

Appendix A: Summary of evidence from surveillance

2018 surveillance of [Oral health: local authorities and partners](#) (2014) NICE guideline PH55

Summary of evidence from surveillance

Studies identified in searches are summarised from the information presented in their abstracts.

Feedback from topic experts who advised us on the approach to this surveillance review, and from stakeholders if public consultation was conducted, was considered alongside the evidence to reach a final decision on the need to update each section of the guideline.

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
<u>Recommendation 1 Ensure oral health is a key health and wellbeing priority</u>		
None	None	None
<u>Recommendation 2 Carry out an oral health needs assessment</u>		
None	None	None

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
<u>Recommendation 3 Use a range of data sources to inform the oral health needs assessment</u>		
None	None	None
<u>Recommendation 4 Develop an oral health strategy</u>		
None	None	None
<u>Recommendation 5 Ensure public service environments promote oral health</u>		
None	One topic expert highlighted the SACN: Carbohydrates and Health report (2015) which reports on health inequalities and sugar consumption. The report has a focus on obesity and recommends that no more than 5% of total dietary energy should come from free sugar. The report also covers the effect of sugar on oral health. However, there is limited available information about the impact of interventions to reduce sugar intake to improve oral health outcomes.	No new evidence was identified that would affect the recommendation. The SACN report confirms the relationship between frequency of sugar intake and the incidence of dental caries. The current recommendation encourages a reduction of sugar intake and states that public service environments should make sugar free food and drinks available.
<u>Recommendation 6 Include information and advice on oral health in all local health and wellbeing policies</u>		
None	One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention . An updated third edition of	No new evidence was identified that would affect the recommendation. The 2017 edition of Delivering better oral health: an evidence-based toolkit for prevention is relevant to the advice given

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	<p>this document was published in 2017 and is intended for primary care dental teams. The 2014 version of the toolkit, with detailed 'advice for patients', is referenced from the NICE guideline PH55 (2014) and indicated as advice that should be provided by health and social care staff working with children, young people and adults at high risk of poor oral health. The updated 2017 toolkit continues to provide advice for patients. It also makes recommendations on 'professional interventions' for the prevention of caries in children and adults. This updated version includes a section on behaviour change. It states healthcare providers, including dental teams, have a role in making every contact count, helping their patients to change behaviour and improve their health and wellbeing. It notes that oral hygiene practices, tobacco and alcohol use, certain dietary practices, the use of fluorides and dental attendance are all important oral health related behaviours.</p>	<p>in this recommendation and cross-reference to this updated version is required.</p>
<p><u>Recommendation 7 Ensure frontline health and social care staff can give advice on the importance of oral health</u></p>		
None	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017. See</p>	<p>No new evidence was identified that would affect the recommendation. The 2 documents identified provide useful information for healthcare professionals which is consistent with the advice given in this recommendation. The 2017 edition of Delivering better oral health: an evidence-based</p>

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	<p>Recommendation 6 for a full summary of the changes.</p> <p>PHE's Child oral health: applying All Our Health (August 2017) provides information for healthcare professionals on population and community interventions. NICE guideline PH55 and NICE guideline NG30 are referred to in this guidance. This guidance is complementary to NICE guideline PH55. It highlights the need to address inequalities in oral health by region and promotion of oral health in the local community.</p>	<p>toolkit for prevention is relevant to the advice given in this recommendation and the cross-reference to this updated version will be revised.</p>
<u>Recommendation 8 Incorporate oral health promotion in existing services for all children, young people and adults at high risk of poor oral health</u>		
None	None	None
<u>Recommendation 9 Commission training for health and social care staff working with children, young people and adults at high risk of poor oral health</u>		
None	<p>One topic expert provided information on the SACN: Carbohydrates and Health report (2015) which supports recommendation 9 in highlighting the role of high sugar diets and its effect on oral health. However there was limited information about the impact of interventions to reduce sugar intake with regard to improving oral health.</p>	<p>No new evidence was identified that would change the recommendation. Recommendation 9 currently advises on the role of high sugar diets and the link to poor oral health, which is complementary to the new sugar guidance highlighted by a topic expert. The recommendation suggests commissioning appropriate training for frontline staff and states that this should be based on the information provided in</p>

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	<p>The topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017. See Recommendation 6 for a summary.</p>	<p>the delivering better oral health toolkit. The link will be updated to the 2017 version of Delivering better oral health: an evidence-based toolkit for prevention. The information provided is consistent with this guideline and no impact is anticipated.</p>
<p><u>Recommendation 10 Promote oral health in the workplace</u></p>		
None	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017. See Recommendation 6 for a summary.</p>	<p>No new evidence has been identified that would affect the recommendation. Delivering better oral health: an evidence-based toolkit for prevention provides useful information for oral and community health services which is consistent with the advice given in this recommendation. The recommendation will link to the updated toolkit as stated in editorial corrections.</p>
<p><u>Recommendation 11 Commission tailored oral health promotion services for adults at high risk of poor oral health</u></p>		
<p>A systematic review and meta-analysis(1) of 9 RCTs reported across 11 studies assessed the effectiveness of psychological and behavioural interventions compared to traditional oral health education or information in adults and adolescents (13 years+) with poor oral health. Reporting in the</p>	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017. See Recommendation 6 for a summary.</p>	<p>Evidence from one study suggests that oral health literacy can be improved through medium intensity interventions. A systematic review of psychological and behavioural interventions, compared with traditional educational approaches, indicated that improvements in oral health outcomes and oral</p>

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<p>abstract did not disaggregate results by age. No significant differences in gingivitis or plaque presence was seen in the meta-analysis. There was also no significant differences when comparing motivational interviewing with education/information in gingivitis presence. The meta-analysis on psychological interventions compared to education found a small but significant difference in plaque index scores. There were also statistically significant differences in favour of psychological interventions for oral health behaviour and self-efficacy in tooth brushing, however the quality of the evidence was categorised as low when assessed with GRADE.</p> <p>An RCT(2) investigated the effect of an oral health literacy intervention for rural dwelling indigenous Australian adults (n=400). The intervention group (n=203) received 5 context specific oral health literacy sessions (1.5 hours each) over a 1 year period; no information was provided on the control condition. The authors report that the number of adults responding that “water with fluoride” was good increased over the one-year period in the intervention group. No significant differences were seen in the mean difference for the other outcomes, between the intervention and control groups over the study period. After multiple imputation was used to replace missing data, the proportion reporting</p>		<p>health behaviour were marginal. These studies provide general support for oral health interventions in adults at risk of poor oral health, which is complementary to this recommendation. However, there is insufficient evidence to suggest updating this recommendation to include these intensive, potentially high resource, interventions.</p> <p>The recommendation already states that evidence based advice should be delivered in line with the delivering better oral health toolkit. The recommendation will link to the updated toolkit as stated in editorial corrections.</p>

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“cordial was good” decreased in the intervention group.		
<p><u>Recommendation 12 Include oral health promotion in specifications for all early years services</u></p> <p><u>Recommendation 13 Ensure all early years services provide oral health information and advice</u></p> <p><u>Recommendation 14 Ensure early years services provide additional tailored information and advice for groups at high risk of poor oral health</u></p>		

<p>Oral health promotion in pregnancy</p> <p>A systematic review(3) of 21 RCTs and observational studies examined the effect of integrating oral health promotion into nursing and midwifery practice (further details of interventions are not provided in the abstract). Eighteen studies reported significant positive outcomes for the interventions including reduction in caries, better oral hygiene habits and increased rates of dental visits.</p> <p>A systematic review(4) of RCTs, clinical trials and review articles (4 studies) examined the efficacy of oral health educational programmes for expectant mothers. Meta-analysis could not be performed however the results of 1 study showed a significant decrease in caries incidence.</p> <p>A systematic review(5) of 7 studies examined the range, scope and impact of oral health promotion interventions during pregnancy. All interventions focused on education and were conducted in pre-natal care settings, with content directed towards infant oral health. Outcomes included knowledge, beliefs, attitudes, self-efficacy, oral hygiene and health seeking behaviour post intervention. All studies except 1 showed significant improvement in 1 of the outcomes post intervention.</p> <p>An RCT(6) (n=160) evaluated the effects of an oral health educational intervention on oral health</p>	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017. See Recommendation 6 for a full summary.</p> <p>They also highlighted the SACN: Carbohydrates and Health report (2015) which reports on health inequalities and sugar consumption. See recommendation 5 for a full summary.</p> <p>One topic expert highlighted the PHE Health matters: child dental health (June 2017) report which outlines how health professionals can help prevent tooth decay in children under 5 as part of ensuring every child has the best start in life. It covers effective interventions for improving dental health and references NICE guideline PH55, Oral health: local authorities and partners. Covering similar topics to NICE guideline PH55, the PHE guidance recommends:</p> <ul style="list-style-type: none"> • Risk factor reduction (lowering sugar intake, general diet and teeth brushing) and what advice should be given to parents. • Health professionals, such as midwives and health visitors, should support and encourage women to breastfeed. They should also give healthy eating advice. <p>PHE's Child oral health: applying All Our Health (August 2017) provides information for healthcare</p>	<p>Oral health promotion in pregnancy</p> <p>Evidence from 3 reviews and 1 RCT suggests oral health education and promotion in pregnancy is effective at decreasing caries incidence and improving oral health related behaviours. The evidence supports recommendation 12 to incorporate oral health promotion into maternity services.</p> <p>Oral health education for children</p> <p>Oral health promotion in the educational or family setting had a beneficial effect on decayed/missing/filled permanent teeth and reduced colonisation by mutans streptococci, based on evidence in 1 study and 1 review. One study showed an improvement on plaque and gingival index when motivational interviewing was introduced. This evidence is consistent with recommendations 12, 13 and 14 which promote oral health education in early years services and services for new mothers. This is also complemented by the information given in PHE's Health matters: child dental health (June 2017) and PHE's Child oral health: applying All Our Health. The information in the SACN: carbohydrates and health report confirms the relationship between frequency of sugar intake and the incidence of dental caries which is supportive of the advice given in recommendation 13. The 2017 edition of Delivering better oral health: an evidence-based</p>
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<p>beliefs and behaviours of women during pregnancy. The intervention group (n=80) received 6 education sessions on oral health issues over 3 weeks, with no sessions for the control group (n=80). The results indicated that scores of beliefs and behaviours were significantly higher after 2 months in the group receiving the education programme.</p> <p>Oral health education for children and parents</p> <p>A Cochrane review (7) of 38 RCTs and observational studies assessed community based oral health interventions in birth to 18 year olds (n=119,789 children in a variety of settings). Meta analyses of the effects of oral health education (OHE) alone on caries (n=3) showed little or no effect on decayed, missing and filled deciduous teeth. The authors found no clear evidence on the most effective time to include enhanced oral health education for children. This review is currently being updated.</p> <p>Children aged 24-36 months were recruited to a study(8) which sought to establish the effect of a family health promotion programme (which included parental counselling) compared to a routine dental health programme. The primary outcome was presence of mutans streptococci. Colonisation with</p>	<p>professionals on population and community interventions. Promotion of breastfeeding and reduction in sugar consumption are also covered. Please see recommendation 7 for a full summary.</p>	<p>toolkit for prevention is relevant to the advice given in this recommendation and will link to the updated toolkit as stated in editorial corrections.</p>

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<p>mutans streptococci was found in only a few children in both the control and intervention group.</p> <p>One RCT(9) assessed the effect of adding motivational interviewing (MI) to oral health education on the oral health status of preschool children (n=222). Both plaque index and gingival index were measured at baseline and 6 months after intervention. The results indicated significant differences between the test and control groups for both plaque index and gingival index.</p> <p>A follow-up of an RCT(10) examined the effect of an oral health prevention intervention on frequency and nature of dental visits up to 7 years (n=277 mothers from the initial RCT of 649, and a comparison group n=277). Data from a questionnaire indicated that children in the trial had an average of 2.2 visits compared to 3.1 in the comparison group. No child in the intervention group of the trial required treatment under sedation compared with 2.9% in the control group and 6.5% in the comparison group.</p> <p>A systematic review(11) (37 studies; 15813 children and adolescents 16 years and under) examined the effect of regular supervised fluoride mouth rinse on caries reduction compared with placebo or no treatment. Duration of intervention was a minimum</p>		

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<p>12 month period. A prevented fraction for decayed/missing/filled permanent surfaces of 27% was seen in 35 studies, and the pooled estimate from 13 studies showed a prevented fraction of 23% for decayed/missing/filled permanent teeth.</p>		
<p><u>Recommendation 15 Consider supervised tooth brushing schemes for nurseries in areas where children are at high risk of poor oral health</u></p>		
<p>A Cochrane review(7) of 38 RCTs and observational studies assessed community based oral health interventions in birth to 18 year olds (n=119,789 children in a variety of settings). Meta analyses of the effects of:</p> <ul style="list-style-type: none"> • Oral health education (OHE) combined with supervised toothbrushing showed a beneficial effect on decayed/missing/filled deciduous teeth (n=5) but showed little effect on decayed/missing/filled surfaces on permanent teeth (DMFS) (n=5) • OHE in an educational setting also showed a very small effect on DMFT (n=2). <p>The authors found no clear evidence on the most effective time to include enhanced oral health education for children. This review is currently being updated and is being tracked for updates.</p>	<p>Intelligence gathering identified the following:</p> <p>The PHE Health matters: child dental health (June 2017) report outlines how health professionals can help prevent tooth decay in children under 5 as part of ensuring every child has the best start in life. It covers effective interventions for improving dental health and references NICE guideline PH55. The PHE guidance recommends targeted supervised toothbrushing to prevent tooth decay and encourage behaviour that promotes good oral health.</p> <p>PHE's Improving oral health: supervised tooth brushing programme toolkit (December 2016) was developed to support commissioning of supervised tooth brushing programmes in early years settings and schools. The toolkit is complementary to NICE guideline PH55. It emphasises issues such as</p>	<p>Evidence from 2 studies showed an intensified supervised tooth brushing scheme was effective at reducing caries increment. Evidence from 1 review showed a positive effect on deciduous but not permanent teeth. Supervised toothbrushing in nurseries was shown to be cost saving in 1 study in a rapid review: Improving the oral health of children: cost effective commissioning. Overall, the new evidence supports the recommendation to consider supervised tooth brushing schemes for nurseries.</p> <p>PHE's report Health matters: child dental health (June 2017) and the Improving oral health: supervised tooth brushing programme toolkit provide supportive information for this recommendation regarding the targeted use of supervised toothbrushing.</p>

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<p>One RCT(12) evaluated the effect of adding biannual fluoride varnish to oral health promotion and tooth brushing (n= 328; 2-5 year old preschool children). Both groups received oral hygiene information and daily supervised tooth brushing with 1000ppm fluoride toothpaste. The intervention group received biannual fluoride varnish applications and the control group received a placebo application. There were no significant differences in the primary outcomes of caries prevalence or increment score, or in the secondary outcomes of gingival health, mutans streptococci or salivary buffer capacity at 1 or 2 years post-intervention.</p> <p>One RCT(13) evaluated the effect of an intensified preventative programme involving daily supervised tooth brushing by specially trained dental nurses (n= 2,228 2-4 year old children) on dental health. The control group received tooth brushing instructions 3-4 times a year. The main intervention took place over 6 months with follow up examinations performed 2 years later. The caries increment was significantly lower in the intervention group compared to the control group.</p>	<p>inequality in oral health between groups. NICE is mentioned in the foreword - publication of key documents, and NICE guideline PH55 is linked. The report echoes the NICE recommendations on page 7: 'To be most cost effective and maximise the return on investment, the toothbrushing programme should be a targeted programme aimed at children in the most disadvantaged communities'. It states 'In this publication PHE recommended supervised tooth brushing in targeted childhood settings' and mentions that 'NICE recommends that targeted supervised tooth brushing programmes may be considered as part of these strategies and action plans'.</p> <p>Improving the oral health of children: cost effective commissioning (PHE 2016). This rapid review has been commissioned by Public Health England (PHE) and undertaken by York Health Economics Consortium (YHEC). The scope of the review was to update the review of economic evaluations which supported development of NICE guideline PH55. The report describes a rapid review of recently published evidence on the cost effectiveness of interventions to improve oral health in children 0-5 years. The reviewers state that the previous review of economic evaluations, undertaken to support NICE guideline PH55 did not identify evidence for supervised tooth brushing. The current PHE review</p>	

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	<p>identified a Scottish cost analysis study that found supervised tooth brushing in nurseries to be cost saving. The authors acknowledge the evidence is drawn from a population level analysis – with uncertainty that the reduction in tooth decay rates between 2001/02 and 2009/10 in 5 year olds were entirely due to the nursery tooth brushing programme.</p>	
<p><u>Recommendation 16 Consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health</u></p>		
<p>One RCT(12) evaluated the effect of adding biannual fluoride varnish to oral health promotion and tooth brushing (n= 328; 2-5 year old preschool children). The intervention group received biannual fluoride varnish applications and the control group received a placebo application. There were no significant differences in the primary outcomes of caries prevalence or increment score. See recommendation 15 for a full summary.</p> <p>An RCT(14) assessed the effectiveness of biannual fluoride varnish on preventing early childhood caries (ECC) (n=275 2-to-3 year olds from non-fluoridated rural areas). Participants received an initial oral health education session along with</p>	<p>One topic expert highlighted the PHE Health matters: child dental health (June 2017) report. This provides information for improving oral health in children under 5. This report was also identified during intelligence gathering. See recommendation 13 for a full summary.</p> <p>Intelligence gathering identified the following:</p> <p>The PHE Health matters: child dental health (June 2017) is summarised above in recommendations 13 and 15. The PHE guidance also recommends targeted community fluoride varnish programmes and notes that the intervention has a positive effect on reducing health inequalities.</p>	<p>Two studies showed that fluoride varnish (FV) did not significantly improve outcomes when used with other interventions (oral health promotion, supervised toothbrushing). The PHE report Improving the oral health of children: cost effective commissioning found mixed evidence on cost effectiveness of FV through nursery settings. Recommendation 16 states that the use of FV should be considered if supervised toothbrushing is not feasible. Given the mixed evidence and uncertainty around the benefit of FV, the new evidence offers some support to the recommendation to ‘consider’ FV when supervised toothbrushing is not feasible.</p>

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<p>delivery of a new toothbrush and toothpaste at base line and 4 follow up visits. Participants received either fluoride varnish or a placebo application every 6 months, with dental assessments at 6, 12, 18 and 24 months. There was no significant difference seen between the intervention and control groups over a 24 month period. The authors reported the secondary outcome of an increase in caries measured as decayed/missing/filled deciduous teeth was lower in the intervention group (1.6) than the control (2.1).</p>	<p>Improving the oral health of children: cost effective commissioning (PHE 2016) describes a rapid review of recently published evidence on the cost effectiveness of interventions to improve oral health in children 0-5 years. Three studies were identified on community-based fluoride varnish programmes in early years. The previous PHE review identified 2 studies from USA. The current PHE review identified 3 papers (also USA). Two of the new papers provided opposing results regarding cost savings, whereas the third did not report on cost effectiveness of the varnish component.</p>	<p>The PHE Health matters: child dental health notes that community FV programmes have a positive effect on reducing health inequalities which is consistent with this recommendation.</p>
<p><u>Recommendation 17 Raise awareness of the importance of oral health, as part of a 'whole-school' approach in all primary schools</u></p>		
<p>A systematic review(15) of 4 RCTs (n=2,302, 4-12 year olds) assessed the effects of school based interventions aimed at changing toothbrushing habits and controlling sugar snacking. One small study included the primary outcome of caries development and reported a prevention fraction of 0.65 in the intervention group although this was not significant. A significant reduction in plaque was seen in the 3 studies that reported plaque outcomes, however 2 of these also included a home based component. One study reported on the</p>	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. An updated third edition of this document was published in 2017 (see recommendation 6 for further information).</p>	<p>Evidence from 2 systematic reviews suggests that plaque levels can be decreased by delivering school based oral health interventions. The new evidence supports the recommendation to promote oral health in primary schools. One RCT found the use of flashcards and game based learning improved oral health knowledge and practice in the short term.</p> <p>The 2017 edition of Delivering better oral health: an evidence-based toolkit for prevention is relevant to</p>

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<p>secondary outcome measure of children's oral health knowledge and stated there was an improvement.</p> <p>A systematic review(16) evaluated the effectiveness of oral health education in schools. Twelve clinical trials were included, covering children aged 5-18 years (results were not disaggregated by age). A reduction in plaque levels was seen in 5 studies, but the 2 studies on gingivitis found no effect.</p> <p>An RCT(17) compared the effect of flash cards (control group) versus game based teaching (intervention group) on the knowledge and practice of oral hygiene among 8-10 year olds (60). The results from both groups indicated a significant increase in oral hygiene score and a decrease in debris score after 1 week and 1 month post intervention. At 3 months post intervention both groups showed a decrease in oral hygiene scores compared to baseline assessments which may indicate that this intervention is only beneficial in the short term. However a significantly better mean increase in knowledge score was seen for the intervention group at 3 months post intervention.</p>		<p>the advice given in this recommendation and will link to the updated toolkit as stated in editorial corrections.</p>

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<p><u>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</u></p>		
<p>None</p>	<p>One topic expert highlighted that the recommendation links to the 2014 version of Delivering better oral health: an evidence-based toolkit for prevention. See recommendation 6 for a summary.</p>	<p>No new evidence was identified relating to this recommendation. However, the 2017 edition of Delivering better oral health: an evidence-based toolkit for prevention is relevant to the advice given in this recommendation and will link to the updated toolkit as stated in editorial corrections.</p>
<p><u>Recommendation 19 Consider supervised tooth brushing schemes for primary schools in areas where children are at high risk of poor oral health</u></p>		
<p>A systematic review(18) of controlled trials assessed the effects of supervised toothbrushing in children and adolescents (ages not specified) on caries incidence. Four trials were included, 2 of which significantly favoured supervised toothbrushing. However a meta-analysis could not be performed due to the clinical heterogeneity among the included studies. Note: the abstract does not disaggregate the findings by age group.</p> <p>A cluster randomised study(19) assessed the 3 month efficacy of a school based programme involving supervised toothbrushing. Four schools participating in the programme were randomly</p>	<p>Intelligence gathering identified the following:</p> <p>PHE's Improving oral health: supervised tooth brushing programme toolkit (December 2016) recommends targeted supervised toothbrushing in school settings, particularly for the most disadvantaged children. Please see recommendation 15 for a full summary.</p>	<p>Evidence from 1 systematic review and 1 cRCT suggests that supervised toothbrushing may be effective at reducing plaque and caries incidence in children. The guideline recommends that commissioners should consider supervised toothbrushing schemes in primary schools. The evidence does not suggest that the recommendation should be changed at this time. The information given in PHE's Improving oral health: supervised tooth brushing programme toolkit is relevant to the advice given in recommendation 19.</p>

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<p>selected for inclusion (n=200 children) and 1 school which did not participate in the programme acted as the control (n=50). The results indicate significantly higher mean percentage differences for healthy gingival units and plaque free surfaces in the intervention group compared with the control group.</p>		
<p><u>Recommendation 20 Consider fluoride varnish programmes for primary schools in areas where children are at high risk of poor oral health</u></p>		
<p>Two studies(20,21) report on 1 RCT which compared the clinical and cost effectiveness of fissure sealants (FS) to fluoride varnish (FV) in first permanent molars (FPM) of 6-7 year old children (n=1,015). A mobile dental clinic (MDC) in schools was used to apply either FS or FV to children biannually over a 3 year period. The results indicate no significant differences between FV and FS when caries into the dentine layer of the tooth on 1 or more FPM and DFMT/S was assessed. A small but statistically significant difference in the cost of the 2 treatments was seen in favour of FV. Both treatments were acceptable to the children based on qualitative interviews performed after each treatment.</p> <p>A cluster-RCT(22) compared a tribally delivered oral health promotion intervention (INT) to usual care (UC) in Navajo caregiver-child dyads</p>	<p>None</p>	<p>The new evidence suggests that FV is cheaper and as clinically effective compared to FS, however the abstract does not confirm that the children in the study were categorised as high risk. One cRCT which studied the impact of FV among children at high risk of poor oral health found no benefit above usual care.</p> <p>Evidence from 1 RCT found that a SBDS programme was effective in reducing the risk of new caries in children. This evidence indicates that dental sealants could be used instead of fluoride varnish however 1 large UK RCT reported that they were more expensive when compared to FV. There is not enough evidence to make new recommendations for FS at the present time.</p>

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<p>(n=1,016). INT was a highly personalised set of interactions (5 for children, 4 for caregivers) plus 4 fluoride varnish applications for children delivered in classrooms over 2 years. The results showed an increase in decayed, missing and filled tooth surfaces in both groups and an increase in caries prevalence although oral health knowledge scores improved in both groups.</p> <p>Two papers(29,30) reported on 1 RCT(30) which assessed the effectiveness of school-based dental sealant (SBDS) programme in children ages 6-7 years from low-income backgrounds in France (n=276). The intervention group received resin based sealant with fluoride and the control group no treatment. Baseline assessments were performed with teeth examined for active caries, visible plaque, Streptococcus mutans (SM) and Lactobacillus counts to determine individual caries risk (ICR). Following an adjusted analysis the results indicate less risk of developing new caries in first permanent molars in the intervention group at 1 year post intervention. When the results only included participants with active caries or high SM count, the effect of sealants became significant indicating that SBDS may be effective in this population.</p>		<p>Mouth rinse</p> <p>One study showed a reduction in caries when a fluoride rinse was used in a school setting. This study is appropriate to this age group regarding introducing specific schemes for high risk children, however further evidence would be needed to consider adding to the recommendation to include information on supervised fluoride mouth rinse in these settings.</p> <p>Although the evidence is mixed, on balance it supports the guideline which recommends that commissioning partners should consider the use of fluoride varnish in children at high risk of poor oral health.</p>

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<p>Mouth rinse</p> <p>A systematic review(11) (37RCTs and quasi-RCTs; n=15813 children and adolescents 16 years and under) examined the effect of regular supervised fluoride mouth rinse on caries reduction compared with placebo or no treatment over a minimum 12 month period. A prevented fraction for decayed/missing/filled permanent tooth surfaces (D(M)FS) of 27% (percentage of cases prevented) was seen across 35 studies, and the pooled estimate from 13 studies showed a prevented fraction of 23% for decayed/missing/filled permanent teeth (D(M)FT).</p>		
<p><u>Recommendation 21 Promote a 'whole school' approach to oral health in all secondary schools</u></p>		

Motivational interviewing

An RCT(23) evaluated the effectiveness of improving adolescent's oral health by motivational interviewing (MI) (n=512 adolescents). Participants from school clusters were assigned to 3 groups, current health education (I), MI (II), and MI with interactive dental caries risk assessment (III). A questionnaire was completed at baseline, 6 and 12 months on oral health behaviour and self-efficacy, with dental caries (DMFS/T) and oral hygiene (dental plaque score). The authors reported subjects in groups II and III were more likely to reduce their snacking habits and increase their tooth brushing frequency compared to group I. The authors found that group II and III had a lower number of new carious teeth when using group I as a reference point, and concluded that MI was more effective than prevailing health education.

Oral health education

A systematic review and meta-analysis(16) was undertaken to evaluate the effectiveness of oral health education in schools. Twelve studies were included, covering children aged 5-18 years (results were not disaggregated by age). A reduction in plaque levels was seen in 5 studies, and the 2 studies on gingivitis found no effect. The review indicates that traditional oral health education activities were effective in reducing plaque but not

One topic expert highlighted that the recommendation links to the 2014 version of [Delivering better oral health: an evidence-based toolkit for prevention](#). An updated third edition of this document was published in 2017. See Recommendation 6 for a full summary.

Motivational interviewing

One study showed motivational interviewing may improve oral health related activities and reduce the number of new caries. This study does not describe who would deliver this intervention and what the associated costs would be and as such further information would be required before we would consider updating the guideline in this area.

Oral health education

Evidence from 3 studies suggests oral health education improves oral cleanliness and may reduce dental plaque in the short term which is consistent with the information given in recommendation 21.

Use of products

Evidence from 2 studies indicates that fluoride varnish did not improve prevalence of dental caries, although 1 study saw an improvement in enamel caries. A third study saw an improvement in dental plaque and oral bacteria colonisation when a salt water or chlorhexidine mouth rinse was used daily. This recommendation does not currently mention specific interventions, and instead focuses on a generalised approach to oral health in secondary schools. The current evidence on the benefit of specific interventions is inconsistent and further evidence would be required to verify the accuracy

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
<p>gingivitis, however there was a lack of long term evidence.</p> <p>A cluster randomised trial(24) evaluated a social-cognitive theory-guided oral health intervention in 15-16 year olds (n=197). The intervention group received 3 dentist facilitated educational sessions, and both groups received dental plaque level assessments at baseline, post intervention, 6 and 12 months. At 6 months significantly less dental plaque was seen in the intervention group. There were no significant differences between groups at 12 months.</p> <p>A cluster RCT(25) investigated the efficacy of improving oral self-care skills (OSC-S) and oral self-care practice (OSC-P) with professional dental instruction by measuring percentage oral cleanliness (n=206 15-16 year olds). The control group received 1 session (usual care) and the theory-based intervention group 5 sessions. Percentage oral cleanliness scores were taken at baseline, 6 and 12 months to measure OSC-S and OSC-P outcomes and these correlated significantly; theory-guided intervention was superior to the conventional dental instruction to improve oral self-care.</p>		<p>of the results. The 2017 edition of Delivering better oral health: an evidence-based toolkit for prevention is relevant to the advice given in this recommendation and cross-reference to this updated version is required.</p>

Use of products

A school based RCT(26) compared salt water mouth rinse to chlorhexidine by examining dental plaque and oral microbial count (n=30 children). Baseline DMFS, defs and plaque scores were recorded for the intervention group (salt water rinse) and control group (chlorhexidine rinse). Rinsing was performed for 5 days under supervision from a co-investigator. Microbial analysis was performed after the baseline assessments and after the fifth day of mouth rinse. The authors report a statistically significant reduction in plaque scores was seen in both groups. Salt water rinse was as effective in reducing plaque and some bacterial counts as chlorhexidine.

An RCT(27) evaluated the use of 2 fluoride varnish products in 12-16 year olds in a low caries prevalence area (n=1,143). Two groups tested biannual fluoride varnish application, a third group had quarterly varnish application, and the fourth had no school based varnish application. The authors report no statistically significant differences at either baseline or after 3.5 years in prevalence of caries amongst the groups.

Four schools were randomised to 1 control and 1 intervention group in this study(28) (to investigate a school based oral health intervention programme (n=534; 12-16 year olds). This study investigated

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
<p>the influence of the programme on adolescents' caries incidence, and knowledge and attitudes to oral health and tobacco. The intervention group had 2 dental hygienist work at their school for 4 hours per week over 2 years, including fluoride varnish every 6 months and health education sessions. An impact on the incidence of enamel caries but not dentine caries was seen, as measured by bitewing radiographs, and results from questionnaires showed that they pupils viewed their teeth as important, with the intervention group showing better knowledge than the control group.</p>		
<p><u>Research recommendation 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?</u></p>		
<p>Evidence on the use of silver diamine fluoride (SDF) (33) in the elderly was found, this would be instead of fluoride varnish in this population, who are at high risk of poor oral health.</p>	<p>None</p>	<p>This study found that SDF was effective at preventing arresting root caries in this age group, who are often at high risk of poor oral health. As this research recommendation covers all age groups at risk of poor oral health it has been retained to be considered at the next surveillance point.</p>
<p><u>Research recommendation 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?</u></p>		

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
<p>Evidence on community interventions, dental hygienists in schools education in expectant mothers, game based teaching, fluoride gels(34), fluoride varnish, fluoride varnish products, motivational interviewing, oral self-care information and oral self-care skills, school based sealants, xylitol chewing gum and xylitol gummy bears was found. The evidence on fluoride gels concerns the use of gels as a caries-preventive intervention. The results show a caries-inhibiting effect into the permanent dentition level of the tooth following application of the fluoride gel.</p>	None	This new evidence does not fully address the research recommendation and as such it will be considered again at the next surveillance point.
<p><u>Research recommendation 3:</u> 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?</p>		
<p>Evidence on oral self-care was found.</p>	None	This new evidence does not fully address the research recommendation and as such it will be considered again at the next surveillance point.
<p><u>Research recommendation 4:</u> How can healthy habits that promote oral health be supported and encouraged in families with children at high risk of poor oral health?</p>		
<p>Evidence on dental hygienists in schools and game based teaching was found.</p>	None	This new evidence does not fully address the research recommendation and as such it will be considered again at the next surveillance point.

Summary of new evidence from 2018 surveillance	Intelligence gathering	Impact
Research recommendation 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?		
None	None	None
Research recommendation 6: What is the relative effectiveness and cost effectiveness of the different components of multi-component, community-based oral health improvement programmes?		
None	None	None
Research recommendation 7: How cost effective are fluoride varnish programmes and tooth-brushing schemes?		
Evidence on fluoride varnish products , supervised toothbrushing , fissure seal and varnish , fluoride varnish in rural areas , intensified preventative programmes and a review of supervised toothbrushing was found.	None	This new evidence does not fully address the research recommendation and as such it will be considered again at the next surveillance point.

Editorial corrections

During surveillance of the guideline we identified the following issues with the NICE version of the guideline that should be corrected.

Links that do not work, go to a different location or need the name updating:

- Recommendations:
 - Recommendation 4: hyperlink for the glossary term [high risk](#) gives the result: page not found. This hyperlink will be updated to this: [high risk](#)

- Recommendation 4: The hyperlink for the NICE glossary term [targeted approaches](#) is broken and gives the result: page not found. This hyperlink will be updated to this: [targeted approaches](#)
- A cross-reference is made to the Department of Health and PHE’s ‘Delivering better oral health: an evidence-based toolkit for prevention’ (2014). This publication has been updated and cross-references will be updated accordingly to [Delivering better oral health: an evidence-based toolkit for prevention](#) (2017, 3rd edition). Links from Recommendations 6, 9, 10, 11, 13, 17 and 21 will be updated accordingly, with information from the 2017 third edition referenced.
- Recommendation 10: A cross-reference to the NICE pathway ‘Smoking cessation in the workplace’ is broken. The hyperlink will be updated with a cross-reference to the NICE pathway [Stopping smoking in the workplace](#).
- Recommendations 4, 14 and 17 cross-refer to [Community engagement](#) NICE guideline PH9. These links will be replaced with a cross-reference to the updated [Community Engagement](#) NICE guideline NG44.
- Rec 17 cross-refs to [Standards for school food in England](#) which is a broken link. The cross-reference will be updated with a link to Department for Education’s [Standards for school food in England](#) (2016).
- Context section:
 - The section headed ‘Improving the oral health of local populations’ contains the following link: [Valuing people’s oral health: a good practice guide for improving the oral health of disabled children and adults](#) Which goes to the home page for: PHE South East: advice, support and services. This publication has now been archived and was likely removed from the PHE south East page. This is the correct link for this publication: [Valuing People’s Oral Health: A good practice guide for improving the oral health of disabled children and adults](#)
 - The section headed ‘the role of local authorities in improving oral health’ contains a link to [Securing excellence in commissioning primary care](#) which takes you to a page from NHS England: primary care resources and commissioning page containing several commissioning documents. This publication has now been archived. The correct link is [Securing excellence in commissioning primary care](#).
 - The section headed ‘delivering better oral health toolkit’ mentions that the toolkit was published in 2014. The link now goes to the updated 2017 version and this text needs updating to [Delivering better oral health: an evidence-based toolkit for prevention](#) (3rd edition). Box 1 is an extract from this PHE guidance and the information within in needs updating to the 2017 version. This has been highlighted by a topic expert as the new alcohol guidance from the CMO has changed and as such, PH55 displaying the 2014 version is giving contradictory information.
- Overview of systematic reviews

The evidence reviews for this guideline are located in the ‘history tab’. They will be moved to the ‘evidence tab’. All links correctly go to the ‘evidence tab’. The following reviews need to be moved:

- Cost effectiveness: [review of economic evaluations and an economic modelling exercise](#)
- Economic modelling: [RX058: Economic analysis of oral health improvement programmes and interventions.](#)
- [RX058: Economic analysis of oral health improvement programmes and interventions.](#)
- 'about this guideline'
 - Implementation: [Public health outcomes framework for England 2013 to 2016](#). Gov.uk page not found. A new version has been published: [Public health outcomes framework 2016 to 2019](#)

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