City of York Council Oral Health Needs Assessment of Children and Young People 2019

This document details the oral health of the people living within the boundaries of the City of York Council and describes the services currently commissioned to meet those needs. It identifies key issues that should be addressed in future oral health and dental commissioning strategies with a focus on children.

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Main findings of the oral health needs assessment of children in York

The most recent dental survey shows that whilst the prevalence and severity of dental decay in 5 year olds in York is less than the Yorkshire or England average, those children that are most affected have almost 4 teeth decayed, extracted or filled by the time they reach 5 years of age.

Dental decay is an issue for those affected, and can result in pain, difficulties eating and speaking, loss of sleep and days off from school, and from work for parents accompanying children to dental appointments. Sometimes dental extractions under general anaesthesia are also required. It will be the most vulnerable and poorest who will have the worst oral health.

Tooth decay is almost entirely preventable. However, those individuals that are unable to brush their teeth without supervision, frequently intake a high sugar diet, have a dry mouth and/or have poor access to regular dental care are more susceptible to dental decay. Those most at risk include children of all ages, particularly younger children and infants, those with severe disabilities and medical problems and those from deprived communities.

One of the aims of this needs assessment was to gain a better understanding of the relationship between the levels of dental decay of children and dental extraction rates under general anaesthesia for children in York. From the latest available data, provision of general anaesthesia for dental extractions for children in York would appear to be higher than the England average, but there may be a number of reasons for this. NHS England are exploring this issue, within a wider piece of work reviewing the services that provide dental extractions under general anesthesia. The potentially, slightly higher rates of dental extractions under general anaesthesia for dental decay in young children in comparison with England has not been fully explained to date due to the limitations of available data.

Next steps

This needs assessment is an on-going shared planning resource to enable locally prioritised actions. We are fortunate in having an evidence based toolkit for local authorities: commissioning better oral health for children and young people. This document supports local authorities to commission oral health improvement programmes for children and young people aged up to 19 years and will provide an evidence based approach to the development of an oral health strategy for children in York.

Using this toolkit, the Oral Health Improvement Advisory Group (OHIAG), which includes representation from NHS England, CYC and PHE will be able to develop a preventive oral health strategy and a prioritised list of actions based on the evidence of effectiveness, addressing inequalities, with consideration to cost and resources available, local organisational structures and the potential for greatest impact. Review of the actions should be planned from the outset to evaluate their impacts.

1. Introduction

The City of York Council (CYC) recently formed an oral health improvement and advisory group (OHIAG). The main purpose of which is to bring partners together from across the City of York to drive oral health improvement and address oral health inequalities. This will be delivered through the application of professional and clinical knowledge, insight and understanding and through collaboration with key stakeholders.

One of the aims of the CYC Joint Health and Wellbeing Strategy is to monitor progress on reducing hospital admissions for tooth decay in children (City York Council. 2017). It was identified that there were potentially higher than expected numbers of children undergoing dental extractions under general anaesthesia. The OHIAG therefore recommended exploring this issue. There has therefore been an initial focus on this issue through an oral health needs assessment focussing upon children. The aim of which would be to inform an oral health action plan to improve the oral health of children within the City of York and reduce the inequalities that exist across the city. In due course the group will also explore how to improve the oral health of other groups for example vulnerable adults.

Children with poor oral health experience pain and discomfort together with difficulties eating, sleeping and socialising. This also has wider impacts upon society as dental decay can impact upon missed time from school and work when parents accompany children to appointments for treatment.

This oral health needs assessment describes the oral health of children living in York and the services currently commissioned to meet those needs. It identifies the key issues that should be addressed in future oral health improvement and dental commissioning in order to improve oral health and reduce oral health inequalities in the area for children.

This oral health needs assessment should be a useful resource for the CYC to inform joint strategic needs assessments, joint health and wellbeing strategies and oral health improvement strategies. This has been written within the context of a number of key guidance documents:

The Health and Social Care Act (UK Government. *2012*).

The Health and Social Care Act (2012) created a new commissioning framework for the provision of health, social care and public health in England. From April 2013, NHS England became the single commissioner for the totality of dental services including primary, secondary and unscheduled dental care. In addition, local authorities became responsible for improving the oral health of their communities and for commissioning oral health improvement services (Public Health England 2015).

Local authorities are statutorily required to provide or secure the following based on the current legislative framework (as described in Regulation 17 of the Health and Social Care Act 2012):

- Oral health improvement programmes to improve the health of the local population, to the extent that they consider appropriate in their areas
- Securing the provision of oral health surveys to facilitate:
  - The assessment and monitoring of oral health needs.
  - The planning and evaluation of oral health promotion programmes.
  - The planning and evaluation of the arrangements for provision of dental services as part of the health service.
- Where there are water fluoridation programmes affecting the authority's area, the monitoring and reporting of the effect of water fluoridation programmes.
- Participation in any oral health survey conducted or commissioned by the secretary of state.
- Making proposals regarding water fluoridation schemes, including a duty to conduct public consultations in relation to such proposals and powers to make decisions about such proposals.

Local Authorities Improving Oral Health: Commissioning Better Oral Health for Children and Young People (Public Health England 2014).

Public Health England released this toolkit in 2014 to aid local authorities with their statutory obligations to improve the oral health of their populations, which include oral health improvement programmes. In summary the document advises that local authorities review their oral health commissioning to ensure:

- Commissioning frameworks should ensure that oral health improvement is integrated within existing programmes such as the healthy child programme 0-19 years.

- Commissioning specific oral health programmes based on the totality of the evidence and needs of the population.

- Reviewing commissioned oral health programmes to ensure that programmes:
  - Meet local needs.
  - Involve upstream, midstream and downstream interventions that involve both targeted and universal approaches.
  - Consider the totality of evidence of what works.
  - Engage with partners integrating commissioning across organisations and across bigger footprints as required.

Improving outcomes and supporting transparency. (Department of Health. 2016)

Includes as an indicator the 'proportion of 5 year old children free from dental decay':

Numerator: Total number of five year old children in survey sample free from dental decay

Denominator: Total number of five year old children in survey sample.

NICE PH55 Guideline on Oral Health: local authorities and partners (NICE. 2014).

This guideline makes recommendations on undertaking oral health needs assessments, developing a local strategy on oral health and delivering community-based interventions and activities. The guidelines provide more detailed information on each recommendation the aims of which are 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.
- 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. With specific reference to children this would include for example those who:

- Have physical or mental disabilities.
- Are from a lower socioeconomic group.
- Live in a disadvantaged area.
- 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.

There are 21 recommendations in total, most of which have a particular emphasis to improve the oral health of children and include:

- Ensure oral health is a key health and wellbeing priority.
- Carry out an oral health needs assessment.
- Use a range of data sources to inform the oral health needs assessment.
- Develop an oral health strategy.
- Ensure public service environments promote oral health.
- Include information and advice on oral health in all local health and wellbeing policies.
- Ensure frontline health and social care staff can give advice on the importance of oral health.
- Incorporate oral health promotion in existing services for all children, young people and adults at high risk of poor oral health.

- Commission training for health and social care staff working with children, young people and adults at high risk of poor oral health.
- Promote oral health in the workplace.
- Commission tailored oral health promotion services for adults at high risk of poor oral health.
- Include oral health promotion in specifications for all early years services.
- Ensure all early years services provide oral health information and advice.
- Ensure early years services provide additional tailored information and advice for groups at high risk of poor oral health.
- Consider supervised tooth brushing schemes for nurseries in areas where children are at high risk of poor oral health.
- Consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health.
- Raise awareness of the importance of oral health, as part of a 'whole-school' approach in all primary schools.
- Introduce specific schemes to improve and protect oral health in primary schools in areas where children are at high risk of poor oral health.
- Consider supervised tooth brushing schemes for primary schools in areas where children are at high risk of poor oral health.
- Consider fluoride varnish programmes for primary schools in areas where children are at high risk of poor oral health.
- Promote a 'whole school' approach to oral health in all secondary schools.

Delivering Better Oral Health Public Health England. (PHE. 2017)

Delivering Better Oral Health (2017) provides guidance on evidence based interventions and advice on how dental team members can improve and maintain the oral health of their patients. In relation to children it includes advice tailored for specific age groups and information for those at high risk of developing dental decay.

The document should also be disseminated to other health, education and social care professionals to support improvements in oral health thereby reducing inequalities and ensuring that oral health advice messages are consistent.

Local context

This oral health needs assessment will inform the development of a strategy and action plan to ensure that dental services meet the needs of the population of children in the City of York. It is important therefore to understand the local context for City of York Council as outlined in the documents below:

York's Joint Health and Wellbeing Strategy 2017-2022 (City York Council. 2017)

One of the themes in the document focuses upon Starting and Growing Well with the priority to support individuals for the first 1001 days of their life, especially vulnerable communities. Within this theme there is specific reference to improving oral health of children. The CYC aims to monitor progress on reducing hospital admissions for tooth decay in children (working together with the Safeguarding Board).

York's Children and Young People's Plan 2016-2020 (City of York Council. 2016)

As part of this plan there is a priority in narrowing gaps in outcomes which includes an aim to ensure a healthy start to life for all, and more opportunities for a healthy lifestyle. There is also a priority on children in poverty.

2. Oral health needs assessment

An oral health needs assessment is a tool for identifying the oral health needs and oral healthcare needs of a population to target resources towards improving the oral health of those at specific risk or in underserved population subgroups (Health Development Agency. 2005).

The process involves establishing and describing the oral health of a population, ascertaining their needs, measuring the capacity of existing services to meet these needs and where gaps exist, identifying new or alternative ways in which such gaps can be prioritised and filled (Chestnutt I et al. 2013)

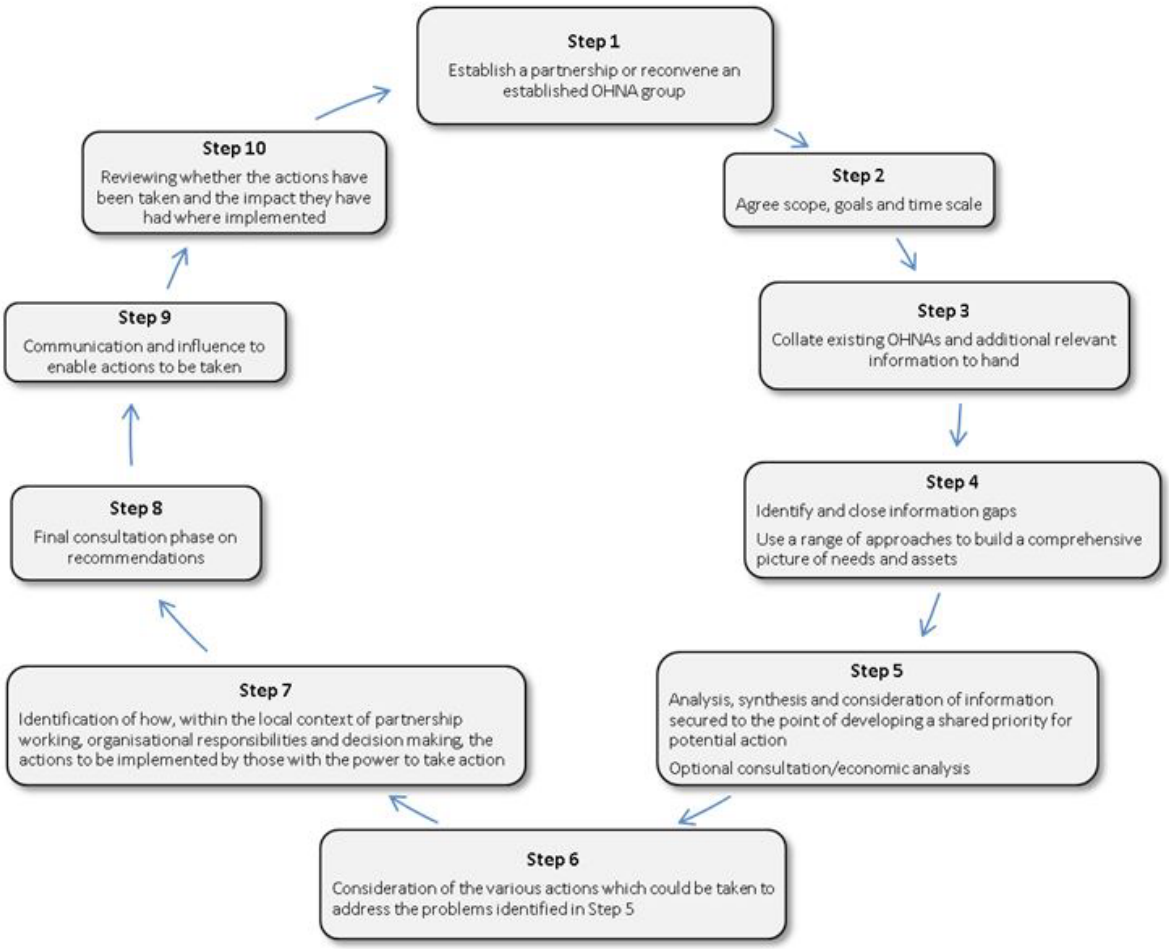
NICE guidance PH55 can be used to inform local authorities on how to undertake oral health needs assessments and develop local strategies for delivery of community-based interventions and activities (NICE. 2014).

Informing the NICE guidance is a recent review of existing methods for undertaking oral health needs assessments (Chestnutt IG et al. 2013).. This review found that there was no one format for them and no evidence on how to conduct an ideal oral health needs assessment that results in changes that are clinically effective and cost effective.

Hence a definitive approach to undertaking an oral health needs assessment needed to be established in the context of the broader joint strategic needs assessment and a 10 step approach for carrying out an oral health needs assessment was proposed that incorporated the key operating principles for a joint strategic needs assessment NHS Confederation (NHS Confederation 2011) and NHS Confederation (NHS Confederation 2012). (Figure 1).

This oral health needs assessment has adopted this approach.

Figure 1 The 10 step approach for an oral health needs assessment



Source: Modified from Chestnutt *et al.,* 2013, p56[31]

The 10 step approach is consistent with the key operating principles for quality joint strategic needs assessment and joint health and wellbeing strategies:

1. The City of York Council established an Oral Health Improvement Advisory Group (OHIAG) which includes wide membership including individuals representing local authority public health leads, chairs of the North Yorkshire and Humber Local Dental Committee and Local Dental Network, and Dental Public Health specialists. It also includes those involved with the commissioning of NHS dental services, with the power to make necessary changes if necessary. The OHIAG identified that there was a need to perform an oral health needs assessment with an focus on children

2. The OHIAG group decided that an oral health needs assessment was necessary with a focus on children in particular to explore the reasons behind a potential increase in the numbers of dental extractions of children under

general anaesthesia in York. The group agreed that the needs assessment would focus upon children resident within City of York boundaries.

3. The most recent and relevant Oral Health Needs Assessment available to the OHIAG is the North Yorkshire and Humber Oral Health Needs Assessment 2015 (Public Health England. 2015) which has been used to inform this needs assessment. Oral health needs assessments from other regional local authorities have also been used to inform and aid the process.

4. To close the information gaps a comprehensive range of data and evidence has been collated which includes:
    - Public Health England survey reports:
        - National dental epidemiology survey of 3 year old children in England 2013 (Public Health England. 2014)
        - National dental epidemiology survey of 5 year old children in England 2012/13 (Public Health England. 2013), 2014/15 (Public Health England. 2016) and 2016/17 (Public Health England. 2018)
        - National dental epidemiology survey of 12 year old children in England 2008 (NHS. 2010)
    - Child dental health survey of England, Wales and Northern Ireland 2013 (ONS. 2013)
    - NHS Digital statistics 2016/17 (NHS. 2018):
        - Numbers of dentists
        - Numbers of child patients seen by an NHS dentist
    - Hospital Episode Statistics (HES)
        - HES data on dental extractions 2016/17 (NHS. 2017)
    - Hospital Tooth Extractions of 0-19 year olds 2011-2018 (Public Health England. 2019)
    - NHSBSA dataset (2015) of submitted FP17 forms used as a proxy measure for dental access for children resident in York (NHSBSA. 2015)
    - Data provided by NHS England (NHS England .2018) relating to:
        - Dental access
        - Fluoride application
        - Dental extraction performed in an NHS GDS setting
        - Numbers of referrals to Harrogate District Foundation Trust for dental extractions
        - Numbers of children undergoing oral surgery procedures in Vale of York CCG
    - Healthwatch York report ‘Filled to capacity’ (Healthwatch. 2018):
        - Exploring dental access issues for residents of York
    - NHS Friends and Family data (NHS. 2018):
        - September data regarding Friends and Family recommendations

5. The data was analysed and areas for attention highlighted in the oral health needs assessment of children together with an initial list of priority areas requiring the greatest attention.

6. The oral health needs assessment of children and the list of priority areas for action will be reviewed by the OHIAG and the relevant City of York Council governance groups.

   The OHIAG will be able to finalise and approve the list of priorities using their expertise of oral health improvement programmes, commissioning and local knowledge. The other CYC groups will be able to assist with guidance regarding finalisation of the needs assessment, the list of priorities and the strategy to be developed by the OHIAG based on evidence of effectiveness.

7. The expertise of the OHIAG and the CYC groups will be able to identify which organisations have responsibility for the actions identified in the strategy and the power to implement those.

8. Key stakeholders will be consulted on the process as outlined above on the proposed recommendations.

9. The OHIAG in partnership with CYC provide the means to communicating the recommendations and a platform from which to update the needs assessment in due course.

10. The needs assessment will need to be reviewed in due course to assess the impact of actions undertaken and to inform future needs assessments.

This approach has been used to develop this oral health needs assessment to give a comprehensive description of the oral health needs of children in the City of York and to make recommendations on targeting of resources to meet those needs.

Aims

To undertake an oral health needs assessment of children across the City of York to support the planning of an oral health strategy and associated action plan in order to reduce oral health inequalities and to achieve sustainable improvements in oral health of children.

To understand the relationship between dental decay rates and dental extraction rates under general anaesthesia for children in York

Objectives

This aim will be achieved through:

- Collation of relevant data to describe:
  - The oral health needs of children in York.
  - The provision of oral health care services and oral health improvement programmes for children in York.
- Identification of gaps in service provision.
- Partnership working with the OHIAG to identify oral health needs and gaps in services to enable an oral health strategy and action plan to be developed to improve the oral health of children in the City of York.

The oral health needs assessment will recommend for the future development of high quality, evidence based and outcome focused oral health care and oral health improvement services across the City of York for children.

3 Population and Demographics

Population profile

The population of York is projected to increase between 2016 – 2020 (from 207,000 to 211,000) (Public Health England. 2018). The most recent York profile reveals that York has 208,367 residents with 5.7% from a black and minority ethnic community group (City of York Council. 2018).

About 10% (3000) children in York live in low income families (Public Health England. 2018). Overall 9.7% of children in the city of York are in child poverty (7.8% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 10.5% of households in fuel poverty. 1.7% of the working population (aged 16-64) claim out of work benefits and 0.2% claim job seekers allowance (City of York Council. 2018)).

York has lower proportions of children between the ages of 0-18 years of age compared with the England population (17.7% York compared with 21.3% England) (Public Health England 2018). However, the latest PHE profile shows that the numbers of 15-29 year olds in the city is greater than England (Public Health England. 2018). This may be explained by the presence of 2 universities within the city, York University and St John University York.

Ethnic minorities

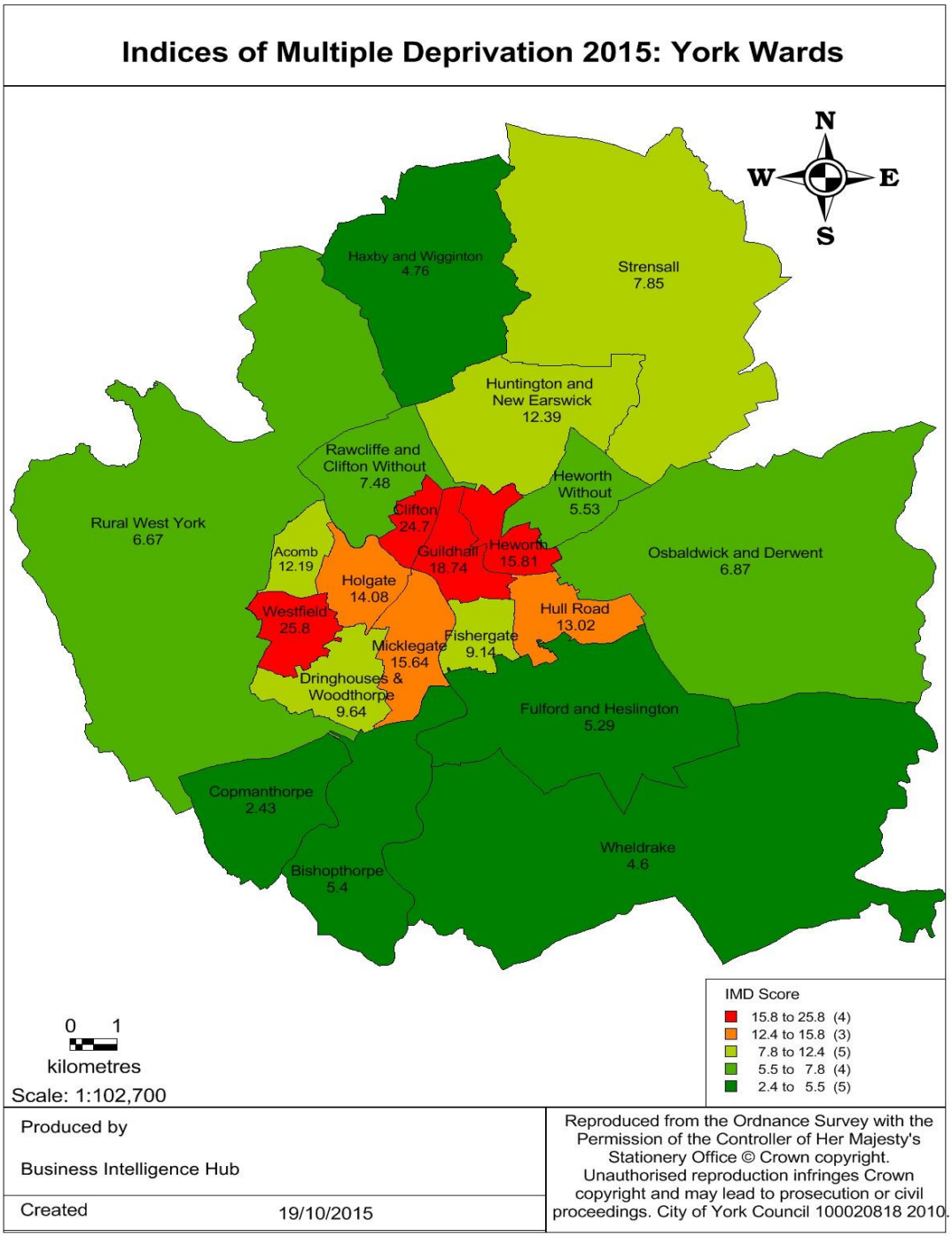
Only 4.5% of the people of York are from an ethnic minority group compared with 13.6% in England (Public Health England. 2018).

The percentage of schoolchildren from minority ethnic groups in York is 9% which is lower than the England average of 26.7% (Public Health England.2014).

Deprivation

Using the Indices of Multiple deprivation 2015 it is possible to identify the most deprived wards overall in the city of York please see figure 2 (City of York. 2018).

Figure 2 Indices of Multiple Deprivation 2015: York Wards



Individuals from more deprived communities are more likely to have poorer oral health. It is therefore important to identify areas within the City of York where there are the greatest levels of deprivation as this would help to identify areas where limited resources to improve oral health could be targeted.

The Child Poverty Needs Assessment 2011 (City of York. 2011) provides a detailed exploration of the levels of childhood deprivation in the City of York. As this is approximately 7 years old this has been used as a guide to analyse the most up to date ward profiles with a focus on children within those wards.

From the Child Poverty Needs Assessment 2011 (City of York. 2011):

- The total population of York is growing by nearly 11% by 2019. Within that, the actual number of children is predicted to rise from 42,400 children aged 0-19 in 2009 to 44,400 by 2019. This is a reflection of the greater size of the city as the proportion of 0-19 years olds will remain comparatively steady.

- There are just over 40,000 children and young people aged 0-19 living in the City of York (2009 data). Of these 4705 (2009 data) are living in poverty (as defined by National Indicator 116).This is a smaller percentage of children (13.3%) than the regional (21.9%) or national (21.3%) figure. However, it is still above the target levels as set out in the Child Poverty Act (10%).

- For the nation to reach the targets set out in the Child Poverty Act, child poverty would need to halve by 2020. The implication for the City of York is that child poverty would need to be below 7% or just over 2000 fewer children in poverty.

- A report on severe poverty for children used a measure developed by Save the Children in 2006, looking not just at children in households with very low incomes (less than 50% of the median) but specifically at those who lack (or whose parents lack) everyday items because they cannot afford them. This estimated that the City of York had 3000 (10%) children and young people in severe poverty in 2010.

- While the proportion of children in the York population will fall the actual numbers of children will grow. All things being equal the actual number of children in poverty will also grow (by approximately 5%).

The Child Poverty Needs Assessment 2011 (City of York Council. 2011) revealed that poverty is concentrated in a number of wards and hotspots in the City. Together these wards account for nearly 60% of children who are in poverty (2555 out of 4450). 5 wards are above the regional and national average with regards to Child Poverty for all children, these are:

By Percentage:

1. Clifton (27%)
2. Hull Road (25%)
3. Westfield (25%)
4. Guildhall (22%)
5. Heworth (21%)

By Number of Children:

1. Westfield (795)
2. Clifton (585)
3. Heworth (510)
4. Hull Road (395)
5. Acomb (270)

The following provides a brief profile of the wards with the highest levels of childhood deprivation in the city. To put the following ward profiles into context the best ward in

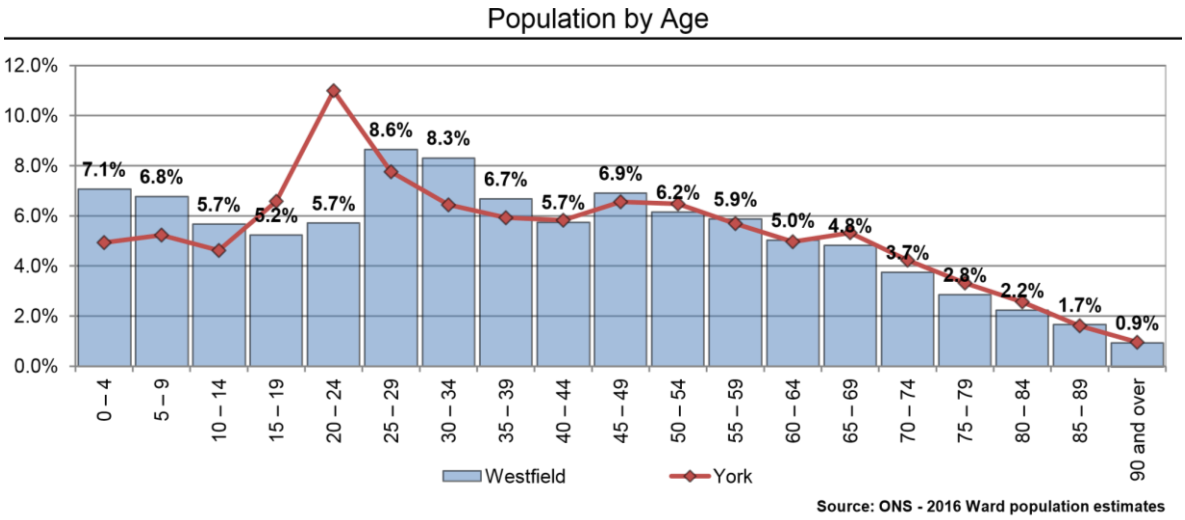
York has child poverty of 1.33%, the worst ward 20.43% and the York ward average is 8.72% (City of York Council. 2018)).

Ward profile of Westfield (City of York Council. 2018).

Westfield has a greater percentage of children aged between 0-14 years of age than the city of York as a whole (please see figure 3 population profile for Westfield ward below).

17.1% of children are in child poverty (16.6% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 10.8% of households in fuel poverty.

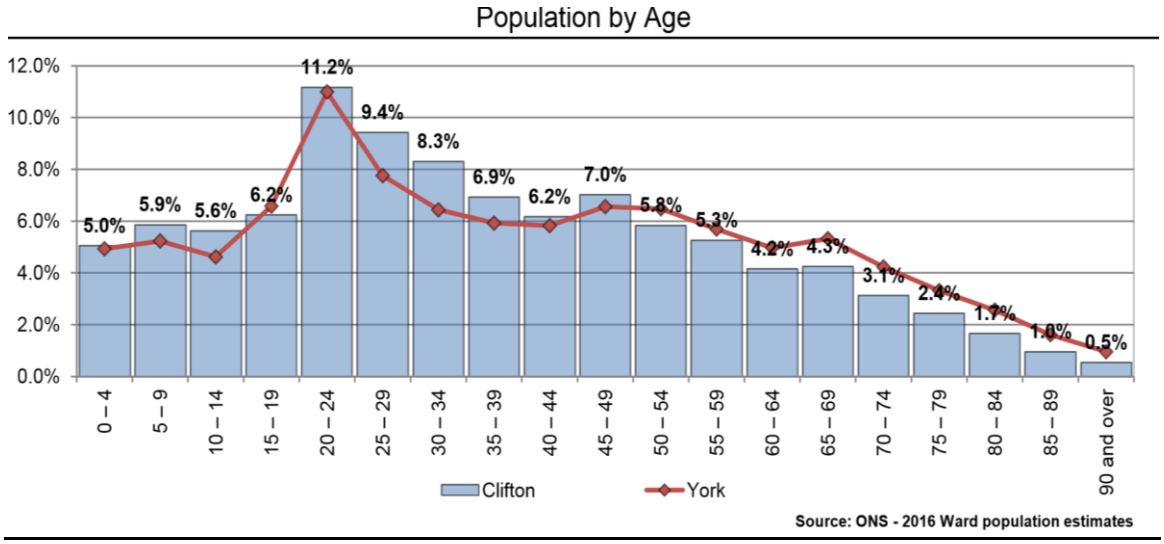
Figure 3 Westfield ward profile (City of York Council. 2018)



Clifton ward profile (City of York Council. 2018)

Clifton ward has the same or slightly higher percentage of children from the 0-14 year age group when compared with York city as a whole (please see figure 4 below). 17.3% of children are in child poverty (14.9% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 14.5% of households in fuel poverty.

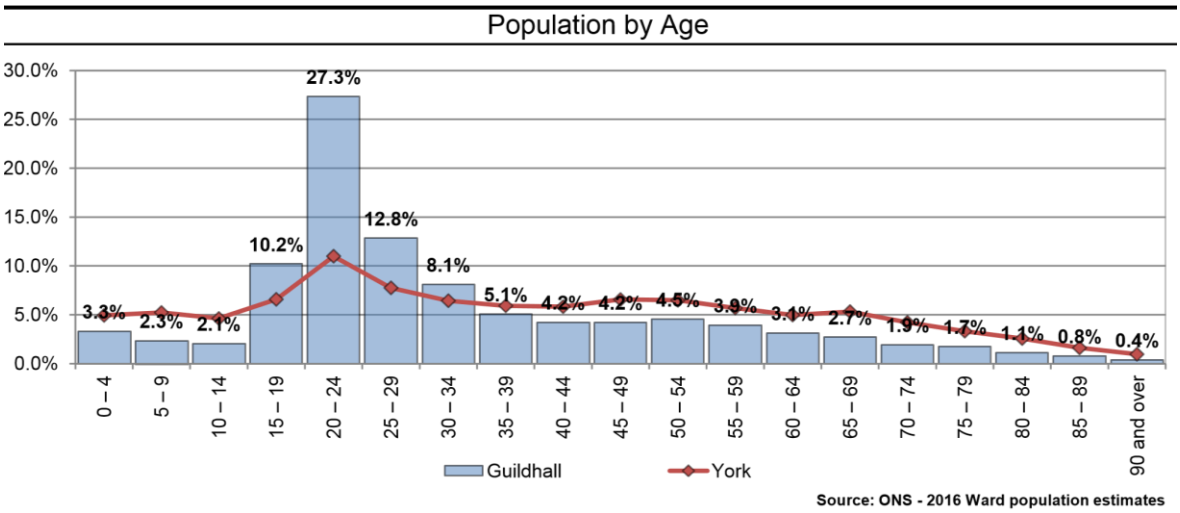
Figure 4 Clifton ward profile (City of York Council. 2018)



Guildhall (City of York Council. 2018)

Guildhall as a ward has a lower percentage of children aged between 0-14 years of age when compared with York (please see figure 5 below). 16.8% of children are in child poverty (9.3% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 13% of households in fuel poverty.

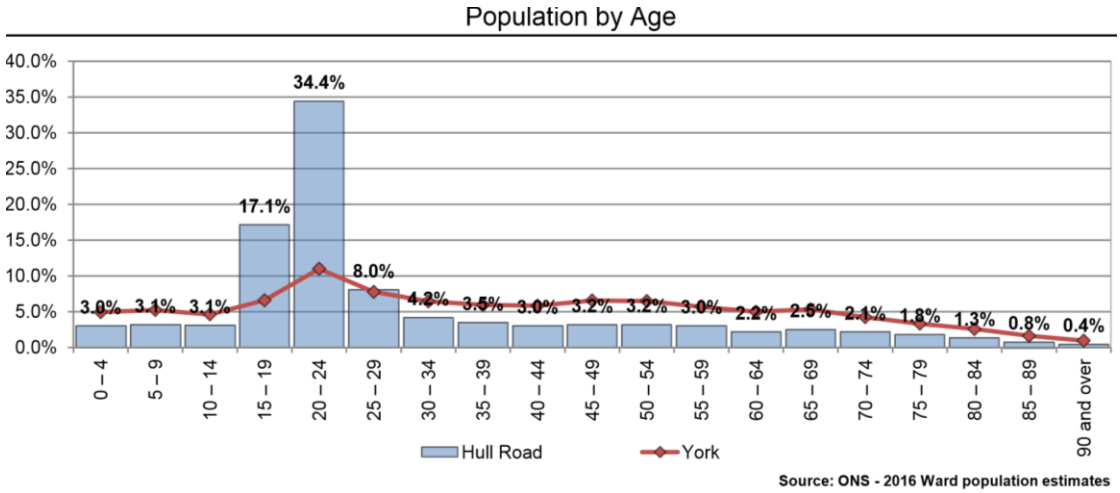
Figure 5 Guildhall ward profile (City of York Council. 2018)



Hull road ward profile (City of York Council. 2018)

From the profile below Hull road as a ward has a lower percentage of children aged between 0-14 years of age when compared with York (please see figure 6 below). 20.4% of children are in child poverty (12.2% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 16.9% of households in fuel poverty. The worst ward for child poverty is Hull road ward.

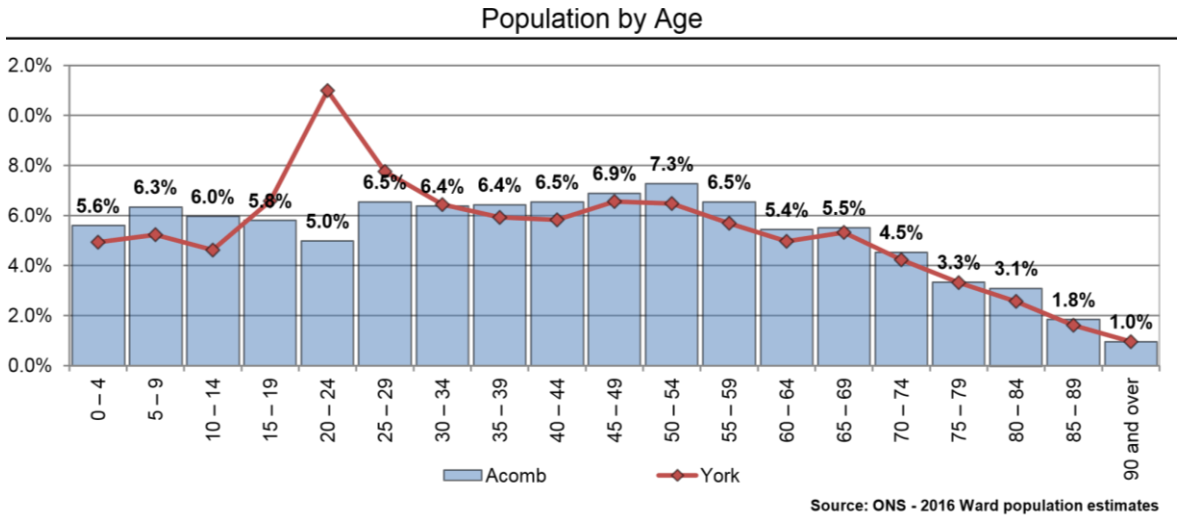
Figure 6 Hull road ward profile Hull road ward profile(City of York Council. 2018)



Acomb ward profile (City of York Council. 2018)

From the profile below Acomb as a ward has a higher percentage of children aged between 0-14 years of age when compared with York (please see figure 7 below). 12.7% of children are in child poverty (10.5% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 10.3% of households in fuel poverty.

Figure 7 Acomb ward profile (City of York Council. 2018)



Fishergate ward profile (City of York Council. 2018)

Fishergate has lower levels of child poverty compared with the wards above, 6.4% of children are in child poverty (4.1% of children live in a household where a parent or guardian claims an out-of-work benefit) and there are 13.3% of households in fuel poverty. However, 14.1% of residents are from ethnic minorities compared with 5.7% for York as a whole.

The last Child Dental Health survey of England, Northern Ireland and Wales 2013 (Office of National Statistics. 2013) revealed that the proportion of children with dental decay was higher in ethnic minority groups. Where the needs assessment identifies any dental conditions where ethnic minorities are at greater risk then this information is useful to target interventions appropriately.

4 Determinants and Impacts of Oral Health

Common risk factor approach

There are certain risk factors which increase an individual's chances of developing a wide range of conditions, for example poor diet can increase the risk of developing certain cancers, increased risk of cardiovascular disease, obesity and dental decay (Sheiham A, Watt RG. 2000) . As resources are limited using the common risk factor approach can address the underlying determinants of poor oral health and also help to improve a wide range of conditions.

Whole population approach versus targeted approach

Whole population approaches assume everyone has a risk of developing a condition and therefore interventions are targeted at the whole population for example water fluoridation. Targeted interventions assume that certain groups are at greater risk of developing a condition and therefore interventions are targeted at specific groups. An example of this would be a supervised toothbrushing scheme targeted at a deprived community or ward.

The Marmot report (Marmot. 2010)

The Marmot Report (Marmot. 2010) sets out a strategy on health inequalities that calls for actions that are universal but proportionate.

Key messages from the review include:

- There is a social gradient in health and the lower a person's social position, the worse his or her health. Action should therefore focus on reducing the gradient in health.
- Health inequalities result from social inequalities. Action on health inequalities therefore requires action across all the social determinants of health. Focusing solely on the most disadvantaged will not reduce health inequalities sufficiently.
- To reduce the steepness of the social gradient in health, actions must be universal, but with a scale and intensity that is proportionate to the level of disadvantage 'proportionate universalism'.

Upstream and downstream interventions

Interventions can be classified as either upstream such as national or local policy initiatives or changes to legislation or regulations implemented by government, or downstream such as clinical prevention or dental health education provided chairside provided by a dental professional (please see figure 8 below) (Watt. 2007). Local authorities are likely to provide interventions midstream utilising and influencing national policy from government and implementing local policies to improve oral health.

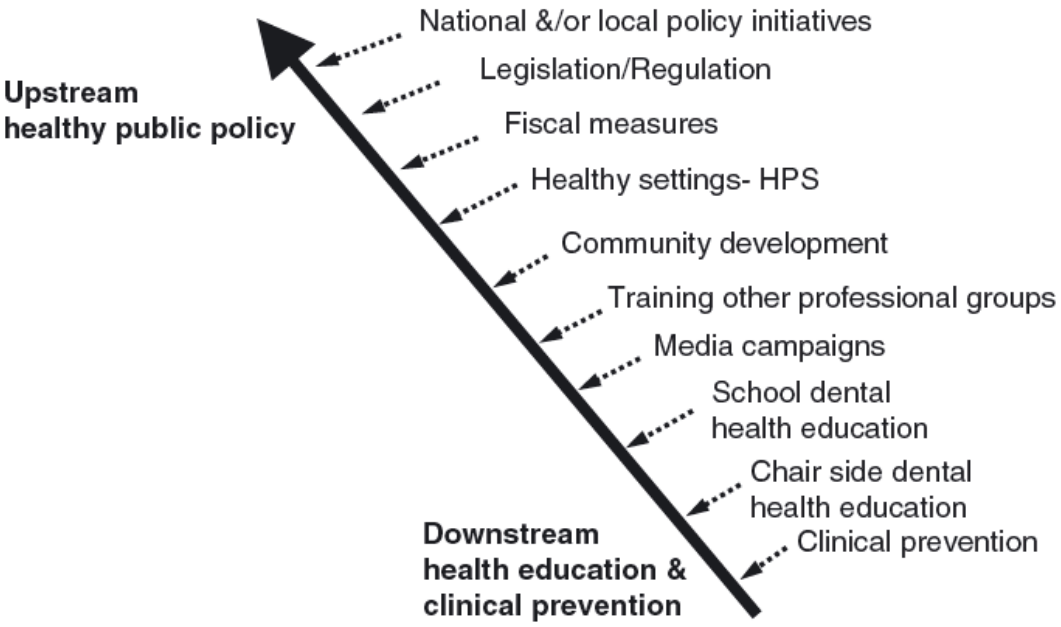


Figure 8 Upstream and Downstream interventions Watt (2007)

Oral diseases

Whilst children are susceptible to a variety of oral diseases and conditions the one which will affect the largest number of children is tooth decay.

Tooth decay

Plaque which is composed of bacteria can build up on the surface of any tooth. Bacteria within plaque, utilise sugars from the diet as a source of energy, but in the process of metabolising the sugars (fermentable carbohydrates) they form acids. Initially the acids demineralise the outermost surface the enamel. If the decay process is not stopped, it will progress through to the dentine and ultimately the pulp (which contains blood vessels and nerve endings). When the decay reaches the dentine the individual will likely experience sensitivity from the tooth and by the time the decay reaches the pulp of the tooth, it is probable that the tooth will ache and be painful to bite down upon.

Whilst the formation of acids by bacteria can occur relatively quickly, the mouth has the ability to re-mineralise areas of tooth tissue due to the buffering capacity of saliva. The mouth therefore has the ability to neutralise the affects of the acidic attack. However, if an individual snacks frequently and has a diet which is high in sugar this tips the balance in favour of acid production and tooth decay. Once a cavity has been formed this process is irreversible and the decay will continue until the tooth requires extraction unless the decay is removed and the tooth restored appropriately with a filling. It can take approximately up to 2 years for tooth decay to spread from the enamel to the pulp, but this can be exacerbated by a poor diet high in sugars, poor oral hygiene (which is necessary to remove plaque) and a dry mouth.

Tooth decay is almost entirely preventable, however, those individuals that are unable to brush their teeth without supervision, frequently intake a high sugar diet, have a dry mouth and/or have poor access to regular dental care, are more susceptible to dental decay. Those most at risk include children of all ages, particularly younger children and infants, those with severe disabilities and medical problems and those from deprived communities.

Some individuals require supervision to brush their teeth for example young infants and children developing the skills to brush effectively, individuals with medical conditions, may not have the manual dexterity to clean their teeth effectively unaided. These individuals are therefore more susceptible to decay.

Delivering Better Oral Health (Public Health England. 2014) an evidence based toolkit produced by Public Health England can be used by dentists and their teams to provide advice to patients, including dietary advice, the frequency of sugar intake, and additional information for example regarding the correct type and amount of fluoridated toothpaste to use. With a focus on those interventions that have a good eveidence base.

Sugar

Both the amount and the frequency of intake of sugar are important factors which influence the likelihood of the initiation of dental decay and its development. The recent Scientific Advisory Committee on Nutrition (SACN) report Carbohydrates and Health (Scientific Advisory Committee on Nutrition 2015) has outlined the links with regards to high sugar intake and the increased risks of developing obesity, type 2 diabetes and dental decay. The SACN report also outlines possible interventions at policy level which could be used to decrease sugar intake nationally.

Fluoride

Fluoride prevents and slows the process of dental decay by reducing de-mineralisation and promoting re-mineralisation of minerals back into the tooth surface. Fluoride can be used effectively to prevent dental decay at both an individual and community level.

Individual

Fluoride toothpastes were developed and large scale manufacturing started around the 1970s. Since then their use has been encouraged by the dental profession worldwide. Delivering Better Oral Health (Public Health England. 2014) an evidence based toolkit outlines the most age appropriate concentration and amount of fluoridated toothpaste that individuals should use and also advises brushing last thing at night and one other time during the day. This is particularly important for children and those most at risk of developing dental decay so that the benefits of Fluoride can be maximised safely. Certain individuals at risk of dental decay (age dependent) may also be recommended to use a Fluoride mouthrinse in addition to fluoride toothpaste for use at a different time of the day to maximise the effects of the Fluoride.

Fluoride varnish also has the benefit of protecting teeth against dental decay and can be applied by a dentist or dental professional trained in fluoride application techniques. National schemes such as Childsmile in Scotland (NHS Scotland 2018) have targeted children aged 2-5 years of age, particularly from deprived communities to reduce decay levels. Localised targeted schemes also exist in England, Wales and Northern Ireland.

Community based

Commissioning better oral health for children and young people (Public Health England. 2014) is an evidence based toolkit developed by Public Health England for use by commissioners of oral health interventions such as local authorities. A range of evidence based measures are recommended such as water fluoridation, (increasing the fluoride in the water supply artificially to the most effective 1 part per million) which is a safe and cost effective measure which can reduce dental decay at all levels of deprivation. In the UK these schemes currently exist predominantly in areas surrounding Newcastle upon Tyne and the Midlands. When decay rates of children where the water has optimal levels of Fluoride in the water are compared with local areas with similar socio demographic profiles the decay rates are different and this is in part likely to be due to the beneficial effects of water fluoridation.

Tooth wear

Tooth wear is a natural part of ageing but for some individuals this process can occur more rapidly and be significantly destructive resulting in pain, functional difficulties and aesthetic concerns. Tooth wear is predominantly caused by one of three different mechanisms, erosion, attrition or abrasion.

Erosion involves a chemical process where-by acids usually dietary in origin erode the tooth surface. Adolescents and children that frequently consume sugar free carbonated drinks can exhibit the signs and symptoms of eroded teeth. Vomiting and regurgitation due to medical conditions resulting in excess stomach acid or due to the result of eating disorders can also cause tooth erosion.

Attrition occurs when grinding between opposing teeth occurs. This can often be habitual in nature, and can occur during sleep, related with stress.

Abrasion occurs when an object (for example a toothbrush used too vigorously during brushing) or an abrasive material abrades the surface of a tooth resulting in loss of tooth tissue.

A combination of preventative and restorative treatment approaches are used to manage the condition.

Gingivitis and Periodontal disease

Gingivitis (inflammation of the gums) affects most people at some point during their lifetime. Healthy gums are dependent in part, upon low levels of plaque and a healthy immune system.

Whilst some children may be genetically predisposed to periodontal disease these would likely be few in number. However, poor oral hygiene resulting in increased plaque levels and inflammation of the gums is far more common. Occasionally certain viruses can also make children susceptible to inflammation of the gums.

Facial and tooth abnormalities

Cleft lip and palate

During embryonic development, due to a possible combination of genetic and environmental effects the palatal shelves and/or tissues of the lip fail to fuse correctly resulting in either a cleft lip and/or cleft palate. The condition can present in a variety of forms and may present in either isolation or as a part of a series of defects.

The impacts of the condition can result in difficulties eating, speaking, socialising and possible hearing problems and aesthetic concerns. Treatment usually requires multi-disciplinary specialist teams to correct the defect over the lifetime of the individual, but particularly early during growth and development.

Tooth alignment

Discrepancies between the size of the jaws and the numbers of teeth can result in insufficient space for the teeth to erupt, or teeth that are mal-aligned. Correction can involve orthodontic treatment which may also include surgery to alter the shape of the jaws and/or the extraction of multiple teeth to create space to allow teeth to erupt and be correctly aligned. Orthodontic appliances are also used and whilst most are fixed braces, temporarily cemented onto the teeth to assist with alignment other appliances are used during the growth spurt during adolescence to maximise the opportunity to create space for the teeth.

Orthodontic treatment is provided either by private or NHS specialist orthodontists and it is mostly performed in a primary care environment. A limited number of specialist cases involve treatment planning and care within a secondary hospital environment and these can include the treatment of individuals with more complex conditions such as a cleft lip and palate as described above.

Only certain individuals are eligible for NHS orthodontic care and the vast majority of these will be aged between 12 and 18 years of age. An index called the Index of Orthodontic Treatment Need (IOTN) is used by both General Dental Practitioners and Orthodontists to assess whether individuals are eligible for NHS orthodontic treatment. There are 2 elements to the index, one which focuses upon dental health and malocclusion and the other upon the aesthetics of how the teeth look. For example individuals with a large over-jet where the position of the teeth are significantly beyond the position of the lower teeth in a horizontal plane are more at risk from trauma. These individuals would therefore be more likely to be eligible for treatment dependent upon the extent of the over-jet and other considerations.

Social impacts of oral disease

The impacts of dental decay upon individuals include pain, difficulties eating and speaking, and poor dental appearance. Dental decay can also have wider implications such as loss of sleep, lost time from school due to painful symptoms or attending dental appointments for treatment and lost time from work as parents care for children and accompany them to dental appointments.

For individuals that have a limited dentition due to the effects of dental decay can experience reduced nutritional intake and experience difficulties with social interactions.

A poor dental appearance can have wider impacts and for children this may include bullying and difficulties forming and maintaining friendships with their peers.

Dental Neglect from Joint Strategic Problem Profile: Child Neglect 2017 (North Yorkshire & City of York Safeguarding System Leadership Group. 2017)

Dental neglect is defined by the British Society of Paediatric Dentistry as “the persistent failure to meet a child’s basic oral health needs, likely to result in the serious impairment of a child’s oral or general health or development”.

However, dental neglect is difficult to identify and measure. Dental cavities in children do not always indicate neglect, even when extensive. There is little information on how common dental neglect is. A 2005 study found that 60% of UK specialists in child dental health reported seeing children with evidence of dental neglect at least once a day. Another 2005 study found that dental neglect in 15-16 year olds at secondary schools in deprived inner-city areas was between 40%-50%. However, dental disease or decay should be assessed in the context of a child’s wider medical and social history. Decay may not indicate dental neglect, but knowledge held by other agencies, such as the police or Children’s Social Care, may indicate that this is evidence of neglect.

Findings from a 2014 study found that distinguishing the direct and indirect signs of dental neglect was the first step towards addressing the issue, and dental practitioners were the main professionals who could improve parental knowledge of the consequences of dental neglect. It suggested a collaborative approach was needed between health professionals to address the problem. Such professionals are essential in identifying dental neglect and referring this information to the police or local authority, particularly as dental neglect can be a sign of wider maltreatment (as well as occurring in isolation).

Dental neglect, especially if untreated, can impact on the child causing: severe pain, loss of sleep, time off school, possible impact on socialisation, risk of infection, damage to underlying permanent teeth, difficulty eating and reduced quality of life.

The prevalence of dental neglect within North Yorkshire and the City of York is difficult to ascertain primarily because of a lack of local data. Data showing the number of children accessing the NHS for removal of teeth or presenting at the Emergency Department with dental problems is available but is not representative of the problem of dental neglect especially that specifically attributed to child neglect.

Within the North Yorkshire and York crimes taken from North Yorkshire Police systems there were ten crimes (just over 2%) which specifically mentioned dental neglect between 2008 and 2016.

5 Epidemiology of dental diseases

Over the past 40 years there have been improvements to the oral health of children in England, yet despite tooth decay being almost entirely preventable there are still many children that experience pain and discomfort associated with dental decay.

This chapter focuses upon the prevalence and severity of dental decay nationally and more locally within Yorkshire and the Humber and York.

Nationally

Since 1973 a national dental survey of children has occurred every ten years. Scotland has not participated in later surveys (2003 or 2013) and the last decennial national survey of the dental health of children in England, Wales and Northern Ireland was performed in 2013 (Office of National Statistics. 2013). From this survey the key findings were:

- Almost a third (31 per cent) of 5 year olds had obvious decay experience in their primary teeth.
- Untreated decay into dentine in primary teeth was found in 28 per cent of 5- year - old children
- In 5- year- old children, the average number of primary teeth with obvious decay experience (dmft[1]) was 0.9 with an average of three teeth in those children with decay.
- In 12- year- old children, the mean (average) number of permanent teeth affected by obvious decay experience (DMFT[2]) was 0.8. Among 12 -year -olds with any such decay, the mean number of teeth affected was 2.5.
- There were reductions in the extent and severity of tooth decay present in the permanent teeth of 12 year olds overall in England, Wales and Northern Ireland between 2003 and 2013. Large proportions of children, however, continue to be affected by disease, and the burden of disease is substantial in those children that have it.
- The proportion of children with tooth decay was significantly higher in the Chinese (51.3 per cent), Eastern European (47.6 per cent) and Other Ethnic Groups (44.6 per cent).

Children who were from lower income families (eligible for free school meals) are more likely to have oral disease than other children of the same age.

- A fifth (21 per cent) of five year old children who were eligible for free school meals had severe or extensive tooth decay, compared to 11 per cent of 5 year olds who were not eligible for free school meals as highlighted in the findings of national surveys.

[1] dmft = the dmft index, is obtained by calculating the average number of decayed (d), missing due to decay (m) and filled due to decay (f) teeth (t) in a population. In five-year-old children, this score will be for the baby teeth or primary teeth and is recorded in lower case.

[2] In 12-year-old children it reports on the adult or permanent teeth in upper case (DMFT).

The regular collection of local epidemiological data at the level of upper and lower tier local authority in relation to dental health for children has changed over the past decade. The last survey exploring the dental health of 3 year old children was in 2013, and for 12 year olds was in 2008/2009. Whilst this data and the findings from the subsequent reports are of value and have been included in this report, they should be interpreted with caution as the reports are 5 and 10 years old respectively.

Indices relating to the dental health of 5 year olds are used by PHE as part of Public Health Profiles. Surveys of 5 year old children are still being performed biennially at a local level (upper and lower tier local authority) and the most recent data available is from the survey performed 2016/17. Consistency in methodology allows for comparisons between successive surveys of 5 year old children, and the current survey is the most up to date data available to the local authority.

Tooth decay in 3 year old pre-school children

The national survey undertaken in 2013 (Public Health England. 2014) examined three-year-old children, attending state and private funded nurseries and nursery classes attached to schools and play groups.

This survey is now 5 years old and has not been repeated since. Due to the challenges of surveying this age group, the small sample size (for York this was 153 children) and small numbers of children found to have visible signs of dental decay, do not allow for meaningful comparisons between local authorities (Public Health England. 2014). The findings of this survey should be seen in this context.

The proportion of three-year-old children experiencing tooth decay is however, an indicator of the prevalence of tooth decay (Public Health England. 2014). The prevalence of visual decay including incisors in York (%dmft>0) for this age group (from 153 children sampled) was 6.9% compared with England 11.7% (Public Health England. 2014). There was a strong association between levels of tooth decay and level of deprivation and a moderate association was found between prevalence of tooth decay at age three and at age five (Public Health England. 2014).

The same survey also explored the decay status of the upper primary incisors, regardless of the decay status of the other teeth. Decay of this type can progress rapidly and is associated with prolonged sugary drink intake using a bottle, for example extensive periods throughout the day or through the night. In York 1.8% of children had this type of decay in comparison with England 3.9% (Public Health England. 2014).

Tooth decay in 5 year old school children

Of all of the dental surveys conducted nationally this particular survey has been consistently performed every 2 years and consistency in the methodology used

allows robust comparisons between findings of previous surveys to be performed. A different methodology was used prior to 2008 and therefore comparisons between the surveys performed since then would not provide meaningful comparisons.

The most recent survey was performed in the school year 2016/17 (Public Health England. 2018) and the results were published in 2018. Comparisons have been made below between this data and the previous surveys conducted during the school years of 2014/15 and 2011/12 (Public Health England. 2013, and 2016). The findings of the most recent report probably provide the most robust dataset with respect to the dental health of young children in York currently available (Public Health England . 2018).

Ward data is not publically available for either the 2016/17 or the 2014/15 survey (Public Health England. 2015). The small sample sizes in some areas mean it is not possible to provide information at ward level. Future surveys could be commissioned to provide samples large enough to facilitate local analysis (Public Health England. 2015). Despite the sample size being too small to adequately examine inequalities at ward level it is well documented that poorer dental health is experienced by those individuals in the most deprived wards. By exploring methods of increasing the sample size will help identify areas where there is a greater prevalence and severity of oral disease such that interventions can be targeted appropriately.

Trends of oral disease in 5 year old children (Public Health England. 2013, 2016 and 2018).

Since 2006 positive parental consent has been required for a child to participate in the survey. Evidence suggests that children from more deprived areas are less likely to return completed consent forms which may mean that the levels of dental disease reported in surveys are an underestimate.

Three indicators which are commonly used to explore the dental health of children will be discussed for York with comparisons at both a regional level (Yorkshire and Humber geographical footprint) and England:

- The prevalence of dental decay (% dmft >0)
- The severity of dental decay experience, (the average number of teeth that were either decayed, missing or filled in all the children surveyed, including those without any signs of dental decay - mean dmft)
- The severity of dental decay in those children with experience of dental decay ((Mean dmft (of percentage who have a dmft > 0))

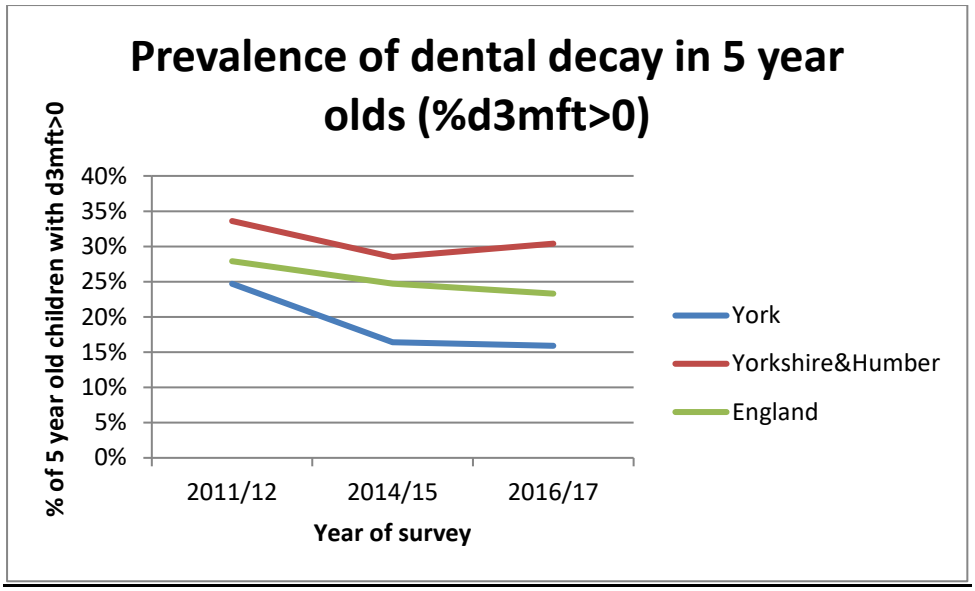
The findings from the 3 most recent surveys (please see table 1) (Public Health England. 2013, 2016 and 2018) reveal that:

- The prevalence of dental decay in 5 year olds in York for 3 consecutive survey cycles has decreased from 24.7% in 2011/12 to 15.9% in 2016/17 and during all of those surveys York had a lower prevalence than both England and Yorkshire & Humber (please see graph 1)
- The severity of dental decay experience in York decreased from 0.81 teeth in 2011/12 to 0.5 teeth in 2014/15, however, there was a slight increase to 0.6 teeth in 2016/17. Five year old children in York had less severity of decay experience though than both England and Yorkshire and the Humber over the 3 most recent surveys (please see graph 2)
- The severity of tooth decay in *only* those 5 year old children in York with experience of dental decay has generally stayed the same over the last 3 consecutive surveys, though it increased slightly from 3.27 teeth in 2011/12 to 3.7 teeth per child in 2016/17. Whilst 5 year old children with dental decay experience in York had less severity of tooth decay compared with England and Yorkshire and the Humber in 2011/12 and 2014/15, they had a greater number than England and the same as Yorkshire and the Humber in 2016/17 (please see graph 3)

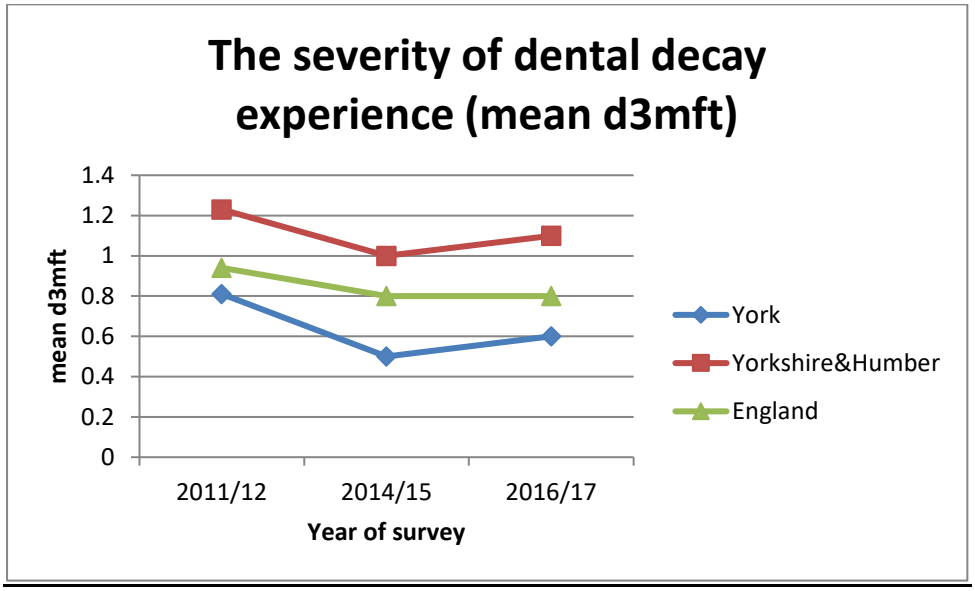
  Table 1 – Findings from the 3 most recent surveys of 5 year old children (Public Health England. 2013, 2016 and 2018).

Survey year	Prevalence of dental decay (% d3mft >0)	The severity of dental decay experience (mean d3mft)	The severity of tooth decay in those children with experience of dental decay ((Mean d3mft (of percentage who have a d3mft > 0))
2011/12			
York	24.7%	0.81	3.27
Yorkshire&Humber	33.6%	1.23	3.65
England	27.9%	0.94	3.38
2014/15			
York	16.4%	0.5	3.3
Yorkshire&Humber	28.5%	1	3.6
England	24.7%	0.8	3.4
2016/17			
York	15.9%	0.6	3.7
Yorkshire&Humber	30.4%	1.1	3.7
England	23.3%	0.8	3.4

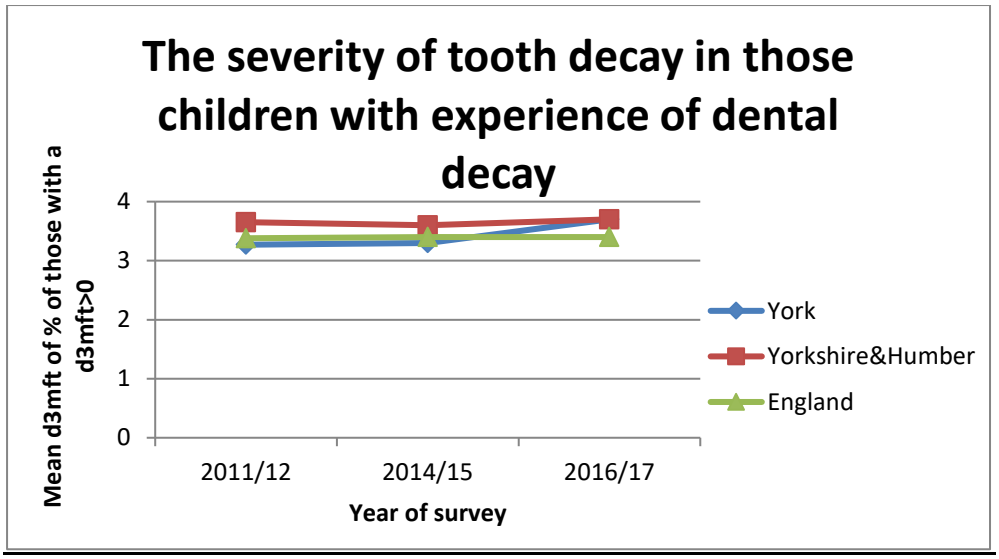
Graph 1 The prevalence of dental decay in 5 year olds (Public Health England. 2013, 2016 and 2018).



Graph 2 The severity of dental decay experience in 5 year olds (Public Health England 2013, 2016 and 2018).



Graph 3 The severity of tooth decay in those children with experience of dental decay in 5 year olds (Public Health England 2013, 2016 and 2018).



Plaque levels in York (Public Health England 2016 and 2018).

The 2016/17 survey of 5 year old children recorded a higher percentage of children with significant levels of plaque when compared with both England and Yorkshire and Humber (please see graph 4 and table 2). The 95% Confidence Intervals for this statistic are wide though (CI 95% - 3.66%-9.33%). Given the previous trends in the dental health of 5 year old children in York, this finding is not consistent with the general picture of the prevalence and severity of dental decay.

Table 2 Recorded plaque levels in 5 year olds (Public Health England 2016 and 2018).

Survey year	York	Yorkshire& Humber	England
2011/12	Not recorded	Not recorded	Not recorded
2014/15	0%	1.1%	1.7%
2016/17	5.9%	1.4%	1.5%

Graph 4 The percentage of 5 year olds with significant levels of plaque (Public Health England 2016 and 2018).

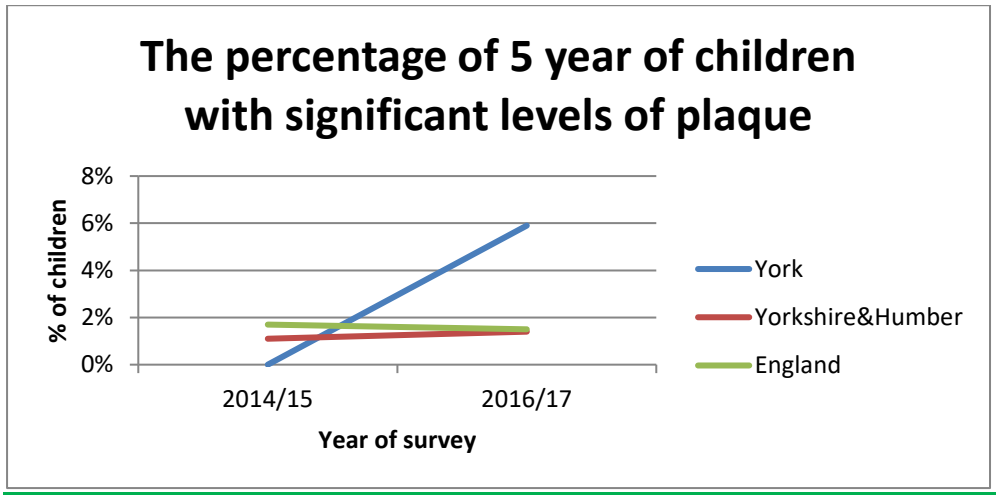
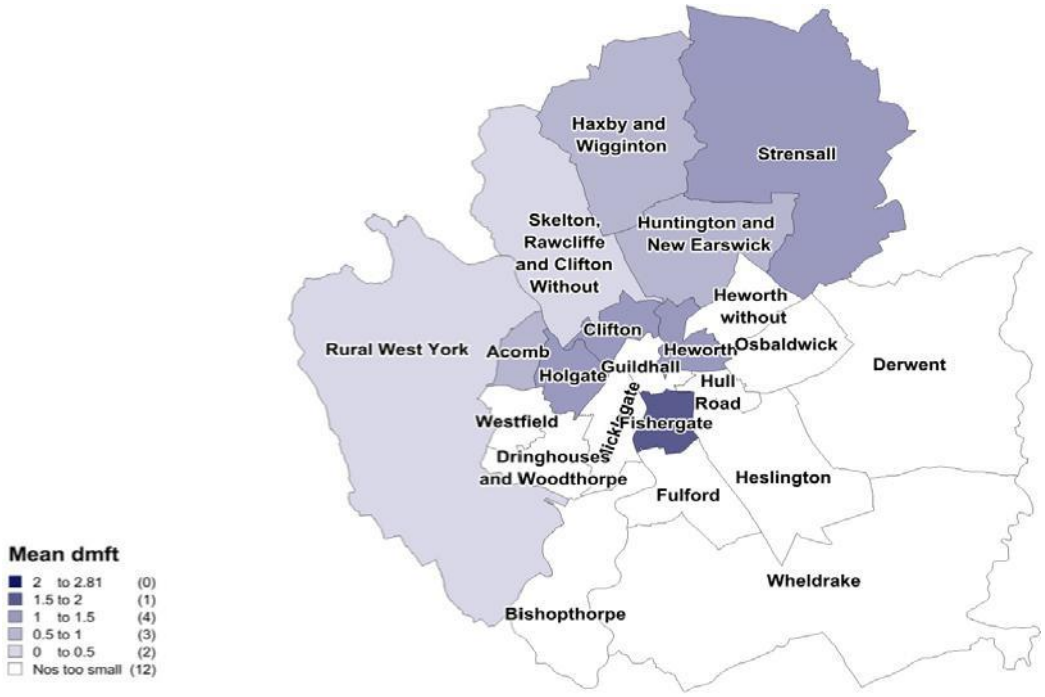


Figure 9 - Severity of tooth decay in five-year-old children in York by ward, 2011/12 (Public Health England 2013).



Source: PHE National Dental Epidemiology Programme for England. Map produced by PHE Knowledge and Intelligence Team Northern and Yorkshire © Crown copyright and database rights 2014 Ordnance Survey 100016969 Contains National Statistics data © Crown copyright and database right 2014

The 2011/12 survey also provided a mapping function to enable the severity of dental decay to be analysed at ward level for each local authority. This data is very valuable as it enables local authorities to identify those areas with greatest dental disease levels and enables scarce resources to be targeted. Unfortunately this mapping facility is not available for the surveys that followed.

From the map above (figure 9) areas where 5 year old children had the greatest average severity of experience of dental decay included Fishergate, Heworth, Clifton, Holgate, Acomb and Strensall. As this map is now 6 to 7 years old the data should be interpreted with caution. However, Clifton, Acomb and Heworth have been identified as wards with higher levels of child poverty (City of York Council. 2011) and Fishergate has a higher proportion of individuals from ethnic minorities (City of York Council. 2018) which are at greater risk from dental decay.

Trends in Dental Care of 5 year old children

The care index % gives an indication of the restorative activity of dentists in each area. It is the percentage of teeth with decay experience that have been treated by filling (ft/d3mft). Care should be taken in making assumptions about the extent or the quality of clinical care available when using this index. Other intelligence such as levels of deprivation, disease prevalence and the provision of dental services should be taken into account when trying to interpret the implications of high or low scores (Public Health England. 2018)

Table 3 (Public Health England. 2018).

Survey area 2016/17	Care Index %
York	10.3
England	11.8

Care Index % relates to the proportion of the dentinally decayed missing or filled teeth score relating to treatment by filling.

Table 3 reveals that the proportions of 5 year old children sampled in York have a Care Index of 10.3% suggestive that 10.3% children from those surveyed were receiving dental treatment for decay (fillings). However, the Care Index for York is slightly lower than that for England from findings in the latest survey. It is not clear why in this case, but there can be many reasons, including late presentation of dental decay, a less interceptive dental treatment approach, differing dental philosophies or a lack of sedation services for treament

Trends in % of 5 year old children with evidence of sepsis

Table 4 Percentage of 5 year olds surveyed with evidence of sepsis (Public Health England. 2013, 2016 and 2018).

	% with sepsis 2012	% with sepsis 2015	% with sepsis 2017
York	0.3	1.9	1.6
Yorkshire and The Humber	2.4	2.2	2.8
England	1.7	1.4	1.1

Signs of sepsis would include a dental abscess above a tooth, most likely either due to dental decay or the sequalae of the impacts of trauma to a tooth resulting in the death of the pulpal tissue of a tooth and subsequent infection. The percentage of 5 year old children with evidence of sepsis in England has decreased in consecutive surveys since 2012. Whilst York has had a lower percentage of children with evidence of sepsis in all 3 of the last surveys in comparison to the rest of the region as a whole it is slighter higher in the 2016/17 survey in comparison with England (please see table 4 above).

Oral Health of 12 year olds

The last survey of 12 year old children was performed in 2008 (NHS. 2010) and this is of limited value due to the age of the survey and the lack of subsequent surveys to enable comparisons. The findings reveal that the oral health of 12 year olds surveyed in York was better than Yorkshire and the Humber but it was less good when compared with England as a whole .

The prevalence of dental decay (D3MFT) in 12 year olds was found to be 40.6%, this compares with 44.7% for the region and 33.4 % with England (NHS. 2010). The severity of dental decay (Mean D3MFT) was 0.98 teeth for 12 year old children in

York compared with 1.07 for the region but 0.74 for England (NHS. 2010). The severity of tooth decay in those children that had experience of dental decay Mean D3MFT (%D3MFT>0) was 2.41 teeth for York compared with 2.40 for the region and 2.21 for England, please see table 5 below (NHS. 2010)

Table 5 Oral Health of 12 year olds (NHS. 2010)

Oral Health survey of 12 year olds (2008)	Prevalence of dental decay (% d3mft >0)	The severity of dental decay experience (mean d3mft)	The severity of tooth decay in those children with experience of dental decay ((Mean d3mft (of percentage who have a d3mft > 0))
York Yorkshire&Humber England	40.6% 44.7% 33.4%	0.98 1.07 0.74	2.41 2.40 2.21

Looked after children

Looked after children tend to have poorer health and well-being than their peers. Although there are some national data to describe the health needs of looked after children, their oral health needs are not routinely monitored in York. However, these children often lack a stable environment and do not receive a consistent level of oral health care provision, special attention should be paid by including oral health in their core healthcare needs.

With regards to the oral health needs of looked after children the Social Care Institute for Excellence (SCIE) and the National Institute for Heath and Care Excellence (NICE) guidelines state that looked-after children and young people's access to dental care is often a major concern. Some of the main barriers for access in this group are (NICE. 2010):

- Travel to dental care providers
- Capacity of dental care providers to take new patients
- Unplanned placement moves
- Fear, phobia or confidence issues (SCIE NICE Evidence statement C3.12).

A clear pathway from the point of identification of looked after children to a dental provider is required.

Rates of looked after children per 10,000 children under the age of 18 years of age are lower than England or regionally but they are a vulnerable group which require additional support to ensure they maintain good oral health (please see table 6 and 7).

Table 6 Numbers of looked after children by local authority 31 March 2014 – 2018 (ONS. 2018)

	2014	2015	2016	2017	2018
England	68,810	69,470	70,400	72,590	75,420
Yorkshire & Humber	7,380	7,260	7,250	7,720	8,190
York	221	192	192	205	195

Table 7 Rates of children looked after per 10,000 children aged under 18 years of age (ONS. 2018)

	2014	2015	2016	2017	2018
England	60	60	60	62	64
Yorkshire & Humber	65	64	63	67	71
York	61	52	52	56	53

Children attending special support schools

Data from the Dental Public Health Epidemiology Programme for England, (Public Health England. 2014) showed nationally that children in special support schools have slightly lower levels of tooth decay than children in mainstream schools but were more likely to have teeth extracted than restored.

The key findings were:

- around 1 in 5 (22 per cent) 5 year old children at special support schools has experienced tooth decay.
- around 1 in 4 (29 per cent) 12 year old children at special support schools has experienced tooth decay.
- those children with tooth decay have an average of 4 decayed teeth at age 5 and 2 decayed permanent teeth at age 12, which is greater than those attending mainstream schools.
- the number of 5 year old children at special support schools who have had one or more teeth extracted due to decay is double that of those in mainstream schools (6 per cent and 3 per cent respectively).
- oral hygiene is generally poorer in children attending special support schools with more children having visible plaque at both age 5 and age 12 compared to their mainstream counterparts (4 per cent compared to 2 per cent and 20 per cent compared to 10 per cent respectively)
- in both age groups, those with a behavioural, emotional or social difficulties have the highest levels of tooth decay; 28 per cent of 5 year olds and 42 per cent of 12 year olds

The number of 5 year old children in York recorded attending a special support school in 2014 by the survey, was 13 children. Only 4 consented to be part of the survey. The survey defined any sample of less than 20 children to be too small for a robust estimate of oral health for this group.

The number of 12 year old children in York recorded attending a special support school in 2014 was 10 children. Only 3 consented to be part of the survey. The survey defined any sample of less than 20 children to be too small for a robust estimate of oral health for this group.

Despite the lack of statistical data specifically for York the national statistics reveal that children that attend a special support school to be vulnerable and at greater risk of poorer oral health. As the numbers in York in 2014 were small then a targeted intervention would seem feasible. Training for healthcare practitioners such as specialist school nurses in oral health prevention may be beneficial.

Children with an Education, Health and Care Plan (EHCP) which are issued by the local authority will be at greater risk of poor oral health. As the local authority issue the EHCP there is an opportunity therefore in the future for the local authority to explore whether these children have access to dental care.

6 Oral healthcare services

With the exception of the statutory obligations local authorities are required to provide in relation to oral health discussed previously, all other NHS dental services in England are commissioned by NHS England. This includes primary care which includes general dental services and any primary specialist dental services (for example orthodontics) together with unplanned (urgent) dental care and services provided by the Community Dental Service. NHS England also commission secondary dental services in a hospital setting which would also include orthodontic services provided by specialists in this environment.

The current NHS dental contract was introduced in April 2006 and the contracting currency is in the form of Units of Dental Activity (UDAs). Individuals or organisations which have a contract with NHS England to provide general dental services are contractually obliged to provide an agreed number of UDAs per annum which may be provided by one or more dentists. The current contract has presented a variety of challenges and several pilot schemes, now called prototype schemes are currently underway to explore methods of adapting the current contract to focus upon increasing the provision of preventive dental care. The amount a dentist is paid per UDA varies considerably between NHS dental contracts and was based on historical contract data prior to 2006. These values are no longer reflective of current practice. Contract holders that fail to provide the required number of UDAs (less than 96%) are contractually required to return funds to NHS England equivalent to the number of UDAs that have not been delivered.

Whilst not exhaustive the summary below outlines the main items of treatment for patients aligned with UDA bands:

Band 1 - To achieve 1 UDA an NHS dentist will provide treatment that includes one or more of the following examination, dental radiographs, fluoride varnish application

Band 1 urgent – A dentist that provides an urgent course of treatment for example extraction of a tooth or dressing, (and no other item of treatment is required after that time, with that dentist) then the dentist would be assigned 1.2 UDAs.

Band 2 – To achieve the 3 UDAs aligned with a band 2 course of treatment, all of the above items of care including fillings, extractions and root fillings would be provided by the dentist including those items outlined in Band 1.

Band 3 – All of the above items of treatment from Bands 1 and 2 would be provided including crowns, bridges and dentures and the dentist would be assigned 12 UDAs on completion.

Unless exempt from paying NHS dental charges, adults will pay for their NHS dental treatment and will pay a charge aligned with the UDA summary above.

As regards NHS dental care for children no child under the age of 18 years of age is eligible to pay for NHS dental care in any NHS environment (for example the GDS, Community Dental Service or the hospital). Whilst the concept of NHS dental registration ceased for all patients in England in April 2006, it is common for NHS dental practices to maintain a list of patients that regularly attend their practice. Patients attend an NHS dental practice for a course of treatment but are free to attend another NHS dental practice for dental care. Children may also access dental care privately for which there would be a patient charge. Data surrounding private dental provision in the UK is very limited as there is not a reliable national dataset from which to refer to.

The majority of NHS dental care is provided by general dental practitioners for both adults and children. Whilst NHS England has data relating to NHS dental services they do hold information relating to private dental services. A list of dental practices with NHS contracts was provided by NHS England. A list of postcodes that lie within City of York Council boundaries was provided by the Business Intelligence team at the CYC. Alignment of postcodes within CYC boundaries with those of the address details of the dental practices providing NHS primary dental care provided the number of practices that lie within CYC boundaries and provide NHS dental care. This number is subject to variation as dental practices close and new ones open.

There are currently 18 dental practices providing NHS dental services within CYC boundaries and one Community Dental Service facility. The SHAPE tool was used to map the geographical location of the NHS dental practices (n=18) within CYC boundaries and is provided below. The maps below (figures 10a and 10b and 11) show that the majority of NHS dental practices are close to the city centre of York.

Figure 10a using SHAPE to map location of NHS GDS practices and the CDS site within CYC boundaries (full boundaries visible on map)

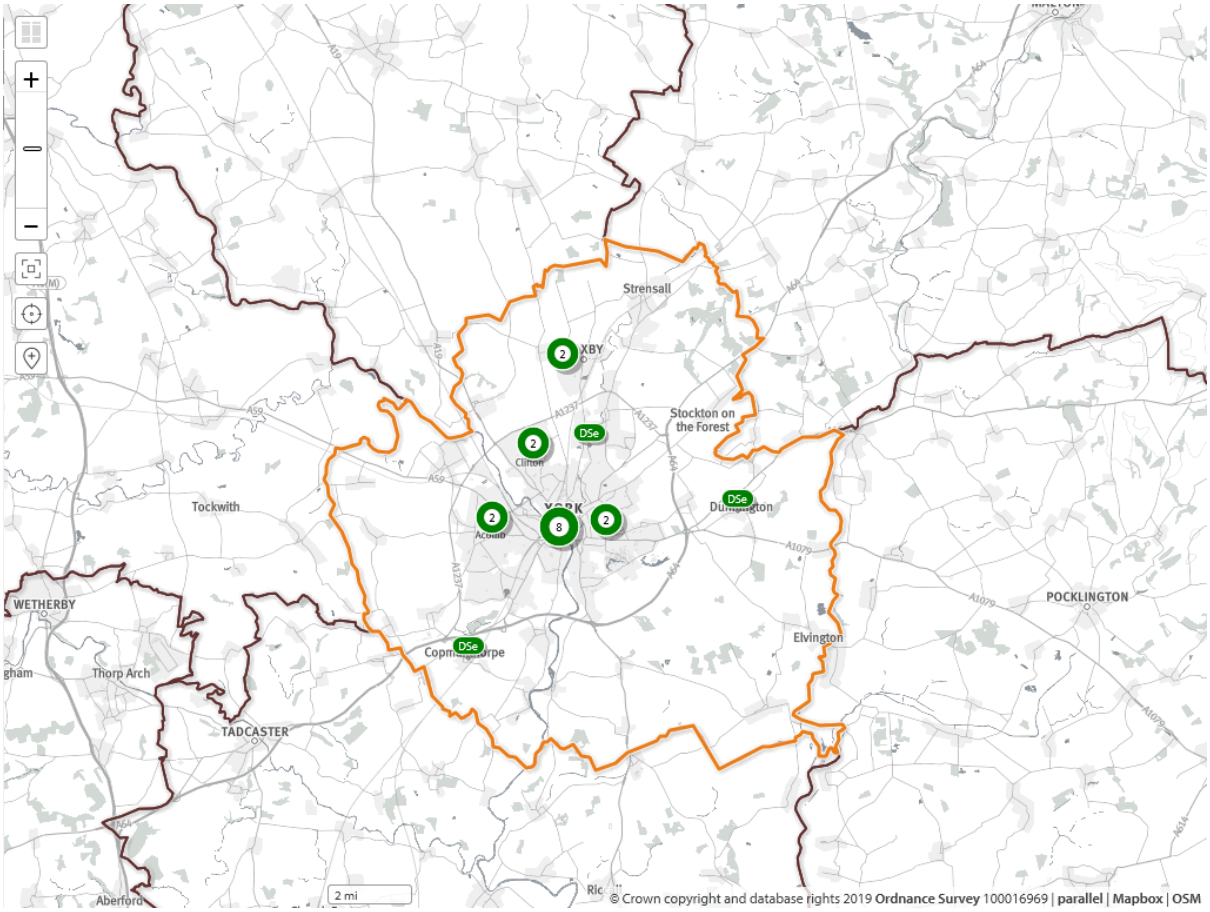


Figure 10b using SHAPE to map location of NHS GDS practices and the CDS site within CYC boundaries - close up (all practices visible on the map are within CYC boundaries)

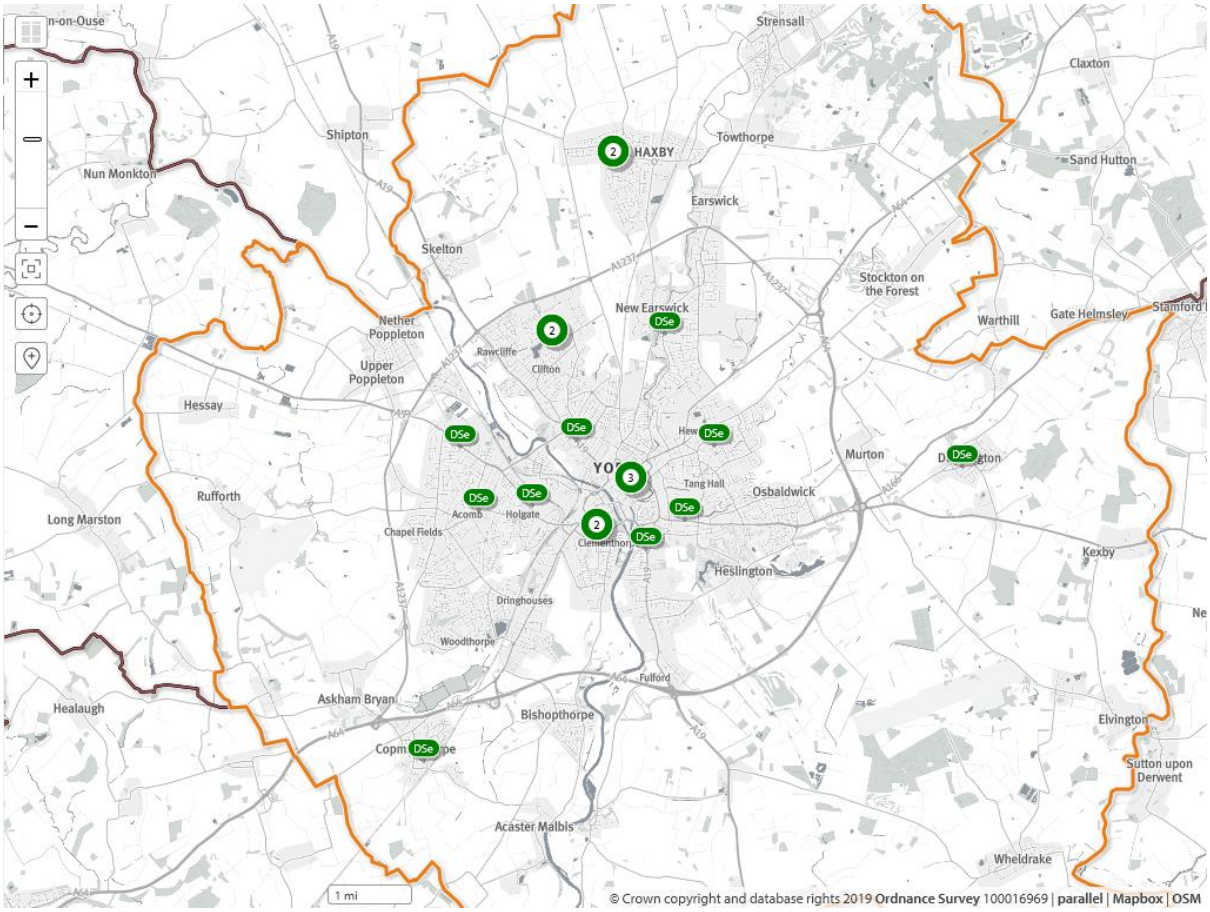
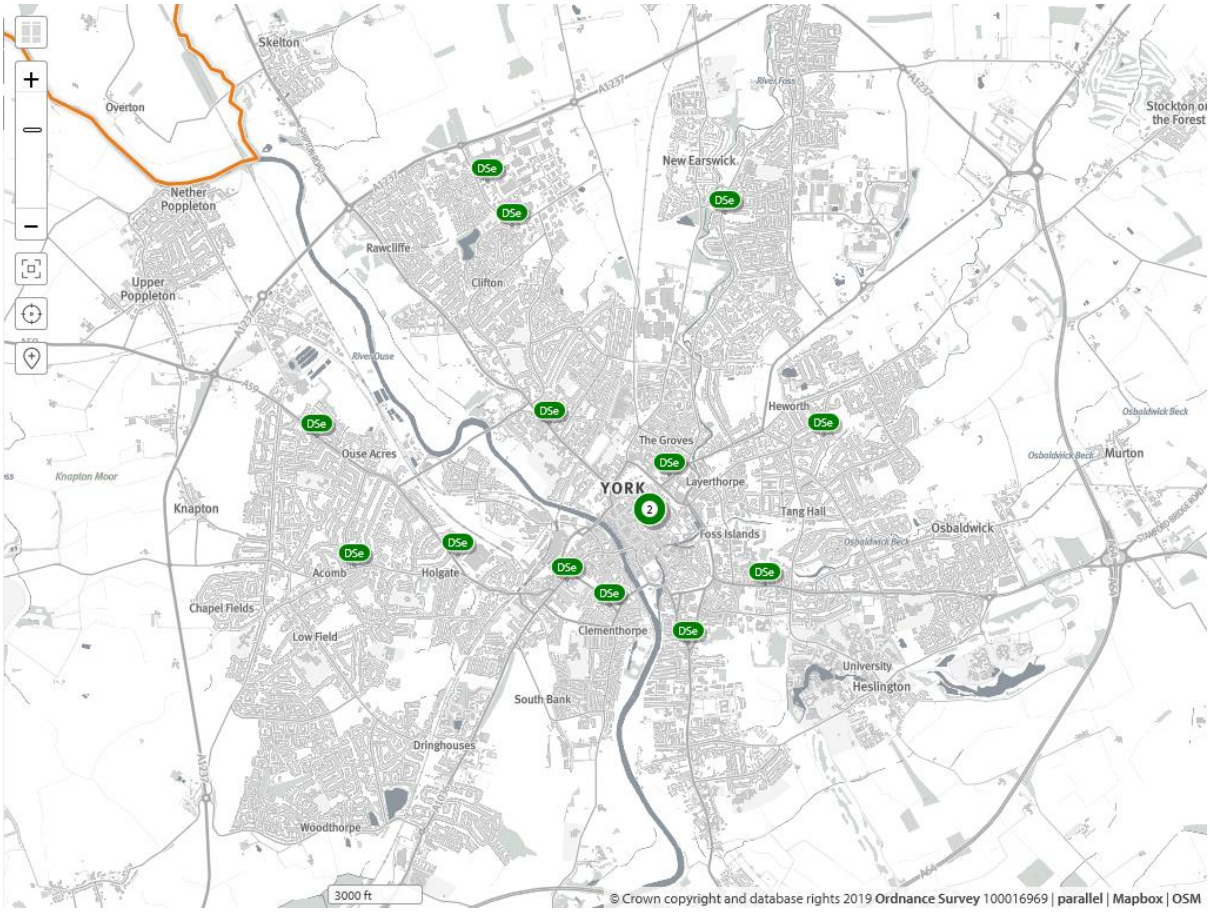


Figure 11 using SHAPE to map the location of NHS GDS practices and the CDS site within CYC boundaries (focus on City Centre)



Making Every Contact Count (MECC)

MECC Is a long-term strategy to ensure that all NHS staff take every opportunity to help people make informed choices about their health-related behaviours.

Making Every Contact Count means that all staff, when the opportunity arises, are confident and competent in starting a very brief conversation which will help the person involved to consider change, feel encouraged and supported to change, and know where to go for further support if they feel ready to change. A MECC chat is not focused on helping people to change their behaviour, as it is too short an interaction to do that. It is focused on helping people to think about changing by raising their awareness of issues such as smoking, alcohol, physical activity and healthy eating.

Dedicated primary care team MECC training programmes commissioned by local authorities, recognise that dental teams are well placed to help patients adopt healthier lifestyles thereby contributing to improving and reducing inequalities in health by providing healthy chats to their patients.

Starting Well

NHS England has launched Starting Well: A Smile4Life Initiative. This programme of dental practice-based initiatives and reaching out to communities aims to reduce oral health inequalities and improve oral health of children under the age of five years, with a focus on those who are not currently visiting the dentist and are under the age of one year. The programme has been targeted to the thirteen worst areas in the country, however NHS England Yorkshire and the Humber is considering a wider roll out. Starting Well involves activities at an individual, family and community level.

In Practice Prevention

A local flexible commissioning initiative by NHS England targeted at improving the oral health of children with dental decay or at high risk of dental decay up to the age of 16 includes one NHS dental practice in York.

The initiative involves provision of oral hygiene instruction and fluoride varnish application to these children at high risk of dental decay, provided by a dental professional over 2 or 3 dedicated appointments.

Dental recall

Traditionally children and adults were advised to attend a dentist every 6 months for a routine dental examination. Recent guidelines introduced by NICE (NICE. 2004) now state that children should attend an examination with a dentist every 3 to 12 months depending on the level of risk of oral disease as assessed by a dentist.

Dental attendance does not necessarily prevent dental disease but it is important in terms of assessing patient risk to oral diseases and giving appropriate evidence based advice. NICE and PHE have developed guidance documents to support dental teams in delivering preventive measures for example Delivering Better Oral health (Public Health England. 2014) which was discussed previously.

Opportunities where the local authority and NHS England can support dental teams to provide preventive measures are to be encouraged.

Access to dental care

Data from the NHS Business Services Authority used to inform the Oral Health Needs Assessment (Public Health England. 2015 of North Yorkshire and the Humber 2015 revealed that the proportion of the child population seen in the previous 24 months in 2013/14 in York was 72.4% (compared with England 68%).

Three recent data sources have been used to identify dental access rates in York:

- Data supplied from NHS England (for 2016/17 and 2017/18) (NHS England 2018)
- Data from the publically available NHS Digital site (for 2016/17) (NHS Digital. 2018)

- NHSBSA national dataset from 2015 which allows greater analysis at the level of ward (NHSBSA. 2015)

The values from each will source will vary due to the differing time periods that the data was collected and analysed.

Number of Patients Accessing Services within York

Data supplied by NHS England

The table below shows the number of children in York who accessed dental services by age group. The corresponding information has also been provided for the whole of Yorkshire and the Humber.

From the data provided by NHS England (NHS Enlgand. 2018) NHS dental access for children aged 3-17 years of age for York in 2016/17 ranged from between (82-93%) with slightly lower figures for 2017/18 (ranging from between 81-91%). For all age groups between 0-17 years of age, access to NHS dental services in York was better for both 2016/17 and 2017/18 when compared with Yorkshire and the Humber please see Table 8 (NHS England. 2018).

However, despite NHS dental access for children in York aged 0-2 years being higher than the regional values, reported NHS dental access for this age group is poor (38% for 2016/17 and 2017/18), please see table 8 (NHS England. 2018). Whilst this is disappointing, poor dental access for this particular age group is relatively common, and the Chief Dental Officer is leading a national campaign through a range of initiatives to increase the numbers of very young children (0-2 years) accessing NHS dental care.

Also a local commissioning initiative by NHS England - In Practice Prevention involves one practice in York with the aim to provide preventive oral hygiene advice and fluoride varnish application to children aged between 0-16 years of age at increased risk of dental decay.

Table 8 Dental access for children aged 0-17 years of age. Data source- NHS England (NHS England. 2018)

Age Group	Number of York Patients	Population Total*	%	Number of Yorkshire & Humber Patients	Population Total*	%
2016/17						
0 - 2	3,054	8,088	38%	79,684	361,007	22%
3 - 5	5,768	6,461	89%	159,470	208,110	77%
6 - 12	13,476	14539	93%	381,659	462,856	82%
13 - 17	7,892	9603	82%	224,726	305,765	73%
Total	30,190	38,691	78%	845,539	1,243,582	68%
2017/18						
0 - 2	3,091	8,088	38%	82,131	361,007	23%
3 - 5	5,594	6,461	87%	157,218	208,110	76%
6 - 12	13291	14539	91%	386,956	462,856	84%
13 - 17	7798	9603	81%	225,480	305,765	74%
Total	29,774	38,691	77%	851,785	1,243,582	68%

Data from NHS Digital

A publically available website NHS Digital (NHS Dental statistics 2016-17 NHS Digital) (NHS Digital 2018) provides data regarding the numbers of children accessing NHS dental services by local authority. For City of York Council this was as follows:

Table 9 Number and percentage of population of child patients in York seen within preceding 12 months. Source of data NHS Digital (NHS Digital. 2018)

Child patients seen in the previous 12 months (as of 30th June 2017) (table A3)	**Child patients seen in the previous 12 months as a percentage of the population (as of 30th June 2017) (table A6)**
26,862	73.2%

When compared with Darlington local authority with a similar socio-demographic to York, 65% of the children in Darlington local authority were seen in the previous 12 months (as of 30th June 2017) (NHS Digital. 2018).

Although data is not available at the level of local authority NHS Vale of York CCG has a greater number of dentists per 100,000 population than England or NHS England North (Yorkshire and Humber) (NHS Digital. 2018). However, there has been a greater decrease in the percentages of dentists working within the NHS in NHS Vale of York CCG compared with either England or NHS England North (Yorkshire and Humber) (please see table 10 below) (NHS Digital. 2018).

Table 10 Number of dentists with NHS activity, for 2016-2017 (year ending 31 March 2017), England - NHS England region geography & CCGs (table H1a) (NHS Digital. 2018)

Organisation name	Total number of dentists	Population per dentist	Dentists per 100,000 population	Dentists difference 2015-16 to 2016-17	Percentage difference 2015-16 to 2016-17
England	24,007	2,282	44	- 82	-0.3
NHS England North (Yorkshire and Humber)	2,552	2,155	46	- 50	-1.9
NHS Vale of York CCG	209	1,700	59	-15	-6.7

Access to NHS dental services for children in the City of York

An analysis of a Nationally available dataset from NHSBSA (NHSBSA. 2015) was used to ascertain any inequalities in dental access at the level of ward for the city. To achieve this the data sources and relevant methodology for the analysis is provided below:

Data sources

- A dataset comprising of submitted NHS general dental service (GDS) FP17 forms at the level of ward and LSOA for the City of York, for a 24 month period (2015) secured from the NHS Business Services Agency.

- Office of National Statistics datasets identifying the populations at ward, lower super output area, and local authorities for England:

    - 2015 Ward population estimates for England and Wales, mid-2015
    - Mid-2015 Lower Layer Super Output Area population estimates for England and Wales

The index of multiple deprivation values for lower super output areas and other geographies using the 2015 index:

- Index of Multiple Deprivation Indices (IMD 2015)

Methodology

Submitted FP17 forms to the NHSBSA have been used as a proxy measure for access to NHS dental services.

A dataset was secured from NHS Business Services Authority (NHSBSA. 2015) and includes the *reported area of residence* for a patient and **not** the dental practice address the patient attends. The dataset has been sufficiently aggregated so that individual patients cannot be identified. The aim is to identify who has accessed NHS dental services irrespective of where they may seek care.

Each submitted claim form was used as a proxy measure to represent an occasion where an individual accessed primary NHS GDS dental care. The data was aggregated into 5 year age bands. This particular evaluation explores data for those aged between 0-15 (0-14.99) years of age using 15 years of age as a proxy end point for data pertaining to children.

In some areas there are low numbers of children and therefore, it is anticipated, that aggregating numbers of children into groups between the ages of 0-15 years of age, will provide more meaningful data to local authorities. An example where numbers of children aged between 0-15 years of age are particularly small is city centres. Wards and LSOAs in city centres in general are likely to have fewer numbers of resident children.

The data secured from the NHSBSA (NHSBSA. 2015) was available at the level of local authority, ward, MSOA and LSOA. Upper and lower tier local authority geographies alone are too large for data to be useful to explore specific areas where dental access may be limited. However, data presented at ward level and more specifically LSOA is more meaningful. For the purposes of the analysis of the data for City of York this has just been done at ward level as this will be of greatest value, however, the methodology describes how data can also be analysed at the level of LSOA.

Population numbers at ward level and LSOA were obtained for the whole of England from data provided by the Office of National Statistics. For City of York local authority the data at ward was aggregated into 5 year age groups.

ONS population datasets were linked to BSA datasets by Ward code using *Excel* and *Access* software.

To calculate the numbers of individuals that had accessed NHS GDS dental care the number of individuals that had seen a dentist (using the FP17 claim form as a proxy measure) was divided by the total population as reported by the Office of National Statistics.

This calculation was performed for City of York Council at the level of ward (though it is also possible to perform this at LSOA level) for the age groupings below:

- 0-14.99years of age (proxy measure for a child)
- 15-90+ years of age (proxy measure for an adult)

For the purpose of this report only data for children is highlighted and discussed below.

The Office of National Statistics assigns Indices of Multiple Deprivation scores for each local authority and LSOA in England. Utilisation of a decile rank formula enabled each ward (*and also if required by LSOA*) in York to be ranked by decile.

Linkage between ONS population data sets - BSA datasets and IMD ward decile ranking using Microsoft Access provided numbers of people accessing NHS dental care by IMD (2015) ranked deciles for each of the local authority areas at the level of:

- Ward (also possible at LSOA level)

For City of York at the level of Ward the proportion of individuals (aged 0-14.99 years of age) accessing dental care was calculated (please see table 11).

The Public Health Inequalities Analysis tool was then used to plot the proportions of individuals accessing dental care by deprivation score for City of York local authority, by ward for those aged between 0-14.999 years of age. A linear regression line was plotted enabling the reader to deduce the trend in access with differing IMD scores for York (Please see graph 5 below - Dental Access Inequalities by Ward for those aged between 0-15 years of age).

The PHE mapping tool – Local Health was used to map access to dental care by decile rank of access in York for those aged between 0-14.99 (Please see figure 12 and 13 below – Dental Access for children aged 0-14.99 years of age in York).

Results

Table 11 Dental access to NHS dental care by those aged 0-14.99 years at level of ward for the City of York

Ward Code	Ward Name	Local Authority	Sum of Total Number of Patients Treated aged 0-14.99 (General)	Total population of those aged 0-14.99 in that ward	% individuals accessing care in York wards aged between 0-14.99
E05010311	Acomb	York	1238	1661	75%
E05010312	Bishopthorpe	York	552	659	84%
E05010313	Clifton	York	1080	1717	63%
E05010314	Copmanthorpe	York	557	735	76%
E05010315	Dringhouses & Woodthorpe	York	1318	1800	73%
E05010316	Fishergate	York	749	1143	66%
E05010317	Fulford & Heslington	York	451	689	65%
E05010318	Guildhall	York	692	1247	55%
E05010319	Haxby & Wigginton	York	1448	1750	83%
E05010320	Heworth	York	1558	2218	70%
E05010321	Heworth Without	York	432	511	85%
E05010322	Holgate	York	1331	2081	64%
E05010323	Hull Road	York	932	1386	67%
E05010324	Huntington & New Earswick	York	1334	1658	80%
E05010325	Micklegate	York	1143	1810	63%
E05010326	Osbaldwick & Derwent	York	819	1133	72%
E05010327	Rawcliffe & Clifton Without	York	1655	2094	79%
E05010328	Rural West York	York	885	1271	70%
E05010329	Strensall	York	1098	1502	73%
E05010330	Westfield	York	1971	2752	72%
E05010331	Wheldrake	York	576	796	72%

The data above was used to map dental access for those aged 0-14.99 years of age.

Key for maps below

1 (yellow) = areas where the lowest proportions of children (0-14.99 years) have accessed NHS dental care and 10 (dark purple) = areas where the greatest proportions of children (0-14.99 years) have accessed NHS dental care for all 21 wards in CYC boundaries, by resident postcode.

Figure 12 Access to dental care by decile rank of access in York for those aged between 0-14.99 superimposed over map

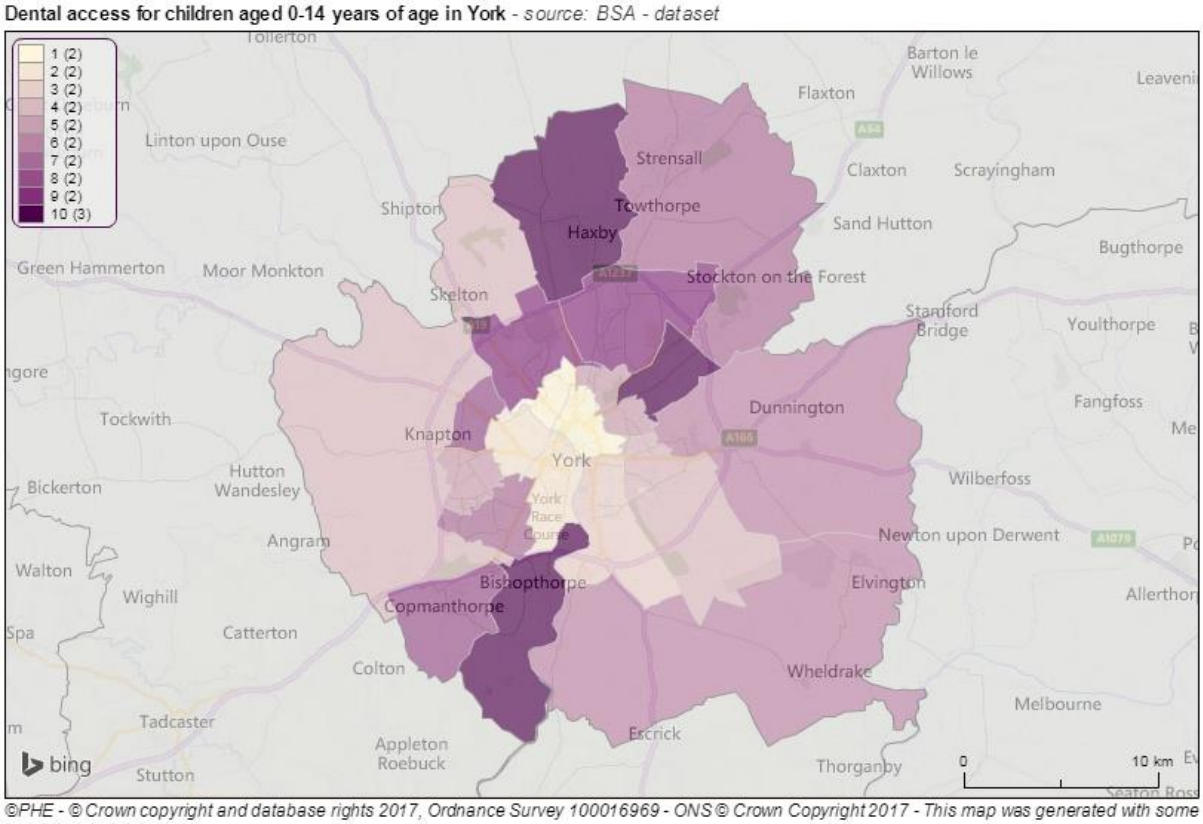
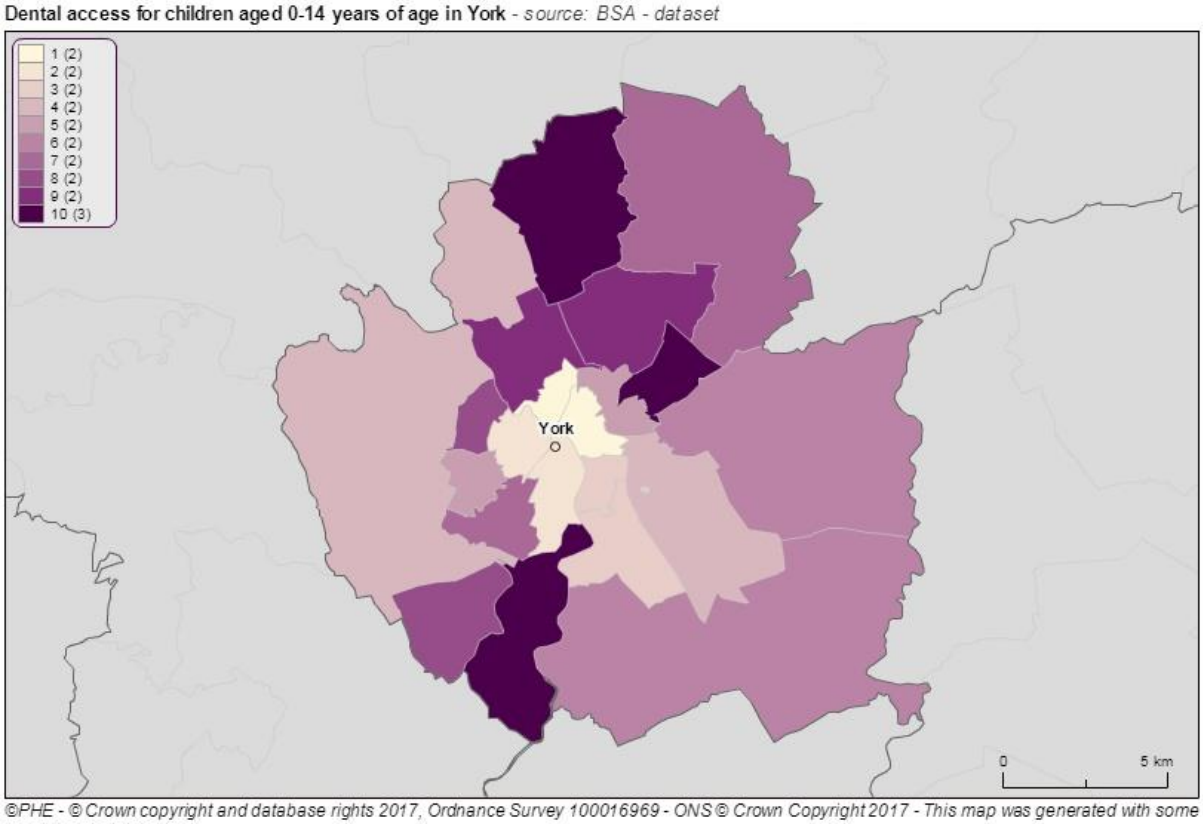
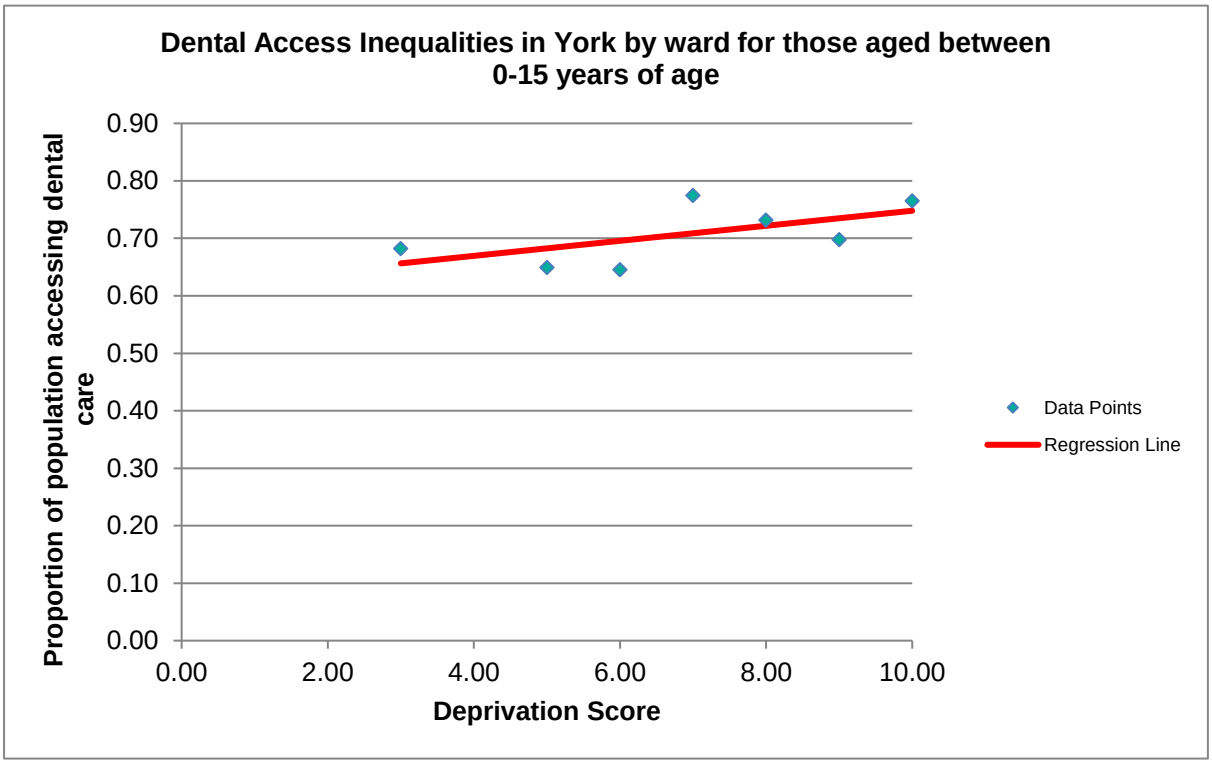


Figure13 Access to dental care by decile rank of access in York for those aged between 0-14.99



Graph 5 – Dental access inequalities in York by ward for those aged between 0-15 years of age



From this analysis at ward level in York, access to NHS dental care by those aged 0-15 years of age in 2015 ranged from between 55% - 85% (please see table 11). Those areas with less than 70% access were as follows:

- Fishergate 66%
- Fulford and Heslington 65%
- Holgate 64%
- Clifton 63%
- Micklegate 63%
- Guildhall 55%

From analysis of the English Indices of Deprivation (IMD 2015) provided by City of York Council (CYC) the most deprived wards in the city were identified as:

- Westfield (IMD 2015 score 25.80)
- Clifton (IMD 2015 score 24.70)
- Guildhall (IMD 2015 score 18.74)

From the map of Indices of Multiple Deprivation 2015 created by the CYC (please see figure 14 below) it is possible to see that in addition to Westfield, Clifton and Guildhall, other ward areas with high IMD scores include Holgate (IMD 2015 score 14.08) Micklegate (IMD 2015 score 15.64) and Hull Road (IMD 2015 score 13.02).

Interestingly Westfield which is the most deprived ward in York (IMD 2015 score 25.80) has dental access rates for 0-15 year olds of 72% whilst Fishergate, which is relatively less deprived (IMD 2015 score 9.14 compared with Westfield IMD score 25.80) has slightly poorer dental access at 66% (please see table 12 below). Fishergate does have a higher proportion of individuals from ethnic minorities though (please see earlier) and the Child Dental health survey 2013 (Office of National Statistics. 2013) highlighted that children from ethnic minorities had increased levels of dental decay.

As highlighted earlier The Child Poverty Needs Assessment (City of York Council. 2011) September 2011 revealed that poverty is concentrated in a number of wards and hotspots in the City. Together these wards account for nearly 60% of children who are in poverty (2555 out of 4450). 5 wards are above the regional and national average with regards to Child Poverty for all children, these are:

By Percentage:

6. Clifton (27%)
7. Hull Road (25%)
8. Westfield (25%)
9. Guildhall (22%)
10. Heworth (21%)

By Number of Children:

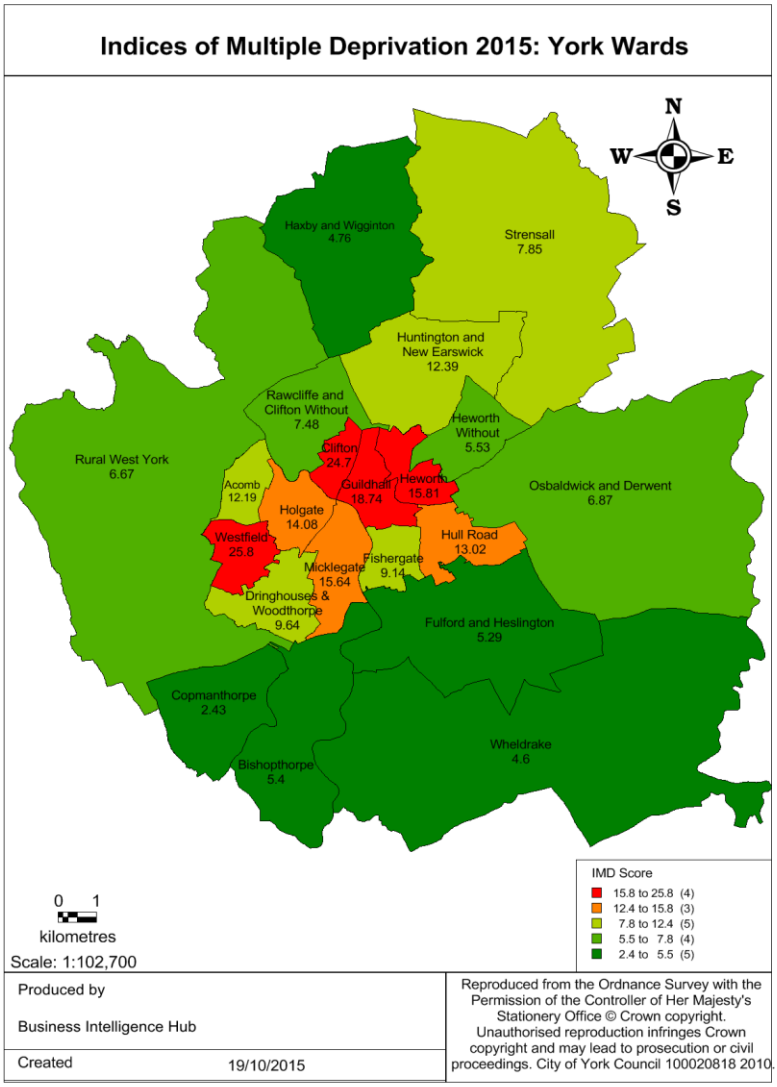
6. Westfield (795)
7. Clifton (585)
8. Heworth (510)
9. Hull Road (395)
10. Acomb (270)

When comparing the areas with the least dental access (NHSBSA 2015) to those areas identified by the Child Poverty Needs Assessment (City of York Council. 2011) only Clifton and Guildhall wards had the poorest levels of dental access and the most concentrated levels of child poverty by percentage of the child population.

Table 12 Indices of deprivation by Ward for City of York

Ward	2007	2010	2015
Acomb	13.68	14.85	12.19
Bishopthorpe	7.10	6.79	5.40
Clifton	25.34	25.01	24.70
Copmanthorpe	2.98	3.10	2.43
Dringhouses and Woodthorpe	10.08	10.91	9.64
Fishergate	11.18	9.31	9.14
Fulford and Heslington	5.64	4.59	5.29
Guildhall	22.22	21.06	18.74
Haxby and Wigginton	4.89	4.65	4.76
Heworth	18.99	18.43	15.81
Heworth Without	6.64	6.25	5.53
Holgate	15.41	15.33	14.08
Hull Road	16.05	14.63	13.02
Huntington and New Earswick	13.58	12.54	12.39
Micklegate	15.45	14.86	15.64
Osbaldwick and Derwent	6.76	6.54	6.87
Rawcliffe and Clifton Without	8.80	8.13	7.48
Rural West York	7.80	6.82	6.67
Strensall	8.87	7.96	7.85
Westfield	28.25	27.62	25.80
Wheldrake	5.44	4.45	4.60

Figure 14 Indices of Multiple Deprivation 2015: York Wards



Discussion

Recent data kindly provided by NHS England reveals that 78% of children in York aged between 0-17 years of age in 2016/17 were able to access NHS GDS dental care and this was about the same at 77% in 2017/18 (NHS England. 2018).

A direct comparison cannot be made with the findings of this analysis which has reported data at ward level for those aged 0-15 years of age (as a proxy measure for children) and is based on NHSBSA data from 2015 (NHSBSA. 2015).

However, overall the data would suggest that whilst NHS dental access to children is good overall within the City of York, there appear to be wards where this is less so, and in the main this is confined to the more deprived wards in the city and those identified with the greatest concentration of child poverty.

Recent data from NHS England (NHS England. 2018) also revealed that whilst NHS dental access for those aged 0-2 years of age in York is better than regional rates, it is still poor (38% 2016/17 and 2017/18). Poor rates of NHS dental attendance by those aged 0-2 years of age is a national issue, which is being addressed through national schemes such as Starting Well Core and 'Dental Check by 1'.

Fluoride Varnish application

Application of fluoride varnish has been shown to be effective in increasing the levels of available fluoride topically within the mouth regardless of the fluoride content in the water supply. A number of systematic reviews have found that professional application of fluoride varnish two or more times per year produces a mean reduction in caries increment of 37% in the primary dentition and 43% in the permanent teeth (Public Health England. 2014).

Fluoride varnish is well accepted and safe and requires minimal training to apply. Fluoride varnish is mostly applied by dentists though dental nurses can undergo training to enable them to apply varnish and provide preventive message to patients. This increases the skill mix of a dental practice and makes it more orientated towards prevention. All individuals aged 3 years and older giving concern to their dentist that they are at increased likelihood of developing dental decay should have 2.2% NAF (Fluoride varnish) applied twice yearly (Public Health England. 2014).

Application data is dependent, however, upon NHS dentists recording when they have applied fluoride varnish for an individual on a FP17 form.

Data analysed by the CYC Business Intelligence Team found that in 2015/16 there were 18452 applications of Fluoride varnish in York and 15279 (2014/15) and 12620 (2013/14) so that there has been a steady increase over recent years (please see graph 6 and 7 and table 13).

Recent figures from NHS England (using total child population aged 0-17 from NHS England 2018 and ONS population data) revealed that 53.5% of children in York (20683/38691) of those aged between 0-17 years of age in 2016/17 and 64% (24713/38691) in 2017/18 received fluoride application (please see table 14).

Graph 6 Number of Fluoride varnish applications per year for children resident in York (from CYC Business Intelligence Team)

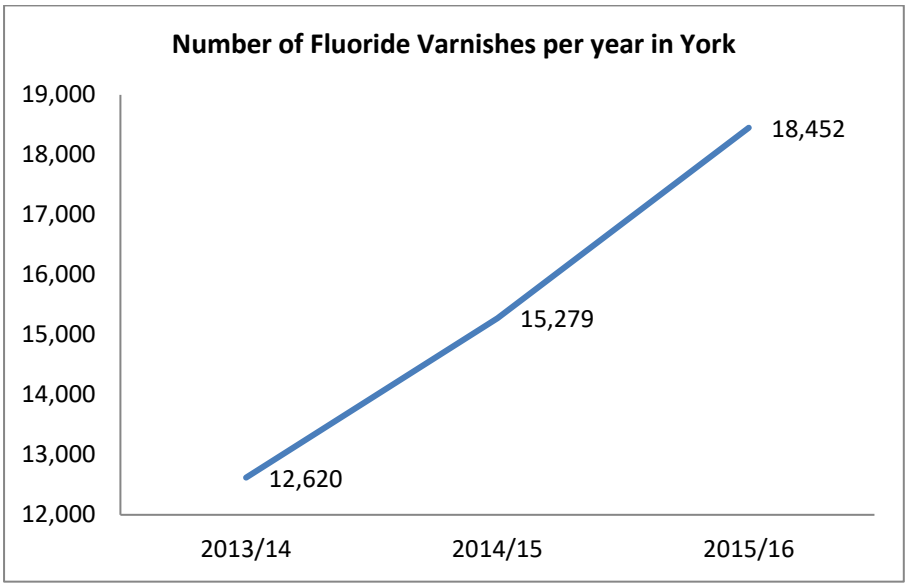


Table 13 Numbers of Fluoride applications for children in York and England

(From CYC Business Intelligence Team)

	Fluoride Varnish		
	2013/14	**2014/15**	**2015/16**
England	2,748,060	3,424,508	4,120,794
York	12,620	15,279	18,452

Graph 7 Fluoride varnish as a percentage of total courses of treatment (source CYC Business Intelligence Team)

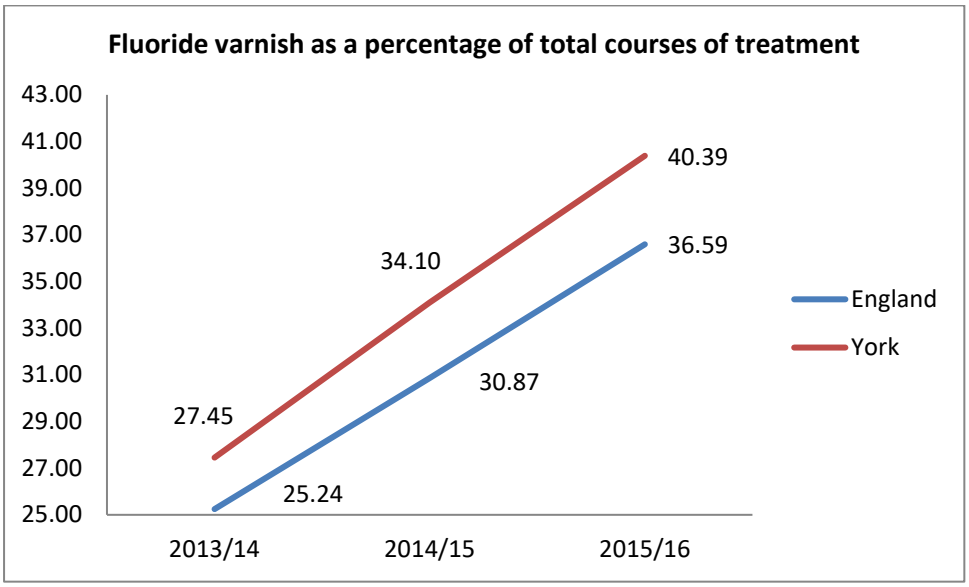


Table 14 Number of York patients receiving Fluoride application (source NHS England 2018 and ONS population data)

Year	Number of Child Patients Receiving Fluoride Application
2016/17	20683
2017/18	24713

The Salaried Dental Service/Community Dental Service

The Salaried Primary Care Dental Service is a specialised service that provides dental treatment for children, adults and older people who, because of additional needs such as learning disabilities, physical disabilities or vulnerability, are unable to access general dental care.

The CDS have expertise in the care, management and understanding of people with special needs. They offer treatment for both adults and children with:

- A learning disability warranting specialised care
- A physical disability
- Severe or complex medical problems
- Social, emotional, and/or behavioural problems
- Socially disadvantaged vulnerable groups
- Have neurodisability
- Are very young (pre cooperative)
- Anxious or dentally phobic
- Complex oral pathology

Access to the Salaried Primary Care Dental Service is by written referral from a health, education, or social services professional such as a general dental practitioner, general medical practitioner, a health visitor or a school nurse.

Secondary dental care services

Tooth extractions due to decay was the most common reason nationally for elective hospital admissions in children aged 5-9 years old. Dental treatment under general anaesthesia (GA), presents a small but real risk of life threatening complications for children. Tooth extractions under GA are not only potentially avoidable for most children but also costly. Extracting multiple teeth in children in hospitals in 2015/16 represented a total NHS cost of nearly £50.5 million.

The Business Intelligence Team at CYC investigated hospital admissions for dental caries over recent years using Hospital Episode Statistics (HES) which had been collated and analysed by Public Health England (PHE). This data source and the caveats associated with it as outlined by PHE will be described in greater detail below.

In summary, since 2011 till 2016, for four consecutive reporting periods, York had higher admission rates to hospital for extraction of primary and permanent teeth than the England average for 0-4 years, 5-9 years and 0-19 overall (but lower than regional averages). York did however, have lower rates of admissions compared with England and regional averages over the same time period for 15-19 year olds. For those aged 10-14 years of age the reporting periods 2014/15 and 2015/16 York had higher admission rates than both regional and national rates, please see tables 15, 16, 17, 18 and graphs 8, 9, 10 and 11 below. It is important to note that the admissions for dental extractions were for all diagnoses (those due to dental decay and those for other reasons).

Table 15 Admissions to hospital for extraction of one or more primary or permanent teeth 0-4 years – York

	No. of admissions (all diagnoses)	% of population
2011/12	40	0.38%
2012/13	35	0.33%
2013/14	48	0.45%
2014/15	50	0.47%

Graph 8 Admission to hospital for extraction of one or more primary or permanent teeth 0-4 years of age (all diagnoses)

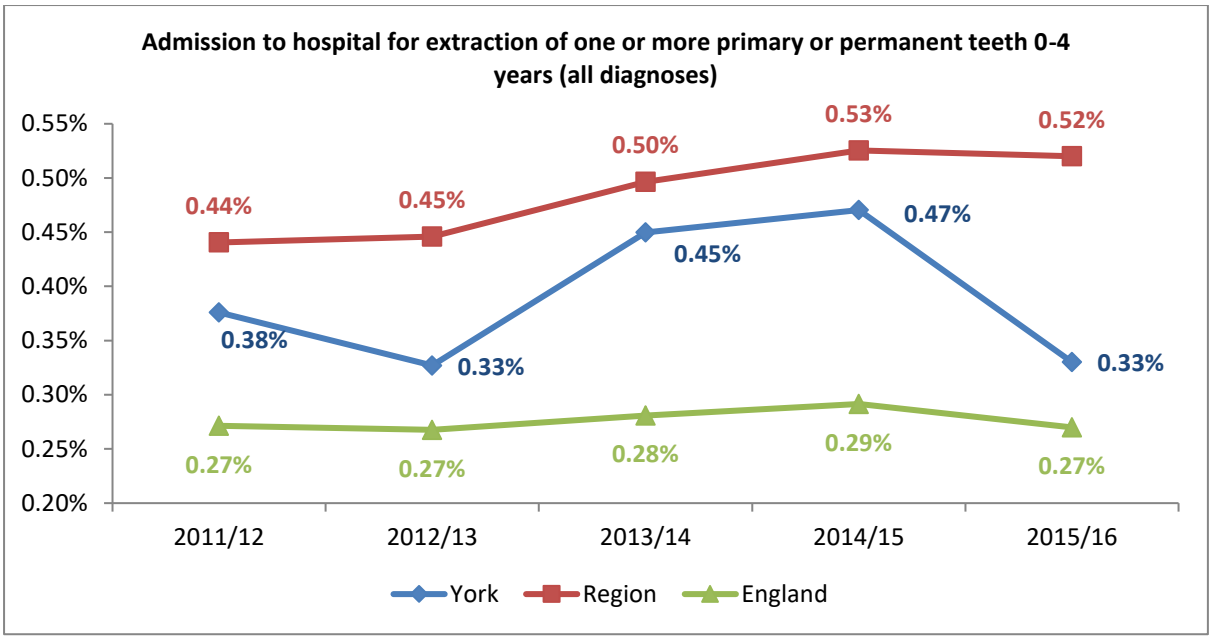


Table 16 Admission to hospital for extraction of one or more primary or permanent teeth 5-9 years – York

	No. Of admissions (all diagnoses)	% of population
2011/12	113	1.20%
2012/13	109	1.11%
2013/14	115	1.13%
2014/15	117	1.12%

Graph 9 Admission to hospital for extraction of one or more primary or permanent teeth 5-9 year olds (all diagnoses)

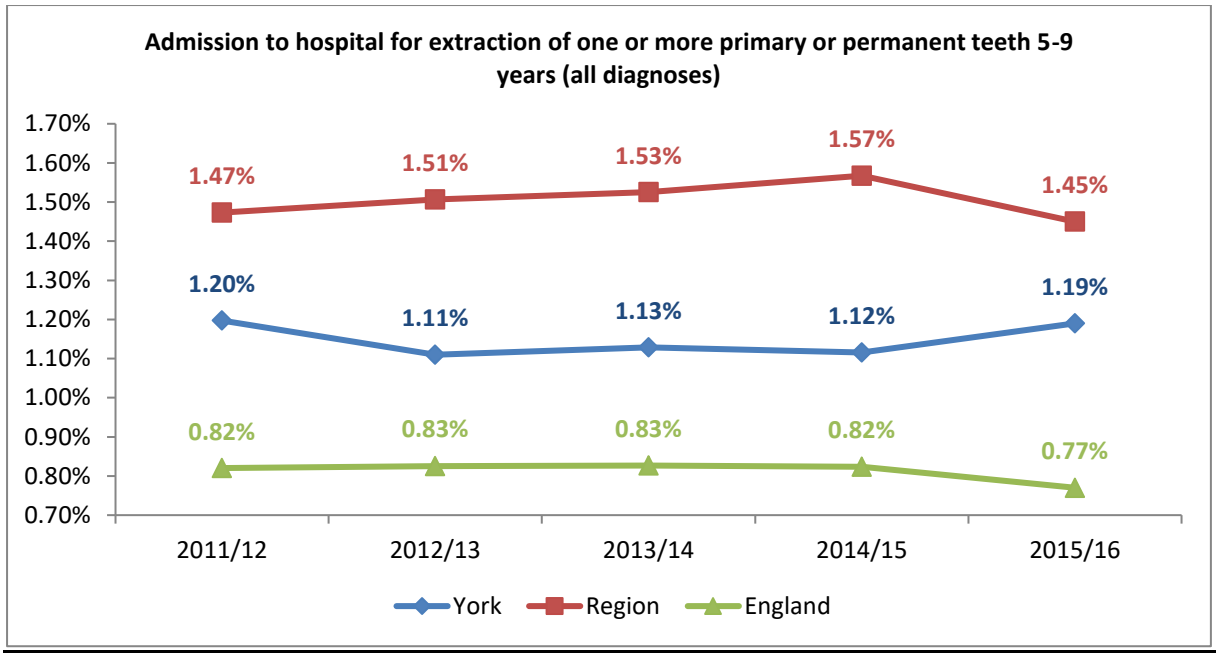


Table 17 - Admission to hospital for extraction of one or more primary or permanent teeth 10-14 years York

	No. of admissions (all diagnoses)	% of population
2011/12	49	0.51%
2012/13	58	0.62%
2013/14	61	0.66%
2014/15	65	0.70%

Graph 10 Admission to hospital for extraction of one or more primary or permanent teeth 10-14 years (all diagnoses)

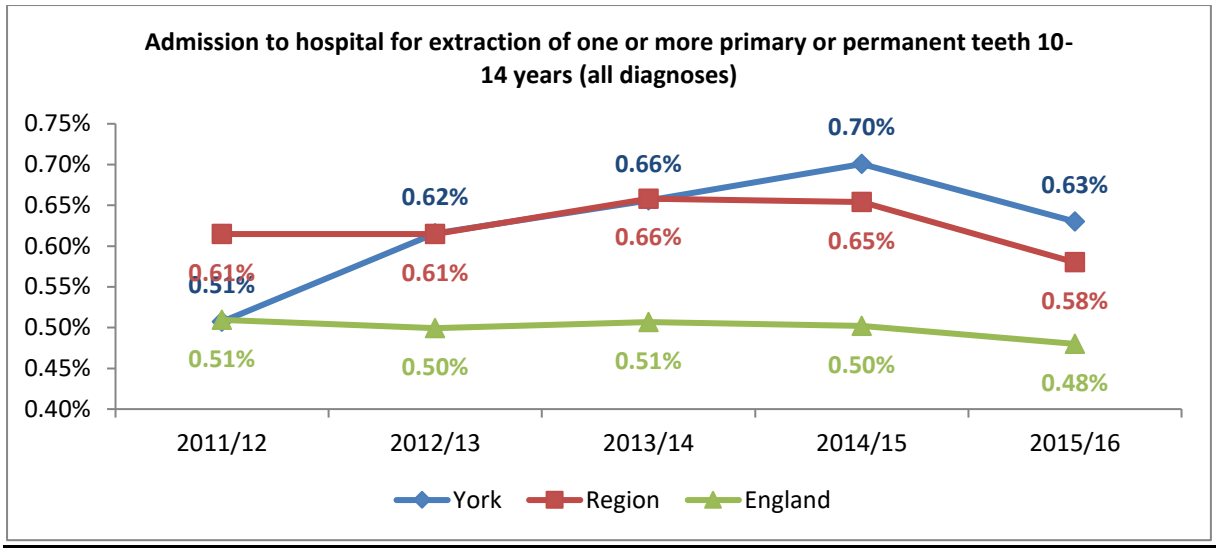
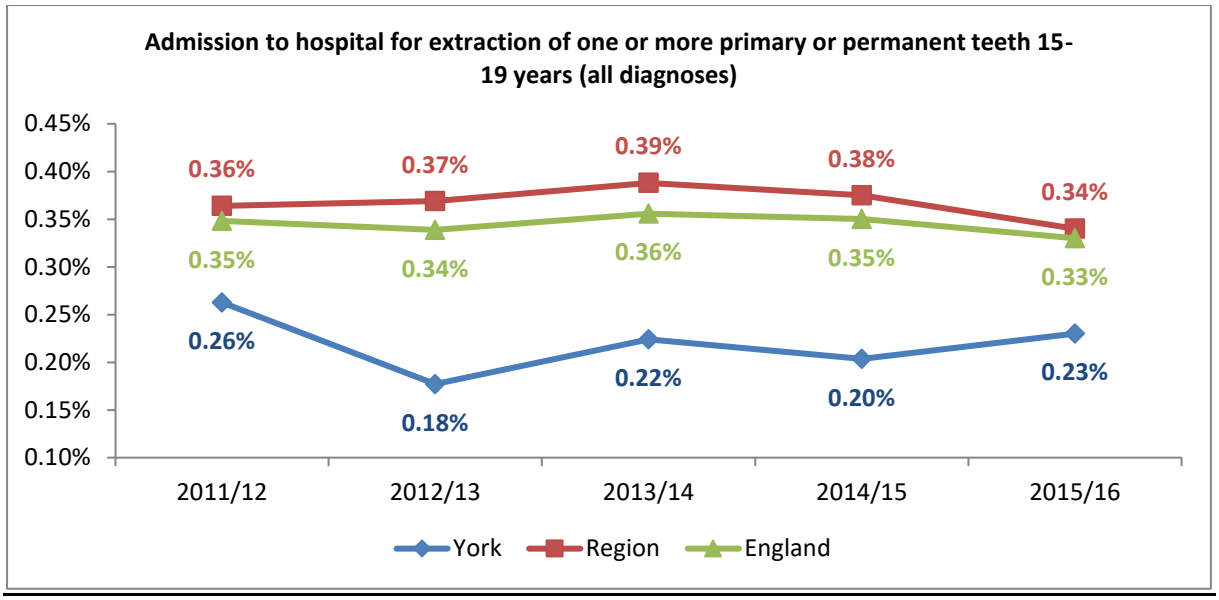


Table 18 Admission to hospital for extraction of one or more primary or permanent teeth 15-19 years York

	No. Of admissions (all diagnoses)	% of population
2011/12	35	0.26%
2012/13	24	0.18%
2013/14	31	0.22%
2014/15	28	0.20%

Graph 11 Admission to hospital for extraction of one or more primary or permanent teeth 15-19 years (all diagnoses)



Referrals for dental extractions under general anaesthesia

Public Health England provides details regarding hospital episodes of children (0-19 year olds) for extraction of one or more primary or permanent teeth (Public Health England. 2019). The data provided by PHE is broken down by local authority of child's residence and grouped by a variety of methods including by local authority (Public Health England. 2019). Data was extracted by PHE from the Hospital Episode Statistics (HES) dataset which records day in-patient and day case care from NHS hospitals across England.

Within this dataset a unit of care, (a finished consultant episode [FCE]) equates to the period of care a patient spends under the care of a single hospital consultant. The data includes a count of FCEs for extraction of one or more primary or permanent teeth by surgical or simple extraction methods.

There are important caveats to consider when exploring this data (Public Health England. 2019):

- No assumptions can be made of the method of anaesthesia provided for these procedures but it is likely that the majority of episodes involved general anaesthesia.
- It is possible different coding protocols are applied in some sites and this could explain some of the variation.
- The majority of teeth would have been extracted due to dental decay but not all. A caries related indicator was added 2014/15.
- In some instances of this national dataset there will be an under estimate of the number of episodes as in some regions and areas in England the

Community Dental Service may provide the extraction service in hospital premises but the episodes may not be included in hospital data recording.

Attempts to reduce the numbers of hospital episodes for the extraction of teeth needs to address several areas including (Public Health England. 2019):

- Engagement of primary and secondary care providers.
- Establishment of clear acceptance criteria and triage of referrals.
- Enquiry into reasons for admission for extraction where caries is not present.
- Provision of training for primary care teams in the management of dental decay among children in acute and chronic stages.
- Commissioning and Implementation of oral health improvement interventions with the local authority.
- Clear agreement about the provision of support for families before and after hospital in an effort to avoid repeat episodes in the future.

Looking at finished consultant episodes relating to extractions due to dental decay (only available since 2014/15 financial year) we can see the following trends (where data is available) as a percentage of the population for the 2014/15, 2015/16 and 2016/17 financial years (Public Health England. 2019):

- There were the same or less children aged 0-4 years of age in York (as percentage of the population) that underwent extractions in a hospital environment due to dental decay, when compared with Yorkshire and the Humber but the same or more when compared with England (please see table 19 and graph 12).
- There were less children aged 5-9 years and 10-14 years of age in York that underwent extractions in a hospital environment due to dental decay, when compared with Yorkshire and the Humber but more or the same when compared alongside England (please see table 19 and graph 13 and 14).
- Due to data suppression at the level of York local authority, it is not possible to see a trend as regards children aged 15-19 years of age in York that underwent extractions due to dental decay when compared with the region and England, however, the value for York for children aged 15-19 years of age (2016/17 – 0%) is less than both Yorkshire & Humber and England (0.1% for both the region and England. Please see table 19.
- Overall in 2016/17 there were more children aged 0-19 years of age in York that required dental extractions due to dental decay when compared with England but less when compared with the region (please see table 19)

Table 19 Finished Consultant Episode [FCE] as % of population (caries is the primary diagnosis code for extraction) (Public Health England. 2019)**.**

ONS mid population estimates used for each financial year 2014, 2015 and 2016 respectively

* denotes figure <6 suppressed because of disclosure control

	Age 0-4yrs	Age 5-9yrs	Age 10-14yrs	Age 15-19yrs	Total 0-19yrs
Yorkshire&Humber 2014/15	0.5%	1.4%	0.4%	0.1%	0.6%
Yorkshire&Humber 2015/16	0.5%	1.3%	0.3%	0.1%	0.6%
Yorkshire&Humber2016/17	0.4%	1.4%	0.3%	0.1%	0.6%
York 2014/15	0.4%	0.9%	0.2%	*	*
York 2015/16	0.2%	0.9%	0.2%	*	*
York 2016/17	0.4%	0.9%	0.2%	0.0%	0.4%
York 2017/18**	**	**	**	*	0.5%
England 2014/15	0.3%	0.7%	0.2%	0.1%	0.3%
England 2015/16	0.2%	0.7%	0.2%	0.1%	0.3%
England 2016/17	0.2%	0.7%	0.2%	0.1%	0.3%
England 2017/18**	**	**	**	0.1%	0.3%

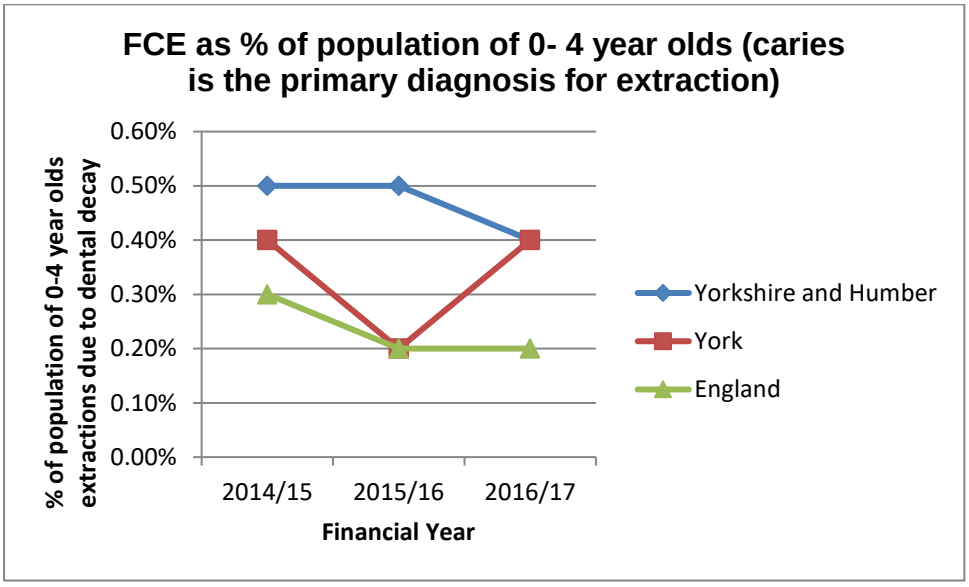
**Data for 2017/18 are presented with different age groupings and it is not possible to retrospectively compare these new age groupings with those above

Table 19a shows the latest data available (2017/18) but the age groupings have been changed which prevents direct comparison with groupings from previous datasets for children 15 years and younger. For data from 2017/18 York has a higher percentage of the population of 0-5, 6-10 and 0-19 year old children requiring dental extractions under general anaesthetic due to dental decay compared with England, but a lower percentage of the population of children aged 0-5 years and 0-19 year olds overall compared with Yorkshire and the Humber (but the same for 6-10 year olds) (Public Health England. 2019).

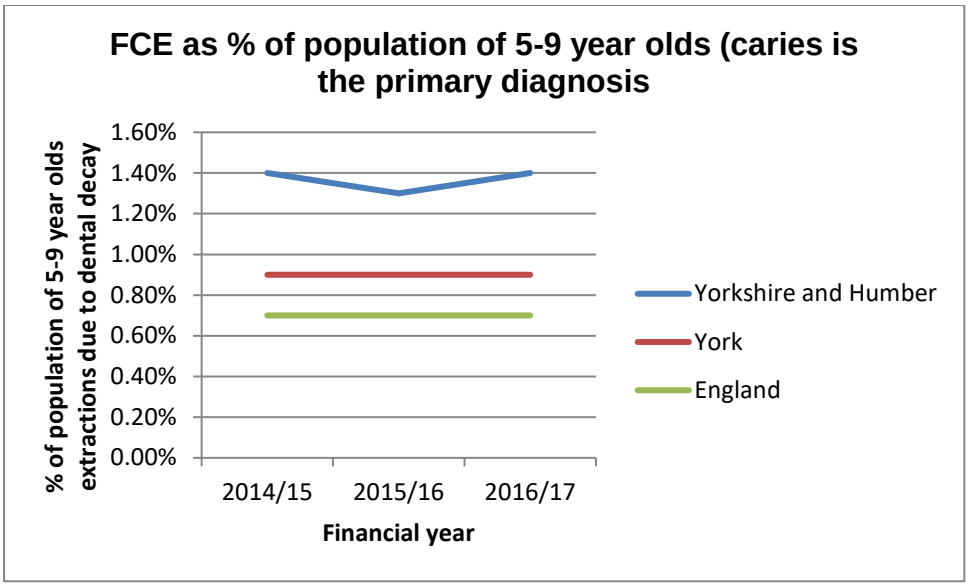
Table 19a below shows **FCE as % of population (caries is the primary diagnosis code for extraction) 2017/18** (Public Health England. 2019)**.**

	Age 0-5yrs	Age 6-10yrs	Age 11-14yrs	Age 15-19yrs	Total 0-19yrs
York 2017/18	0.5%	1.2%	*	*	0.5%
Yorkshire and Humber 2017/18	0.7%	1.2%	0.3%	0.1%	0.6%
England 2017/18	0.3%	0.6%	0.2%	0.1%	0.3%

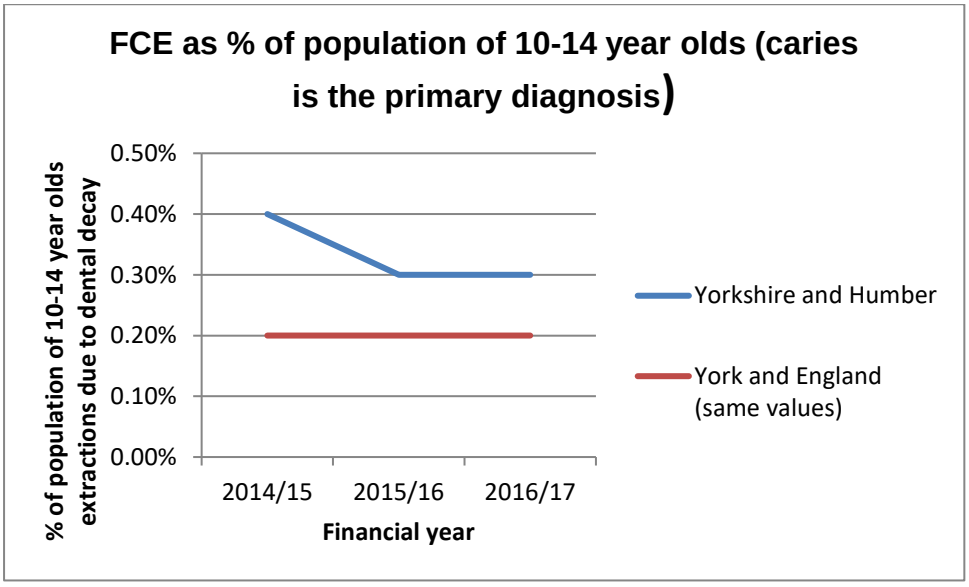
Graph 12 FCE as percentage of population of 0-4 year olds (where caries is the primary diagnosis for extraction) (Public Health England h. 2019)



Graph 13 FCE as % of population of 5-9 year olds (where caries is the primary diagnosis) (Public Health England h. 2019)



Graph 14 FCE as % of population of 10-14 year olds (where caries is the primary diagnosis) (Public Health England h. 2019)



Oral health programmes

It is essential that local authorities ensure that local oral health needs are considered in joint strategic needs assessments to inform joint health and wellbeing strategies.

Guidance from Public Health England and the National Institute for Health and Care Excellence (NICE) describe evidence based population level interventions to improve oral health such as water fluoridation that complement practice based initiatives.

There are opportunities for ensuring the wider workforce have the knowledge and skills to deliver evidenced based oral health messages as part of the Healthy Child Programme.

Oral health improvement programmes in York follow a targeted population approach focussing on children. Whole population prevention approaches are also important to further reduce inequalities in oral health in line with the Marmot principle of universal proportionality.

Water fluoridation is considered as a whole population approach to improving oral health and is associated with reductions in tooth decay in populations. It was also found to have an effect over and above that of other sources of fluoride, particularly toothpaste. There are no water fluoridation schemes in York.

In light of their statutory role and responsibilities, local authorities may wish to consider the case for water fluoridation in the context of local needs and the range of oral health improvement programmes currently commissioned and with reference to Commissioning Better Oral Health. The legal aspects and the technical issues regarding the introduction of water fluoridation scheme should also be considered.

<u>Currently Commissioned Oral Health programmes</u>

Oral health promotion services are currently provided by Harrogate and District Foundation Trustand are commissioned jointly by North Yorkshire County Council and City of York Council.

The main aim of the service is to reduce oral health inequalities for those who are at high risk of poor oral health.

This service is delivered in 3 key areas;

1. Dental Health Survey (Epidemiology) – An annual local Dental Health survey planned and delivered in accordance with the National Survey protocol as set out by Public Health England. Dental epidemiological surveys help to identify inequalities.

2. Supervised Tooth brushing Programme – Delivering an effective supervised tooth brushing programme in all special schools and early years settings as identified with City of York Council.

   The purpose of the programme is to improve children's oral health by increasing exposure to fluoride and improving behavioural and self-care skills at home.The scheme currently runs in targeted nurseries and schools across

the city, including Applefields Special School, Hobmoor Special School, Haxby Road Primary, Tanghall Primary and St Pauls Primary.

Training programmes were developed in accordance with best practice e.g. Delivering Better Oral Health, Infection Prevention Control and consent for participation.

3. Oral Health Promotion to the wider workforce – delivering a training programme to ensure the workforce can deliver evidence based oral health promotion interventions relevant to their roles and responsibilities.

   This programme involved developing and implementing a training programme to ensure the workforce can deliver evidence based oral health promotion relevant to their roles and responsibilities. 134 health care professionals were trained in York (2016-2017).

4. Oral health campaigns also exist such as the NHS England community pharmacy oral health campaign which coincided this year with National Smile Month. The community pharmacy campaign was targeted at the parents or carers of children under the age of five and was part of up to six campaigns that community pharmacies had to participate in as part of the Community Pharmacy Contractual Framework.

7 Patient and Public Involvement

Healthwatch York

Healthwatch York released a report in March 2018 ‘Filled to capacity’ which explored the experiences residents in York have encountered when visiting an NHS dentist and any challenges they faced when trying to access NHS dental services (Healthwatch 2018). Whilst overall patients were satisfied with the quality of dentistry the report highlighted the challenges faced by some residents accessing dental services.

The Healthwatch York work plan survey gave people a choice of three topics for Healthwatch York to explore in 2017. Those who responded to the survey were asked to put a tick against the topic they would like Healthwatch to focus on, and to tell them briefly in their own words why they chose that topic. With specific regard to children residents and dentistry they expressed concerns regarding the following issues (Healthwatch 2018):

- Consequences of limited access to and availability of NHS dentistry and the impact upon children’s dental health when they could not access NHS dental services
- There was a call to “increase access to Community Dental Services for children with special needs”.

Reviews on the Healthwatch Feedback Centre between 2013 and 2017 revealed out of 17 responses relating to access to dental services 15 were positive, one was mixed and one was negative (Healthwatch 2018).

Healthwatch identified 40 dental practices in York and telephoned these, of which 19 responded, 1 practice refused to take part, and those that were not able to respond at that time were offered a survey by e-mail (but there was no response from this latter method) (Healthwatch 2018).

Six of the 19 practices reported being mixed NHS/private dentistry. Only one practice was accepting new patients and that was for children only, a couple responded that they would take families if there was space, two would take children only for NHS work(Healthwatch 2018).

With respect to questions asked of resident respondents in relation to children (Healthwatch 2018):

Parents of children under 18 were asked if they had been offered fluoride varnish for their children at age three. 35% (36 out of 102 respondents) said this was not relevant to their family. Of the remaining 67 respondents who this was relevant to, just over half (52%) had been offered this for their children.

81% of parents (70 of 86) had been offered advice on how to care for their family’s oral health. 15% (13 out of 86), had not been offered any advice.

One comment in the survey highlighted that they had to take their child to a different dentist (one that was only treating children on the NHS, not adults).

Generally the comments about dental access for families were largely negative, and reflected particular difficulties for parents who could not themselves afford private treatment (Healthwatch. 2018).

The report highlighted a number of recommendations, of those specifically related with children (Healthwatch. 2018):

- Consider ways to improve whole family access to dentistry
- Consider ways to better provide families with advice about caring for teeth
- Advise parents to register their child with a dentist even if they cannot access a dentist themselves. Encourage them to share their experiences with us to monitor the situation
- Consider ways of increasing awareness of and promote access to community dentists with all the relevant client groups through increased awareness within the workforce
- Encourage the provider to work with the Healthwatch York readability panel to improve existing publicity materials on community dentistry

NHS England Friends and Family test

The latest September 2018 results from the Friends and Family test (NHS. 2018) revealed that 96% of the patients that attended a dental practice in NHS Yorkshire and the Humber and completed the questionnaire (7252) would recommend the dental practice that they attended.

GP patient survey – dental questions

The national GP survey also contains questions relating to dental access and experiences. Participants are asked if they had tried to obtain an appointment with an NHS dentist and, if so, whether it was with a practice they had been to before and if they had been successful. They are also asked what their overall experience was of NHS dentistry. Patients who hadn't tried to obtain an NHS dentist in the previous two years were asked to select the main reason why they hadn't tried.

Data is provided only at national, regional and CCG levels.

Information for patients

Information about NHS dental practices in York, including addresses, contact details and services provided is available via the NHS Choices website. Patient's can use this facility to explore which dental practices are taking on new patients though this may not be up to date. As internet facilities are required for patients to look at the website not all individuals may have access to this facility. Patients that do not have regular access to an NHS dentist but require urgent dental care can phone 111.

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