



17 November 2016

Agenda Item: 3

Children's Trust Board Sponsor: Dr Kate Allen

DENTAL PUBLIC HEALTH IN NOTTINGHAMSHIRE

Purpose of the Report

1. To provide the Board with an update on the dental health of children and young people in Nottinghamshire.
2. To request agreement of the Board that it receives information in order to inform considerations of appropriate oral health interventions for the future.

Information and Advice

Background

3. Oral health is an integral part of overall health. Poor oral health causes pain, infections and impaired nutrition and can affect the ability to sleep, eat and speak. It also places a significant cost on the NHS, with estimated spending of £3.4 billion per year on dental care (in addition to an estimated £2.3 billion on private dental care)¹.
4. The World Health Organisation defines oral health as a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking and psycho-social wellbeing². The risk factors for poor oral health – diet, smoking, alcohol use, hygiene, stress and trauma – are the same as those for many chronic conditions³.
5. While oral health in England has improved significantly across the population as a whole over recent decades, marked inequalities persist. People living in deprived communities consistently have poorer oral health than people living in richer communities. Some vulnerable groups also have worse oral health, including those with physical or mental disabilities, older people, those who are

¹ NHS England – Improving dental care and oral health: a call for action (2014)

² <http://www.who.int/mediacentre/factsheets/fs318/en/>

³ Watt and Sheiham (in Community Dentistry and Oral Epidemiology 40: 289-96) - Integrating the common risk factor approach into a social determinants framework (2012)

or have been in care and people from some black and minority ethnic groups, for example people of South Asian origin^{4,5}.

6. Tooth decay is the most common oral disease affecting children and young people in England, yet it is largely preventable. When children have toothache or need treatment, this can affect their ability to learn and may mean repeated absence from school. While children's oral health has improved over the last 20 years, 11.7% of three year olds (measured in 2013) and a quarter (24.7%) of five year olds (measured in 2015) in England still had experience of tooth decay⁶. In 2013, the national Child Dental Health Survey demonstrated that nearly half (46%⁷) of 15 year olds had "obvious decay experience"⁸ in their permanent teeth. Tooth decay was also the most common reason for hospital admissions in children aged five to nine years old in 2013/14⁹ (for specialist care and tooth extractions under general anaesthetic).
7. The national Children's Oral Health Improvement Board, launched in September 2016¹⁰ has the ambition that "every child grows up free from tooth decay as part of every child having the best start in life". The Board's objectives are to ensure:
 - Child oral health is on everyone's agenda
 - The early years and dental workforce have access to evidence based oral health improvement training
 - Oral health data and information is used to the best effect by all key stakeholders
 - All stakeholders use the best evidence for oral health improvement
 - Child oral health improvement information is communicated effectively

Increased use of fluoride on the teeth and a reduction in the amount of sugar consumed could mean:

- Fewer general anaesthetics for tooth decay
- Fewer sleepless nights, missed school days and days off work for parents
- Less pain from tooth decay
- Reductions in the number of children with tooth decay
- Reduction in the oral health gap for disadvantaged families.

⁴ The phrase 'of South Asian origin' refers to people with ancestral links to Bangladesh, India, Nepal, Pakistan or Sri Lanka.

⁵ National Institute for Health and Care Excellence – Oral health: approaches for local authorities and their partners to improve the oral health of their communities (2014)

⁶ Public Health England - Oral health survey of five year old children: a report on the prevalence and severity of dental decay (2015); Oral health survey of three year old children: a report on the prevalence and severity of dental decay (2014)

⁷ Health & Social Care Information Centre - Children's Dental Health Survey (2013)

⁸ Obvious decay experience includes untreated decay requiring fillings or tooth extraction, as well as fillings and teeth lost because of decay.

⁹ Public Health England & Local Government Association – Tackling poor oral health in children (2016)

¹⁰<https://www.gov.uk/government/news/launch-of-the-childrens-oral-health-improvement-programme-board>

8. National Institute for Health and Care Excellence (NICE) guidelines recommend that oral health should be a core component of joint strategic needs assessments and health and wellbeing strategies¹¹. In addition, local authorities are statutorily required to provide or commission oral health promotion programmes to improve the health of the local population, to an extent that they consider appropriate in their areas¹². They are also required to provide or commission oral health surveys.
9. These surveys are carried out as part of the Public Health England (PHE) Dental Public Health Intelligence Programme¹³ (formerly known as the NHS Dental Epidemiology Programme), which involves specially trained dentists and nurses performing a dental examination using a standardised procedure. The programme supports the collection, analysis and dissemination of robust information on the oral health needs of local populations and has historically focused on children.

The local picture

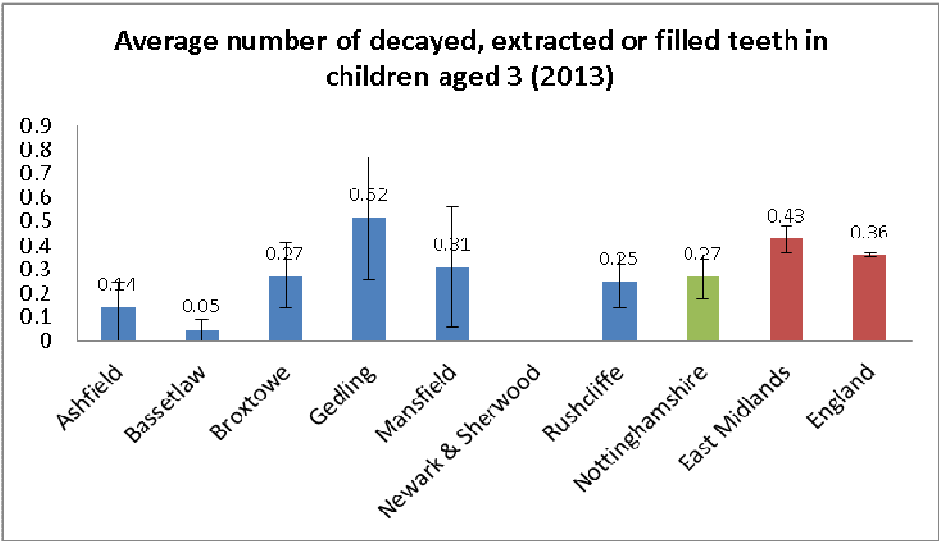
10. Severity of tooth decay is typically reported as the average number of children's teeth showing signs of having been affected by decay when the child was examined - whether the teeth are actively decayed at the time or have previously been filled or extracted. As can be seen in the graphs below (Figures 1 & 2), most recent data shows that Nottinghamshire has levels of decay in three and five year old children that are lower than the average for the East Midlands and England, though there is variation across the county.
11. Tooth decay is already apparent in some local children by the age of three - of the 913 three year olds who were examined in the 2013 programme in Nottinghamshire, the average number of teeth per child affected by decay (decayed, extracted or filled teeth (dmft)) equated to 0.27 teeth. 1,413 five year olds were examined in the 2015 programme and the average number among this cohort was slightly higher at 0.61 teeth.

¹¹ National Institute for Health and Care Excellence - Oral health: approaches for local authorities and their partners to improve the oral health of their communities (2014)

¹² NHS Bodies and Local Authorities (Partnership Arrangements, Care Trusts, Public Health and Local Healthwatch) Regulations Statutory Instrument SI3094 (2012)

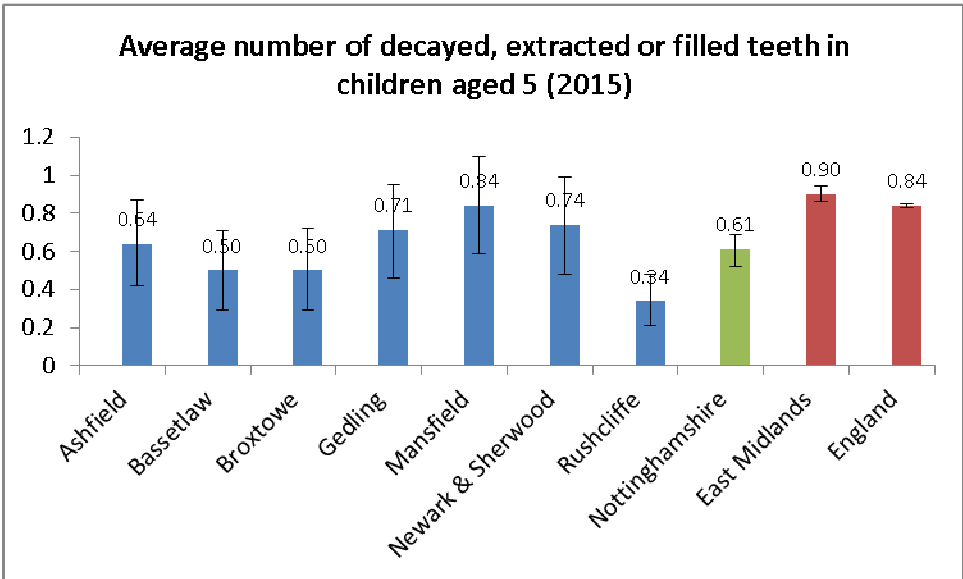
¹³ <http://www.nwph.net/dentalhealth/>

Figure 1



Source: PHE Dental Public Health Intelligence Programme: [http://www.nwph.net/dentalhealth/survey-results%203\(12_13\).aspx](http://www.nwph.net/dentalhealth/survey-results%203(12_13).aspx) ; 95% confidence intervals are indicated by the vertical lines; Newark & Sherwood district did not take part in this survey

Figure 2

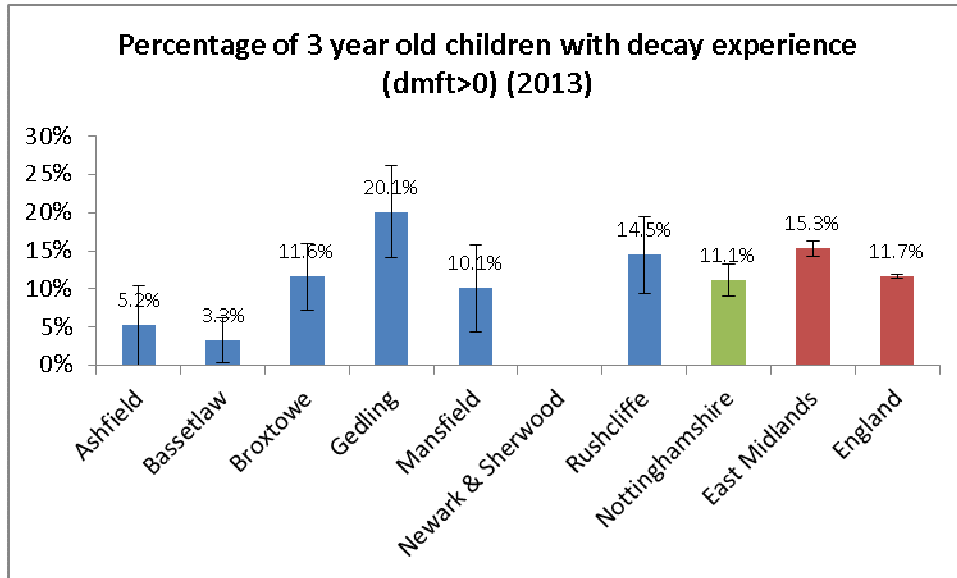


Source: PHE Dental Public Health Intelligence Programme: [http://www.nwph.net/dentalhealth/survey-results%205\(14_15\).aspx](http://www.nwph.net/dentalhealth/survey-results%205(14_15).aspx) ; 95% confidence intervals are indicated by the vertical lines

12. Data from the same survey (Figures 3 & 4) indicates that more than one in ten (11.1%) three year olds and a fifth of five year olds (21.0%) in Nottinghamshire have experience of tooth decay. While this compares favourably against regional and national averages, variation among districts shows that, for example, three year olds in Gedling have decay experience significantly higher than the national average, while their peers in Ashfield and Bassetlaw score

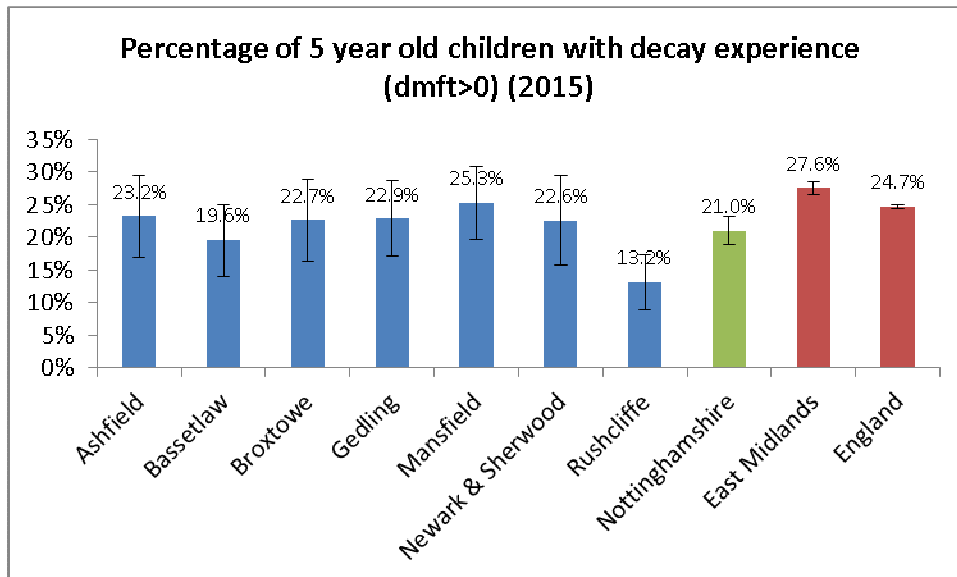
significantly lower. Among five year olds there is less variation - no districts are significantly higher than the national average, and only Rushcliffe is significantly lower. However, even within a geographical area, decay experience is not evenly distributed amongst the children with disease, with a small proportion of children carrying the greatest burden of decay.

Figure 3



Source: PHE Dental Public Health Intelligence Programme: [http://www.nwph.net/dentalhealth/survey-results%203\(12_13\).aspx](http://www.nwph.net/dentalhealth/survey-results%203(12_13).aspx); 95% confidence intervals are indicated by the vertical lines; Newark & Sherwood district did not take part in this survey; 'dmft' = decayed, extracted or filled teeth

Figure 4



Source: PHE Dental Public Health Intelligence Programme: [http://www.nwph.net/dentalhealth/survey-results%205\(14_15\).aspx](http://www.nwph.net/dentalhealth/survey-results%205(14_15).aspx); 95% confidence intervals are indicated by the vertical lines; 'dmft' = decayed, extracted or filled teeth

13. While only one survey has been conducted of three year old children to date, (so no trend data is available), the direction of travel for five year olds in Nottinghamshire over the course of the 2008, 2012 and 2015 surveys has been positive in every borough/district except Mansfield and Ashfield.
14. In 2014, for the first time the PHE Dental Public Health Intelligence Programme carried out a survey of five and 12 year olds who attend special schools in England. The survey evidenced that the dental health of five year old children attending special schools in the East Midlands is better than that for England - 15% of five year olds have experience of dental decay (England 22%), with an average 0.48 teeth affected by decay (England 0.88 teeth). However, caution is urged when interpreting these findings as the sample size is based on a relatively small number of children and insufficient five year olds were examined in Nottinghamshire to be able to provide a valid estimate.
15. In terms of 12 year old children in special schools, 21 in Nottinghamshire were able to complete the examination, of whom 19% had experience of dental decay. This is lower than the prevalence of decay in 12 year olds across England (29%) and the East Midlands (34%). The average number of teeth affected by decay in 12 year olds in Nottinghamshire is 0.76, which is higher than the England average of 0.69, but lower than the East Midlands (0.90). This data is also based on a small sample size, so caution should again be applied when interpreting this data.

Water fluoridation in Nottinghamshire

16. Fluoride is a naturally occurring mineral found in water in varying amounts and is also present in some food. During the early twentieth century, lower levels of tooth decay were found to be associated with certain fluoride levels in drinking water. This observation ultimately led to water fluoridation schemes, which adjust levels of the mineral in community water supplies in an effort to reduce tooth decay and narrow oral health inequalities. Currently, around six million people in England live in areas with fluoridation schemes, many of which have been operating for over 40 years¹⁴. Water fluoridation is permitted in legislation by Parliament, with decisions made at a local level. The Health and Social Care Act 2012 returned responsibility for those decisions to local authorities with public health responsibilities.
17. In Nottinghamshire, water fluoridation arrangements date back to the 1970s and serve around 300,000 people in parts of Ashfield, Bassetlaw and Mansfield, including the towns of Harworth, Kirkby, Mansfield, Rainworth, Sutton, Warsop and Worksop. Due to water distribution arrangements, some of these areas receive blended water from both fluoridated and non-fluoridated supplies. At present, Public Health England meet the capital costs of the scheme and recovers the operating costs from Nottinghamshire County Council in their public health role. This currently costs Nottinghamshire County Council approximately £135K annually.

¹⁴ Public Health England – Water fluoridation: health monitoring report for England 2014

18. The possible effects of fluoride in water have been extensively studied and reviewed across the world over the last 50 years. PHE, on behalf of the Secretary of State for Health, is required to monitor the effects of water fluoridation schemes on the health of people living in the areas covered in England. In its most recent report *Water fluoridation: health monitoring report for England 2014*, assurance is given that water fluoridation is a safe and effective public health measure. Findings include the following:
- **Dental health of children** - when deprivation and ethnicity (important factors for dental health, as mentioned above) are taken into account, five year olds in fluoridated areas are 28% less likely to have had tooth decay than those in non-fluoridated areas and 12 year olds are 21% less likely.
 - **Dental health inequalities** - reduction in tooth decay in children of both ages in fluoridated areas appears greatest amongst those living in the most deprived local authorities.
 - **Hospital admissions** - in fluoridated areas there are 45% fewer hospital admissions of children aged one to four for tooth decay (mostly for extraction of decayed teeth under a general anaesthetic) than in non-fluoridated areas.
 - **Dental fluorosis** (mottles or flecks on teeth caused by fluoride) - a previous study of fluoridated Newcastle upon Tyne and non-fluoridated Manchester found that the number of 12 year old children with moderate dental fluorosis or more¹⁵ is very low, at around 1% in Newcastle and 0.2% in Manchester. Children in Newcastle are therefore more likely than children in Manchester to develop fluorosis of any level, but have less tooth decay.
 - **Non-dental health indicators** - there is no evidence of a difference in the rates between fluoridated and non-fluoridated areas of hip fractures, Down's syndrome and all types of cancer. There is evidence that the rate of kidney stones and bladder cancer is lower in fluoridated areas than non-fluoridated areas¹⁶.

Consideration of changes to water fluoridation in Nottinghamshire

19. The Children's Trust Executive received a presentation of a previous version of this paper at their last meeting. The Executive was supportive of water fluoridation and requested that further information be included for the Children's Trust Board on the process that would be followed if changes to fluoridation in the County were to be considered. This is set out below.
20. Water fluoridation sits within the context of local oral health needs and as part of a range of interventions to improve oral health. An oral health needs assessment for Nottingham City and Nottinghamshire is currently underway to determine the need for oral health interventions and provide options that could meet local requirements. This will inform the development of an oral health

¹⁵ Fluorosis score of TF4 and above (Thylstrup-Fejerskov (TF) Index ranges from 0-9 – a low score is better)

¹⁶ PHE stresses that although these lower rates are interesting, conclusions from their report cannot be drawn regarding any causative or protective role of fluoride; similarly, the absence of any associations does not provide definitive evidence for a lack of a relationship.

strategy that identifies the agreed local approach to oral health improvement, and may or may not recommend changes to current fluoridation arrangements.

21. Most water boundaries, of companies and of local supply systems within companies, rarely match local authority boundaries. Water systems are increasingly covering larger areas. Almost all fluoridation schemes cover more than one local authority area. The principles of any new fluoridation scheme would need to be agreed between all the local authority(ies) concerned and Public Health England, on behalf of the Secretary of State) before a scheme could be formally proposed by the local authority(ies)¹⁷.
22. Local authorities have to exercise their responsibilities in accordance with legislation governing the way in which a new scheme can be introduced or an established scheme may be modified or terminated. The legislation sets out a process to be followed for formal public consultation on a fluoridation proposal; for collaborating with other local authorities whose populations may be affected by the proposal; and for taking account of a range of key factors when making final decisions. The legislative requirements that a Local Authority would be expected to take if considering introducing a new fluoridation scheme are briefly outlined below¹⁸.

Phase	Content
1	Preliminary scoping phase (non-statutory) and informal discussion with any other affected local authorities.
2	Commencement of statutory process – making an initial proposal, perhaps with multiple proposers.
3	Assessment of operability and efficiency, including agreement of Secretary of State to proceed
4	Consultation with other affected local authorities (if any) and securing their consent to proceed
5	Public consultation and subsequent decision making including, in the case of multiple local authorities, joint committee arrangements. In the latter instance, decisions may need to be made by a process of weighted population voting
6	Making an agreement between the Secretary of State and the water company including issuing an indemnity to the company
7	Scheme implementation

Dental service provision in Nottinghamshire

23. NHS dental services, both primary care and secondary care, are commissioned by NHS England. NHS England North Midlands commission services for Nottinghamshire except Bassetlaw – Bassetlaw’s services are commissioned by NHS England South Yorkshire and Bassetlaw. There are currently 88 dental practices in Nottinghamshire (including Bassetlaw) that

¹⁷ Public Health England (2016) Improving oral health: a community water fluoridation toolkit for local authorities.

¹⁸ Public Health England (2016) Improving oral health: a community water fluoridation toolkit for local authorities.

provide NHS dentistry. At any given time, there are generally practices accepting new NHS patients, with 68%¹⁹ of practices taking on new NHS patients as at July 2016.

24. Nottinghamshire residents also have access to a range of other dental services, including treatment under general anaesthetic, orthodontics, special care dentistry, domiciliary care and minor oral surgery. Significant additional investment has also been made by NHS England recently to ensure there is sufficient out-of-hours dental provision for the population.
25. Most recent data (2014/15) indicates that 64.9% of Nottinghamshire residents (aged 18 and above) tried to get an NHS appointment in the previous two years and 96.5% successfully obtained one²⁰. The proportion of residents reporting a 'very good' or 'fairly good' experience of NHS dental services in 2014/15 stood at 84.5%²¹.

Oral health promotion activity in Nottinghamshire

26. Together with efforts to tackle the underlying causes of disease, such as living standards, low levels of education and poverty, the focus of prevention of dental decay should be on increasing access to dentists, optimising exposure to fluoride (for example, brushing teeth at least twice a day with a fluoride toothpaste) and reducing the amount and frequency of consumption of foods and drinks with added sugar.
27. Nottinghamshire's specialist Oral Health Promotion Service²², provided by the Health Partnerships division of Nottinghamshire Healthcare NHS Foundation Trust, offers a comprehensive range of services across the county. This nationally recognised service encourages good oral health within local communities through training, health promotion, information sharing, communication and face to face activities. It promotes three key messages:
 - The importance of a healthy diet to prevent dental disease, alongside reduced tobacco and alcohol use
 - Promotion of good oral hygiene habits
 - Promotion of regular dental attendance to monitor oral and dental health and to identify and treat disease at an early stage
28. The service incorporates up-to-date guidance from PHE and NICE, and aims to target groups vulnerable to poor oral health outcomes and inequalities²³. Key areas of activity within the service include:

¹⁹ Figure of 68% excludes Bassetlaw, which does not routinely monitor or hold this data.

²⁰ NHS Outcomes Framework: Indicator 4.4ii

²¹ NHS Outcomes Framework: Indicator 4a.iii

²² <http://www.nottinghamoralhealth.com/>

²³ These groups include children, young people and pregnant women; people who are homeless or move frequently, such as Gypsy, Roma & Traveller communities; who are socially isolated or excluded; who are older and frail; who have physical or mental disabilities; who are from a lower socio-economic group; who live in a disadvantaged area; who smoke or misuse substances (including alcohol); who have a poor diet; who are from some black, Asian and minority groups, for example people of South Asian origin; and those who are, or have been, in care.

- **Oral health training** – delivery of sustainable, evidence-based brief advice intervention oral health training for the wider health, social care and education workforce. This is based on a capacity building approach in order to support oral health improvement in the workforce’s daily role. Training aims to cover areas such as the fact that tooth decay and gum disease are preventable, how fluoride can help prevent tooth decay and where to get advice about local dental services.
- **Supervised tooth brushing** – development of a sustainable supervised tooth brushing programme within early year’s settings, targeting areas with poor dmft rates in Nottinghamshire. The programme works with nursery settings and primary schools to deliver a programme where children are supervised to brush their teeth once a day²⁴, with training also given to staff to carry out supervised tooth brushing.
- **Development and distribution of oral health resources** - provision of oral health resources (for example, packs of information leaflets, toothbrushes and/or toothpaste) that are distributed to service users via professionals such as midwives, health visitors, school nurses and social care workers. The provider also disseminates information on good oral health and brushing practice, as well as information on local dental services.
- **Campaigns** - supporting the local delivery in Nottinghamshire of national campaigns and working in partnership with key stakeholders to deliver these campaigns, for example National Smile Month, Mouth Cancer Awareness Month and National No Smoking Day. In addition, other local targeted oral health campaigns are undertaken from time to time.

RECOMMENDATION

1. That the Board notes the content of this report and acknowledges the work currently undertaken to improve oral health across the county, including the Nottingham City and Nottinghamshire County oral health needs assessment which will inform the development of a local oral health strategy.
2. That the Board will agree to receive information regarding the oral health needs assessment and oral health strategy in order to inform considerations of appropriate oral health interventions for the future.

Geoff Hamilton
Commissioning & Performance Manager

Anne Pridgeon
Senior Public Health & Commissioning Manager

²⁴ The aspiration is that everyone should brush twice a day, but for the purposes of supervised tooth brushing, schemes focus on once a day in school and encourage parents to help with brushing once a day at home.

For any enquiries about this report please contact:

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Background Papers

Except for previously published documents, which will be available elsewhere, the documents listed here will be available for inspection in accordance with Section 100D of the Local Government Act 1972.

- Public Health England (2016)– Improving oral health: a community water fluoridation toolkit for local authorities
<https://www.gov.uk/government/publications/improving-oral-health-community-water-fluoridation-toolkit>
- Nottinghamshire Joint Strategic Needs Assessment (2014) - *Children & Young People's Oral Health*
[http://jsna.nottinghamcity.gov.uk/insight/Strategic-Framework/Nottinghamshire-JSNA/Children-and-young-people/Oral-health-in-children-and-young-people-\(2014\).aspx](http://jsna.nottinghamcity.gov.uk/insight/Strategic-Framework/Nottinghamshire-JSNA/Children-and-young-people/Oral-health-in-children-and-young-people-(2014).aspx)
- National Institute for Health and Care Excellence (2014) - *Oral health: approaches for local authorities and their partners to improve the oral health of their communities* <http://www.nice.org.uk/guidance/ph55>
- Public Health England (2013)- *Local authorities improving oral health: commissioning better oral health for children and young people*
<https://www.gov.uk/government/publications/improving-oral-health-an-evidence-informed-toolkit-for-local-authorities>