

**Oral Health Needs
Assessment of Children and
Young People in Bedford
Borough and Central
Bedfordshire**



**Central
Bedfordshire
Council**



BEDFORD
BOROUGH COUNCIL

Contents

Key Statistics	3
1. Introduction	3
1.1. Statutory duty	3
1.2. The financial cost of poor oral health	4
1.3. Scope and aim of this needs assessment	4
2. Wider context	5
2.1. Oral health across the nation	5
2.2. Local context	6
2.2.1. Local population	6
2.2.1.1. Bedford Borough	6
2.2.1.2. Central Bedfordshire	6
2.2.1.3. Local dentists	6
2.2.2. Community Dental Services	8
2.3. Determinants of poor oral health	8
2.3.1. Proximal determinants	9
2.4. Government strategies	13
3. Methodology	14
3.1. Oral health dental surveys	14
3.2. Hospital extractions	14
3.3. Attendance and treatment at NHS dental practices	14
3.4. Impact on daily living	15
4. Findings: Bedford Borough	16
4.1. Summary: Bedford Borough Council	16
4.2. Children's oral health	16
4.2.1. Five-year-olds	16
4.2.2. Three-year-olds	19
4.2.3. All children and young people	22
4.3. Variation in oral health by deprivation	23
4.4. Attendance at NHS dental practices	24
5. Findings: Central Bedfordshire	28
5.1. Summary	28

5.2.	Children’s oral health	28
5.2.1.	Five-year-olds	28
5.2.2.	Three-year-olds	31
5.2.3.	All children and young people	34
5.3.	Variation in oral health by deprivation	36
5.4.	Attendance at NHS dental practices	37
6.	Findings: East of England & England	40
6.1.	Variation in oral health by ethnicity	40
6.2.	Impact on daily living	41
6.2.1.	By age	41
6.2.2.	By income	42
6.2.3.	By deprivation	43
6.3.	Children with Special Educational Needs	44
7.	Current Services	45
7.1.	Key performance indicators	46
7.2.	NICE recommendations for oral health	47
8.	Public and provider experiences	49
8.1.	The views of young people and their carers	49
8.2.	Views of stakeholders	51
9.	Effective Interventions	53
9.1.	Cost-effective interventions	54
10.	Recommendations	56
11.	Appendix	58
12.	References	61

Key Statistics

23% of five-year-olds nationally have some sign of dental decay

2-fold higher levels of dental decay are found in children from the most deprived areas compared to children from the least deprived

8,272 cases a year of children under five-years-old having one or more teeth extracted in hospital

£33.0 million is spent a year on teeth extractions due to dental decay for under 19s

9 out of 10 hospital tooth extractions among children aged 0-5 years are due to preventable dental decay

£12.71 saving for every £1 spent on water fluoridation after five years

£4.89 saving for every £1 spend on targeted provision of toothbrushes and paste after five years

1. Introduction

Oral health is an essential part of health and wellbeing at every age, but especially for children and young people. Poor oral health has a large impact on quality of life. It can lead to considerable pain, discomfort and, in extreme cases, sepsis. For children and young people, this can limit their food choices, impact their sleeping, socialising and concentration in school. Furthermore, it can lead to missed time from school and time off work for parents due to dental appointments¹. In this way, oral health influences how children and young people speak, eat, socialise and thrive in life.

Oral health problems are mostly preventable. The main oral diseases include dental decay, also known as tooth or dental caries, and periodontal disease, also known as gum disease. Dental decay can occur at any age. However, it occurs more frequently among those with severe disabilities and medical problems. Further inequalities also exist among more disadvantaged, socially excluded and vulnerable groups, including looked after children². These groups are at high-risk of poor oral health due to the social and economic environment and lifestyle factors, which may be compounded by difficulties accessing dental services. As with many oral health problems, health inequalities are preventable too.

Dental decay can be prevented by reducing the consumption of sugary foods and drinks (both the amount and frequency of consumption) and ensuring adequate fluoride exposure. Gum disease, which occurs more frequently in older people than children and young people, can be prevented by good oral hygiene and not smoking or chewing tobacco.

1.1. Statutory duty

Since the Health and Social Care Act 2012 came into force on the 1st April 2013, local authorities (LAs) have had the statutory duty to both:

- 1) Secure the provision of oral health improvement programmes to improve the health of the local population

2) Secure the provision of oral health surveys

Oral health is a priority in Bedford Borough and Central Bedfordshire and aligns with the councils' visions "to put Children, Young People and Families at the Heart of everything [Bedford Borough Council] do" and "Help every child in Central Bedfordshire to enjoy their childhood and have the best possible start in life." Within both councils, oral health improvement is embedded within the 0-19 service.

1.2. The financial cost of poor oral health

Oral health disease place significant costs on society and the NHS. Adult and child NHS dental care cost £3.5 billion in 2017 to 2018 in England. A similar sum is spent in the private sector ³.

The average cost of a tooth extraction in hospital for a child aged 5 and under was £836 in 2015-2016, in total £7.7 million was spent on tooth extractions in this time⁴. In the financial year from 2019 to 2020, the cost of all tooth extractions due to dental decay for those aged under 19 years was £33.0 million.

1.3. Scope and aim of this needs assessment

This oral health needs assessment (HNA) describes the oral health of children and young people under the age of 18 living in Bedford Borough and Central Bedfordshire and the relevant services that are currently commissioned. Key issues are identified, and recommendations to improve oral health and reduce oral health inequalities in the local area are provided. This work will inform the development of an action plan to improve the oral health of children in Bedford Borough and Central Bedfordshire.

A combination of epidemiological, corporate and comparative approaches have been taken. The aims are to:

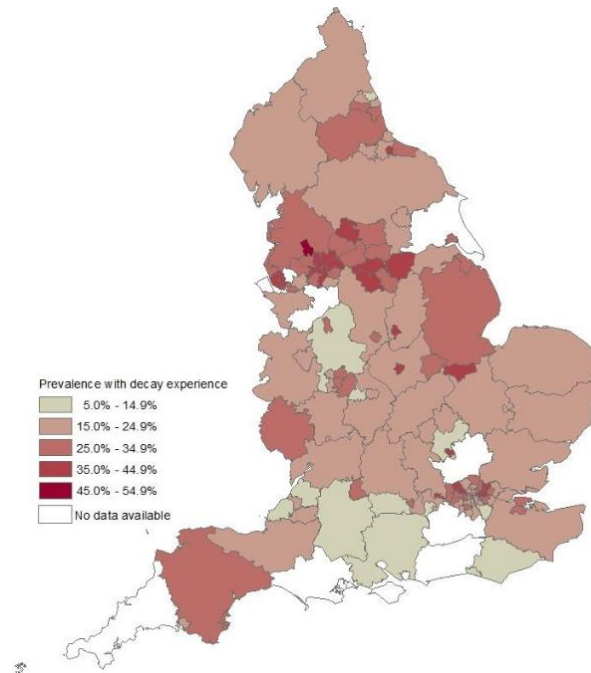
- Describe the oral health of children and young people in Bedford Borough (section 4) and Central Bedfordshire (section 5) and in the broader geographical area (section 6)
- Provide an overview of the commissioned oral healthcare services provided in the local area (section 7)
- Ascertain patient and provider experiences (section 8)
- Identify interventions and provide recommendations to improve the oral health of children and young people and reduce the inequalities that exist in the local area (sections 9 and 10)

2. Wider context

It is important to understand the national and local context in which this HNA takes place.

2.1. Oral health across the nation

In the last decade, the prevalence of dental decay in five-year-olds has been decreasing across England. However, the prevalence of dental decay in 5-year-olds varies 50-fold between lower-tier LA from 1.1% in Hastings, East Sussex to 50.9% in Blackburn with Darwen (Map 1).



Map 1: Prevalence of experience of dental decay in 5-year-olds in England by upper-tier local authority, 2019. Reproduced from: National Dental Epidemiology Programme for England: oral health survey of 5-year-olds 2019

Children from more deprived backgrounds are more likely to experience poor oral health, but deprivation isn't the only characteristic by which oral health varies. Other pertinent factors are shown in Figure 1.

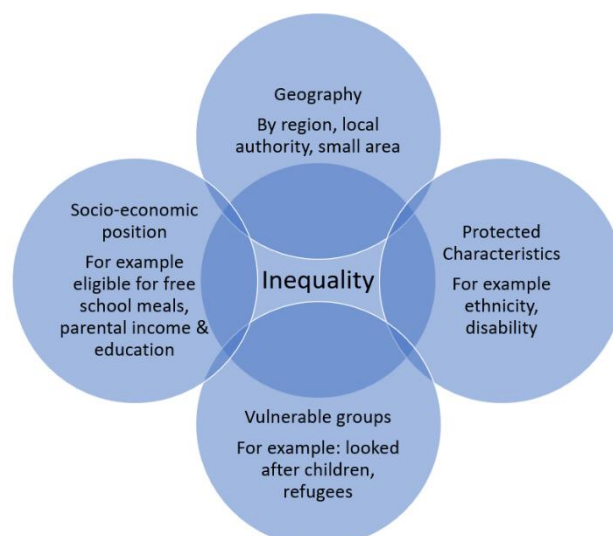


Figure 1: Characteristics related to inequality which influence children's oral health

2.2. Local context

2.2.1. Local population

2.2.1.1. Bedford Borough

The population of Bedford Borough is 174,687, of whom 1 in 4 (43,159, in total) are 18 years old or younger. 14.8% of children and young people under 20-years-old live in low-income families. Four Lower Super Output Areas (LSOAs) in the Borough are among the 10% most deprived areas nationally based on the Index of Multiple Deprivation (IMD). A further ten LSOAs are among the 10-20% most deprived, and eleven among the 20-30% most deprived.

In 2016, between 1 in 5 and 1 in 6 (18.6%) of the Bedford Borough population were from a minoritised ethnic group. This may change over time. In the past 5 years between 1 in 4 and 1 in 3 deliveries in the area were to mothers from minoritised ethnic groups. Amongst school age children, 46.9% are from minoritised ethnic groups, which is higher than regional (28.7%) and England (34.6%) levels.

2.2.1.2. Central Bedfordshire

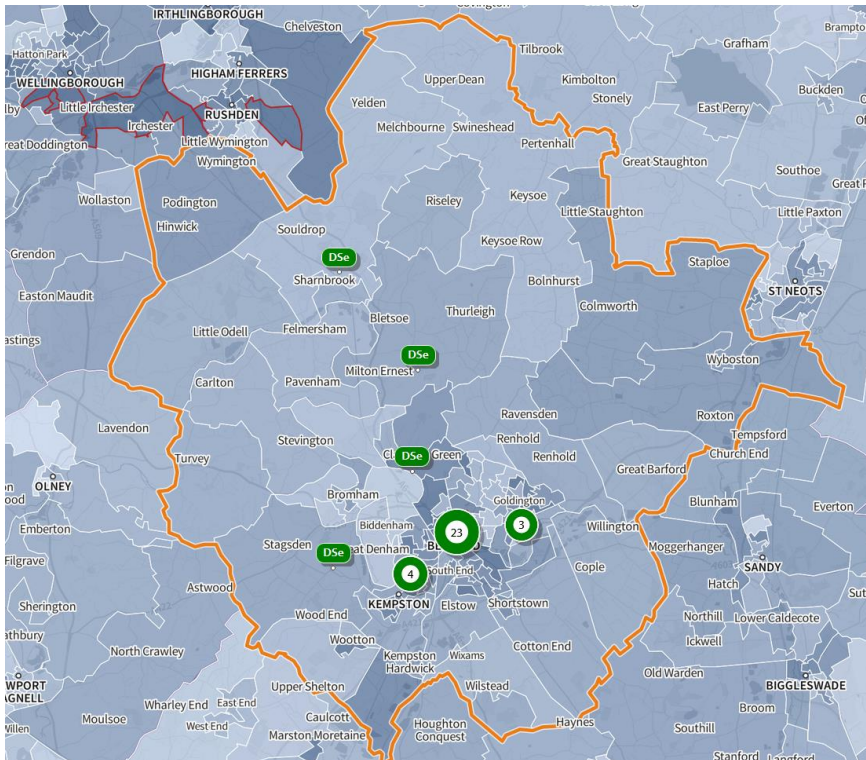
In Central Bedfordshire, the population is 294,096, of whom 1 in 4 (68,118, in total) are 18 years old or younger. 11% of children and young people in Central Bedfordshire live in low-income families. Three LSOAs are in the 10 to 20% most deprived in England and 10 are in the 20-30% most deprived in England.

In 2016, approximately 1 in 12 (8.0%) of the community were from a minoritised ethnic group, and between 1 in 7 and 1 in 8 deliveries in the past 5 years were to mothers from a minoritised ethnic group. One in 5 (19.8%) school-aged children are from a minoritised ethnic group, which is below the regional (28.7%) and English (34.6%) averages.

2.2.1.3. Local dentists

There are 34 locations of dental services in Bedford Borough (Map 2), and 58 locations of dental services in Central Bedfordshire (Map 2). Dental services include dental practices that only provide specialist services (such as orthodontics), providers of private treatment only, practices that offer both private and NHS dental appointments, as well as those who provide urgent care.

Of note, dental services in Bedford Borough are heavily concentrated in Bedford and Kempston towns (Map 2), with only four dental services located rurally, which could represent a barrier to access for some rural communities.



Map 2: Distribution of dental services in Bedford Borough.

Dark colours reflect greater levels of deprivation based on the Rural Deprivation Index for Health. The Green circle shows the number of dentists in that location; DSe indicates a single dental service in that location.

In Central Bedfordshire, dental services are found throughout the locality, although there is a greater concentration in the south, which also has higher levels of deprivation (Map 3).



Map 3: Distribution of dental services in Central Bedfordshire

Dark colours reflect greater levels of deprivation based on the Rural Deprivation Index for Health. The Green circle shows the number of dentists in that location; DSe indicates a single dental service in that location.

Contrary to what many people think, there is no need to register with a dentist in the same way as with a GP because you are not bound by catchment area. This allows adults to access dentists near where they work, for example. However, it is well known that many dental surgeries do not have the capacity to take on new NHS patients. Some operate waiting lists or will offer to see patients privately instead.

According to the NHS Choices website there are three dentists in Bedford Borough that are currently accepting children as NHS patients (as of Dec 2021). All other NHS practices in the area are either not accepting NHS patients or have not provided any recent information on whether they are currently accepting NHS patients. In Central Bedfordshire, three dentists are reported to be accepting children as NHS patients on NHS Choices (as of Dec 2021).

It is important to note that there will never be 100% of the population accessing NHS dentists as some people prefer private dentistry and others opt out of routine NHS dental care regardless of need. However, many people report difficulty accessing NHS dental care (see section 8: Public and provider experiences). Furthermore, access to dentists was restricted for adults and children for some duration of the COVID-19 pandemic. Consequently, there are long waiting lists for people to access dentists. This has important implications for the oral health of children and young people. Currently, NICE guidance recommends the longest interval between dental examinations for children is 12 months.

2.2.2. Community Dental Services

The Community Dental Services provide special care dentistry as well as primary dental care for people who cannot be treated in the general dental services due to complex needs. Among children and young people this includes:

- Children with medical conditions, physical or learning disabilities
- Children who are looked after or on the at-risk register
- Children with extensive untreated dental decay who are particularly anxious or uncooperative

Children and young people can be referred to the community dental service by other dentists, health and social care professional, educational settings, and self-referral. The Community Dental Services also provide urgent care for those who have developed serious toothache

The Community Dental Services in Bedford Borough operate from the Dental Care Centre (Kimbolton Road) with clinics at the London Road Dental Clinic and the Queens Park Dental Clinic (Carlisle Road). The Community Dental Service in Central Bedfordshire have clinics at Leighton Buzzard Dental Clinic (Bassett Road) and Houghton Regis Dental Clinic (High Street). The Community Dental Service also provide dental care onsite at primary and secondary Special Needs Schools in both areas.

2.3. Determinants of poor oral health

The causes of and risk factors for oral health can be divided into structural, intermediary, and proximal determinants. Structural, or upstream, determinants are the overarching influences that create the social and physical conditions of people's lives, like the choices and prospects available to individuals. This includes economic, welfare, employment, and education policies, which influence the resources and opportunities available to people. Intermediary, or midstream, determinants are

the day-to-day social and living circumstances of people, which affect access to resources, healthcare, and social relationships.

The proximal, or downstream, determinants are especially pertinent to this HNA. Therefore, they shall be discussed in greater depth.

2.3.1. Proximal determinants

Proximal, or downstream, determinants of oral health in children and young people include what many people know to be direct causes of poor oral health. These are diet, oral hygiene practices, and alcohol and tobacco use. The proximal determinants are themselves influenced by the intermediary and structural determinants, which is seen through the social patterns in health behaviours such as smoking and sugar consumption.

Sugar

A healthy diet is essential for oral and, more broadly, physical health. However, surveys have consistently shown that the English population consumes too much sugar, in particular free sugar, which are commonly found in a variety of foods (Figure 2).



Figure 2: Common sources of free sugar in children and young people’s diets.

The government recommends for children and young people that no more than 5% of total food intake is from free sugars. Many groups exceed this. In 2020, girls aged 11-18 years and boys aged 4-10 years had the highest mean free sugar intake as a percentage of total intake. Both groups had 12% of their total energy from free sugar, more than twice the 5% recommendation⁵. The recommended upper threshold for daily consumption of free sugars increases with age, as shown in Table 1.

Table 1: The maximum recommended daily amounts of free sugars for children and young people by age

Age	Maximum recommended daily amounts of free sugars
4-6 years old	5 cubes (19 grams)
7-10 years old	6 cubes (24 grams)
11+ years old	7 cubes (30 grams)

More positively, the intake of free sugars among children is reducing over time. From 2016 to 2020, there has been a decrease in children and young people in England who report drinking sugar-sweetened beverages, and, among those who do report drinking them, a decrease in the quantity drank⁶. A naturally sweet alternative is, of course, fruit. However, on average children consume less than 5 portions of fruit and vegetables a day⁶.

The frequency of sugar intake is especially relevant to the risk of dental decay. This is because sugar consumption leads to a drop in pH in the mouth, making the mouth more acidic. This is due to oral bacteria converting sugar to acid. When the pH drops demineralisation of teeth occurs. After 20 to 40 minutes the pH returns to normal and demineralisation stops. Therefore, consumption of sugar food less than 40 minutes apart keeps the pH low over a long period of time, resulting in longer periods of demineralisation. If demineralisation continues, it results in dental decay.

Fluoride

Fluoride is another important dietary component that impacts oral health. Frequent exposure to fluoride encourages remineralisation of the teeth's surface, reducing the chances of dental decay starting.

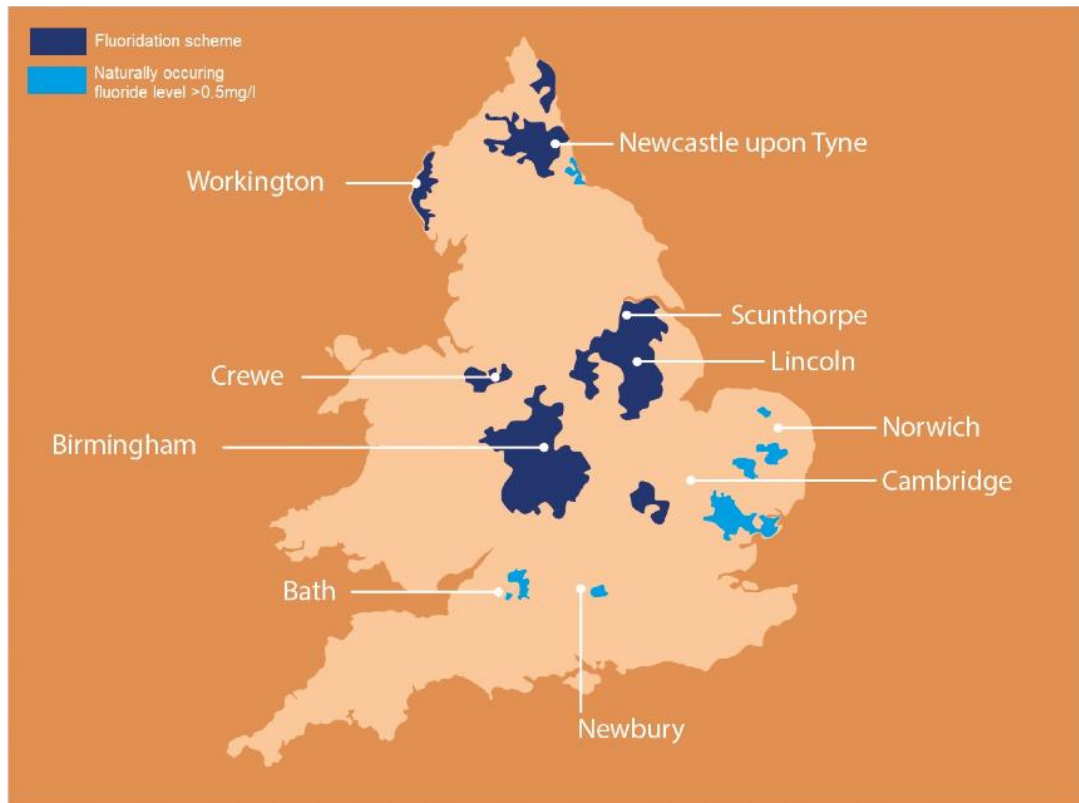
Toothpaste is the most common route to fluoride exposure. For children at high risk of dental decay, and those aged 7 years or older, toothpaste with a fluoride concentration of 1,350 to 1,550 parts per million (ppm) should be used. For younger children a toothpaste containing at least 1,000ppm is recommended⁷.

Fluoride is found naturally in products such as tea, fish and some water supplies. It is also found in most toothpastes, therefore regular brushing is one way to increase exposure. Fluoride exposure can be increased by brushing last thing at night, as this allows fluoride concentration levels to remain high during the night, and by avoiding rinsing with water after brushing. Rinsing with water is associated with higher levels of dental decay⁸.

Other preventative interventions include the application of fluoride varnish, which has a much higher concentration of fluoride compared to toothpastes. A systematic review of studies of young people and children who had permanent teeth found those who received fluoride varnish had on average a 43% reduction in decayed, missing and filled teeth⁹. For children who had fluoride varnish on their baby teeth there was a 37% reduction in decayed, missing and filled teeth compared to children who did not. Consequently, it is recommended that NHS dentists apply fluoride varnish twice a year for all children' between 3 and 16 years old. For children (0-16 years) at high risk of dental decay, application is recommended two or more times a year.

Fluoride mouthwashes can be used by children aged 8 years and above daily, alongside toothbrushing. Regular use reduces the risk of dental decay by 27% for children and adolescents with permanent teeth¹⁰. Using mouthwash separately from teeth brushing maximises the effect. They are most useful for children and young people at higher risk of dental decay.

Community wide exposure to fluoride occurs through water, both naturally and by addition of fluoride to the water supply through fluoride schemes. The availability of fluoride in the water varies across England (Map 4)



Map 4: Map of fluoridated areas in England.

Reproduced from: Delivering better oral health: an evidence-based toolkit for prevention¹¹

Water fluoridation is considered safe and effective at preventing dental decay at a level of 1ppm. Excess consumption of fluoride through water or other means, such as swallowing toothpaste, can lead to dental fluorosis (white markings on the teeth). At the recommended concentration of 1ppm in water, dental fluorosis rarely causes marked aesthetic problems. Concerns about the wider health impacts of water fluoridation have been made, including its impact of the thyroid and IQ. A recent systematic review found exposure to low or adequate water fluoride levels was not associated with any neurological damage, including impairment of IQ at the levels found in fluoridation schemes¹².

Water fluoridation is especially relevant to Bedford Borough. In 1971, Bedfordshire County Council introduced a water fluoridation scheme, which had already been adopted in other areas of the UK, as a method of reducing tooth decay. This included three water fluoridation plants in Central Bedfordshire and one in Bedford Borough. The Bedford Borough fluoridation plant, which supplied fluoridated water to the majority of Bedford Borough, was taken offline for refurbishment in 2009. It was not reinstated due to objections from some residents. Consequently, parts of Central Bedfordshire, Newspring, Dunton, Meppershall and Pottton, receive fluoridated water, but Bedford Borough hasn't had fluoridated water since 2009.

Other dietary factors

Other dietary factors relevant to oral health include:

- Breastfeeding. Infants who breastfeed beyond 6 months have a reduced risk of dental decay¹³
- Acidic foods and drinks, such as pickles, tomatoes and cranberries. If tooth wear is occurring, then it is advised that the frequency consumption of acidic foods and drinks is minimised.

Alcohol & tobacco use

Tobacco and alcohol use both negatively impact oral health, as well as general health. Tobacco use includes cigarettes and other tobacco products such as betel quid and shisha smoking. Smoking and chewing tobacco are risk factors for periodontal disease¹⁴. Alcohol consumption is also associated with periodontal disease¹⁵, but it's unclear if this is a causal association¹⁶.

Most children and young people do use tobacco or drink alcohol. However, in England 10% of children aged 13-15 years old have tried smoking and 35% have drunk alcohol¹⁷. Therefore, there are pockets of the population of children and young people who are exposed to alcohol and smoking, which may exacerbate poor oral health.

Oral hygiene

In addition to fluoride exposure, effective toothbrushing cleans all tooth surfaces and the gum line, which also contributes to good oral health. Figure 3 summarises best practice for maintaining children's and young people's oral health, with a focus on oral hygiene. In addition, there are other ways to improve oral hygiene practices at home, which merit further discussion.

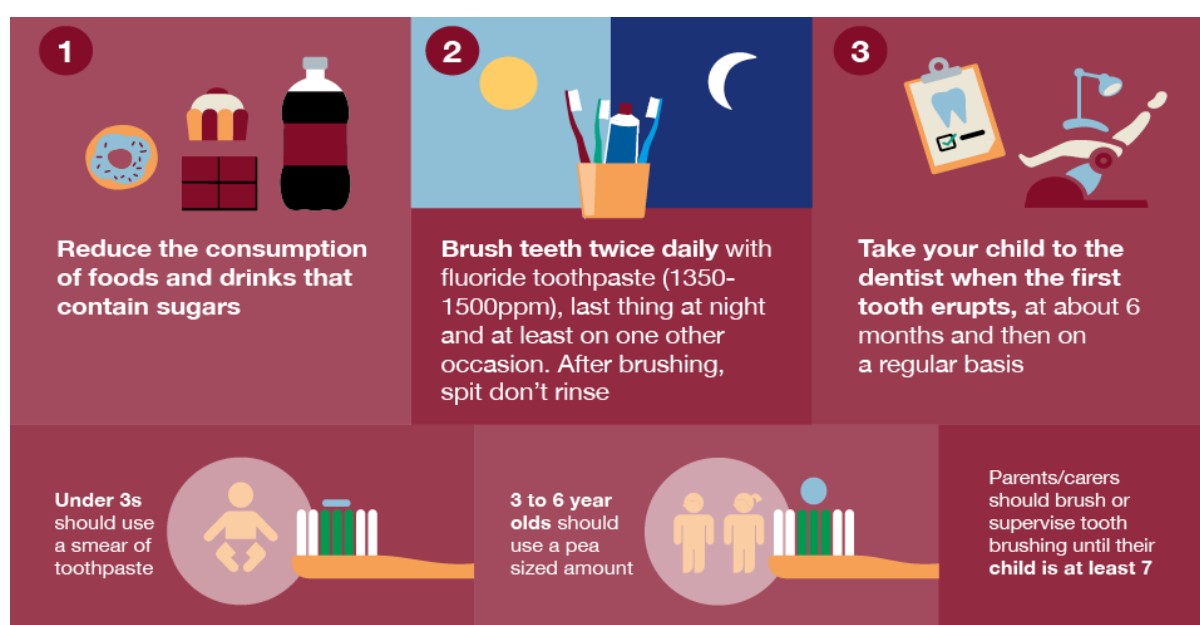


Figure 3: Top three interventions for prevention dental decay advocated by Public Health England. Reproduced from: Health matters: child oral health⁴

It is recommended that children and young people brush at least twice a day, once of which should be the last thing at night to allow fluoride to remain on the teeth for as long as possible. Adolescents that increase brushing from once to twice a day have a 14% lower risk of dental decay⁸.

Comprehensive teeth brushing may take at least 2 minutes, but this is not a hard and fast rule. The rationale for the 2-minute period is to ensure that sufficient time is taken for all tooth surface to be effectively cleaned. It may be possible to effectively clean teeth in less than 2 minutes, it may be necessary to brush longer. Indeed, brushing for more than two minutes removes more plaque¹⁷.

Introducing toothbrushing as a healthy habit should start as soon as a child's teeth erupt. 88% of 7-year-olds who started brushing before the age of one year were free of dental decay, compared to 60% who started after the age of two years¹⁸. Only a smear of toothpaste covering less than three-quarters of the child's brush should be used for children under 3-years-old. Between 3- and 6-years-old, a pea-sized amount of toothpaste can be used (Figure 3, above).

Adult involvement in tooth brushing is recommended until the age of 7 to ensure all teeth are brushed and toothpaste isn't swallowed, after which additional supervision and motivation may be required. For children with additional needs and disabilities the involvement of parents in brushing teeth may be necessary beyond 7-years-old.

Toothbrushing does not have to be delayed after meals involving acidic food and drinks¹⁹. Brushing teeth within 10 mins of eating fruit does not lead to additional tooth wear. However, rinsing with water after brushing teeth is not recommended, as this washes away the protective fluoride and is associated with higher levels of dental decay⁸.

There is no consensus as to when a worn toothbrush should be replaced, and there may be no difference between new and worn head brushes in relation to plaque control²⁰. Many different types of toothbrushes are available; from traditional manual and electric toothbrushes to triple-headed, U-shaped and interdental brushes. There is moderately strong evidence to suggest that powered toothbrushes are more effective at removing plaque and reducing gum disease compared to manual toothbrushes²¹. However, manual toothbrushes are as effective at preventing dental decay, and are a more affordable option for many people. U-shaped toothbrushes were not found to be effective at plaque removal in one trial²². Use of interdental brushes to remove plaque between the teeth should start by 18-years-old, or earlier if the gums are inflamed (a form of gum disease called gingivitis).

Children or young people with learning or physical disabilities have additional needs that may make maintaining good oral hygiene more challenging. They may benefit from using a powered brush with modifications to assist with gripping²³. However, the additional sounds produced by electric toothbrushes may make it difficult for some children and young people to use them. Triple headed manual toothbrushes are also available, and there is some weak evidence to suggest that they are effective at removing plaque when used by carers²⁴.

2.4. Government strategies

Government guidance on child oral health is found in the Applying All Our Health report²⁵. It summarises evidence-based advice and treatment for health and care professionals; provides actionable strategies for healthcare managers and senior leaders and signposts other resources, including Change4Life.

The government's Change4Life campaigns focus broadly on health and exercise, but several initiatives have targeted oral health. The "Be Sugar Smart" campaign highlights how excess sugar can "lead to painful dental decay and every 10 minutes, a child in England has a tooth removed in hospital". The campaign also provides guidance on how much sugar is appropriate at different ages and on "sugar swaps" to reduce sugar intake.

The Change4Life "Be Food Smart" app takes this to the next level. It scans food and drinks and highlights hidden sugar, as well as saturated fat and salt. Alongside this, it highlights the damage that this can cause to children's health, including oral health.

Other Change4Life strategies are directed to professionals, including the Change4Life top tips for teeth toolkit, with posters, leaflets, and brushing charts for distribution by oral health professionals²⁶, and dental lesson plans for primary school teachers²⁷.

3. Methodology

3.1. Oral health dental surveys

Local governments have a statutory duty to conduct oral health surveys as part of the National Dental Epidemiology Programme²⁸. This is done to facilitate:

- The assessment and monitoring of oral health needs.
- Planning and evaluation of oral health promotion programmes.
- The planning and evaluation of oral health services²⁹.

Among children and young people, 3-year-olds and 5-year-olds have undergone surveys in the past decade. Five-year-old school children are surveyed every two years, most recently in 2019. Three-year-old preschool children were surveyed in 2020 and 2013. Until 2021, the analysis and provision of this data was the responsibility of Public Health England (PHE).

To facilitate comparisons between our local area and other LA, statistical neighbours have been used. Statistical neighbours are other LAs deemed to have similar characteristics to Bedford Borough or separately, to Central Bedfordshire. The statistical neighbours were identified by the National Foundation for Educational Research (NFER), which was commissioned in 2007 by the Department for Education to identify and group similar LAs in terms of the socio-economic characteristics³⁰. Other methodologies have been used to identify statistical neighbours resulting in different groupings. The NFER's approach was taken because of its focus on socio-economic circumstances of children and young people, which was especially pertinent to this HNA.

In addition to the regular oral health surveys, the National Dental Epidemiology Programmes conducted an oral health survey of 5- and 12-year-old children attending special support schools in 2014. These children may have had medical, behavioural, cognitive and communicative special needs that were better met at a special support school than a mainstream school. Due to the small numbers of children attending these schools, the results can't be summarised by LA, but are summarised instead for the whole of the East of England,

3.2. Hospital extractions

Children in Bedford Borough and Central Bedfordshire may attend Bedford Hospital or Luton and Dunstable University Hospital for extractions due to dental decay under general anaesthetic. Private paediatric dental surgery is also available locally, therefore the data provided may underestimate the number of hospital extractions for dental decay.

Information about hospital teeth extractions are available from NHS Digital's Hospital Episode Statistics³¹.

3.3. Attendance and treatment at NHS dental practices

Information on the number of children attending NHS dental practices in the local area is available from NHS Dental Statistics for England³². Of note, this data will not include information about children who attend private dental practices. Statistics about the number of children in the local area attending private dentists isn't available, but among adults in the East of England approximately 16% use private dentists³³. In addition, there may be individuals who are unaware that their dental practice is not NHS, and that they are paying privately.

Further information on the treatment given to children and young people in NHS dental practices is also available from NHS Dental Statistics for England. NHS dental treatment is categorised into four bands, reflecting charges to adult patients (no charges apply to children, but treatment is recorded in the same way). Bands are created to reflect the costs incurred from treatment rather than the severity or complexity of the oral health problems themselves necessarily.

Band 1 covers routine and common treatments, such as clinical examinations, scale and polish and x-rays. Band 2 covers fillings, treatment for severe gum disease, some oral surgery and root canal treatments. Band 3 is the most expensive planned treatment, including bridges, crowns and orthodontic treatment like braces. Band 4 treatment is for urgent and emergency care.

3.4. Impact on daily living

The Health Survey for England monitors trends in adults' and children's health and care. In 2019, additional oral health questions were included in the survey, including the impact on parents and children of children's oral health problems³⁴. A total of 8,205 adults (aged 16 and over) and 2,095 children (aged 0 to 15) were interviewed in the 2019 survey.

4. Findings: Bedford Borough

The following section covers the oral health of five-year-olds and three-year-olds in Bedford Borough, as well as hospital extractions for dental decay and attendance at NHS dental practices for children and young people up to the age of 18.

Section 5 covers the oral health of children and young people in Central Bedfordshire. Section 6 covers the oral health of children and young people in the East of England and England.

4.1. Summary: Bedford Borough Council

Although oral health is improving in England, there isn't clear evidence that the oral health of children and young people in Bedford Borough has improved over the past 5-10 years. The oral health survey of 5-year-olds in 2019 showed that a quarter have dental decay, which was above the English average. Each child with dental decay had, on average, 4 teeth affected.

Dental decay starts early. The survey of 3-year-olds in 2020 found that 12% had visible dental decay, with an average of 2 teeth affected. Oral health varied by deprivation and ethnicity; those in more deprived areas had a higher prevalence of dental decay, as did those of Asian/Asian British or Mixed heritage. Dental access is also below the English average. In particular, preschool children are unlikely to have seen an NHS dentist recently.

4.2. Children's oral health

4.2.1. Five-year-olds

In 2019, 25% of five-year-olds had dental decay, which was similar to the national average. Broadland District Council is a well performing LA for this indicator, with 7% of five-year-olds affected by dental decay.

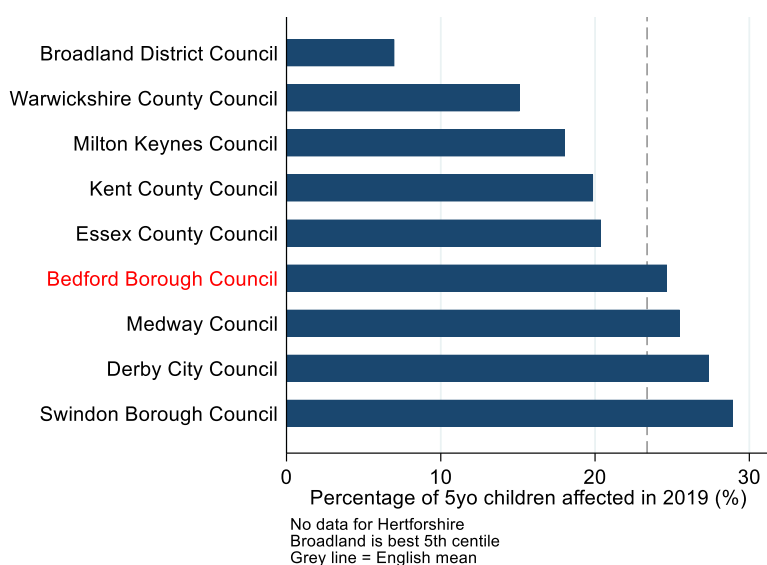


Figure 4: The percentage of five-year-olds with one or more decayed, missing, or filled teeth in Bedford Borough relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019

On average, five-year-olds in Bedford in 2019 had 1 tooth with dental decay, which was the highest of their statistical neighbours and above the English average of 0.8. So, although roughly the same proportion of children in Bedford Borough and England have dental decay, the number of affected teeth is greater in Bedford Borough than the English average. In Broadland District Council, a high performing LA for this indicator, five-year-olds had an average of 0.3 teeth affected with dental decay.

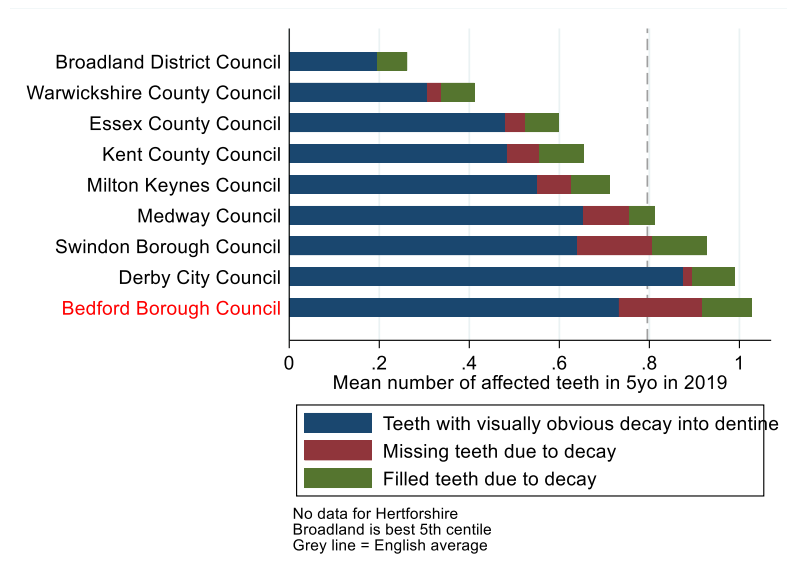


Figure 5: Mean number of decayed, missing, or filled teeth in 5-year-olds in Bedford Borough relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019

Among five-year-old children who have at least one tooth affected by dental decay, the average number of affected teeth was 4.2 in Bedford Borough in 2019, which was the highest among its statistical neighbours and above the English average. Gateshead Council is a well performing LA for this indicator, with an average of 2.2 teeth affected by dental decay.

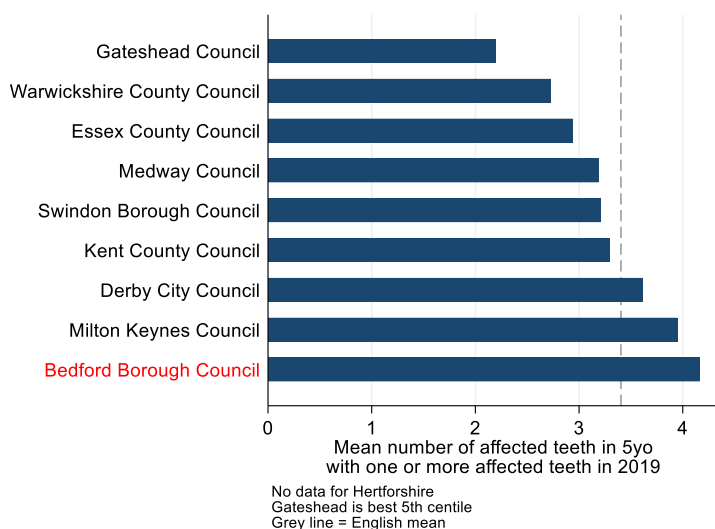


Figure 6: The mean number of decayed, missing, or filled teeth of 5-year-olds who have at least one decayed, missing or filled teeth, in Bedford Borough and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children, 2019

In Bedford Borough, the prevalence of dental decay has been broadly stable over time from 28% in 2008 to 24% in 2019. The results in 2017 cannot be said to be comprehensively higher than other years, due to wide margins of error. In contrast, there is a decreasing prevalence is found in both the East of England and England overall.

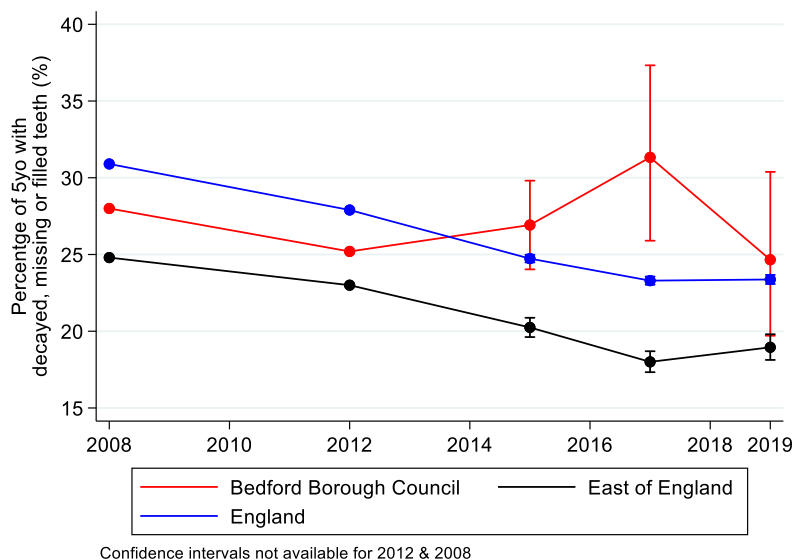


Figure 7: Change over time in the percentage of 5-year-olds with one or more decayed, missing, or filled teeth in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

In Bedford Borough, the average number of teeth affected by dental decay in five-year-olds has also remained broadly constant between 2015 (mean = 0.9) and 2019 (mean = 1.0). Although there appears to be an increase in 2017, the wide margins of error do not indicate a clear difference between 2017 and either 2015 or 2019. This increase in 2017 may be a chance finding due to the small population studied.

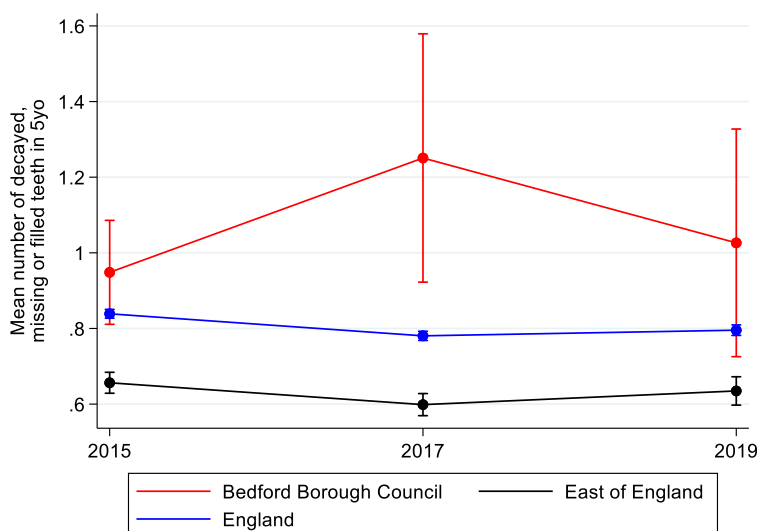


Figure 8: Change over time in the mean number of decayed, missing, or filled teeth of 5-year-olds in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

The average number of affected teeth in five-year-olds with at least one tooth affected by dental decay in Bedford Borough has increased over time from 3.5 affected teeth in 2015 to 4.2 in 2019. The average has remained stable in East of England (3.3 affected teeth) and in England overall (3.4 affected teeth).

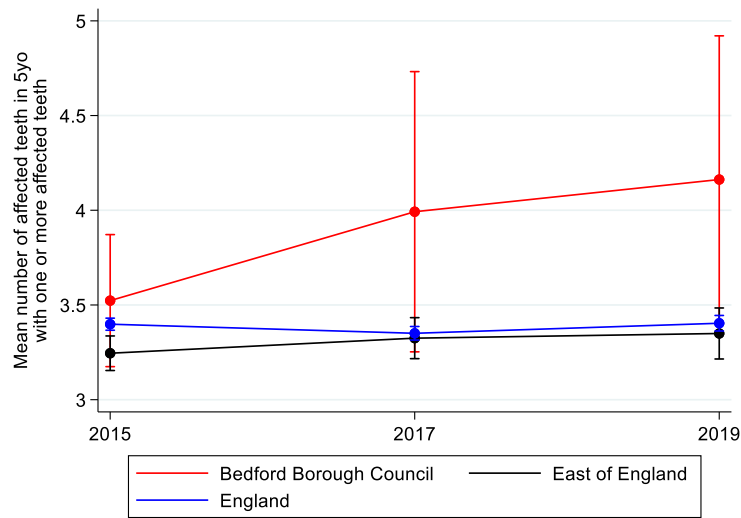


Figure 9: Change over time in the mean number of decayed, missing, or filled teeth of 5-year-olds who have at least one decayed, missing or filled teeth, in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

4.2.2. Three-year-olds

In Bedford Borough, the prevalence of dental decay among three-year-olds in 2020 was 12%. This was the second highest prevalence among the statistical neighbours and was slightly higher than the English average of 11%. Chesterfield Borough Council was a well performing LA for this indicator, with 2% of three-year-olds affected by dental decay.

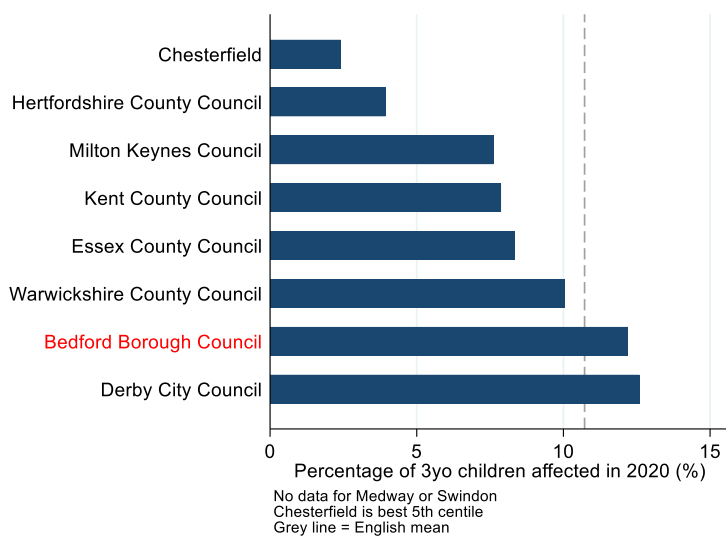


Figure 10: The percentage of three-year-olds with one or more decayed, missing, or filled teeth in Bedford Borough relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children 2020

On average, there was 0.3 teeth with dental decay in three-year-olds in Bedford Borough in 2020, which is similar to the English average but ranked second highest of its statistical neighbours. Notably no children who were examined had missing or filled teeth. Selby District Council is a well-performing LA for this indicator, with an average of 0.1 teeth with dental decay.

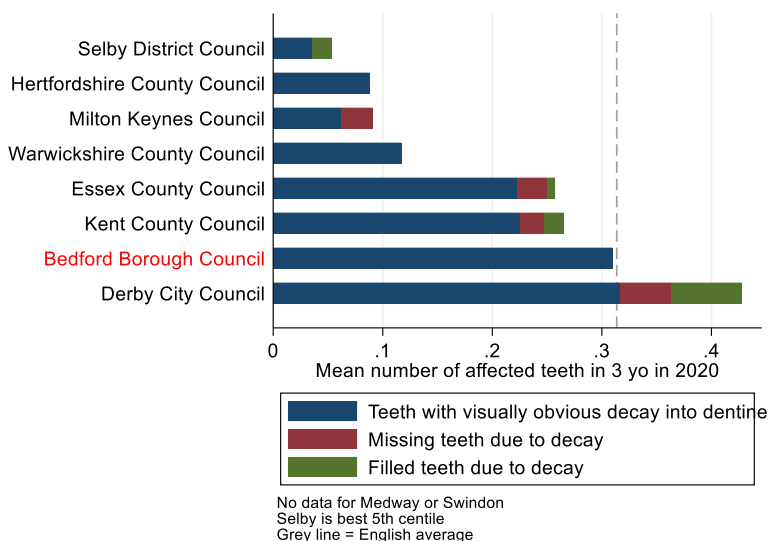


Figure 11: Mean number of decayed, missing, or filled teeth of 3-year-olds in Bedford Borough and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children, 2020

Among three-year-old children with one or more affected teeth, the average number of teeth affected by dental decay was 2.5 in Bedford Borough. This was below the English average of 2.9 affected teeth and ranked in the middle of its statistical neighbours. Great Yarmouth Borough Council is a well performing LA for this indicator, where the average number of affected teeth was 1.6.

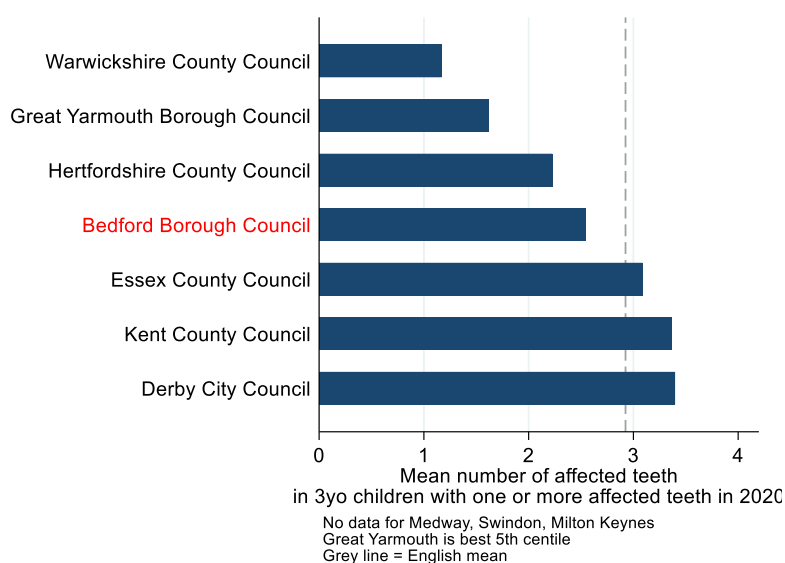


Figure 12: The mean number of decayed, missing, or filled teeth of 3-year-olds who have at least one decayed, missing or filled teeth, in Bedford Borough and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children, 2020

There was limited data on the change in oral health of three-year-olds over time. Data was available for 2013 and 2020 only, restricting the potential identification of trends. Furthermore, the margin of error on these estimates was large, so trends cannot be confirmed. The prevalence of dental decay among three-year-olds decreased in East of England and England overall. A decreasing trend was not evident in Bedford Borough, which had a prevalence of 11% in 2013 and 12% in 2020.

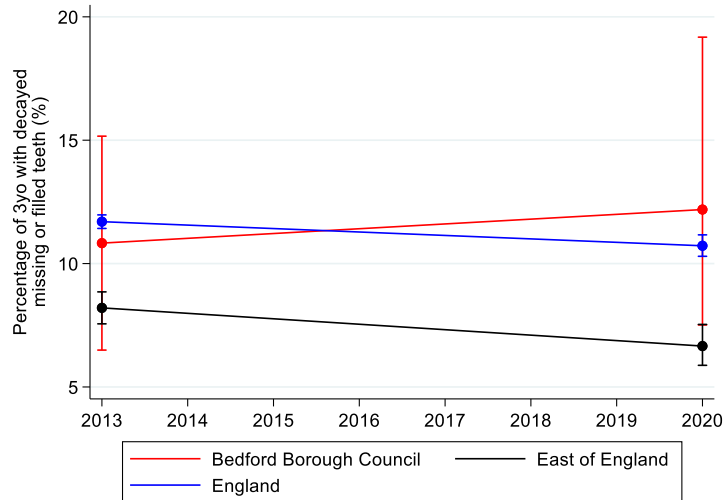


Figure 13: Change over time in the percentage of 3-year-olds with one or more decayed, missing, or filled teeth in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

The average number of teeth affected by dental decay among three-year-olds in Bedford Borough was 0.4 in 2013 and 0.3 in 2020, which was similar to the English average.

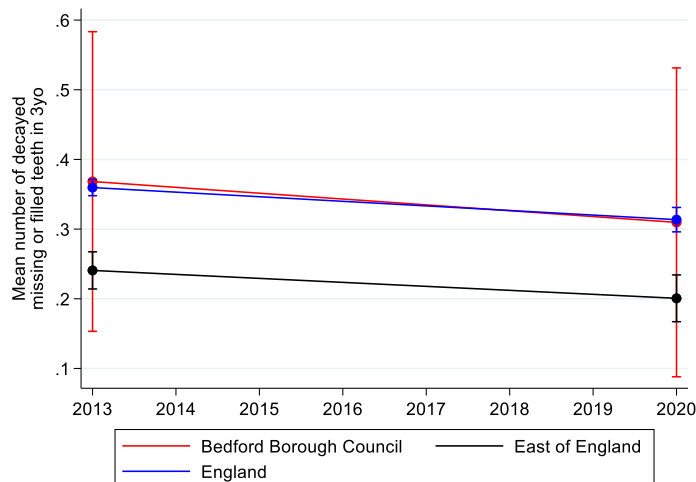


Figure 14: Change over time in the mean number of decayed, missing, or filled teeth of 3-year-olds in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

Among three-year-olds in Bedford Borough with at least one tooth affected by dental decay, the average number of affected teeth was 3.4 in 2013 and 2.5 in 2020.

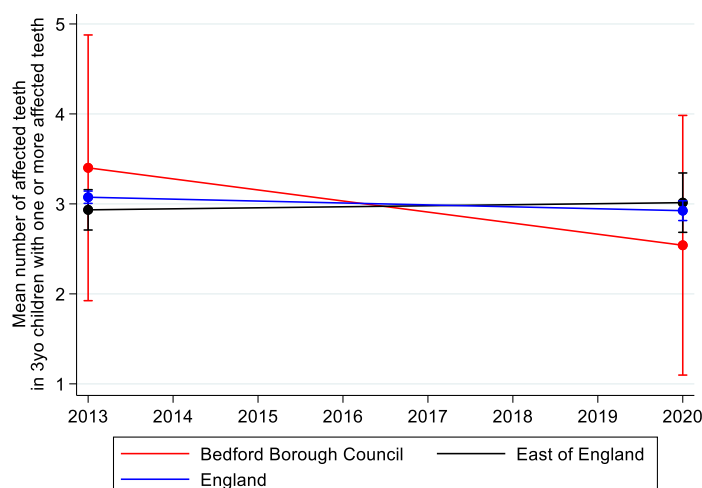


Figure 15: The change over time in the mean number of decayed, missing, or filled teeth of 3-year-olds who have at least one decayed, missing or filled teeth, in Bedford Borough, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

4.2.3. All children and young people

The number of children who had a tooth extracted in hospital for dental decay was 3.4 per 100,000 in the financial year from 2019-2020. This was well below the English average 26.5 children per 100,000 and was the second lowest of its statistical neighbours. It was also below Broadland, which is a well performing LA for this indicator, where 3.8 children per 100,000 had a tooth extracted.

The number of hospital extractions reflects multiple factors, including oral health and dental access. Regular dental access allows for early intervention and decreases the need for hospital extractions. Conversely, no access will limit referrals to have an extraction, regardless of the child's oral health.

It is unclear what is underlying the very low rates of hospital extractions among the under 18s in Bedford Borough, given the higher rates of dental decay in this area. It may be an artefact of how the data is recorded. Further work is need to understand this indicator in greater detail.

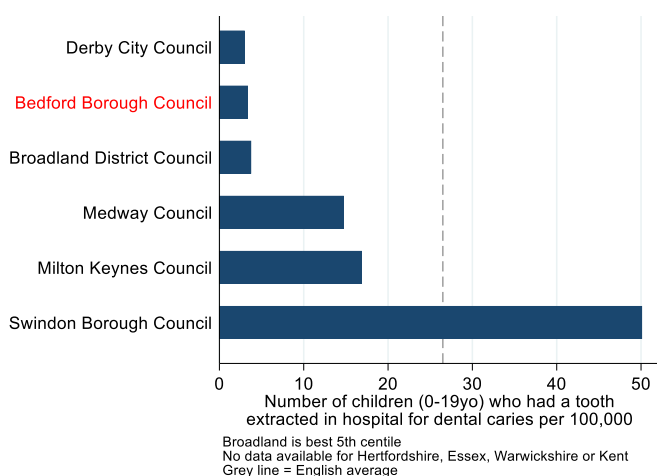


Figure 16: The number of children and young people (0-19-year-olds) per 100,000 who had a tooth with dental decay extracted in hospital, in Bedford Borough and statistical neighbours for the financial year 2019-2020. Source: Hospital Episode Statistics, 2019-2020

The number of children per 100,000 who have had a tooth extracted in hospital for dental decay in England and East of England decreased from 2015 to 2019. In Bedford Borough, the same decreasing trend is not evident. It has varied from 3.6 per 100,000 in 2015 up to 6.9 per 100,000 in 2018, then dropping to 3.4 per 100,000 in 2019.

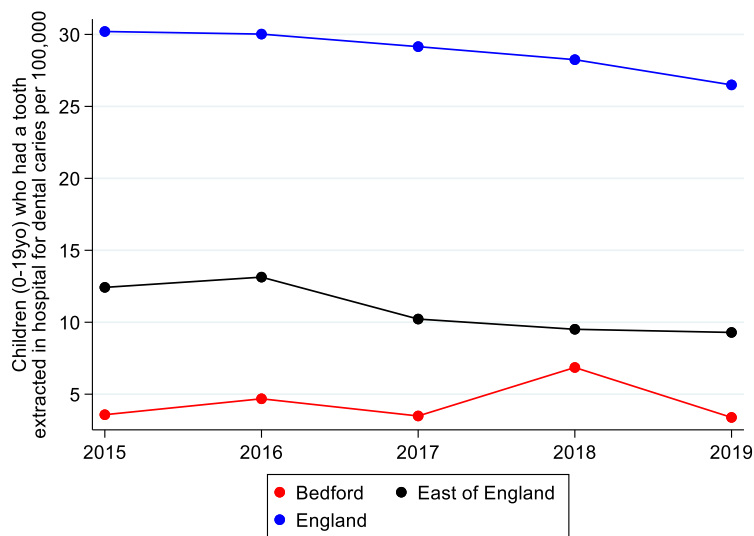
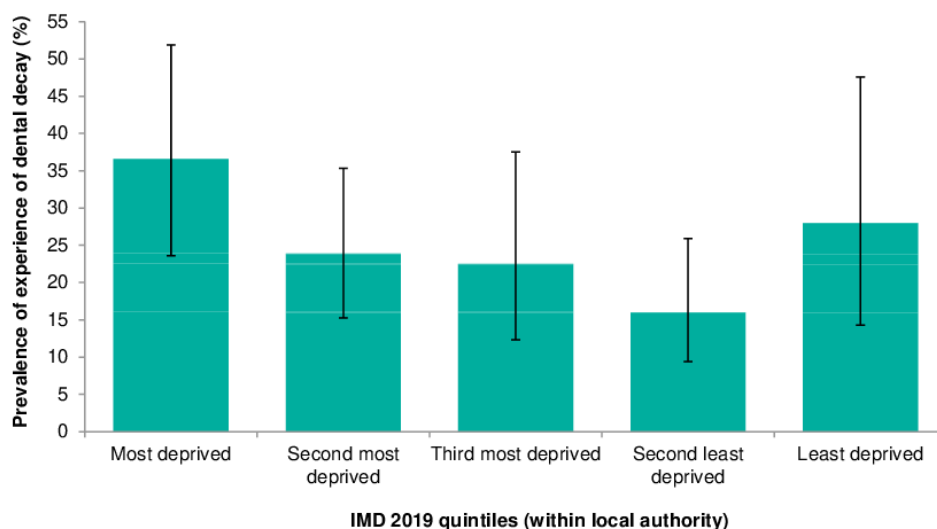


Figure 17: The change over time in the number of children and young people (0-19-year-olds) per 100,000 who had a tooth with dental decay extracted in hospital, in Bedford Borough and statistical neighbours. Source: Hospital Episode Statistics

4.3. Variation in oral health by deprivation

In Bedford Borough, the prevalence of dental decay in five-year-olds in 2019 varied by deprivation. Children in the second least deprived quintile of the Index of Multiple Deprivation (IMD; a measure of deprivation) had the lowest levels of dental decay. The highest levels of dental decay were found in children from the most deprived quintile. However, five-year-olds from the least deprived quintile also had high levels of dental decay.



Error bars represent 95% confidence limits

Figure 18: The percentage of five-year-olds with one or more decayed, missing, or filled teeth in Bedford Borough by IMD 2019 quintiles (within the local authorities). Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019³⁵

A stronger relationship between deprivation and dental decay was found across the whole of the East of England. This suggests that the small numbers of children included in the Bedford Borough data (above) led to some chance variation in the findings.

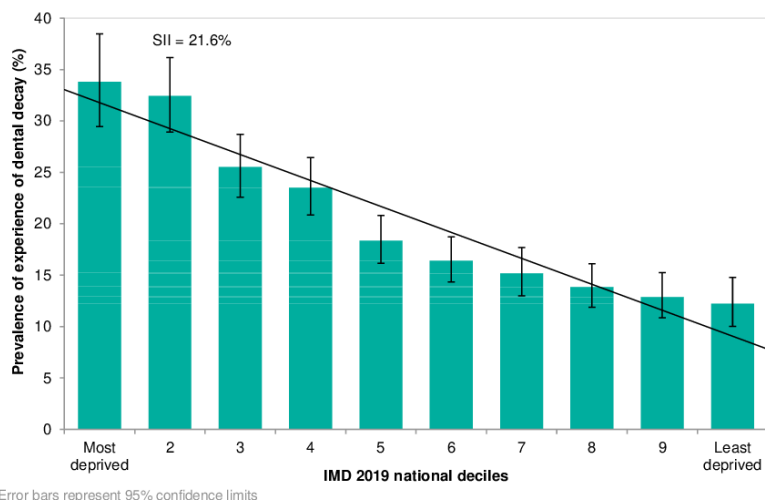


Figure 19: Percentage of five-year-olds with one or more decayed, missing, or filled teeth in East of England by IMD 2019 national deciles. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019³⁵
 SI = slope index of inequality

The relationship between deprivation and the mean number of teeth affected by dental decay is also found at the Ward level in Bedford Borough in 2017. In wards with lower levels of deprivation, as measured by IMD, five-year-olds had a higher average number of teeth affected by dental decay.

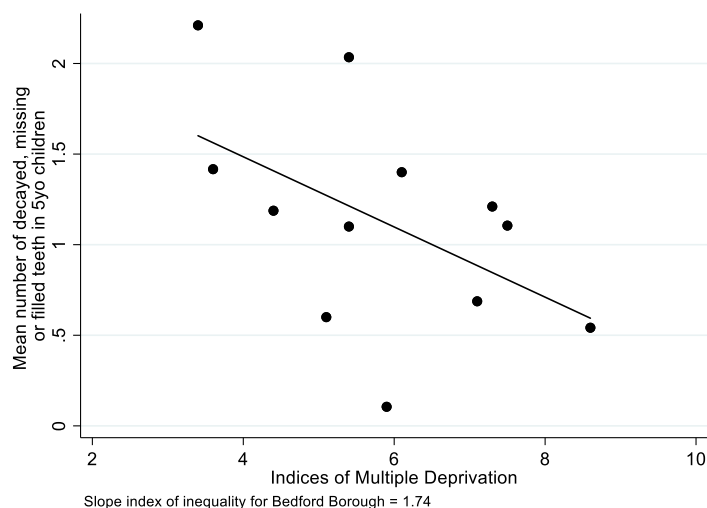


Figure 20: The mean number of decayed, missing or filled teeth in five-year-olds in each Ward of Bedford Borough by IMD. Source: Dental Public Health Epidemiology Programme for England: Oral health survey of five-year-old children, 2017.

4.4. Attendance at NHS dental practices

In Bedford Borough, the percentage of children and young people (0-18) seen by NHS dentists in the 12 months of 2019 was 56%. This was slightly below the English average of 58% and ranked fourth lowest of its statistical neighbours. Kingston-Upon-Hull is a well performing LA for this indicator, where 69% of children were seen in the previous 12 months.

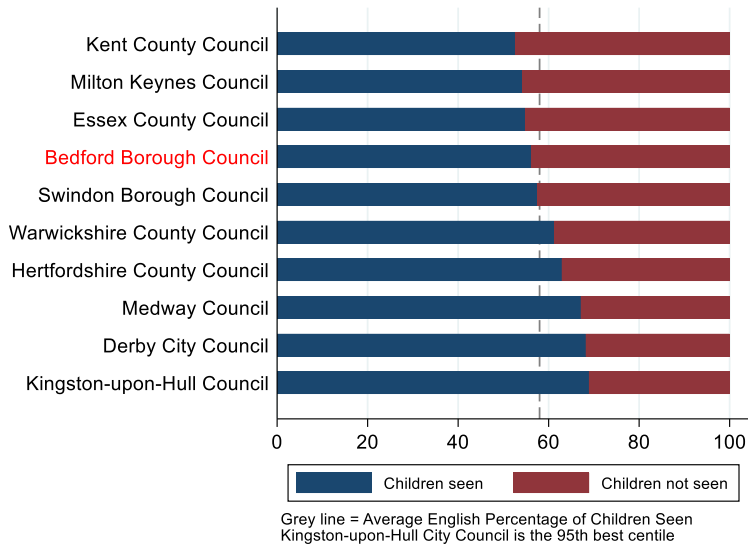


Figure 21: The percentage of children and young people (0-18) seen by NHS dentists in the 12 months of 2019 in Bedford Borough & statistical neighbours. Source: NHS Dental Statistics, 2019

The proportion of children and young people seen by an NHS dentist in Bedford Borough in the previous 12 months has varied greatly over the past 4 years. Attendance has been below the English average for most of this time. Excluding the recent sharp decrease in access during the pandemic, it has varied from 51% in 2018 to 64% in 2020.

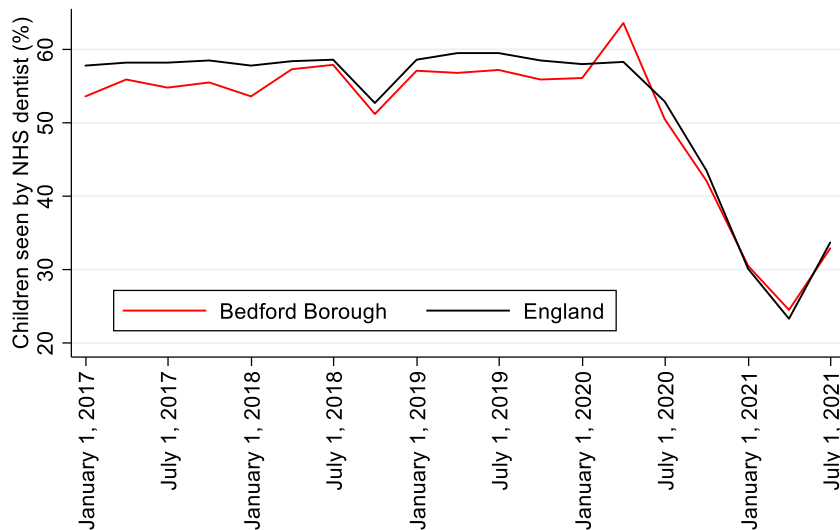


Figure 22: The percentage of children and young people (0-18) seen by NHS dentists in the prior 12 months in Bedford Borough and England (12 month rolling average). Source: NHS Dental Statistics

The proportion of children and young people seen by NHS dentists in the 12 months of 2019 varied by age. The lowest proportion was for children under 1, of whom 3% were seen. The proportion increased with age to 72% of 9-year-olds. This then decreased to 58% for 17-year-olds.

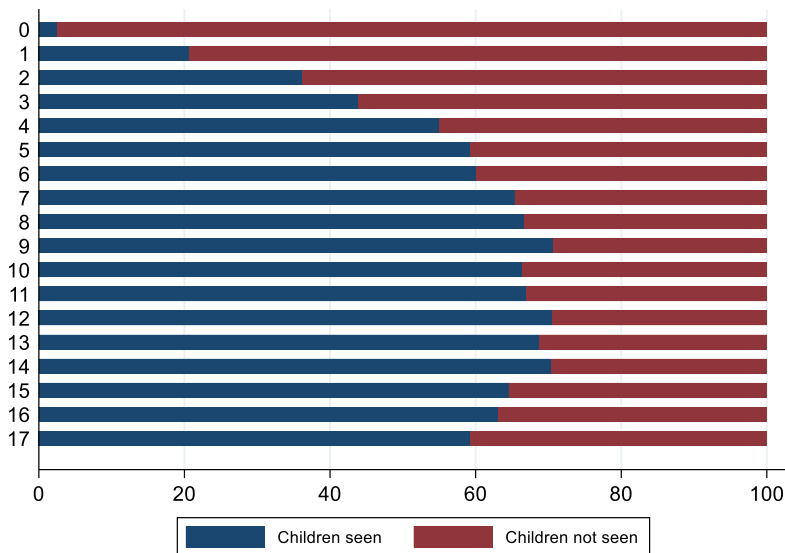


Figure 23: The proportion of children and young people (0-18) seen by NHS dentists in the 12 months of 2019 in Bedford Borough by age. Source: NHS Dental Statistics, 2019

NHS dental treatment is categorised into four tiers: band 1, 2, 3 and 4. This reflects the charges attached to different treatment, although children’s NHS dental treatment is free at the point of access. A routine clinical examination falls within band 1 treatment, as does common treatments and investigations such as a scale and polish or x-rays. Band 2 dental treatment incorporates more involved dental work, such as fillings, treatment for severe gum disease, some oral surgery and root canal treatment. Band 3 treatment incorporates the most expensive planned treatment, such as bridges, crowns and orthodontic treatment like braces. Band 4 treatment covers urgent treatment. The numbers of children receiving emergency treatment is very small and therefore is not further discussed.

The majority of NHS treatment for children and young people (0-18) in the last 6 months of 2019 in Bedford Borough was within Band 1 (77%). This ranked the second lowest of its statistical neighbours and was similar to the English average of 76%. In Bedford Borough, 22% of treatment was Band 2 and 0.9% was Band 3.

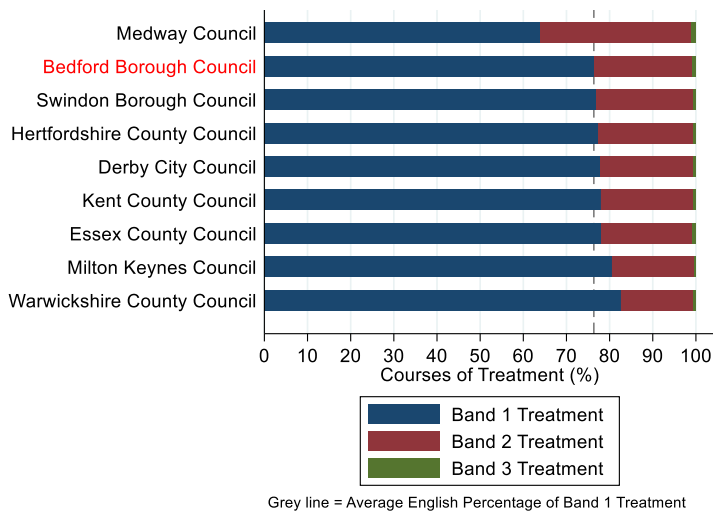


Figure 24: The proportion of NHS treatment for children and young people (0-18) in treatment bands 1, 2 and 3 in the last 6 months of 2019 in Bedford Borough & statistical neighbours. Source: NHS Dental Statistics, 2019

The proportion of treatment that was Band 1 increased from 2013 to 2020, which was when access to dental practices was restricted due to the pandemic. The percentage of treatment that was within Band 1 was 71.5% in 2013 and 76.2% in 2019, which increased to 79.4% in 2020. These increases were mostly due to a decrease in the proportion of Band 2 treatments.

In the East of England and England the proportion of treatment in Band 1 increased by 4% from 2013 to 2019. This also reflected a decrease in the proportion of Band 2 treatment.

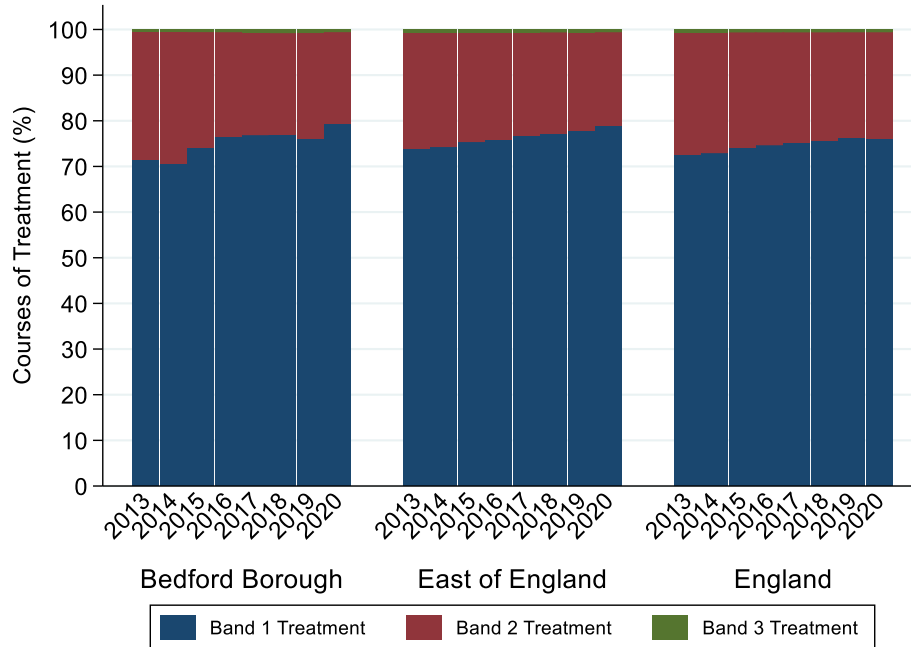


Figure 25: The change over time in the proportion of NHS treatment for children and young people (0-18) in treatment bands 1, 2 and 3 in Bedford Borough, East of England and England. Source: NHS Dental Statistics

5. Findings: Central Bedfordshire

The following section covers the oral health of five-year-olds and three-year-olds in Central Bedfordshire, as well as hospital extractions for dental decay and attendance at NHS dental practices for children and young people up to 18-years-old.

5.1. Summary

The oral health of children and young people has improved in Central Bedfordshire over the past 5-10 years, which mirrors improvements seen in England overall. The oral health survey of 5-year-olds in 2019 showed that 14% have dental decay, which was below the English average. Although each child with dental decay had on average 3 teeth affected.

However, dental decay starts early. The survey of 3-year-olds in 2020 found that 6% had visible dental decay, with on average 3 teeth affected, which is similar to the English average. Oral health varied by deprivation and ethnicity; those in more deprived areas had higher prevalence of dental decay, as did those of Asian/Asian British or Mixed heritage. Dental access was above the English average. However, preschool and Key Stage 1 children, as well as those 15-years or older were less likely to have attended an NHS dentist recently than children aged 8-14-years-old.

5.2. Children's oral health

5.2.1. Five-year-olds

In 2019, the percentage of five-year-olds with dental decay in Central Bedfordshire was 14%, which was below the English average of 23%. Broadland is a well performing LA for this indicator, where 7% of five-year-olds were affected by dental decay.

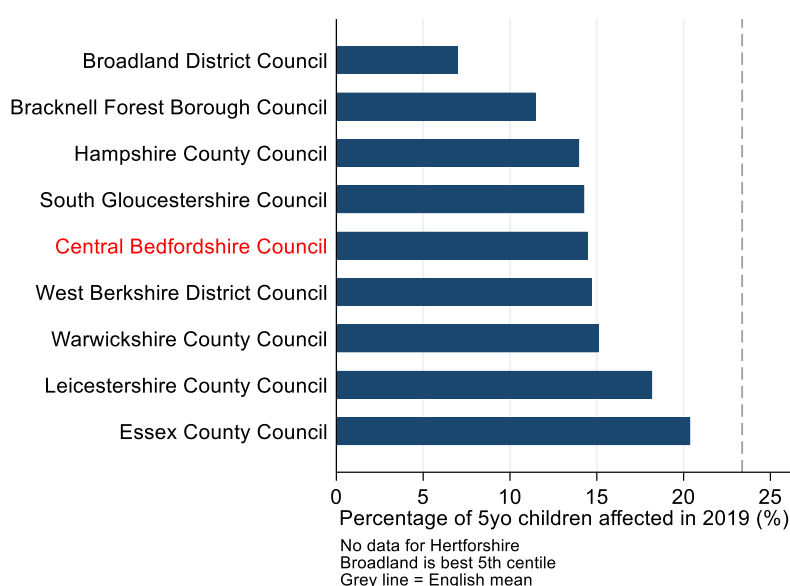


Figure 26: The percentage of five-year-olds with one or more decayed, missing, or filled teeth in Central Bedfordshire relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019

On average, five-year-olds in Central Bedfordshire in 2019 had 0.4 teeth with dental decay, which was the ranked third lowest of their statistical neighbours and below the English average of approximately 0.8. In Broadland, an average of 0.3 teeth were affected with dental decay.

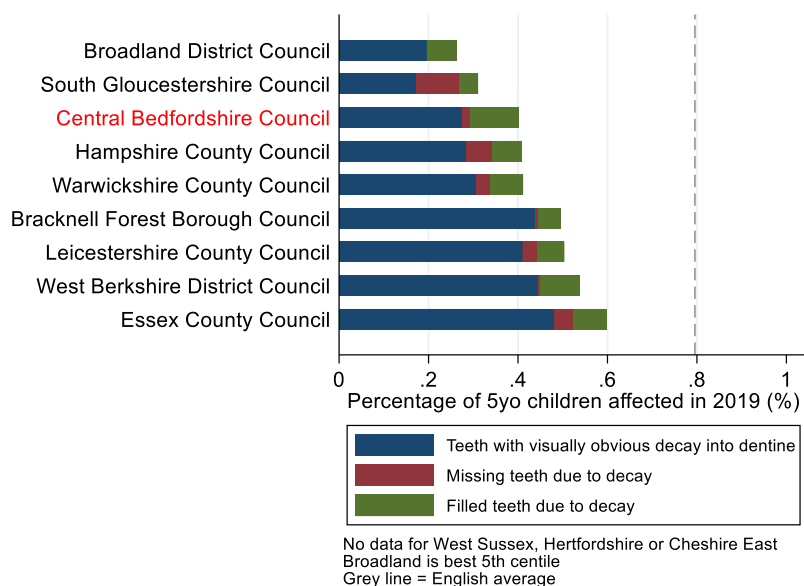


Figure 27: Mean number of decayed, missing, or filled teeth in 5-year-olds in Central Bedfordshire relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019

Among five-year-old children who have at least one tooth affected by dental decay; the average number of affected teeth was 2.8 in Central Bedfordshire in 2019. This was below the English average and ranked in the middle of its statistical neighbours. Gateshead is a well performing LA for this indicator, with an average of 2.2 teeth affected by dental decay.

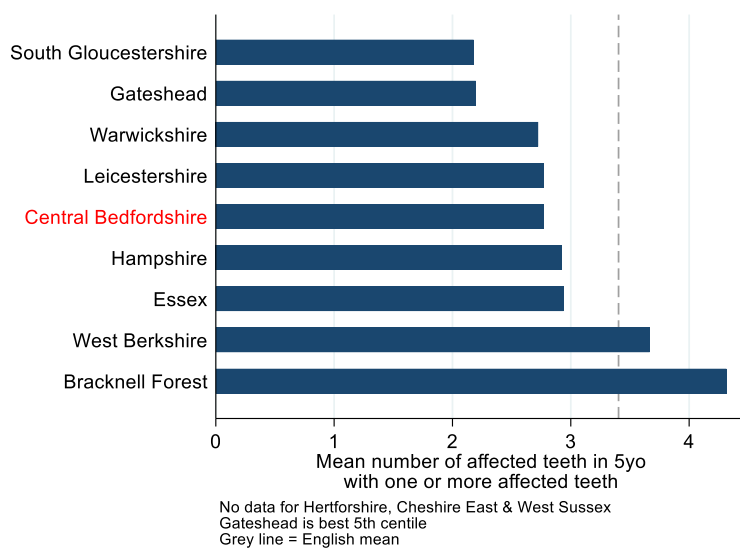


Figure 28: The mean number of decayed, missing, or filled teeth of 5-year-olds who have at least one decayed, missing or filled teeth in Central Bedfordshire and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children, 2019

In Central Bedfordshire, there has been a decreasing prevalence of dental decay in five-year-olds over time from 28% in 2008 to 14% in 2019, and decreasing prevalence is also found in both the East of England and England overall.

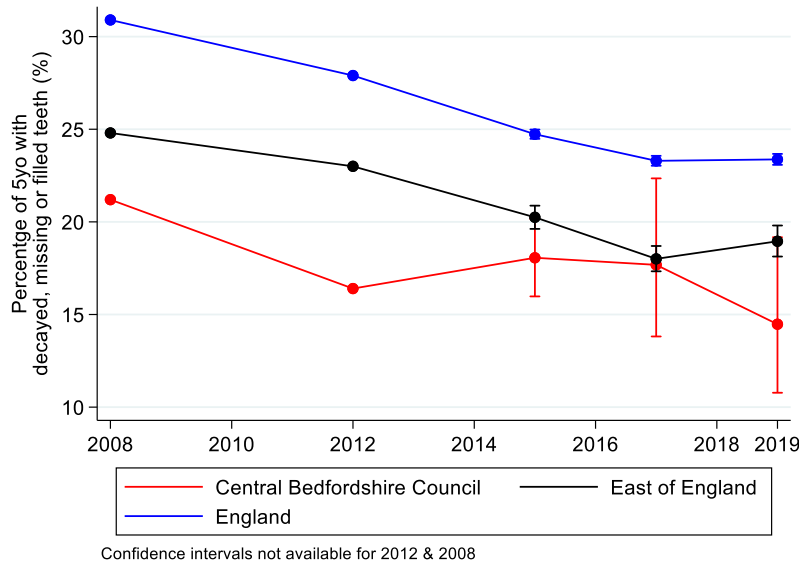


Figure 29: Change over time in the percentage of 5-year-olds with one or more decayed, missing, or filled teeth in Central Bedfordshire, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

The average number of teeth affected by dental decay in five-year-olds in Central Bedfordshire has remained broadly constant between 2015 (mean = 0.5) and 2019 (mean = 0.4). The prevalence is consistency lower than the English average.

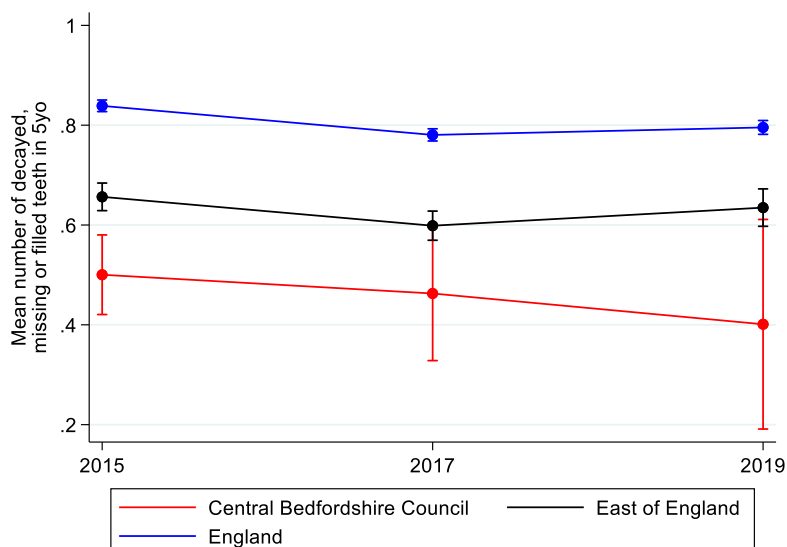


Figure 30: Change over time in the mean number of decayed, missing, or filled teeth of 5-year-olds in Central Bedfordshire, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

Although the proportion of children with affected teeth is decreasing, the number of teeth in those children with dental decay has not changed over time. The average number of affected teeth in five-year-olds with at least one tooth affected by dental decay has remained stable at 2.8 affected teeth in 2015 and 2019. The average has also remained stable in the East of England (3.3 affected teeth) and in England (3.4 affected teeth).

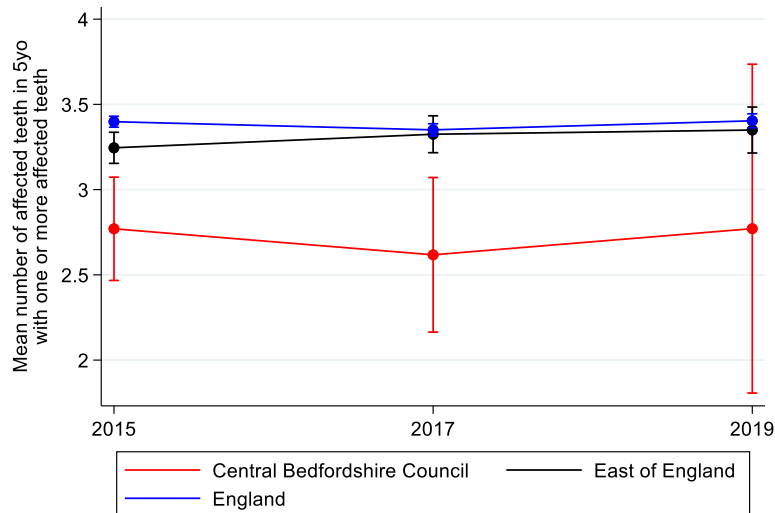


Figure 31: Change over time in the mean number of decayed, missing, or filled teeth of 5-year-olds who have at least one decayed, missing or filled teeth, in Central Bedfordshire, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children

5.2.2. Three-year-olds

In Central Bedfordshire, the prevalence of dental decay among three-year-olds in 2020 was 6%. This was ranked among the middle of its statistical neighbours and was below the English average of 11%. Chesterfield was a well performing LA for this indicator, where 2% of three-year-olds affected by dental decay.

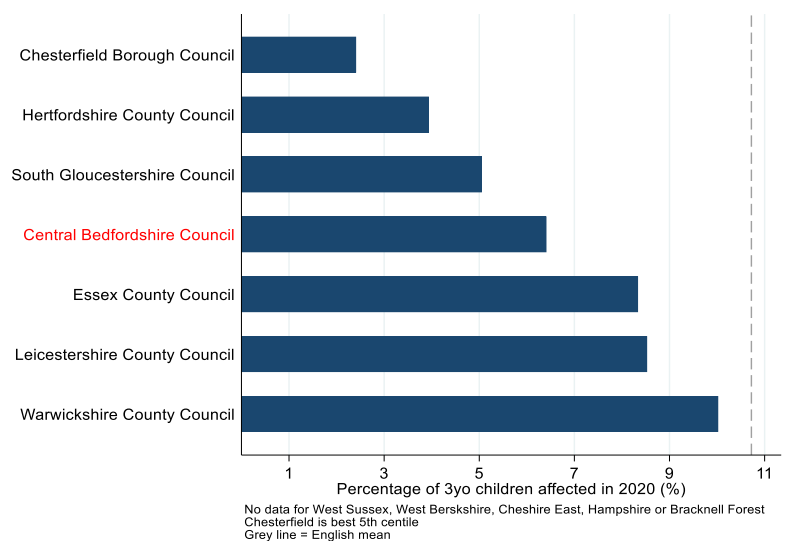


Figure 32: The percentage of three-year-olds with one or more decayed, missing, or filled teeth in Central Bedfordshire relative to statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children 2020

On average, there was 0.2 teeth with dental decay in three-year-olds in Central Bedfordshire in 2020. This was similar to the English average and ranked in the middle of its statistical neighbours. Notably no children who were examined had missing teeth or teeth with obvious decay. Selby is a well-performing LA for this indicator, with an average of 0.1 teeth with dental decay.

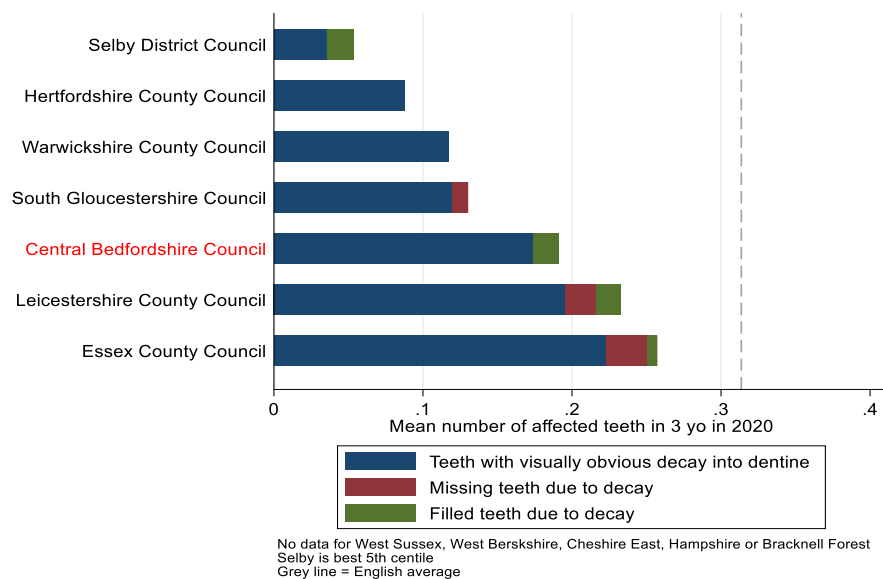


Figure 33: Mean number of decayed, missing, or filled teeth of 3-year-olds in Central Bedfordshire and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children, 2020

Although the proportion of three-year-olds with teeth affected by dental decay was lower than the English average, the children who have affected teeth had on average 3 teeth with dental decay. This was slightly above the English average of 2.9 affected teeth and the 2nd highest of the statistical neighbours. Great Yarmouth is a well performing LA for this indicator, where the average number of affected teeth was 1.6.

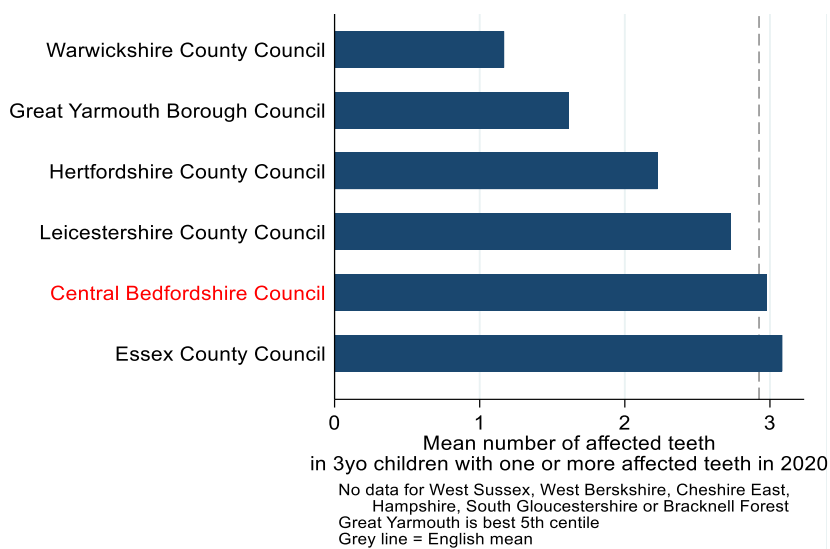


Figure 34: The mean number of decayed, missing, or filled teeth of 3-year-olds who have at least one decayed, missing or filled teeth, in Central Bedfordshire and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children, 2020

There was limited data on the change in oral health of three-year-olds over time. Data was available for 2013 and 2020 only, restricting the identification of trends. The prevalence of dental decay among three-year-olds appeared to decrease in East of England and England overall. A decreasing trend was not evident in Central Bedfordshire, which had a prevalence of 6% in 2013 and 2020.

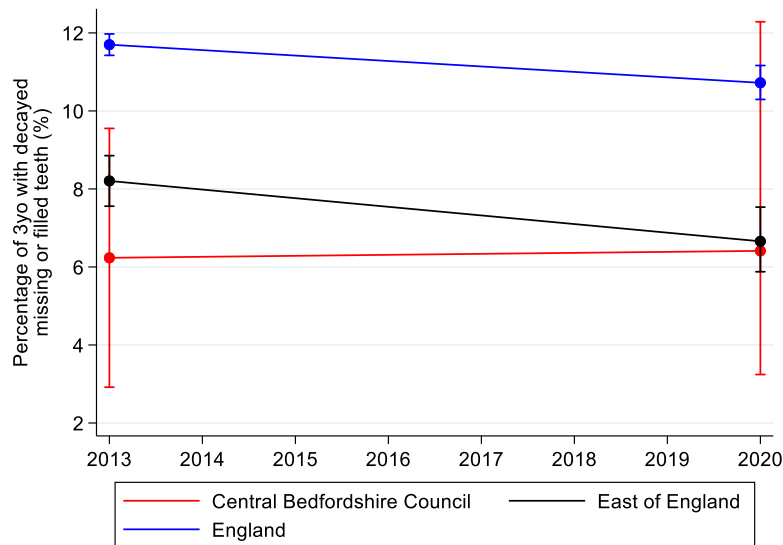


Figure 35: Change over time in the percentage of 3-year-olds with one or more decayed, missing, or filled teeth in Central Bedfordshire, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

In Central Bedfordshire, the average number of teeth affected by dental decay among three-year-olds was 0.1 in 2013 and 0.2 in 2020. The margin of error on these estimates was large, so no statement about trends can be made.

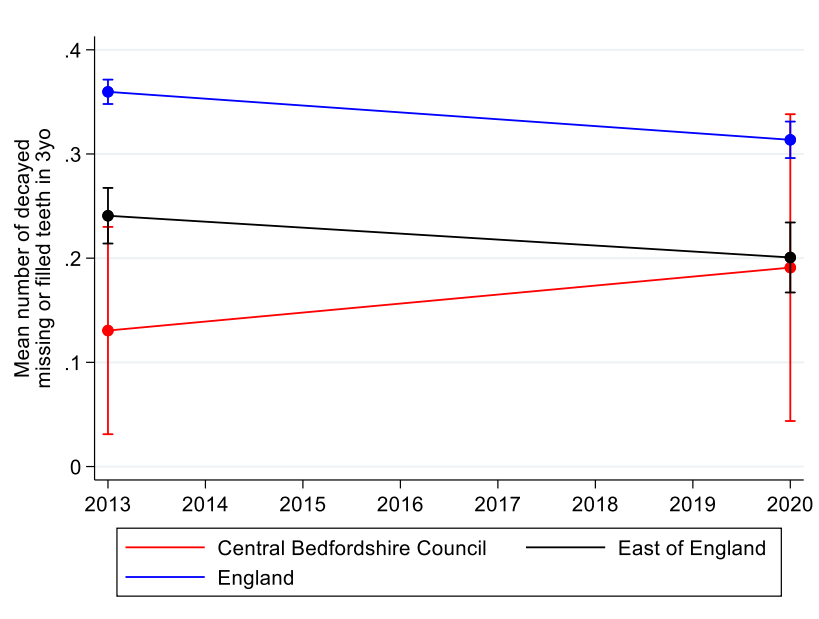


Figure 36: Change over time in the mean number of decayed, missing, or filled teeth of 3-year-olds in Central Bedfordshire, East of England and England. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

Among three-year-olds with at least one tooth affected by dental decay, the average number of affected teeth was 2 in 2013 and 3 in 2020. Once again, large margins of error mean that trends cannot be established.

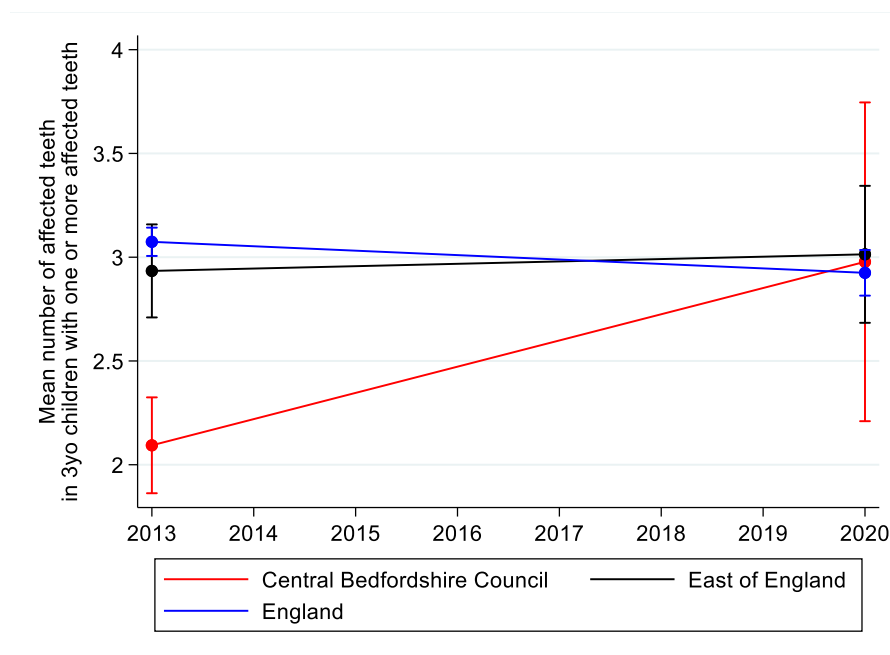


Figure 37: The change over time in the mean number of decayed, missing, or filled teeth of 3-year-olds who have at least one decayed, missing or filled teeth, in Central Bedfordshire and statistical neighbours. Source: Dental Public Health Epidemiology Programme for England: oral health survey of three-year-old children

5.2.3. All children and young people

The number of children who had a tooth extracted in hospital for dental decay was 6.5 per 100,000 in the financial year from 2019-2020 (Figure 38). This was well below the English average of 26.5 children per 100,000 and was ranked in the middle of the statistical neighbours. Broadland is a well performing LA for this indicator, where 3.8 children per 100,000 had a tooth extracted in hospital for dental decay.

It should be noted that the number of hospital extractions reflects multiple factors in oral health. These include oral health itself and dental access. Regular access to dentists will allow for early intervention, thus decreasing the need for hospital extractions. Conversely, no access to dentists will limit referrals to have an extraction, regardless of the child's oral health.

It is unclear what is underlying the very diverse rates of hospital extractions among children and young people seen in Figure 38. They may be an artefact of how the data is recorded, but certainly, further work is needed to understand this indicator in greater detail.

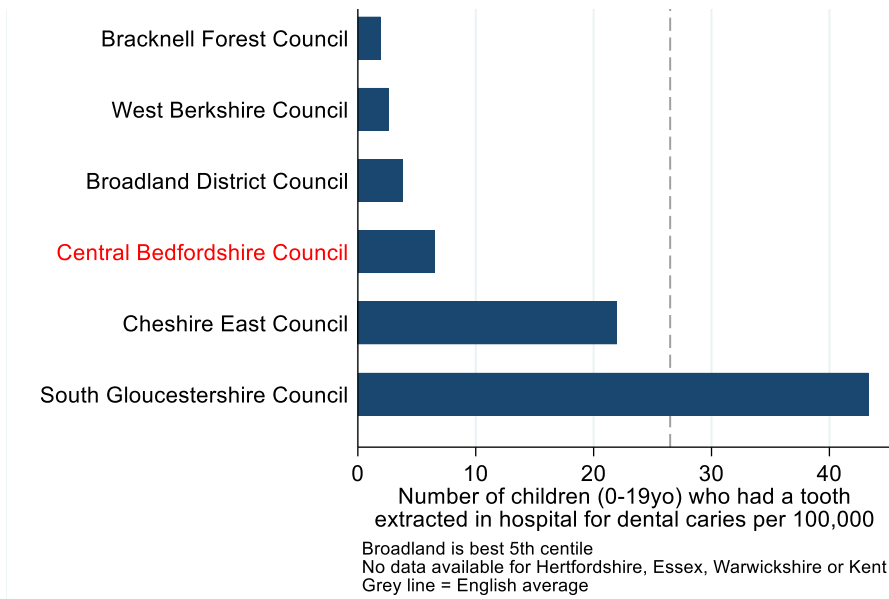


Figure 38: The number of children and young people (0-19-year-olds) per 100,000 who had a tooth with dental decay extracted in hospital, in Central Bedfordshire and statistical neighbours for the financial year 2019-2020. Source: Hospital Episode Statistics, 2019-2020

The number of children per 100,000 who have had a tooth extracted in hospital for dental decay in England and East of England has decreased from 2015 to 2019. In Central Bedfordshire, however, there was evidence of an increasing trend. The number of children increased from 3.8 per 100,000 in 2015 up to 6.5 per 100,000 in 2019.

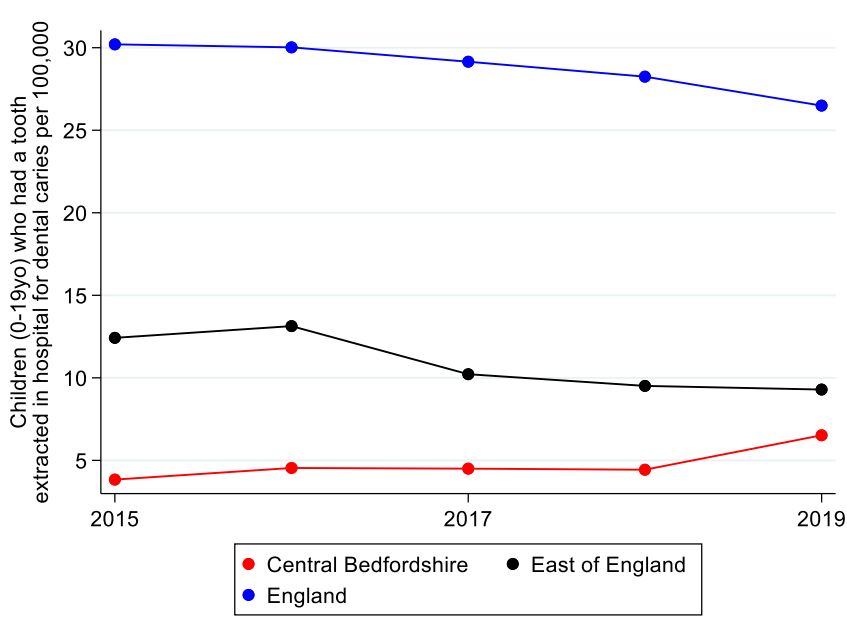
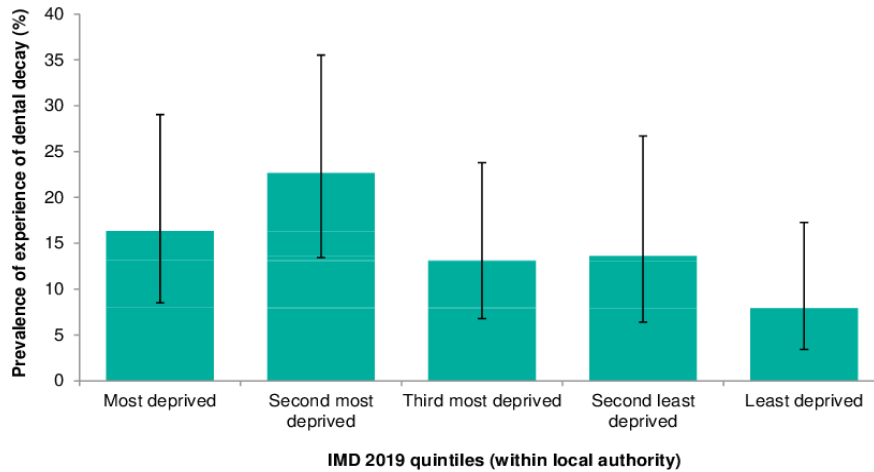


Figure 39: The change over time in the number of children and young people (0-19-year-olds) per 100,000 who had a tooth with dental decay extracted in hospital, in Central Bedfordshire and statistical neighbours. Source: Hospital Episode Statistics

5.3. Variation in oral health by deprivation

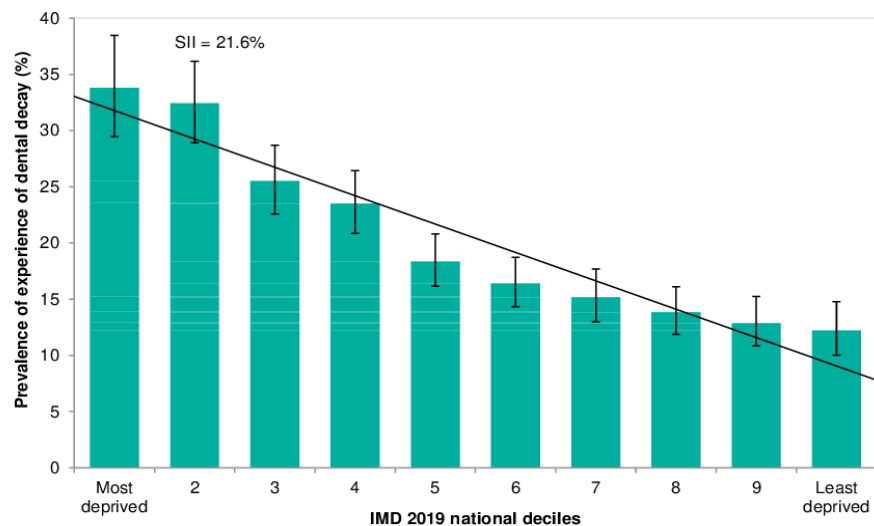
In 2019, there was variation in the prevalence of dental decay among five-year-olds (Figure 40). Children in the least deprived quintile of IMD (a measure of deprivation) had the lowest levels of dental decay. The highest proportion of children with dental decay was found in the second most deprived quintiles.



Error bars represent 95% confidence limits

Figure 40: The percentage of five-year-olds with one or more decayed, missing, or filled teeth in Central Bedfordshire by IMD 2019 quintiles (within the local authorities). Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019³⁵

A clearer relationship between deprivation and dental decay is seen across all the East of England.



Error bars represent 95% confidence limits

Figure 41: Percentage of five-year-olds with one or more decayed, missing, or filled teeth in East of England by IMD 2019 national deciles. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019³⁵

SII = Slope index of inequality

The relationship between deprivation and the mean number of teeth affected by dental decay is also found at the Ward level in 2017. In wards with lower levels of deprivation, as measured by IMD, five-year-olds had a higher average number of teeth affected by dental decay.

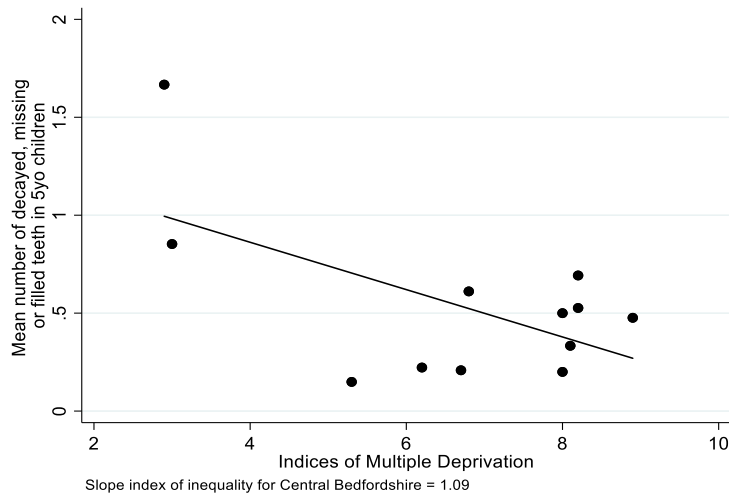


Figure 42: The mean number of decayed, missing or filled teeth in five-year-olds in each ward of Central Bedfordshire by IMD. Source: Dental Public Health Epidemiology Programme for England: Oral health survey of five-year-old children, 2017.

5.4. Attendance at NHS dental practices

The percentage of children and young people (0-18) seen by NHS dentists in 2019 in Central Bedfordshire was 62%. This was above the English average of 58% and ranked in the middle of its statistical neighbours. Kingston upon Hull is a well performing LA for this indicator, where 69% of children were seen in the previous 12 months.

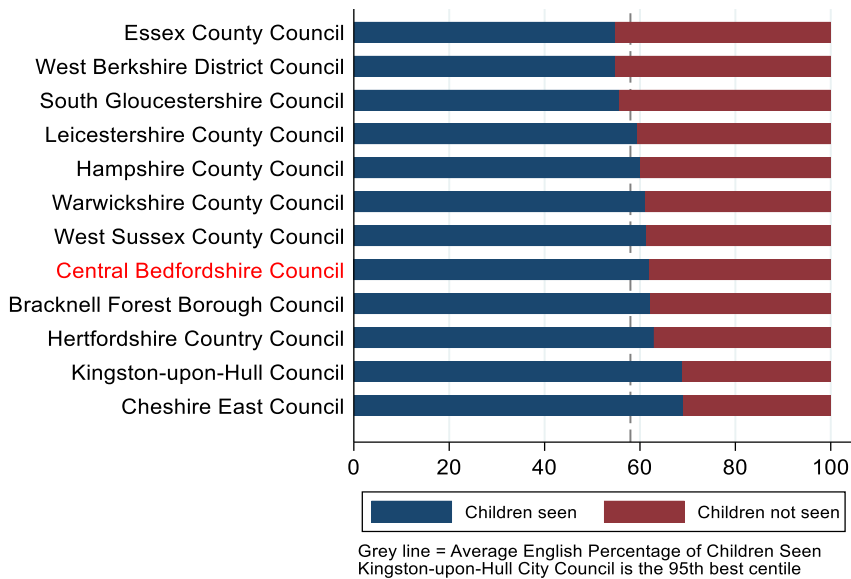


Figure 43: The percentage of children and young people (0-18) seen by NHS dentists in the 12 months of 2019 in Central Bedfordshire & statistical neighbours. Source: NHS Dental Statistics, 2019

The proportion of children and young people seen by an NHS dentist in Central Bedfordshire in the previous 12 months has been above the English average for most of the past 4 years, until the COVID-19 pandemic reduced dental access. Excluding the recent sharp decrease in access during the pandemic, the proportion of children and young people seen by an NHS dentist has varied from 60% in 2017 to 64% in 2019.

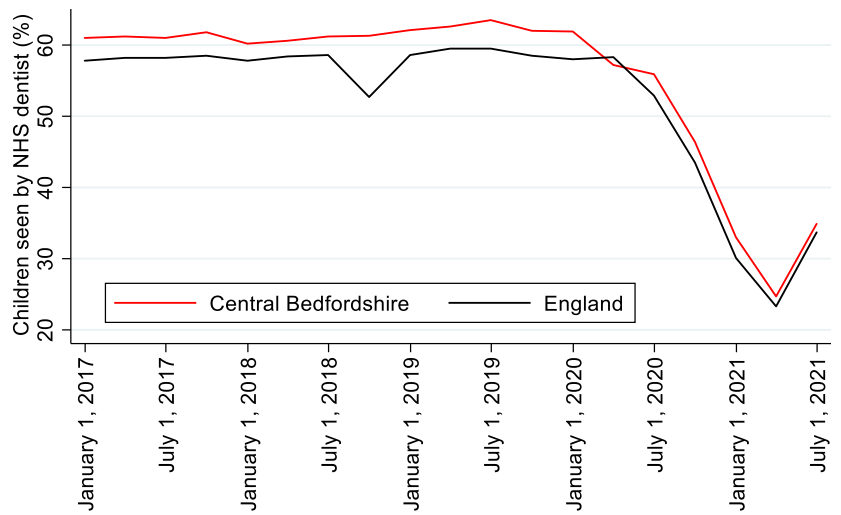


Figure 44: The percentage of children and young people (0-18) seen by NHS dentists in Central Bedfordshire and England (12 month rolling average). Source: NHS Dental Statistics

The proportion of children and young people seen by NHS dentists in 2019 varied by age. The lowest proportion was for children under 1, of whom 3% were seen. The proportion increased with age to 78% of 11-year-olds. The proportion then decreased to 61% of 17-year-olds.

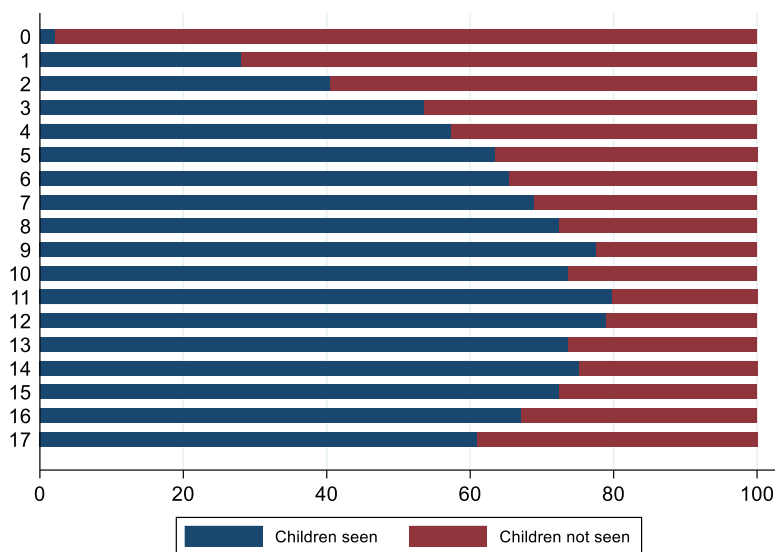


Figure 45: The proportion of children and young people (0-18) seen by NHS dentists in 2019 in Central Bedfordshire by age. Source: NHS Dental Statistics, 2019

NHS dental treatment is categorised into four tiers: band 1, 2, 3 and 4. This reflects the charges attached to different treatment, although children's NHS dental treatment is free at the point of access. A routine clinical examination falls within band 1 treatment, as does common treatments and investigations such as a scale and polish or x-rays. Band 2 dental treatment incorporates more involved dental work, such as fillings, treatment for severe gum disease, some oral surgery and root canal treatment. Band 3 treatment incorporates the most expensive planned treatment, such as bridges, crowns and orthodontic treatment like braces. Band 4 treatment covers emergency treatment. The numbers of children receiving emergency treatment is very small and therefore is not discussed further.

The majority of NHS treatment for children and young people (0-18) in the last 6 months of 2019 in Central Bedfordshire was within Band 1, routine examinations and common treatments (80%). This ranked within the middle of its statistical neighbours and was above the English average of 76%. In Central Bedfordshire, 20% of treatment was Band 2 and 0.6% was Band 3.

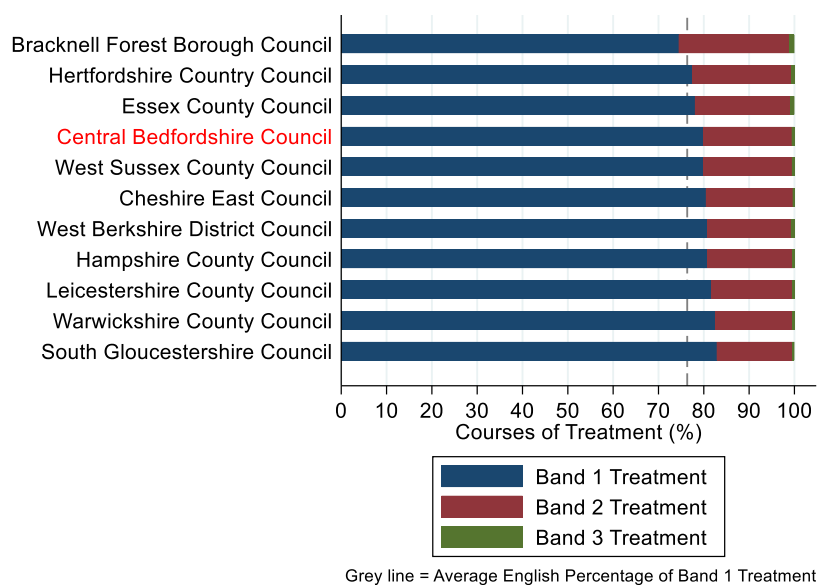


Figure 46: Proportion of NHS treatment for under 18-year-olds in bands 1, 2 and 3 in the second half of 2019 in Central Bedfordshire & statistical neighbours. Source: NHS Dental Statistics, 2019

The proportion of treatment that was Band 1 was broadly consistent from 2013 to 2020, although there was noticeably a decrease in 2020, which is likely to reflect changes in dental access during the pandemic. The percentage of treatment that was within Band 1 was 76.9% in 2013 and 80.0% in 2019. This was mostly due to a decrease in the proportion of Band 2 treatment.

In the East of England and England the proportion of treatment in Band 1 increased by 4% from 2013 to 2019. This also reflected a decrease in the proportion of Band 2 treatment.

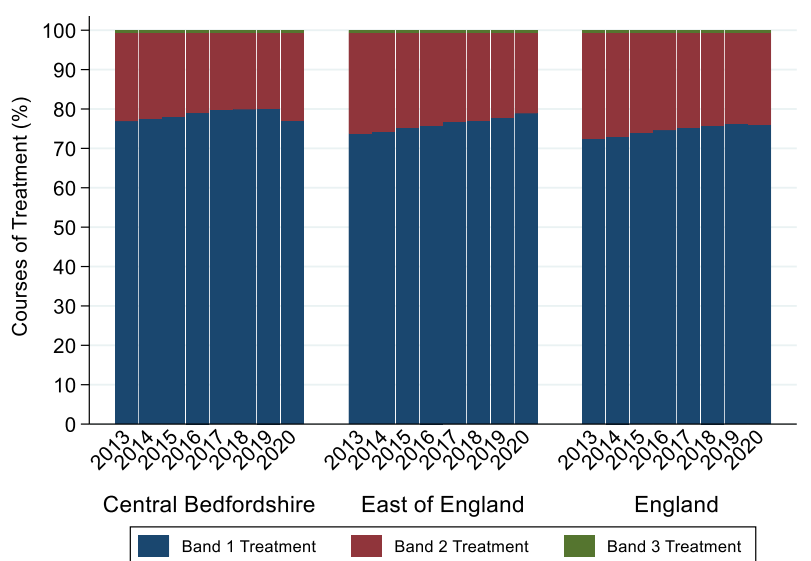


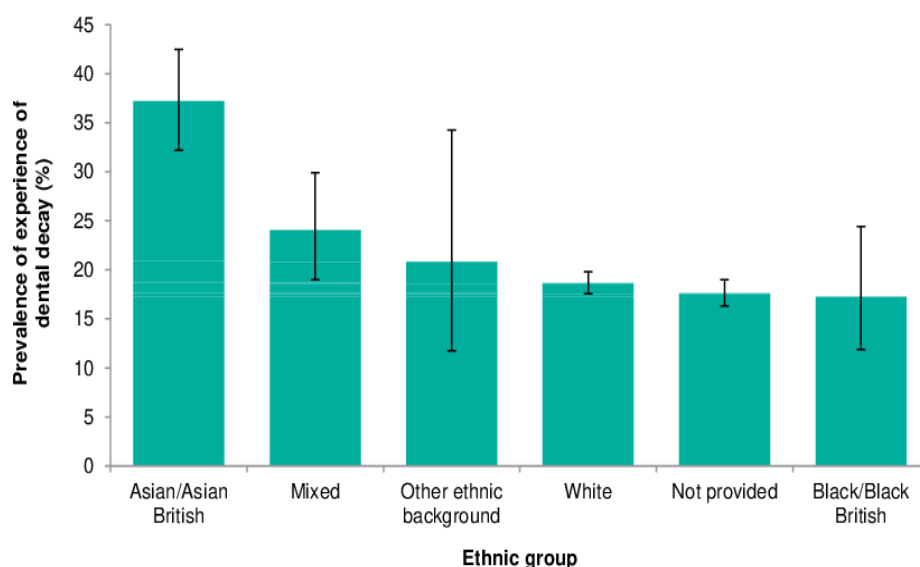
Figure 47: The change over time in the proportion of NHS treatment for children and young people (0-18) in treatment bands 1, 2 and 3 in Central Bedfordshire, East of England and England. Source: NHS Dental Statistics

6. Findings: East of England & England

The following section discusses variation in oral health by ethnicity, and the impact of poor oral health on daily living in the East of England or England in its entirety. This data was used as no local data on those characteristics were available.

6.1. Variation in oral health by ethnicity

The proportion of five-year-olds in the East of England with one or more teeth with dental decay was highest in Asian/Asian British children. Approximately 37% of Asian/Asian British five-year-olds experienced dental decay. The lowest proportions were found in Black/Black British children, White children and children with unknown ethnicity, in whom approximately 17% of five-year-olds were affected by dental decay.



Error bars represent 95% confidence limits

Figure 48: The percentage of five-year-olds with one or more decayed, missing, or filled teeth in East of England by ethnic group. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2019³⁵

In the East of England, the mean number of teeth affected by dental decay in five-year-olds with one or more affected teeth was highest in children of other ethnic backgrounds or mixed ethnicity, in whom there was an average of 4.4 affected teeth. Although it should be noted that the margin for error in the estimate for children of other ethnic background is very wide.

Asian/Asian British children had, on average, 4.2 affected teeth. White and Black/Black British five-year-olds were close to the East of England mean of 3.3 affected teeth. The lowest averages were found for children who did not have ethnicity recorded, where an average of 3.1 teeth were affected.

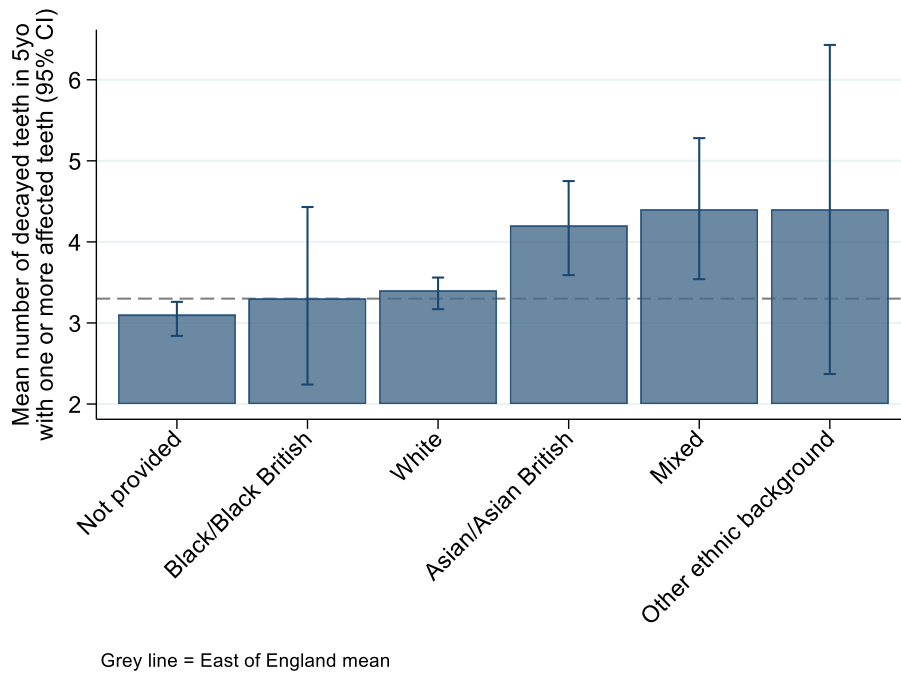


Figure 49: The mean number of decayed, missing, or filled teeth of 5-year-olds who have at least one decayed, missing or filled teeth in the East of England, by ethnic groups. Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children, 2019

6.2. Impact on daily living

6.2.1. By age

In England, 9% of 11–15-year-olds had time off school in the previous 6 months due to oral health problems. Of note, 4% of 11–15-year-olds had two or more episodes of time off school. Among 5–10-year-olds 7.5% had time off school, a third of whom had two or more periods of time off school. 1% of 0–4-year-olds had time off nursery or preschool, over half of whom had two or more episodes off nursery or preschool.

Similarly, parents of 11–15-year-olds had the most time off work due to their child’s oral health compared to parents of children in the other age groups. 5% had some time off, half of whom had to have two or more periods of time off work. 4% of parents of 5–10-year-olds had to have time off work and 1% of 0-4 year-olds had to have time off work in the previous 6 months.

Although not shown here, mothers were more likely to take time off compared to fathers.

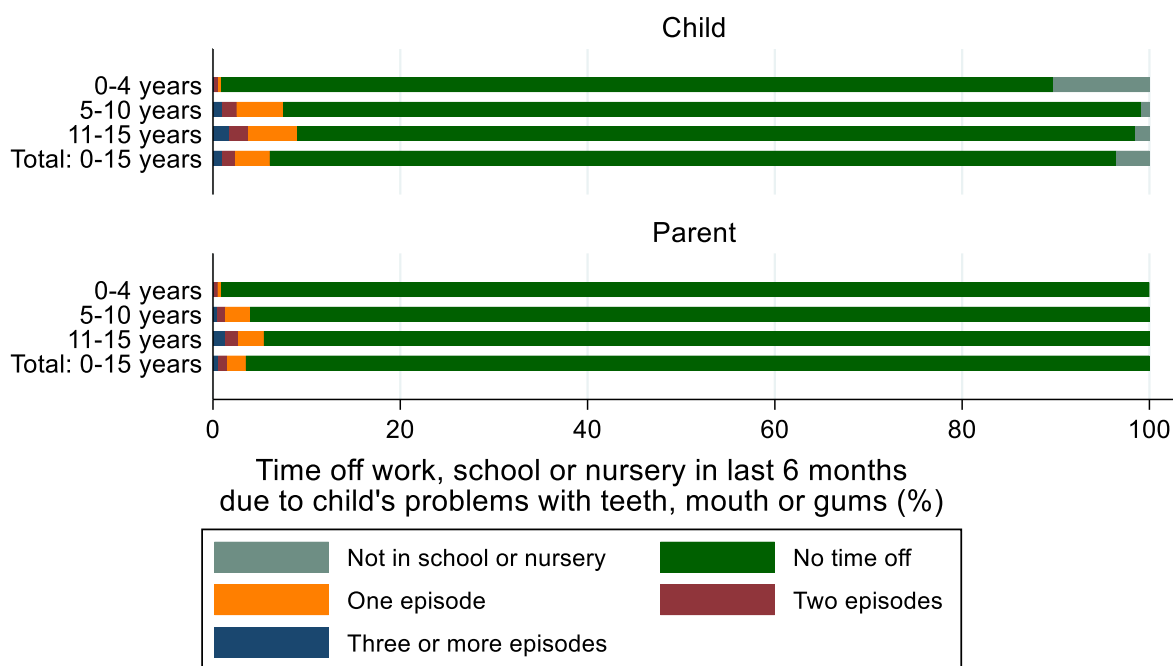


Figure 50: The percentage of parents & children who had time off work, school, or nursery due to the child's oral health problems in the last 6 months in England by child's age group. Source: Health Survey for England 2019: Supplementary analysis of oral health

6.2.2. By income

The number of times that a child was not able to attend school or nursery, or a parent was not able to work, due to the child's oral health problem was highest for children in the lowest quintile of income. 8% of these children had any time off school or nursery in the previous 6 months. In comparison 5% of children in the least deprived quintile had time off school or nursery. However, most children in the lowest quintile had only one episode of time off from school or nursery. In contrast, 22% of children who had time off school or nursery in the highest income quintile had three or more episodes of time off.

Although the highest proportion of children having time off school or nursery were found in the lowest income quintile, this is also the quintile where the lowest proportion of parents had time off work due to their child's oral health problems. This may reflect differences in working patterns between the deprivation quintiles. Families in the lowest income quintile may be more likely to have one parent who does not work. Alternatively, they may be more likely to have family or friends nearby who can care for the unwell child instead.

Parents in the second lowest quintile were most affected by their child's oral health. 6% had to have time off work in the previous 6 months.

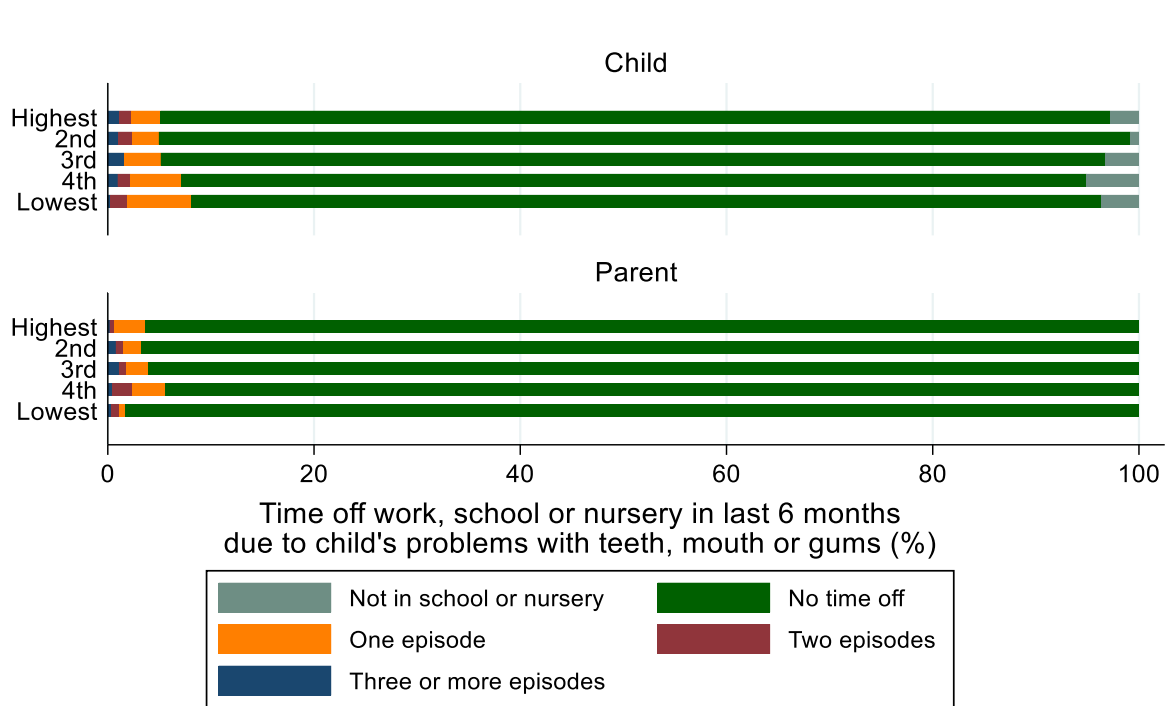


Figure 51: The percentage of parents & children who had time off work, school or nursery in the last 6 months in England by income quintiles. Source: Health Survey for England 2019: Supplementary analysis of oral health

6.2.3. By deprivation

The number of times that a child was not able to attend school or nursery, or a parent was not able to work due to the child's oral health problem was highest for children in the lowest two quintiles of deprivation. 7% of children in the most and the second most deprived quintiles had time off school or nursery in the previous 6 months. In comparison, 5% of children in the second least deprived quintile had time off school or nursery. Children in the two most deprived quintiles were also more likely to have had two or more episodes off school or nursery in the past 6 months.

Although the lowest proportion of children having time off school or nursery were found in the third quintile of deprivation, this is also the quintile where the highest proportion of parents had time off work. Again, this may reflect differences between the deprivation quintiles in working patterns, or the availability of other family members or friends to care for the child.

Among, parents in the third quintile of deprivation, 4% had to have time off work due to their child's oral health in the previous 6 months.

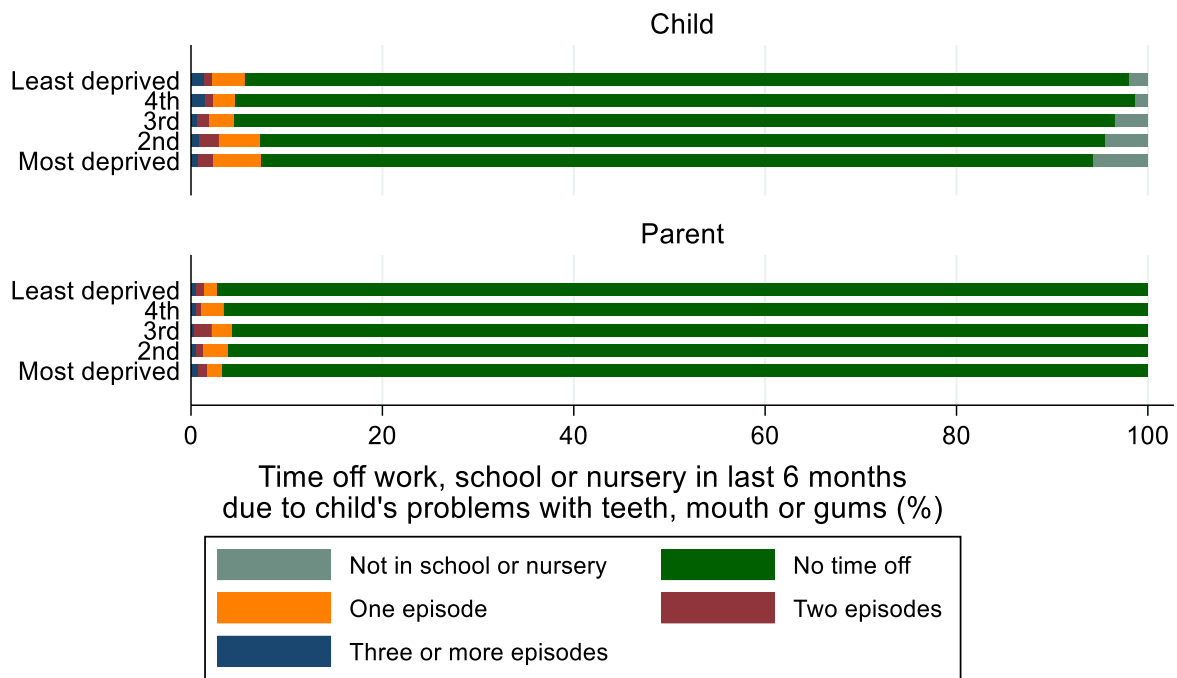


Figure 52: The percentage of parents & children who had time off work, school or nursery in the last 6 months in England by IMD 2019 quintiles. Source: Health Survey for England 2019: Supplementary analysis of oral health

6.3. Children with Special Educational Needs

The final section discusses the oral health of children with special educational needs. A survey of 5- and 12-year-old children attending special support schools was conducted in 2014. This is the most recent data available. These children are not normally included in the oral health surveys discussed above. However, many children with medical, behavioural, cognitive and communicative special needs attend so-called mainstream schools and are included in the results of the previous surveys. Due to few children attending in each LA, findings are summarised for East of England as a whole.

Children with special education needs and their carers experience their own challenges when it comes to maintaining good oral health, which were discussed in section 8. However, a comparison of dental decay in 5-year-olds attending English special support schools and those attending mainstream schools found little difference in oral health (Table 2)

Survey group	Number examined	Prevalence of dental decay, %	Mean number of teeth affected by dental decay	Mean number of teeth affected by dental decay in those with one or more affected teeth
Special support school	1,415	22.5 (20.3, 24.6)	0.88 (0.76, 0.99)	3.90 (3.58, 4.22)
Mainstream school	133,516	27.9 (27.7, 28.1)	0.94 (0.93, 0.96)	3.38 (3.36, 3.41)

Table 2: Prevalence and severity of dental decay among five- year-old children attending special support schools compared with five-year-olds attending mainstream schools. Reproduced from: Dental public health epidemiology Programme. Oral health survey of five-year-old and 12-year-old children attending special support schools 2014³⁶.

Numbers in parentheses are 95% confidence intervals.

7. Current Services

Bedford Borough and Central Bedfordshire commission joint oral health promotion services under the banner of the Bedfordshire Oral Health Improvement Team as part of the Healthy Child 0-19 programme. The service aims to co-ordinate, facilitate, support and provide a range of evidence-based interventions to improve oral health and reduce oral health inequalities in Bedford Borough and Central Bedfordshire

It has five strategic objectives, listed below, along with actions undertaken to meet them.

- 1) To co-ordinate, facilitate, support, and provide a range of evidence-based interventions to improve oral health and reduce oral health inequalities in Bedford Borough and Central Bedfordshire.
This includes extensive promotion of free fluoride varnish applications by dentists to parents and carers of children aged 3- to 18-years-old. During the pandemic, they increased the online education resources available by launching a website and Facebook page.
- 2) To accredit Early Years, Special Schools and Primary Schools settings in areas of greatest need^a as oral health promoting settings, through the 'mysmile' award.
The mysmile award is given to participating early years settings and schools if they provide four main elements. These are: supervised tooth brushing, reinforcing tooth friendly diets, dissemination of oral health information and encouraging families to have regular dental visits. Of note the supervised tooth-brushing programmes is one of the recommendations of PHE's Oral Health Improvement Board.
- 3) To train health and non-health professionals who work with children about the importance and promotion of oral health.
Oral health was included in the Bump, Birth and Baby sessions delivered by Children's Centres to provide early awareness of the importance of oral health. The Bedfordshire Oral Health Improvement Team have also delivered oral health training to the wider 0-19 team and Special School Nurse Teams.
- 4) To train foster carers around the importance and promotion of oral health.
As of 2021, 23 foster carers in Bedford Borough and 13 foster carers in Central Bedfordshire have received basic oral health training.
- 5) Create environments that promote oral health.
A 'whole-school' approach to oral health in schools is promoted. Examples of activities include making plain drinking water freely available, providing a choice of food, drinks and snacks that are tooth-friendly and form part of a healthier diet (including those offered in vending machines), and displaying and promoting evidence-based, age-appropriate, oral health information for parents, carers and children, including details on how to access local dental services

^a The greatest need is defined as the 40% most deprived LSOAs in Bedford Borough and the 40% most deprived LSOAs in Central Bedfordshire.

Further appropriate action is taken beyond these objectives. For example, health visitors lead and support delivery of preventive programmes for infants and children. This include providing advice on oral health and breastfeeding to parents.

7.1. Key performance indicators

There are four key performance indicators (KPIs) and associated targets for the Bedfordshire Oral Health Improvement Team (Table 3). In the financial year from 2020-2021, the target of offering basic oral health training to all early year's settings and children's centres was achieved. However, the second and third KPI targets (>50% of Early Years, Special Schools and Primary Schools settings in deprived areas receiving the 'mysmile' award; >50% of HCP staff, Specialist School Nurses and LAC Nurses receiving oral health training) were not.

As underperformance in 2020-2021 may reflect the challenges from working during the COVID pandemic, performance from 2018-2019 is also included. Two targets were met during that time, however the target of accrediting >50% of early years, special schools and primary schools in areas of greatest with the mysmile award was also not attained. This may reflect the challenges of engaging settings in a more prolonged activity.

Key Performance Indicators	Target	2020-2021		2018-2019	
		BBC	CBC	BBC	CBC
1. To co-ordinate, facilitate, support, and provide a range of evidence-based interventions to improve oral health and reduce oral health inequalities in Bedford Borough and Central Bedfordshire.	100% of Early Years settings and Children's Centres in each local authority who are offered basic oral health training – including brushing skills	100%	100%	100%	100%
2. To accredit Early Years, Special Schools and Primary Schools settings in areas of greatest need, as oral health promoting settings for early years, through the 'mysmile' award	>50%, >9 settings in each LA	>50% have been invited		33%	21%
3. To train health and non-health professionals who work with children about the importance and promotion of oral health	>50% of 0-19 HCP staff, Specialist School Nurses and LAC Nurses who receive/complete basic oral health training in 2019-20	22%		100%	100%
4. To train foster carers around the importance and promotion of oral health	TBC	23/98	13/185	3/78	27/169

Table 3: The key performance indicators, targets and performance of the Bedfordshire Oral Health Improvement Team in 2018-2019 and 2020-2021

7.2. NICE recommendations for oral health

NICE guidance for local authorities on oral health covers 21 areas for recommendations the majority of which are relevant to children and young people³⁷. How the current local service provision compares with these recommendations is covered in Appendix 1.

Bedford Borough and Central Bedfordshire are meeting eight recommendations. They are:

- Recommendation 2: Carry out an oral health needs assessment
Now in progress
- Recommendation 8: Incorporate oral health promotion in existing services for all children, young people and adults at high risk of poor oral health
Early years settings and primary schools in deprived areas targeted by mysmile award.
Looked after children have oral health within their care plan, at risk children do not.
- Recommendation 9: Commission training for health and social care staff working with children, young people and adults at high risk of poor oral health
- Recommendation 12: Include oral health promotion in specifications for all early years services
Health visitors are trained, as are early years services, children’s centres and nurseries
- Recommendation 15: Consider supervised toothbrushing schemes for nurseries in areas where children are at high risk of poor oral health
Supervised toothbrushing schemes are a component of the mysmile award.
- Recommendation 18: Introduce specific schemes to improve and protect oral health in primary schools in areas where children are at high risk of poor oral health
This is incorporated in the mysmile award
- Recommendation 19: Consider supervised toothbrushing schemes in schools where children are at high risk of poor oral health
Supervised toothbrushing schemes are a component of the mysmile award.
- Recommendation 21: Promote a ‘whole school’ approach to oral health in all secondary schools

However, there are several recommendations which have only partially actioned or not actioned at all. These include:

- Recommendation 1: Ensure oral health is a key health and wellbeing priority.
Oral Health is not mentioned in the Health and Wellbeing Strategies for either council and it is unclear if there is a stakeholder group with responsibility for oral HNA and strategy
- Recommendation 6: Include information and advice on oral health in all local health and wellbeing policies

This is partially met as oral health is incorporated within 0-19 service, Children's Centres, Schools and Foster Family support, but it is not incorporated beyond those groups.

- Recommendation 16: Consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health & Recommendation 20: Consider fluoride varnish schemes for primary schools in areas where children are at high risk of poor oral health
This has not been actioned. It's unclear if it has ever been considered

8. Public and provider experiences

8.1. The views of young people and their carers

To capture the views of children, young people and carers on oral health the following groups of people were approached:

- SNAP Parent-Carer forum in Central Bedfordshire for families of children with special education needs and disabilities (SEND)
- Bedford Borough Parent-Carer forum for families of children with SEND
- Central Bedfordshire Youth Parliament [representatives for young people in the area]
- Bedford Borough Youth Cabinet [representatives for young people in the area]
- A secondary school in Central Bedfordshire
- Foster carers

As no direct contact with children and young people was possible, questionnaires were sent out to the Youth Cabinet, Youth Parliament and a Healthwatch representative conducted a survey in a secondary school in Central Bedfordshire. A questionnaire was also sent to foster carers.

Both parent-carer forums were interviewed remotely. Additionally, questions were posted to the SNAP Facebook page to gain additional insights in the oral health experience of SEND families.

Broadly, topics covered included risk factors, self-care and education on oral health, and dental access. To gain further understanding from these questionnaire and interviews, a thematic content analysis was conducted from these interviews. The notes and questionnaire feedback were analysed for emerging themes. Anonymised quotes were captured and are included to illustrate the themes.

Diet

Diet was understood to be a major risk factor for oral health. Children and young people themselves reported sugary food, fizzy drinks and junk food as being bad for their oral health (but they still consumed them). SEND families had additional challenges as they reported that some children with SEND had poorer eating habits than their peers.

“Some of our families through no choice of their own, but their children do have poorer eating habits. So, if they are autistic and they're all beige eaters you know all that stuff. We've got ADHD'ers who use sugar to self-medicate you know.”

Education

Most children and young people who completed the questionnaire recalled being taught about how to look after their oral health. All of whom reported parent/carers as educators and some also included dentists. Similarly, foster carers who responded to the questionnaire reported dentists as their main source of information on oral health. The internet was also mentioned as a source of information on oral health by one young person. It was suggested that SEND families could benefit from inclusive oral health promotion, as there was little education that is tailored to children and young people with special needs.

“A good friendly poster about why it's important, you know someone with epilepsy goes into a dentist... And make it trendy.... Or, you know, when you've got [someone] in a wheelchair?”

Parent of 15-year-old girl recently diagnosed with autism spectrum disorder awaiting a hospital extraction: "We have been offered no support at the current time. The sedation clinic has mentioned giving oral health advice. But I'm not sure this will take into account her special needs or when this will take place. Anything we try in the meantime will be from doing our own research."

Self-care

All foster carers who responded had positive perception of their knowledge and their foster child's dental health. All children and young people who completed questionnaire knew the basics for looking after their oral health, although more than half had oral health problems, which will include orthodontics. In addition, a third of them were worried about their appearance due to their mouth, gums, and teeth.

Ways to ensure children and young people to brush their teeth were highlighted, such awards or freebies, including dental related ones (free toothbrushes/toothpaste; free Invisalign), getting into good habits and using apps.

"You can get a little app where you can kind of like time, the length of time you [brush teeth] for or one of the things that we do so rather than using something like that, what we do is my son counts how many times he brushes each section of his mouth."

Dental practices

Parent and carer forums for SEND families highlight many issues relating to attending dental appointments. Training for dentists and dental staff about neurodiversity was thought to be necessary, as understanding about some conditions was thought to be low, and therefore a positive environment was often felt to be lacking. A simplified route to disclosing neurodiversity was advocated.

Greater promotion of specialist dental services among SEND families was also requested.

"Neither of mine have been to the dentist for a couple of years since the dentist they saw last insisted on trying to take my eldest's baby tooth out because it was taking time to fall out and the adult tooth was almost fully emerged, and it "may" have caused the adult tooth to move. Now they are both petrified that the dentist can just take their teeth out without warning."

"I found out there are specialist dentists for children who have autism and special additional needs... Basically it was not something that's kind of like public knowledge."

Sensory challenges among children with SEND

Sensory challenges were a recurring theme among SEND families. Toothbrushes and toothpastes and effective approaches that were the least aggravating to the child or young person were often identified through extensive trial and error.

"I watered [toothpaste] down just to try and make the minty-ness less. And then we froze it... but we tried anything."

How to prioritise oral health

Striking the correct balance about oral health promotion was discussed. Helping teenagers understand that they only have one set of teeth for life, and that good hygiene now will last them a lifetime, without also making families who struggle feel guilty.

“How do we still put it so it’s important for people to have healthy, good mouth hygiene as you know, we all know that. But how can we make sure families are aware that this is not just another fight”

8.2. Views of stakeholders

As part of the HNA, stakeholders were consulted about their experience working within children and young people’s oral health. Interviews were held with the following stakeholders:

- Ravi Goel: dentist in Bedford Borough and Secretary of the Bedfordshire Local Dental Committee
- Barbara Rooney: Public Health Principal - Children & Young People, 0-19 Healthy Child Programme Service Commissioning Lead (Central Bedfordshire & Bedford Borough)
- Katie Bannister and Rachael Keith: Bedfordshire oral health service providers
- Jennifer Foley: Healthwatch Bedford Borough
- Eleanor Ryles: Healthwatch Central Bedfordshire
- Jo Drew: Designated Clinical Officer for Children and Young People with Special Educational Needs and/or Disability (SEND), BLMK Clinical Commissioning Group
- Nicola Bescoby and Deborah Spencer: Looked after Children Team, BLMK Clinical Commissioning Group

Four themes emerged from the interviews with stakeholders. They were:

- The challenges of oral health education for children, young people and their carers
- Oral health care at home
- Lack of access to dental practices, and lack of communication between dentists and children
- The perception of oral health in society

These themes are discussed in more detail below:

Education for children, young people and their carers

Although all agreed it was important, actioning education was found to be challenging. Education targeted at children was often thought to go over their heads. Targeting staff and families was believed to be more effective, however engaging different settings, especially those in deprived areas could be very tricky.

Although dentists have extensive knowledge and can be excellent educators, they are expensive. Therefore, the average dental appointment doesn’t focus heavily on education. Education is, instead, seen as the priority for dental care professionals, nurses or hygienists who may not encounter children, young people, and their carers, as frequently. Finally, it was noted that education had its limits, you can provide the information, but you can’t force anyone into action.

Oral health care at home

There were difficulties around self-care among vulnerable populations. Engaging looked after children in dental health can be very hard as some children have been through extremely traumatic circumstances, which may take temporary priority over their oral health. Sensory challenges among some children and young people with SEND also make toothbrushing very challenging.

However, some comments found positivity. As COVID has forced a switch away from face-to-face approaches, where possible toothbrushes and toothpaste has been given to children to take home. This has received very positive feedback. However, this approach wasn't always enough to engage some early years and primary school settings in the mysmile award.

Dental practices

A repeated discussion surrounded the lack of access to dentists. This has led to much frustration among people working within children's oral health, as recommendations to regularly attend a dentist are thwarted. Healthwatch has received many complaints around the difficulty access NHS dentists.

Within dental practices, communication between dentists and children, and an understanding of the children in the dentists' care was thought to be lacking. Knowledge about whether a child was looked after or had SEND was rarely enquired about, leaving the onus on the carers to initiate the discussion.

The perception of oral health

In general, oral health was often seen as a poor cousin to physical health. It frequently falls within anti-obesity drives, as it promotes low-sugar foods. But wasn't recognised as distinct, and therefore of high importance, in its own right.

9. Effective Interventions

Implementation of effective interventions is needed to maintain and improve children's and young people's oral health. Wide oral health inequalities are found in the local areas. It is likely that the COVID-19 pandemic will have exacerbated these further. The Marmot review, Fair Society, Healthy Lives, expounded proportionate universalism as an effective approach to addressing inequalities³⁸. This means that interventions should focus on reducing the gradient of health inequalities and action must be taken across all social determinants of health. But action must not focus solely on the most disadvantaged as this is insufficient to reduce the social gradient of health. Instead, universal actions must be taken, but the scale and intensity must be proportionate to the level of disadvantage.

NHS England and Improvement, along with PHE, local government and voluntary and community sector partners, developed a menu of evidence-based interventions for addressing health inequalities including oral health inequalities³⁹. Recommendations for oral health are summarised in Table 4.

Intervention	Intervention details
Daily supervised toothbrushing with a fluoride toothpaste in early years and nursery school settings	Children accessing early years and school settings are encouraged to participate in daily supervised tooth brushing with family fluoride toothpaste. Additional toothbrushes and toothpaste may be provided to those taking part, for use within the programme and at home to encourage home brushing.
Introduction of water fluoridation	NHS England commissioners should work with and support LAs who are considering implementing a water fluoridation scheme.

Table 4: Summary of oral health recommendations provided in the menu of evidence-based interventions for addressing health inequalities

PHE also published Better Oral Health for Children and Young People in 2013, which recommended evidence-based programmes that were likely to reduce oral health inequalities. The final recommendations from that report highlighted:

- Supervised tooth-brushing in childhood settings
- Targeted community-based fluoride varnish schemes
- Water fluoridation
- Targeted provision of toothbrushes and paste by health visitors or by post
- Integration of oral health into targeted home visits by health and social care workers
- Healthy food and drink policies in childhood settings
- Targeted peer support groups
- Oral health training for the wider professional workforce
- Influencing local and national government policy.

PHE recommended water fluoridation as there is strong evidence that it reduces health inequalities. Benefit is greatest for those living in more deprived areas. Figure 53 shows the proportion of children with dental decay living in non-fluoridated and fluoridated areas by deprivation.

Regardless of fluoridation, the lowest percentage of children with dental decay was found in the least deprived quintile, and the highest percentage in the most deprived quintile. However, the difference in the percentage of affected children between the most and least deprived is greater in non-fluoridated areas (33%) than fluoridated areas (22%). In addition, in fluoridated areas the percentage of children with dental decay is consistently lower across the quintiles.

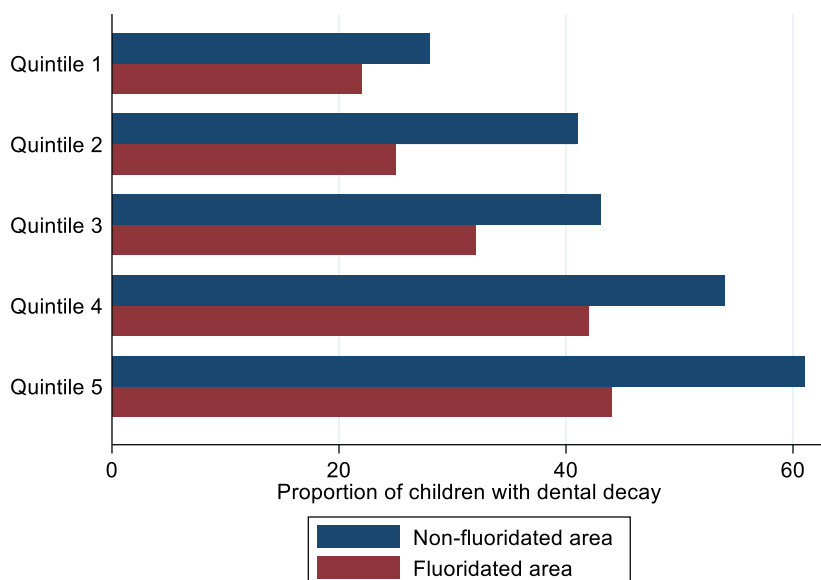


Figure 53: Proportion of children without dental decay by quintile of deprivation, separated by fluoridation of water. Reproduced from Inequalities in oral health in England, PHE

Caution should be raised around information-based educational interventions, which can often be cheap and simple to provide. Previous research has indicated that untargeted, universal oral health education programmes have increased oral health inequalities^{40,41}. If information-based educational interventions are undertaken, they need to be carefully considered and targeted to the groups most in needed. Simultaneously, other whole population interventions, such as water fluoridation, may need to be undertaken, which have been shown to reduce inequalities in children’s oral health.

9.1. Cost-effective interventions

As well as addressing oral health inequalities, interventions that are introduced will need to be cost-effective. Cost-benefit analysis has been conducted for a selection of the interventions recommended by Public Health England. Figure 54 illustrates savings accrued after 5- and 10-year intervals for four oral health programmes.

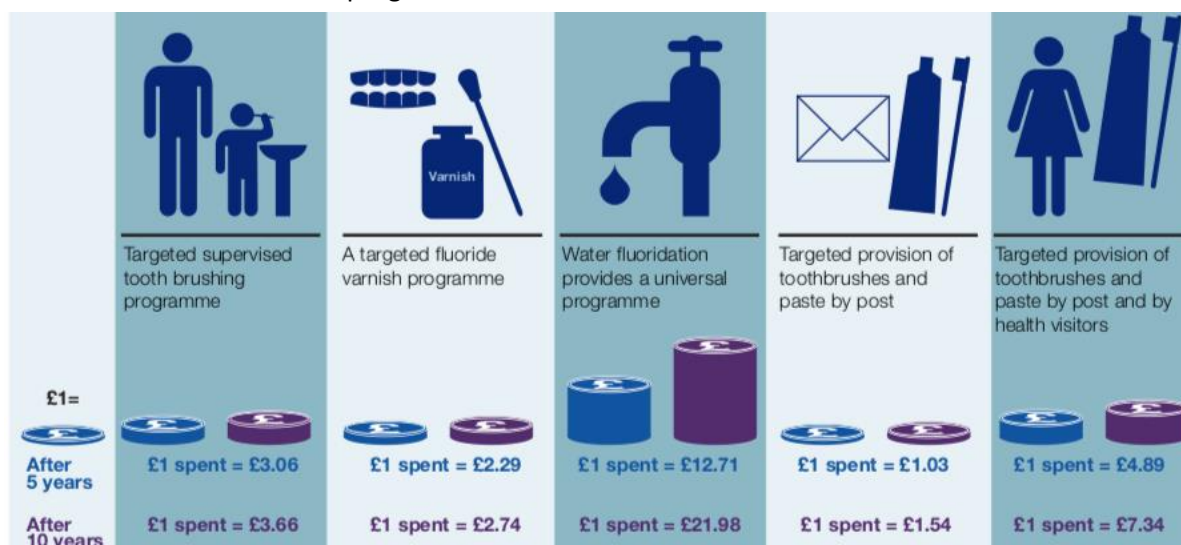


Figure 54: Return on investment for select preventative interventions. Reproduced from Oral Health Improvement Programmes Commissioned by Local Authorities.

The most cost-effective intervention for reducing dental decay in 5-year-olds was water fluoridation. For every £1 spent, the return on investment was £12.71 over 5 years, and £21.98 over a 10-year period. This includes savings to the local authority and NHS from a reduction in fillings and dental extractions, as well as a reduction in days missed at work for parents/carers. Targeted provision of toothbrushes and paste by post and by health visitors; targeted supervised tooth brushing programmes and targeted fluoride varnish programmes also led to savings over 5 and 10 years. There was also a small return on investment for targeted provision of toothbrushes and paste by post alone.

10. Recommendations

The recommendations that follow build on the evidence-based best practices and views of young people, carers, and professionals who work with young people and children. Poor oral health is a multifactorial disease that can have a significant impact on children and young people, and their families. Consequently, recommendations have been made in a number of key areas.

Awareness raising and education

The following key groups should be provided with training sessions, information bulletins with on-going communication to give updates regarding oral health promotion:

- Adoption & fostering team
- Early Help teams
- The designated lead health visitor for Traveller, Gypsy and Roma communities

The rationale for this is that these groups may have received little training in the past but are in regular contact with children and young people who are more likely to have poor oral health, providing opportunities to pass the information along and support positive oral health behaviours.

Provision of additional information to education settings

An exemplar food policy should be provided to all primary & secondary schools. The rationale for this is to emphasise how to align schools' oral health policies with the food environment.

Oral health promotion material should be distributed via secondary schools and 6th form colleges, for example during national smile month. The rationale for this is that no information is currently provided to education settings after primary school, which implies that knowledge is fully acquired or that habits are fixed and unchangeable. Provision of oral health material beyond primary school aims to continue supporting oral health skills into adulthood.

Add oral health material to Children & young people's health page on BLMK ICS website

The rationale for this is that currently information is not provided on the ICS webpages, but the material is readily available. This will provide another avenue for people looking for information and support to turn to.

Co-creation of a bank of hints & tips about coping with sensory challenges when toothbrushing

Hints & tips about coping with sensory challenges when toothbrushing should be collated in collaboration with parent-carer forums. This information can then be provided to parents via local offer webpages, special schools, and SEND children's centre groups, as well as re-distribution through parent-carer forums.

The rationale for this is that many parents struggle to work out ways to address sensory challenges when toothbrushing, leading to lengthy trial and error. By collating hints and tips this provides a list of ways to address sensory challenges that parents can work their way through, which may save time and stress, as well as leading to improved toothbrushing.

Scoping further options

The potential to provide free toothbrushing kits to all children within the Universal Partnership Plus offer will be assessed for affordability and feasibility. The rationale for this is that looked after children often have poor oral health at the time they enter foster care, suggesting that families in need of additional support may benefit from free toothbrushing kits.

The feasibility of translating oral health material into commonly requested languages will be assessed. The rationale for this is that there are clear health inequalities between ethnic groups, which may be compounded by a lack of accessible oral health information.

11. Appendix

Table: NICE guidelines on promotion of oral health and local service provision

Recommendation	Sub-recommendation	Local service provision
1. Ensure oral health is a key health and wellbeing priority	Oral health a core component of Joint Strategic Needs Assessment (JSNA) and Health and Wellbeing Strategy (HWS)	In JSNA, but not mentioned in HWS for BBC or CBC
	Set up a stakeholder group that has responsibility for an oral health needs assessment and strategy	Unknown
2. Carry out an oral health needs assessment	Define scope	Done
	Integrate into JSNA and HWS	In progress
	Practise cyclical planning	In progress
3. Use a range of data sources to inform the OHNA	Use of demographic and deprivation profiles	Done
	Use national oral health surveys	Done
	Use of demographic and socioeconomic data to determine need	Done
	Use local expertise and lifestyle surveys	Done
	Seek advice on survey design and collection, analysis and interpretation	Not done
4. Develop and oral health strategy	Strategy based on OHNA	To be actioned after HNA completed
5. Ensure public service environments promote oral health	Free drinking water; providing sugar-free food, drinks and snacks, including from vending machines; encouraging breastfeeding.	Partially met, for example drinking water in schools, healthy vending machines in Bedfordshire Hospitals, Breastfeeding Brasseries and peer support
	Use levers to address oral health and wider determinants of health e.g. local planning decisions for fast food outlets	Work ongoing with both councils to consider opportunities within the planning system to address wider determinants
	Linking in with other sectors e.g. supermarkets to promote oral health	Not done
6. Include information and advice on oral health in all local health and wellbeing policies	Advice for children and adults based on Delivering Better Oral Health (DBOH) and common risk factors	Partially met as incorporated within 0-19 service, Children's Centres, Schools and Foster Family support
7. Ensure frontline health and social care staff can give advice on the importance of oral health	Training for frontline staff, including understanding link between health inequalities and oral health and high risk groups; and being able to advise carers on oral care	In place
8. Incorporate oral health promotion in existing services for all children, young people and adults at high risk of poor oral health	Ensure oral health in care plans and in line with safeguarding policies	Early years settings and primary schools in deprived areas targeted by mysmile award. Looked after children have oral health within their care plan, at risk children do not
	Ensure service specifications promote oral health (e.g. substance misuse services and those supporting people living independently in the community)	Not relevant to the scope of the HNA

9.	Commission training for health and social care staff working with children, young people and adults at high risk of poor oral health	Based on Delivering Better Oral Health	In place
10.	Promote oral health in the workplace		Not relevant to the scope of this HNA
11.	Commission tailored oral health promotion services for adults at high risk of poor oral health		Not relevant to the scope of this HNA
12.	Include oral health promotion in specifications for all early years services	Promotion of oral health and training of staff (incl Midwives and health visiting teams; Early years services, children's centres and nurseries; Childcare services (including childminding services).	In place: health visitors are trained, as are early years services, children's centres and nurseries
		Ensure all frontline staff in early years services, including education and health, receive training at their induction and at regular intervals	Unknown
13.	Ensure all early years services provide oral health information and advice	Ensure all early years services include advice about oral health in information provided on health, wellbeing, diet, nutrition and parenting.	Unknown
14.	Ensure early years services provide additional tailored information and advice for groups at high risk of poor health	Identify high risk areas and groups in OHNA	In progress
		Tailored and culturally appropriate advice for families	Unknown
		Provide toothbrushing packs e.g. through midwives and health visitors	In place
15.	Consider supervised toothbrushing schemes for nurseries in areas where children are at high risk of poor oral health	Use OHNA to identify areas where children at highest risk of poor oral health	In place
		Commission scheme in early years settings in high risk areas	In place
16.	Consider fluoride varnish programmes for nurseries in areas where children are at high risk of poor oral health	If a supervised tooth brushing scheme is not feasible, consider commissioning a community-based fluoride varnish programme, monitor and evaluate	Not done
17.	Raise awareness of the importance of oral health as part of a 'whole school approach' in primary schools	Policies and procedures promote oral health e.g. food and drink	In place
		Displaying oral health information for children and carers including how to access dental care	In place
		Teaching oral health in the curriculum based on Delivering Better Oral Health	Unknown
18.	Introduce specific schemes to improve and protect oral health in primary schools in areas where children are at high risk of poor oral health	Train staff in oral health	In place
		Set up toothbrushing schemes or fluoride varnish programmes	In place
		Opportunities for parents to learn about oral health	In place
19.	Consider supervised toothbrushing schemes in schools where children are at high risk of poor oral health	OHNA to identify areas	In place
20.	Consider fluoride varnish schemes for primary schools in areas where children are at high risk of poor oral health	Target to areas of high risk of poor oral health	Not done

21. Promote a 'whole school' approach to oral health in all secondary schools	Policies and procedures promote oral health e.g. food and drink	In place
	Incorporate oral health into curriculum	In place
	School nurses to encourage good oral health	In place
	School leavers informed about accessing dental services	In place
	Oral health training for school staff	In place
	Influence planning decisions e.g. location of fast food outlets near to schools	In place

12. References

1. *Health Survey for England 2019 Dental health | Dental analysis* . (2021).
2. Inequalities in oral health in England: summary - GOV.UK.
<https://www.gov.uk/government/publications/inequalities-in-oral-health-in-england/inequalities-in-oral-health-in-england-summary> (2021).
3. LaingBuisson. Dentistry Market Report - 5th Edition .
<https://www.laingbuisson.com/shop/dentistry/>.
4. Health Matters: Child dental health - UK Health Security Agency.
<https://ukhsa.blog.gov.uk/2017/06/14/health-matters-child-dental-health/> (2017).
5. National Diet and Nutrition Survey | Collection.
<https://www.gov.uk/government/collections/national-diet-and-nutrition-survey> (2016).
6. National Diet and Nutrition Survey: Years 1 to 9 of the Rolling Programme (2008/2009 to 2016/2017): Time trend and income analyses.
<https://www.gov.uk/government/statistics/ndns-time-trend-and-income-analyses-for-years-1-to-9> (2019).
7. Chapter 8: Oral hygiene - GOV.UK. <https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention/chapter-8-oral-hygiene> (2021).
8. Chesters, R. K., Huntington, E., Bunnell, C. K. & Stephen, K. W. Effect of oral care habits on caries in adolescents. *Caries research* **26**, 299–304 (1992).
9. Marinho, V. C. C., Worthington, H. v., Walsh, T. & Clarkson, J. E. Fluoride varnishes for preventing dental caries in children and adolescents. *Cochrane Database of Systematic Reviews* **2013**, (2013).
10. Marinho, V. C. C., Chong, L. Y., Worthington, H. v. & Walsh, T. Fluoride mouthrinses for preventing dental caries in children and adolescents. *The Cochrane database of systematic reviews* **7**, (2016).
11. Chapter 9: Fluoride - Delivering better oral health: an evidence-based toolkit for prevention. <https://www.gov.uk/government/publications/delivering-better-oral-health-an-evidence-based-toolkit-for-prevention/chapter-9-fluoride> (2021).
12. Miranda, G. H. N. *et al.* A systematic review and meta-analysis of the association between fluoride exposure and neurological disorders. *Scientific Reports* **2021 11:1 11**, 1–15 (2021).
13. Avila, W. M., Pordeus, I. A., Paiva, S. M. & Martins, C. C. Breast and Bottle Feeding as Risk Factors for Dental Caries: A Systematic Review and Meta-Analysis. *PloS one* **10**, (2015).
14. Leite, F. R. M., Nascimento, G. G., Scheutz, F. & López, R. Effect of Smoking on Periodontitis: A Systematic Review and Meta-regression. *American journal of preventive medicine* **54**, 831–841 (2018).
15. *Health Survey for England 2019 Children's health | Key findings*.
www.statisticsauthority.gov.uk/assessment/code-of-practice (2020).
16. R., G. The relevance of alcohol to dental practice. *BDJ Team* **2018 5:2 5**, 1–5 (2018).

17. Creeth, J. *et al.* The effect of brushing time and dentifrice on dental plaque removal in vivo - PubMed. *Journal of Dental Hygiene* **83**, 111–116 (2009).
18. Vanobbergen, J., Martens, L., Lesaffre, E., Bogaerts, K. & Declerck, D. Assessing risk indicators for dental caries in the primary dentition. *Community dentistry and oral epidemiology* **29**, 424–434 (2001).
19. O’Toole, S., Bernabé, E., Moazzez, R. & Bartlett, D. Timing of dietary acid intake and erosive tooth wear: A case-control study. *Journal of dentistry* **56**, 99–104 (2017).
20. SIGN 138 • Dental interventions to prevent caries in children. (2014).
21. Yaacob, M. *et al.* Powered versus manual toothbrushing for oral health. *The Cochrane database of systematic reviews* **2014**, (2014).
22. Nieri, M. *et al.* Efficacy of a U-Shaped Automatic Electric Toothbrush in Dental Plaque Removal: A Cross-Over Randomized Controlled Trial. *International Journal of Environmental Research and Public Health* **17**, 1–8 (2020).
23. Waldron, C. *et al.* Oral hygiene interventions for people with intellectual disabilities. *The Cochrane database of systematic reviews* **5**, (2019).
24. Kalf-Scholte, S. M., van der Weijden, G. A., Bakker, E. W. P. & Slot, D. E. Plaque removal with triple-headed vs single-headed manual toothbrushes-a systematic review. *International journal of dental hygiene* **16**, 13–23 (2018).
25. All Our Health: personalised care and population health - GOV.UK. <https://www.gov.uk/government/collections/all-our-health-personalised-care-and-population-health> (2015).
26. Top Tips for Teeth | PHE Campaign Resource Centre. <https://campaignresources.phe.gov.uk/resources/campaigns/69-top-tips-for-teeth/resources>.
27. Science lesson PowerPoint – Keeping our teeth healthy | PHE School Zone. <https://campaignresources.phe.gov.uk/schools/resources/keeping-our-teeth-healthy-lesson-plans>.
28. Oral health survey of 5-year-old children 2019 - GOV.UK. <https://www.gov.uk/government/statistics/oral-health-survey-of-5-year-old-children-2019> (2020).
29. *The NHS Bodies and Local Authorities (Partnership Arrangements, Care Trusts, Public Health and Local Healthwatch) Regulations 2012*. 3094 (Queen’s Printer of Acts of Parliament, 2012).
30. Benton, T., Chamberlain, T., Wilson, R. & Teeman, D. *the development of the Children’s Services Statistical Neighbour Benchmarking Model*. <https://webarchive.nationalarchives.gov.uk/ukgwa/20110809101133/http://education.gov.uk/rsgateway/DB/STA/t000712/nfer-2007rept.pdf> (2007).
31. Hospital tooth extractions of 0 to 19 year olds . <https://www.gov.uk/government/publications/hospital-tooth-extractions-of-0-to-19-year-olds> (2019).
32. NHS Dental Statistics - NHS Digital. <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-dental-statistics> (2021).

33. *Summary of the Dental Results from the GP Patient Survey – January to March 2020.* <https://www.england.nhs.uk/statistic> (2020).
34. Health Survey for England 2019: Supplementary analysis of dental health - NHS Digital. <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2019/health-survey-for-england-2019-supplementary-analysis-on-dental-health> (2021).
35. Oral health - Public library - UKHSA national - Knowledge Hub. https://khub.net/web/phe-national/public-library/-/document_library/v2WsRK3ZIEig/view/174089826.
36. *Dental public health epidemiology programme Oral health survey of five-year-old and 12-year-old children attending special support schools 2014 A report on the prevalence and severity of dental decay.* www.facebook.com/PublicHealthEngland (2015).
37. National Institute for Health and Care Excellence. *Recommendation 8 | Oral health: local authorities and partners* .
38. Marmot, M. & Bell, R. Fair society, healthy lives. *Public health* **126 Suppl 1**, S4 (2012).
39. UK Government Web Archive - The National Archives | Menu of evidence-based interventions and approaches for addressing and reducing health inequalities. <https://webarchive.nationalarchives.gov.uk/ukgwa/20211101142354/https://www.england.nhs.uk/ltphimenu/>.
40. Schou, L. & Wight, C. Does dental health education affect inequalities in dental health? - PubMed. *Community dental health* **11**, 97–100 (1994).
41. Qadri, G., Alkilzy, M., Franze, M., Hoffmann, W. & Splieth, C. School-based oral health education increases caries inequalities. *Community dental health* **35**, 153–159 (2018).