation4: evidence statements ER 1.1, ER 1.2, ER 1.4; EP 1

Recommendation5: EP 2

Recommendation6: evidence statements 2.1, 2.2, 2.9a, 2.9b, 2.11b, 2.12a, 2.12b; EP 1; EP 2

Recommendation7: evidence statements 1.6; 2.3, 2.4, 2.5, 2.6, 2.9c; EP 1; EP 2

Recommendation8: evidence statements 1.21, 1.22; 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9b, 2.10, 2.11a, 2.12a, 2.16; EP 1

Recommendation9: evidence statements 2.3, 2.4, 2.5, 2.6, 2.9c, 2.10, 2.11a, 2.12a, 2.13, 2.14, 2.16; EP 1

Recommendation10: evidence statements 1.20, 1.21, 1.22; 2.3, 2.4, 2.5, 2.6, 2.8, 2.9c, 2.10, 2.11a, 2.12a; EP 1

Recommendation11: evidence statements 1.21, 1.22; 2.3, 2.4, 2.5, 2.6, 2.9c, 2.10, 2.11a, 2.12a; EP 1

Recommendation12: evidence statements 1.6, 1.19; 2.3, 2.4, 2.5, 2.6., 2.7, 2.11a, 2.11b, 2.12b, 2.16; EP 2

Recommendation13: evidence statements 1.3, 1.4, 1.5, 1.6; 2.3, 2.4, 2.5, 2.6, 2.7, 2.11a, 2.11b, 2.12a, 2.12b, 2.16; EP 2

Recommendation14: evidence statements 1.3, 1.4, 1.5, 1.19, 1.22, 1.24, 1.25; 2.3, 2.4, 2.5, 2.6, 2.9a, 2.11a, 2.12a, 2.12b; EP 2

Recommendation15: evidence statements 1.2, 1.4, 1.25; 2.9a, 2.9b, 2.9c, 2.11b, 2.12b; EP 2

Recommendation16: evidence statements 1.2, 1.4, 1.8, 1.14, 1.24, 1.25; 2.9a, 2.9b, 2.9c, 2.11b, 2.12a, 2.12b, 2.16; EP 2

Recommendation17: evidence statements 1.13, 1.14, 1.16, 1.18, 1.25; 2.7, 2.8, 2.11b, 2.12a, 2.12b; EP 2

Recommendation18: evidence statements 1.12, 1.13, 1.14, 1.15, 1.16, 1.18, 1.19; 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9c, 2.11b, 2.12a, 2.12b, 2.13; EP 2

Recommendation19: evidence statements 1.11; 2.9a, 2.9b, 2.9c, 2.11a, 2.11b, 2.12a, 2.12b, 2.13; EP 2

Recommendation20: evidence statements 1.8, 1.14, 1.24; 2.9a, 2.9b, 2.9c, 2.11b, 2.16; EP 2

Recommendation21: evidence statements 1.8, 1.11, 1.14, 1.16, 1.18, 1.24; 2.5, 2.6; EP 2

Cost effectiveness

Review of economic evaluations

The searches returned 4162 unique records. Sixty-three papers were included after title and abstract screening, with 61 retrieved. After applying the eligibility criteria 17 papers were included and 16 were judged partially applicable.

Two of the 16 studies were judged to have minor methodological limitations, (++) , 11 to have potentially serious limitations (+) and 3 to have very serious limitations (-). No study adopted the appropriate perspective for public health studies.

Economic modelling

Originally the economic model was going to assess the cost effectiveness of interventions identified in review 1. The main oral health outcomes to be included were oral cancer, periodontal disease and dental caries. However, due to a paucity of evidence on the first 2 outcomes, the model focused on the effect of interventions on dental caries.

Once built, it became apparent that there were not enough data to input into the model and that expressing the results as single incremental cost effectiveness ratio (ICER) would be of limited value. Instead the model was used to undertake 2 analyses.

The first used additional datasets provided by Public Health England to estimate the risk of poor oral health. It focused on supervised tooth brushing and fluoride varnish programmes in a deprived community of pre-school and school children.

Utilities from studies of otitis media were used as a proxy for the quality of life associated with tooth loss in children. Some members of the PHAC suggested that otitis media, an infection of the middle ear, may reflect the short-term impact of tooth loss. (For example, in terms of the pain, disruption to quality of life, the need for professional care and, in some cases, a surgical intervention.)

The second analysis used sensitivity analyses to explore the uncertainty around the 5 key input parameters:

- intervention costs
- baseline risk of dental caries
- intervention effectiveness (measured as a reduction in relative risk for dental caries)
- loss in quality-adjusted life years (QALYs) from each incidence of dental caries
- cost of treating each one.

The values used for each input are shown below:

- intervention cost per person: £20, £40, £60, £80 and £100
- baseline risk of dental caries: 10%, 20% and 50%
- intervention effectiveness: 0%, 10%, 20%, 30% and 40%
- QALY loss from dental caries: -0.025, -0.05 and -0.1
- cost of treating dental caries: £75, £100 and £125.

Of the 5 inputs, only the cost of treating dental caries did not appear to have a significant impact on the results. In terms of the QALY loss, the greater the QALY loss, the more likely the intervention would be cost effective. Similarly, cheaper or more effective interventions appeared to be more cost effective. For example, interventions costing £20 per person were much more likely to be cost effective compared to those costing £100 per person. Similarly, those that reduce the risk of caries by say 40% were much more likely to be cost effective than those that reduce it by 10%.

The model concluded that to be cost effective, the total cost per child (**not** per child per year) of a fluoride varnish or supervised tooth brushing service needs to be less than around £40. If it costs more than £60 per child it is less likely to be cost effective.

The modelling also showed that these interventions are likely to be most cost effective among children from deprived groups who have a higher risk of caries.

The specific scenarios considered and the full results can be found in [RX058: Economic analysis of oral health improvement programmes and interventions](#).

Fieldwork findings

Fieldwork aimed to test the relevance, usefulness and feasibility of putting the recommendations into practice. The PHAC considered the findings when developing the final recommendations. For details, see [section on fieldwork](#) and the full [fieldwork report](#).

Fieldwork participants who commission and provide services linked to the promotion of oral health for local populations and groups at high risk of oral health were positive about the recommendations. Many stated that the guideline would focus attention and resources on what is an important area of public health.

Many participants also welcomed supervised tooth brushing schemes and fluoride varnish programmes for identified groups. Some expressed a concern that the emphasis on such interventions could potentially undermine the need to encourage self-reliance: that is, to encourage people to develop the skills and habits they need to ensure their own oral health. Some also felt it was unclear whether some interventions were more important than others (especially supervised tooth brushing schemes compared with fluoride varnish programmes).

Participants wanted further details on what could be done to address the needs of adults at high risk of poor oral health and more on the training of frontline staff.

Some terminology in the draft guideline was confusing. For example, use of the term 'low in sugar' alongside 'sugar-free', and it was unclear what differentiated 'higher risk' and 'very high risk' groups. In addition, participants said it was unclear how the guideline would be implemented. They noted the importance of ensuring the recommendations reflect how local authorities plan and deliver oral health promotion activities in the 'real world' to assist implementation.

Overall, practitioners and commissioners said that the recommendations did not offer a new approach, but agreed that the measures had not been implemented universally. They believed more systematic implementation would be achieved if there was information about the relative effectiveness and cost-effectiveness of supervised tooth brushing schemes and fluoride varnish programmes versus other options.

10 Gaps in the evidence

The Public Health Advisory Committee (PHAC) identified a number of gaps in the evidence related to the programmes under examination based on an assessment of the evidence. These gaps are set out below.

1. There is a lack of evidence on the effectiveness or cost effectiveness of community based oral health improvement programmes that aim to promote, improve, and maintain the oral health of adult populations.
2. There is a lack of evidence on the effectiveness or cost effectiveness of community based oral health improvement programmes that aim to promote, improve, and maintain the oral health of groups of people considered at high risk for poor dental health such as people who are homeless, gypsies and travellers, people with mobility difficulties and people with learning disabilities.
3. There is a lack of evidence on the effectiveness or cost effectiveness of individual intervention components within effective multi-component community oral health promotion interventions; and a lack of research on what combinations of components can best improve oral health.
4. There is a lack of primary research evaluating the impact of oral health needs assessments on service delivery, whether actions identified in them become part of an oral health strategy and so lead to changes in service delivery and/or practice.
5. There is a lack of data on the oral health needs of people at high risk of poor oral health to inform oral health needs assessments.
6. There is a lack of evidence on the effect of supervised tooth-brushing schemes for children on the tooth-brushing behaviour of other family members.
7. Research on UK community-based oral health programmes and interventions tend not to provide outcome measures that include periodontal health outcomes or measures that reflect oral health related quality of life.
8. There is a lack of longitudinal research exploring the effectiveness of community-based oral health programmes and interventions on preventing oral cancers.

9. There is a lack of information provided on the set-up and delivery costs of community-based oral health improvement programmes that aim to promote, improve, and maintain the oral health of local communities.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the [NICE topic page on oral and dental health](#).

For full details of the evidence and the guideline committee's discussions, see the [evidence](#). You can also find information about [how the guideline was developed](#), including details of the committee.

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

Update information

Minor changes since publication

February 2022: Minor changes to redirect NICE Pathways links.

September 2018: After a surveillance review some links and information have been updated.

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Accreditation

