ORAL HEALTH NEEDS ASSESSMENT

Camden and Islington (November 2024)

Islington Public Health

Table of Contents

List of figures

List of tables

Glossary

Bruxism: condition in which you grind, gnash or clench your teeth.

Care Index: marker of the proportion of teeth with dental decay which have been treated by filling.

d3mft: obvious decay experience

Dentate: having teeth

DMFT: Decayed, Missing, and Filled Permanent Teeth

Edentulous: toothless

Fluorosis: a condition that results in white or brown speckles on teeth, caused by overexposure to fluoride in the early years of life, when permanent teeth are developing.

Functional dentitions: having 21 or more teeth present

Polypharmacy: many medications. It is often defined to be present when a patient takes five or more medications

PUFA index records the presence of severely decayed teeth with visible pulpal involvement (P/p), ulceration caused by dislocated tooth fragments (U/u), fistula (F/f) and abscess (A/a).

SMI: Severe Mental Illness

Executive Summary

- The aim of this report is to outline the status of oral health in Camden and Islington and identify effective evidence-based interventions to promote good oral health in the population.
- Oral health is a key marker of general health of a community, and while tooth decay and other oral diseases are preventable, they remain a serious public health problem worldwide, affecting 3.5 billion people. Children living in poverty, socially marginalised groups, and older people are the most affected by oral diseases and have poor access to dental care.
- In Islington the hospital admissions, within the lowest deprivation showed a similar trend as in Camden, but when looking at ethnicity, hospital admissions were significantly lower among the White British population compared to other groups such as 'White and Black African, 'African' and 'Asian other'.
- Access to dentists has declined in both Camden and Islington, exacerbated by the COVID-19 pandemic. Access in both boroughs has improved in the last year (2023-2024) but is still below pre-COVID-19 levels.
- This report recommends that a collaborative and multi-disciplinary approach is adopted to ensure that oral health promotion is embedded within all disciplines and that staff have access to training and prevention tools to ensure wider dissemination of oral health messages.
- Oral health promotion interventions combined with supervised tooth brushing with fluoridated toothpaste are generally effective in reducing caries in children's and babies' permanent teeth, especially in a population experiencing high levels of dental disease.
- Oral health promotion services should be better targeted to specific populations and/communities that have consistently shown poor outcomes, and further investigation should be carried out to ascertain the reasons for poor oral health in these groups.
- All partners within the Integrated Care system should be working collectively to improve oral health outcomes.

CHAPTER 1: Introduction

Oral health is a key marker of general health of a community. Tooth decay and other oral diseases, while preventable, remain a serious public health problem worldwide.

Dental caries in permanent teeth is the most common oral disease globally with increasing prevalence in many low-income and middle-income countries.[1] According to the World Health Organization[2] gum disease was estimated to be the 11th most prevalent disease globally in 2016 and yet is the main cause of tooth loss and is linked to wider problems such as heart disease, strokes, diabetes, dementia and even problems in pregnancy.[3] In addition, it is now estimated that mouth cancer is now the 14th most common cancer in the UK.[4]

The major risk factors for poor oral health are in themselves key public health issues including high fat salt sugar diet, tobacco, alcohol consumption, poor oral health hygiene and lack of fluoride.

Although oral diseases are largely preventable, they persist with high prevalence, affecting more than 3·5 billion people around the world, reflecting widespread social and economic inequalities [5]. Children living in poverty, socially marginalised groups, and older people are the most affected by oral diseases and have poor access to dental care. The Marmot review in 2010[5] stated that reducing health inequalities required action on six policy objectives, including 'giving children the best start in life', of which good oral health is a component.

The COVID-19 pandemic has exacerbated existing oral health inequalities and its impact on oral health is likely to be more severely felt by those who were already more likely to have poorer health outcomes. [6] Oral cancer referrals and hospital admissions for tooth extractions in children dramatically declined, with the latter primarily affecting children in more deprived areas. Many oral health programmes in schools and care homes were disrupted or suspended throughout this period. All these indicate that oral health inequalities have widened due to the COVID-19 pandemic. [7]

The disproportionate effect of the COVID-19 pandemic on older people, those with long-term health conditions and disabilities, and people who are Black, Asian and minority ethnic backgrounds is highlighted in the CQC's State of health care and adult social care 2019/20 report. These effects are also felt by health and care workers who share these characteristics. [8]

The Core20PLUS5[9] is a national NHS England approach to support the reduction of health inequalities at both national and system level. It identifies the most deprived 20% of the national population, defines a target population cohort and identifies '5' focus clinical areas requiring accelerated improvement. The approach initially focused on healthcare inequalities experienced by adults but was later adapted to apply to children and young people for whom oral health is one of five clinical areas of focus. Recent data analysis [10] showed that a lower proportion of children in the Core20 population received NHS general dental treatment than children in the non-Core20 population across all age groups in 2022/23. From the age of 2 years old, a higher proportion of children from the Core20 child population received urgent treatments, which was particularly noticeable at age 6 years and in females aged 17 years. This data further suggests that there are significant inequalities in oral health, with children in more deprived communities having poorer oral health than those living in less deprived communities.

As inequalities in oral health continue to grow, it's imperative that the focus of prevention should be on optimising exposure to fluoride, for example by brushing the teeth at least twice a day with

a fluoride toothpaste and reducing both the amount and frequency of consumption of foods and drinks that contain free sugars, as well as promotion of water only schools.

This oral health needs assessment is an update of the previous one carried out in 2020 and examines whether the oral health interventions that have been implemented in the last few years have had an impact on the oral health of children and vulnerable adults in Camden and Islington. In addition, it considers the impact of the COVID-19 pandemic on oral health services and provides the evidence and national guidance on some of the oral health interventions in a bid to determine what is most effective in improving oral health and addressing inequalities among these groups.

This report also describes the oral health needs of children and vulnerable adults in Camden and Islington. Vulnerable adults include older adults, adults with learning disabilities, adults with serious mental illness, adults with drugs and alcohol abuse and homeless people. It is important for Local Authorities to regularly review the oral health needs of their population so as to design and implement interventions that can not only improve oral health, but also reduce inequalities.

1.1 Aims and objectives

The aim of this report is to outline the status of oral health in Camden and Islington and identify effective interventions to promote good oral health in the population**.**

Objectives:

- To describe the oral health status of the population at national and local level
- To review the evidence around various interventions to promote good oral health
- To assess the impact of COVID-19 on oral health at national and local level
- To compare different oral health promotion services among various London boroughs
- To evaluate the current service provision and make recommendations for re-procurement

1.2 Methodology

The report will be broadly structured into five sections, starting with an overview of the current oral health situation among children and adults in Camden and Islington, as well as the impact on oral health. This will then be followed by a brief literature review to highlight current national guidance on promotion of good oral health among the population, as well as academic literature to examine the evidence around the effectiveness of various oral health interventions, especially those that are currently being implemented in Camden and Islington. The report will also provide an epidemiological overview of the current situation to assess population need for oral health interventions. An outline of the current model of delivery will be provided, as well as a comparative analysis of what the oral health offer is in other boroughs across London based on a benchmarking exercise. Finally, conclusions will be made, and

recommendations suggested with the aim of informing the recommissioning of the oral health contract going forward.

A narrative literature review was conducted with the following objectives:

- To ascertain what the national guidance is on the prevention of oral health problems in children and adults
- To examine the effectiveness of oral health interventions for children and adults that are currently being delivered in Camden and Islington
- To examine the cost effectiveness of different oral health interventions

The relevant reports were obtained from searching a variety of government websites, including Public Health England, NHS and NICE. The databases PubMed, Cochrane and Google scholar were searched to obtain the relevant studies from 2015 to date. The purpose of the literature review was mainly to update any evidence that might have been included in the previous needs assessment, prior to the start of the current oral health contract.

1.2 Background

1.3.1 Oral health of children in England

Although oral health is improving in England, it continues to a public health concern. According to the 2022[18] oral health survey of 5-year-olds in England, 23.7% of 5-year-old children in England in this survey had experience of dentinal decay. This was similar to the findings of the previous surveys in 2019 [11] and 2017 [11] which showed that the prevalence of experience of dental decay in 5-year-old children in England (d3mft) was 23.4% and 23.3% respectively. Each child with tooth decay will have on average three to four teeth affected. The prevalence of experience of dental decay was higher in children from more deprived areas (35.1%) than in children from less deprived areas (13.5%) [18]. There was variation in prevalence of experience of dental decay by ethnic group and this was significantly higher in the 'Other Ethnic Groups' (44.8%) and the Asian/Asian British ethnic group (37.7%) than other ethnic groups. [18] For those children at risk, tooth decay starts early. The first survey of 3-year-olds in 2014 found that 12% had visible tooth decay, with on average 3 teeth affected. The 2020 survey [11] of 3-year-olds showed that 10.7% of participating children already had experience of dental decay, with on average three teeth affected. Children living in the most deprived areas of the country were almost 3 times as likely to have experience of dental decay (16.6%) as those living in the least deprived areas (5.9%). There was also variation in prevalence of experience of dental decay by ethnic group and this was significantly higher in the other ethnic group3 (20.9%) and the Asian and Asian British ethnic group (18.4%) than other groups, However, these results should be interpreted with caution, particularly when making comparisons with other surveys due to impact of the Covid-19 pandemic on sample size. According to PHE [12], nine out of 10 hospital tooth extractions among children aged 0- 5 years are due to preventable tooth decay and tooth extraction is still the most common hospital procedure in 6-10-year-olds, resulting in at least 60,000 days being missed from school during the year for hospital extractions alone.

According to the 2022 survey, [18] the proportion of teeth with experience of dental decay that had been extracted in 5-year-olds across England was 6.4%.

Poor oral health impacts not just on children's general health but can also have a lasting impact on their school readiness, impair their nutrition, development, and ability to socialise with other children. Problems with teeth health can also significantly affect confidence and self-esteem, and even hinder a person's long-term life. [13]

In response to the Mayor of London's request to identify actions that are needed for London's children to be a healthy weight, the London Child Obesity Taskforce in 2019, developed and published a call-to-action report 'Every Child A Healthy Weight-Ten Ambitions for London [14].' Two specific calls to action include:

> 1) incentivising children to drink water by reframing London's free drinking water as a 'London Water' brand, co-designed with London's children.
>
> 2) scaling up and extending existing initiatives to make drinking water widely, freely and conspicuously available from public drinking fountains, all restaurants and public buildings, and in 'water only' schools. This is in line with the oral health messaging around prevention of tooth decay through reduction in both the amount and frequency of consumption of foods and drinks that contain free sugars.

Oral health improvement has also been included as one of the core services to be delivered through the Family Hubs model [15]. The Family Hubs and Start for Life Programme is jointly overseen by the Department of Health and Social Care and the Department for Education. Minimum expectations include the presence of a member of staff in the Family Hub who is designated as an oral health improvement champion and will among other things, understand the current local dental service landscape and provide proactive support to enable families to access appropriate NHS dental services, including community dental services. They will provide advice and support to parents and carers on keeping children's mouths healthy (diet, oral hygiene, fluoride) and encourage them to let their children attend early years settings that provide supervised toothbrushing where possible.

1.3.1.1 Children's oral health in Camden and Islington

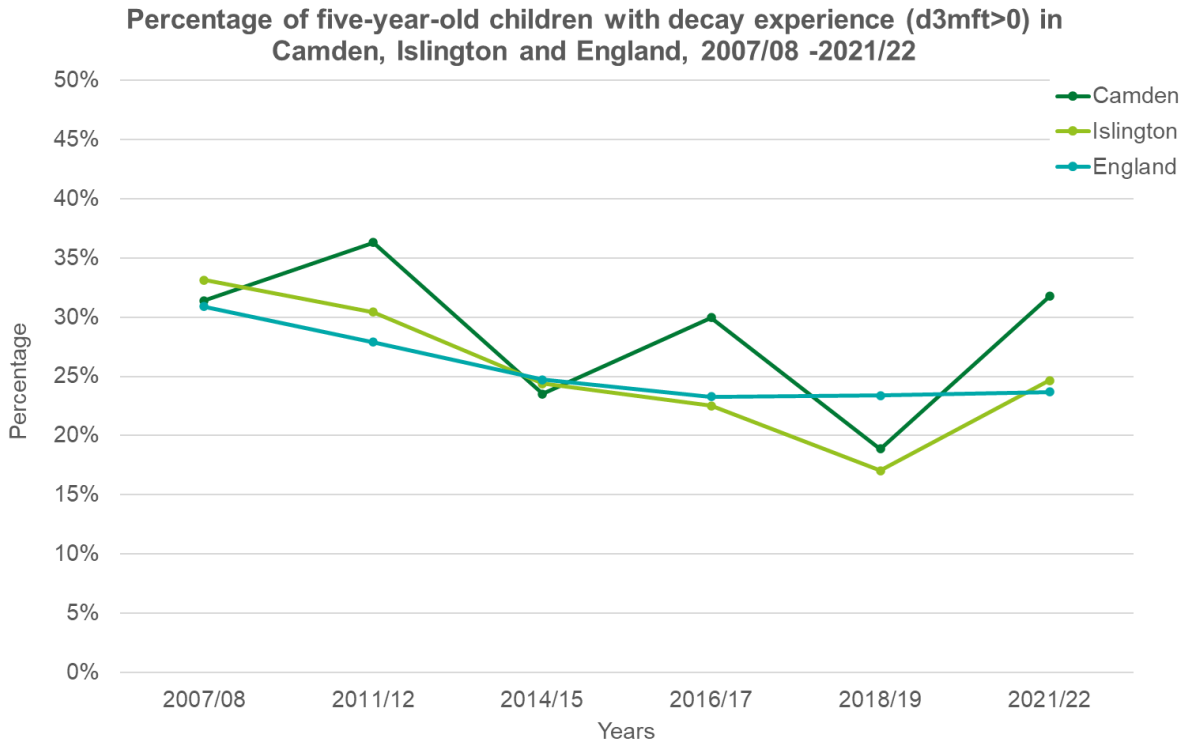
The latest Greater London Authority [16] estimate of Camden's resident population is 279,500 at mid-2020, with 37% of residents aged under 30, 65% aged under 45 and 15% of the population are children and young people aged under-18. The population of Islington is estimated to be 245,800 in 2022[17] and about 18.7% of this are children and young people aged under-18.

The oral health survey (**Error! Bookmark not defined.**) of 5-year-olds showed a drop in the rates of tooth decay among 5-year-olds in Islington from 30.4% in 2012 to 24.4% in 2015. In 2017 (**Error! Bookmark not defined.**)there was a further decrease in rates of tooth decay to 22.5% and an even further drop to 17% in 2019 (**Error! Bookmark not defined.**) The latest data from the 2021/22[18] survey showed that 24.7% of children in Islington had dentinal decay. In addition, 22.3% of children in Islington had enamel and/or dentinal decay. The 2021/22 survey is the first time that enamel/early-stage decay was reported. (**See Figure 1**).

In Camden, there was a drop in the rates of tooth decay among 5-year-olds from 2012 (36.3%) to 2015 (23.5%). In 2017 there was a small increase in rates from 2015 to 30%. (**See Figure 1**) The 2018/19 survey data shows a drop in rates of tooth decay in Camden to 18.9%. The 2021/22 survey showed that 31.8% of 5-year-olds in Camden had dentinal decay and 46.9% had enamel and/or dentinal decay. It should be noted however that sample sizes of these surveys were small and so any results must be interpreted with caution.

Nationally, the rates of tooth decay remained largely the same between 2016/17 and 2021/22.

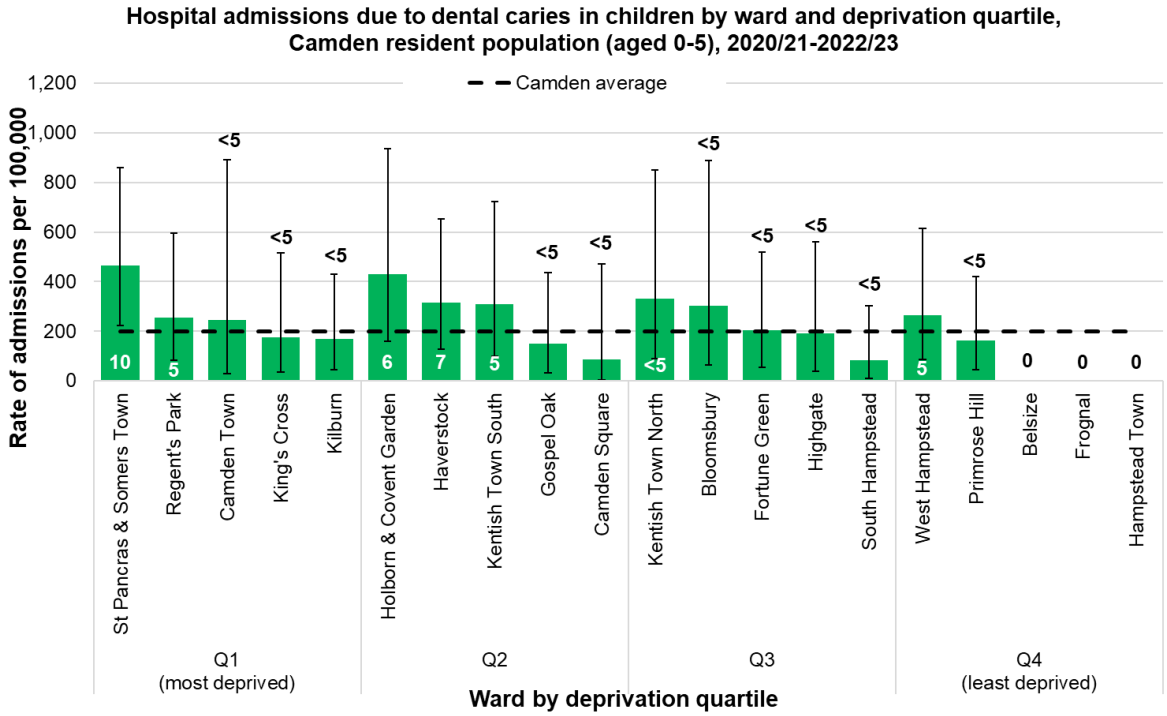
Figure 1: Percentage of five-year-old children with decay experience in Camden, Islington and England, 2007/08-2021/22



Source: Oral Health Survey of five-year-old children, 2007/08 - 2021/22

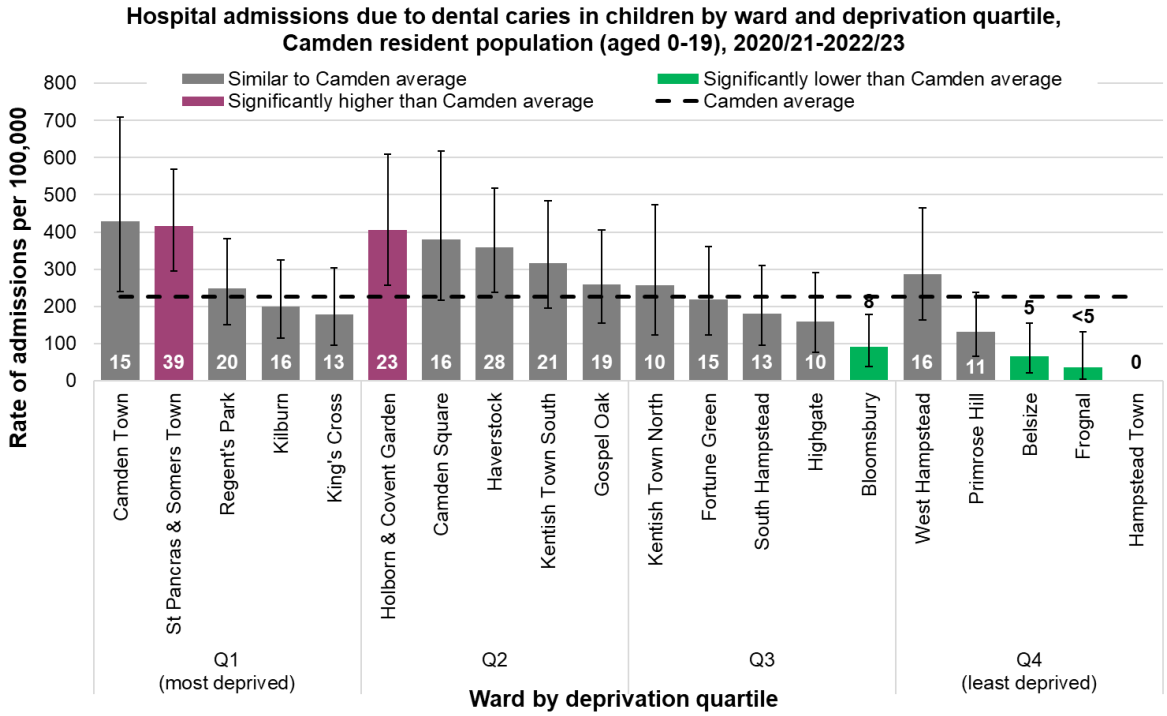
Recent data for Camden also shows that hospital inpatient admissions for dental caries (tooth decay) in children are higher for those from more deprived populations as shown in **Figure 2**, with St Pancras and Somers Town and Holborn and Covent Garden ward having significantly higher hospital admissions than the Camden average for children aged 0-5. This can be seen again in **Figure 3** in children aged 0-19 with St Pancras and Somers Town having the highest hospital admissions. According to Office of Health Inequalities and Disparities (OHID), [19] the percentage of children (under 16s) in absolute low-income families in Camden was 11.9% compared to London (14.6%) and England (15.6%) in 2019/20.

Figure 2: Hospital admissions due to dental caries in children by deprivation quartile, Camden resident population (aged 0-5), 2020/21-2022/23



Note: Data labels show the numbers of hospital admissions due to dental caries during HES, 2020/21 - 2022/23.
Source: HES, 2020/21 - 2022/23, GLA housing led population projections

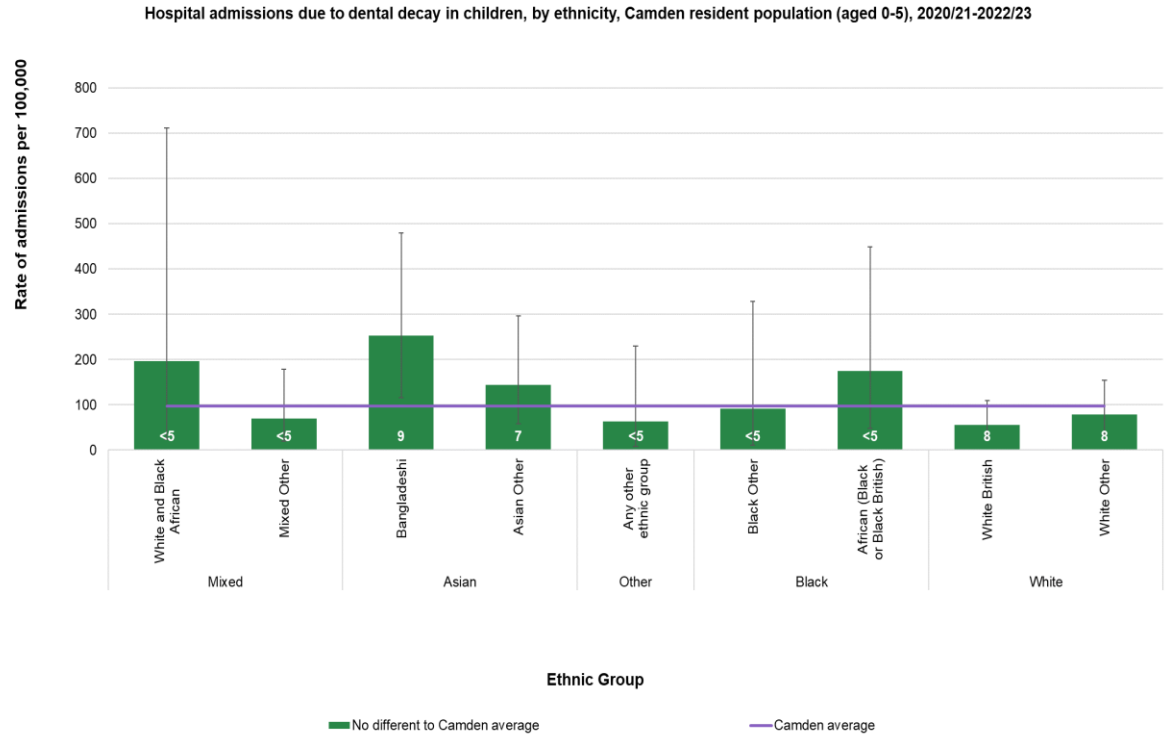
Figure 3: Hospital admissions due to dental caries in children by deprivation quartile, Camden resident population (aged 0-19), 2020/21-2022/23



Note: Data labels show the numbers of hospital admissions due to dental caries during HES, 2020/21 - 2022/23.
Source: HES, 2020/21 - 2022/23, GLA housing led population projections

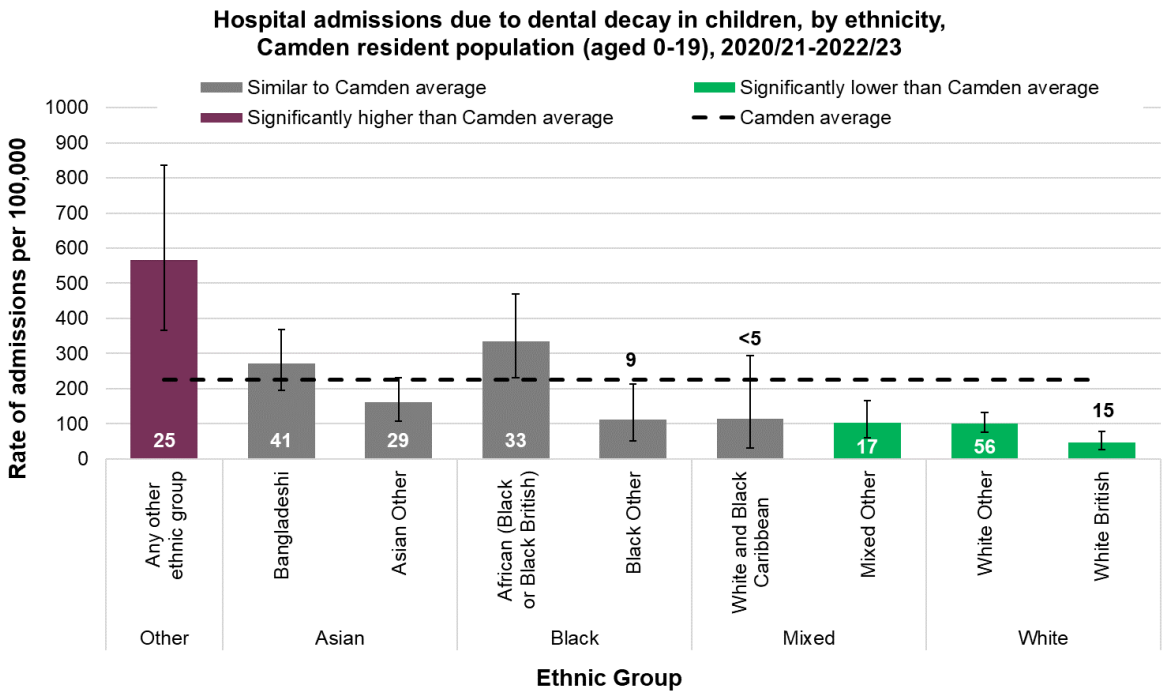
In terms of ethnicity, hospital admissions appear to be higher than the Camden average (albeit not significantly) among minority ethnic groups, particularly the 'White and Black African', African (Black or Black British) and 'Asian other' communities **(Figure 4 and Figure 5).**

Figure 4: Hospital admissions due to dental decay in children, by ethnicity, Camden resident population (aged 0-5), 2020/21-2022/23.



Note: Data labels show the numbers of hospital admissions due to dental caries during 2020/21-2022/23. 25 admissions were excluded from this analysis due to the ethinicity of the child being unknown.
Source: HES, GLA housing-led population estimates

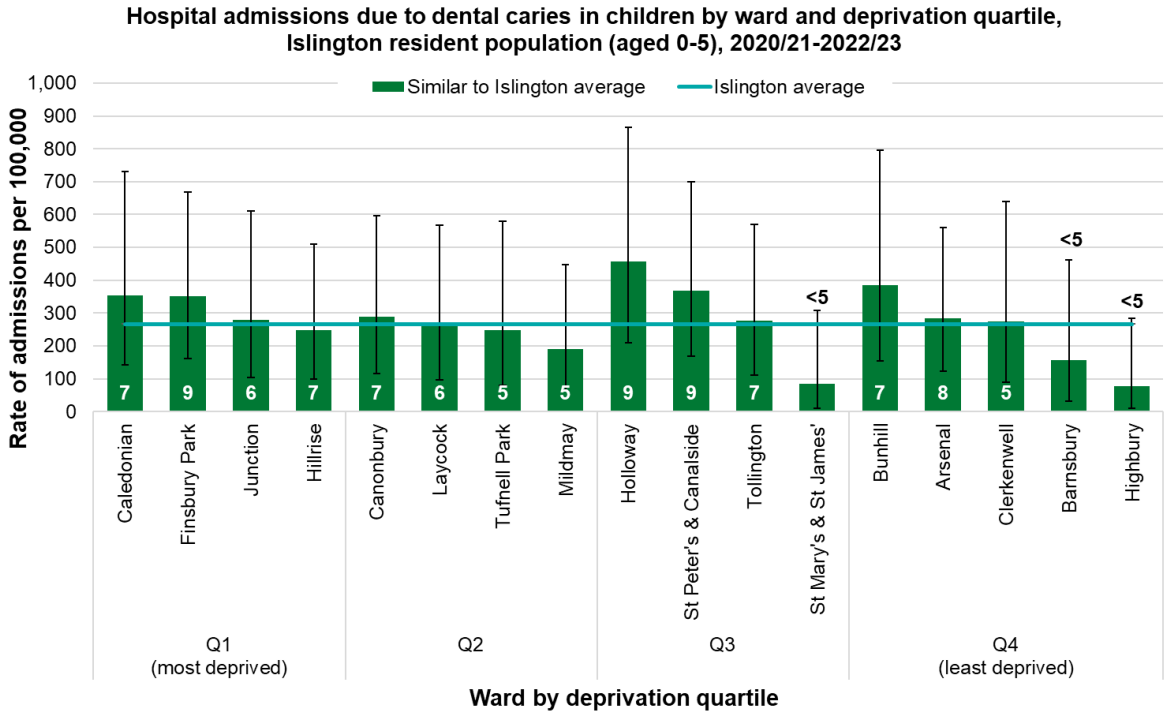
Figure 5: Hospital admissions due to dental decay in children, by ethnicity, Camden resident population (aged 0-19), 2020/21-2022/23.



Note: Data labels show the numbers of hospital admissions due to dental caries during 2020/21-2022/23. 71 admissions were excluded from this analysis due to the ethinicity of the child being unknown.
Source: HES, GLA housing-led population estimates

In Islington, the data on hospital inpatient admissions for dental caries (tooth decay) in children shows a similar trend as in Camden, i.e., those from the most deprived populations generally have higher hospital admissions, though not statistically significant from the Islington average as shown in **Figure 6.**

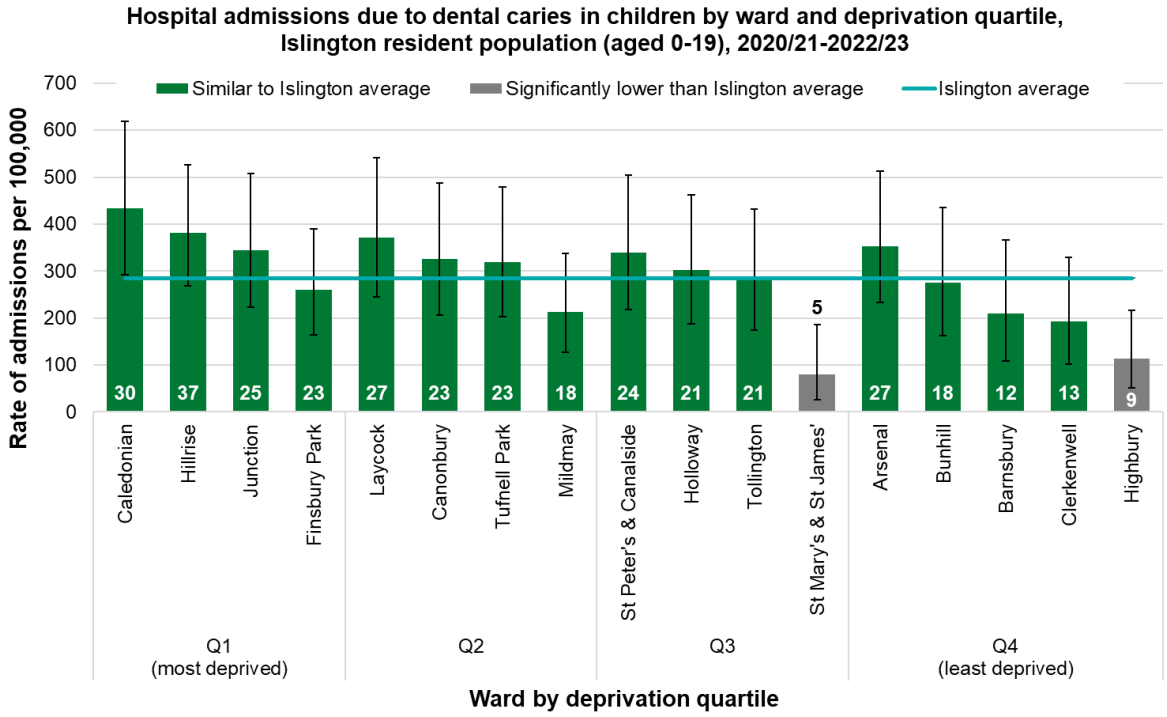
Figure 6: Hospital admissions due to dental caries in children by ward and deprivation quartile, Islington resident population (0-5), 2020/21-2022/23



Note: Data labels show the numbers of hospital admissions due to dental caries during HES, 2020/21 - 2022/23.
Source: HES, 2020/21 - 2022/23, GLA housing led population projections

Figure 7 below shows the hospital admission data similarly to **Figure 6** but includes the resident population aged 0-19 across the wards. The rates of hospital admissions due to dental decays is significantly higher than that in the 0-5 aged population with Caledonian, Laycock and Arsenal as the highest wards.

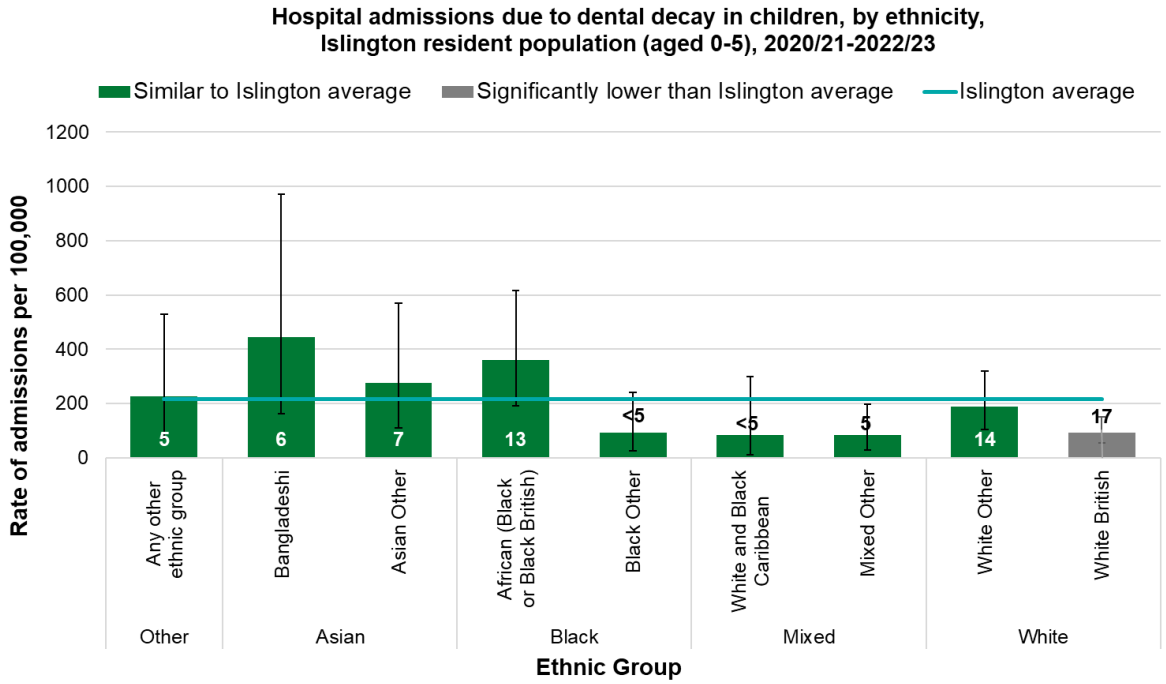
Figure 7: Hospital admissions due to dental caries in children by ward and deprivation quartile, Islington resident population (0-19), 2020/21-2022/23



Note: Data labels show the numbers of hospital admissions due to dental caries during HES, 2020/21 - 2022/23.
Source: HES, 2020/21 - 2022/23, GLA housing led population projections

Figure 8 below shows that hospital admissions are significantly lower among the White British population compared to other groups. Although not statistically significant, hospital admissions were higher than the Islington average among the 'African (Black or Black British), Bangladeshi, Asian 'other' and 'Any other ethnic group' communities. However, caution should be exercised when interpreting these results due to the small numbers.

Figure 8: Hospital admissions due to dental decay in children, by ethnicity, Islington resident population (0-5), 2019/20-202

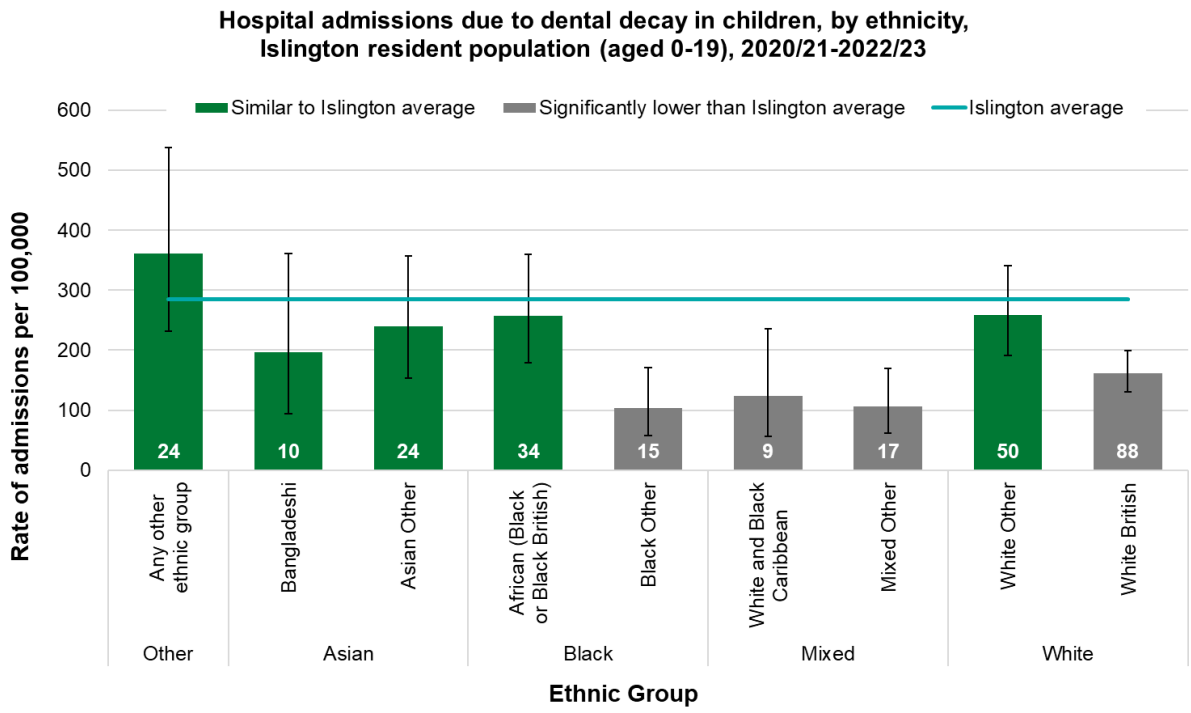


Note: Data labels show the numbers of hospital admissions due to dental caries during 2020/21-2022/23. 31 admissions were excluded from this analysis due to the ethinicity of the child being unknown.
Source: HES, GLA housing-led population estimates

The mean number of teeth per child affected by decay (d3mft) has steadily declined in Islington over the last 10 years, but this has been more erratic in Camden. However, in 2019, there was a steep decline in d3mft in Camden.

Additionally, dental decay in children aged 0-19 indicates in Islington from 2020/21- 2022/23 that unlike the rates of the 0-5 population, the rates of decay are more varied across the ethnic groups with 'Any other ethnic group' and 'White other' being the highest **(see Figure 9).**

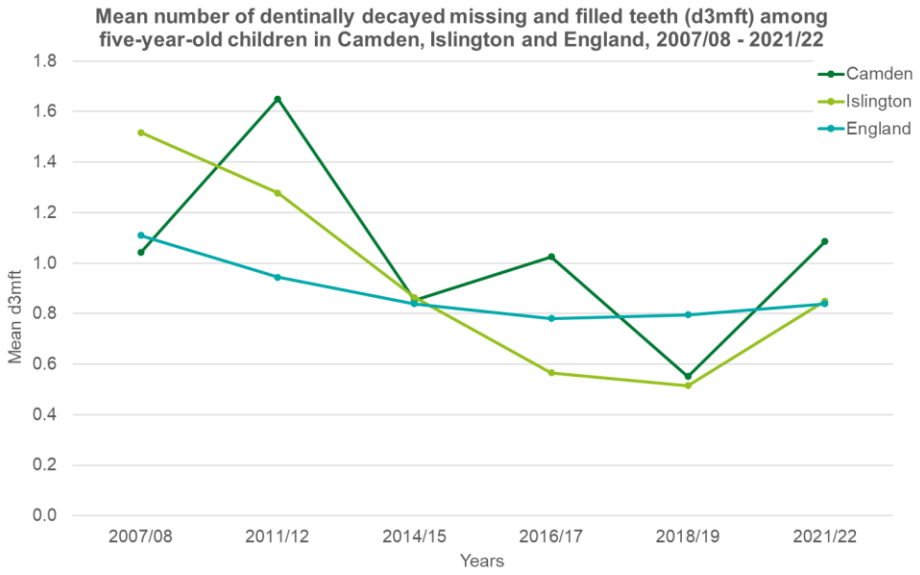
Figure 9: Hospital admissions due to dental decay in children, by ethnicity, Islington resident population (0-19), 2020/21-2022/23.



Note: Data labels show the numbers of hospital admissions due to dental caries during 2020/21-2022/23. 85 admissions were excluded from this analysis due to the ethinicity of the child being unknown.
Source: HES, GLA housing-led population estimates

Across England, overall has remained static (**Figure 10**). The 2021/22 data shows that d3mft has increased again in both boroughs, with a higher increase in Camden. An average number of d3mft in children with decay, allows us to understand more about the extent of disease in the mouths of children who are affected.

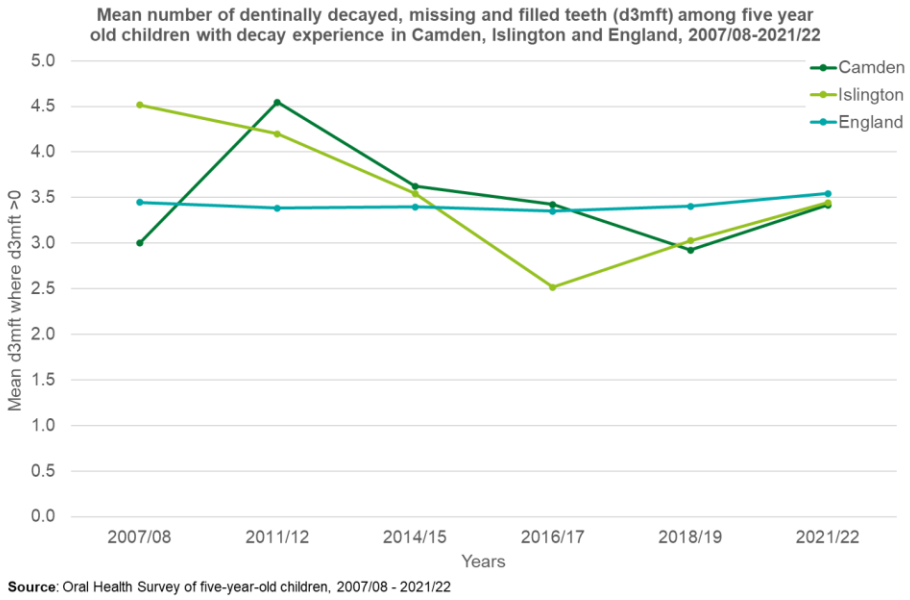
Figure 10: Mean number of dentinally decayed, missing and filled teeth (d3mft) among five-year-old children in Camden, Islington and England, 2007/08-2021/22



Source: Oral Health Survey of five-year-old children, 2007/08 - 2021/22

Figure 11 below shows that the mean d3mft in those children with decay experience has increased both nationally and locally. In Islington, the average number of decayed teeth in those children with decay experience increased from just over 3.0 in 2019 to almost 3.5 in 2021/22, while in Camden it increased from under 3 to almost 3.5. This suggests that children suffering from dental decay in both boroughs now experience more decay than they did 2 years ago.

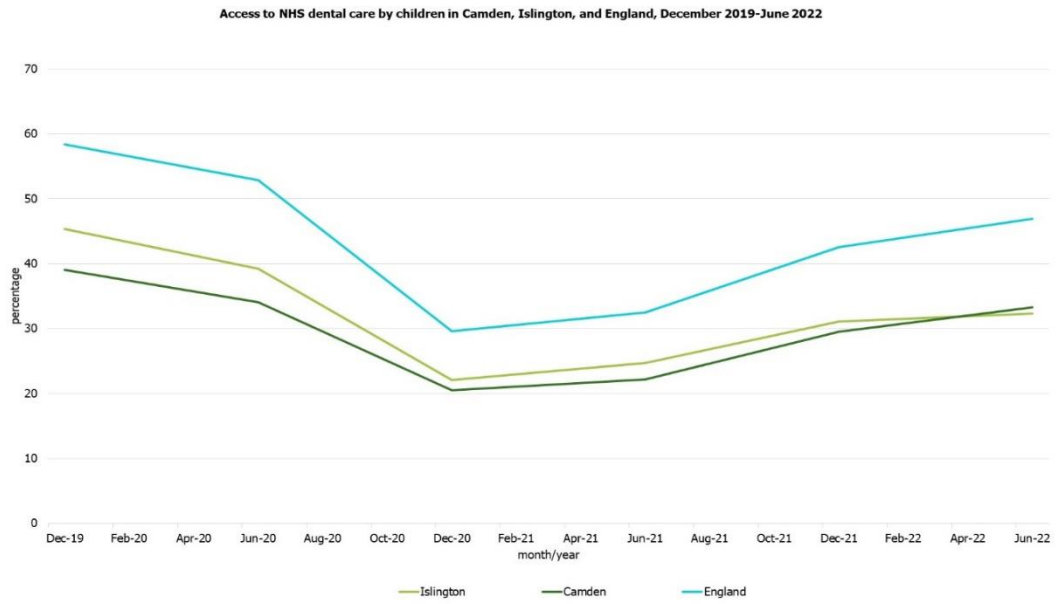
Figure 11: Mean number of dentinally decayed, missing and filled teeth (d3mft) among five-year-old children with decay experience in Camden, Islington and England, 2007/08-2021/22



Source: Oral Health Survey of five-year-old children, 2007/08 - 2021/22

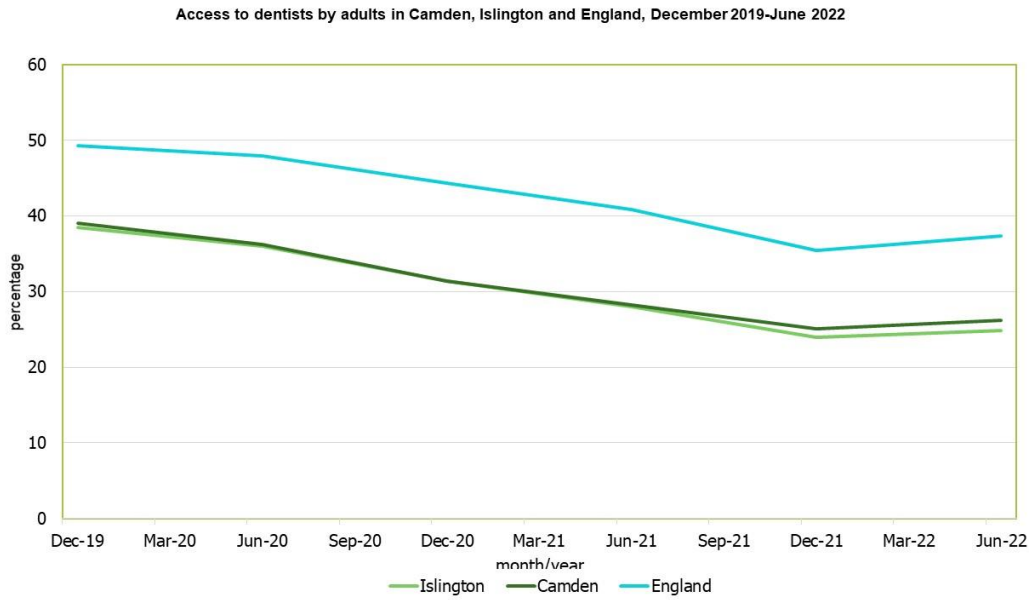
Figures 12 below shows the trend in access to dentists by children in Camden and Islington. In children, access to dentists began to decline around the beginning of the pandemic in early 2020, with subsequent closure of dental practices in March 2020. There was an even steeper decline in June 2020, when dental practices began to gradually see patients again. The resulting backlog of patients and long waiting times for a dental appointment might be responsible for this drop. Whereas access to dentists has gradually improved, it was still below pre-pandemic levels as of June 2022, again, due to shortage of dental appointments and long waiting times. Dental access has been consistently lower in Camden compared to Islington and England, even pre-pandemic. The trend in access to dentists by adults in both boroughs was similar (Figure 13). However, the decline in dental access from June 2020 was more gradual for adults than children, reaching lowest levels around December 2021. Whereas access to dentists by adults has improved, it is also still below pre-pandemic levels both locally and nationally.

Figure 12: Access to NHS dental care by children in Camden, Islington and England, December 2019-June 2022



Source: NHS Dental statistics for England Dashboard,2022[20]

Figure 13: Access to NHS dental care by adults in Camden, Islington and England, December 2019-June 2022

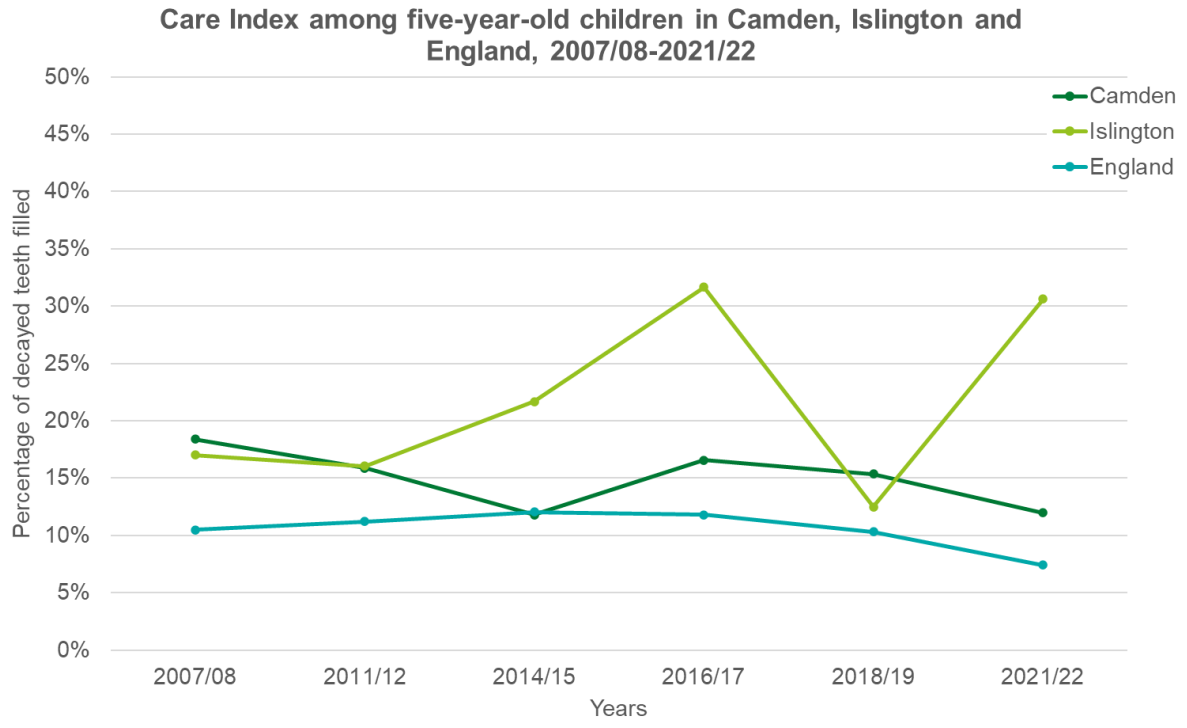


Source: NHS Dental statistics for England Dashboard,2022[20]

Figure 14 shows that the Care Index varied nationally and by Local Authority. Care Index is a marker of the proportion of teeth with dental decay which have been treated by filling. It is derived by taking the number of filled teeth and dividing by the total number of dentinally

decayed, missing and filled teeth and converting to a percentage (ft/d3mft). The care index in Islington almost doubled between 2007 and 2017 and was at 32% in 2016/17. However, this markedly improved to about 12% in 2019 possibly due to several factors including oral health promotion and increased access to oral/dental health services. The recent 2021/22 data suggest that care index has increased to just over 30% in Islington while it has continued to improve in Camden and England. As per Figure 10, the care index between Camden and Islington in 2021/2022 has started to widen with Islington almost double that of Camden. In using the care index data, care should be taken in making assumptions as there are some issues like access to dental services, levels of deprivation and quality of clinical care which might not have necessarily been picked up in the data. In addition, there is a possibility that the care index in the last couple of years will have likely been affected by the further reduced access to dental services due to the COVID-19 pandemic.

Figure 14: Care index among five-year-old children in Camden, Islington and England, 2007/08-2021/22



Notes: Care Index %: Proportion of d3mft score relating to treatment by filling (ft/d3mft)
Source: Oral Health Survey of five-year-old children, 2007/08 - 2021/22

1.3.2 Oral health of adults in England

National Adult Dental Health Surveys (ADHS) have been carried out every ten years since 1968 and have been steadily showing improvements in dental health over time. The surveys gather information about dental health of adults as well as their dental experiences, knowledge of and attitudes towards dental care and oral hygiene.

The *2009 Adult Dental Health Survey*[21] is the latest national adult survey (it however did not include Scotland). Results from the survey showed that there was a continued improvement in adults' dental health across almost all the indicators of oral health and disease. Findings from the survey showed that 31 per cent of dentate adults had obvious tooth decay in either the crowns or roots of their teeth. The ADHS wasn't repeated in 2019 but is being done in 2022 hence data is not yet available.

The National Dental Epidemiology Programme 2017/18 oral health survey of adults attending general dental practices in England [22] found that more than a quarter of participants (27%) had tooth decay, having on average 2.1 decayed teeth, and more than half (53%) had gingival (gum) bleeding. Most participants (82%) had 'functional dentitions' (comprising 21 or more natural teeth), nearly all participants (90%) had at least one filling and around half (47%) had crowned teeth. Seventy-one percent of participants were assessed as having a current need for dental treatment. People from Black, Asian and Minority ethnic groups were less likely to have dentures and more likely to have a functional dentition. However, they were also more likely to have tooth decay, have one or more PUFA (Pulpal involvement, Ulceration, Fistula, Abscess) signs and were more likely to report experiencing impacts from their oral health in the previous year. The survey also revealed that poorer oral health disproportionately affected those at the older end of the age spectrum and those from more deprived areas. It is, however, important to note that this survey represented those that attend practices (rather than non-seekers) so results should be interpreted with caution.

1.3.2.1 Older adults

Around half of all care home residents have some of their own natural teeth, but their oral health is typically much worse than their community living peers. [23]With increasing age, the ability to care for their mouth deteriorates, essential oral hygiene practices become challenging, and they require support from care home staff. In additional, polypharmacy leads to dry mouth, and diets can become rich in carbohydrates with many also having to maintain increasingly complex dental restorations. All these factors increase the risk of oral diseases, and poor oral health amongst care home residents has been shown to impact negatively on their quality of life, general health, and diet, thus exacerbating underlying medical conditions and comorbidities [24].

The life expectancy of the population has been increasing in recent decades due to improved living conditions and healthcare. It is estimated that there are currently 11 million people aged over 65 in the UK, who make up 18% of the population. [25] Around 21,000 Islington residents – approximately 9% of the total population - are over 65. There are currently almost 28,000 people over 65 in Camden and this number is expected to increase to approximately 35,000 in the next ten years (25% increase). The *2016 Oral Health Survey of Mildly Dependent Older People* [26] was the first oral health survey of this population group, and the method was implemented as a pilot. It focused on the population living in supported accommodation.

The results of the survey revealed that poorer oral health tended to be found among participants who were older and those who reported an increased length of time since the

last dental visit, being restricted in their ability to attend a dental practice or being in receipt of various services in their home. Those with a reduced cognitive recall and those with a lower level of education also tended to have worse oral health.

In 2009 Islington Council commissioned an Oral Health Needs assessment (OHNA) for older people living in care/nursing Homes. In 2013 the London Boroughs of Camden and Islington took over responsibility for the commissioning of their health improvement programmes and carried out another oral health needs assessment leading to a report published in 2015. [27] The findings led to oral health improvement interventions for these groups in the forms of:

- Training staff working with these groups in health and social care
- Provision of fluoride toothpaste for the targeted groups
- Oral Health CQC outcomes in nursing homes
- Duraphat 2800 project at Nursing homes

Target groups include elderly, learning disabilities, serious mental illness, adults with drugs and alcohol abuse and homeless people.

Settings include nursing /care homes, supported living homes, sheltered accommodation, extra care homes, mental health wards, day centres, hostels.

The 2019 CQC report *Smiling matters: Oral health care in care homes* [70] noted that oral health improvement practices in care homes have generally been found to be poor. Residents' oral health was often not assessed on admission, and there were poor records of mouth care. In addition, there were variable levels of daily dental support, and staff training. There were concerns about residents' access to routine and emergency dental care

A review [28] of oral health surveys of older people done by PHE in 2015 showed that older adults living in residential and nursing care homes in England and Wales were more likely to be edentulous, and less likely to have a functional dentition. In addition, untreated caries was higher in the household resident elderly population than in the general adult population and older adults living in care homes have higher caries prevalence.

Healthwatch Islington, in early 2020, published a report [29] on the oral health of residents in Islington care homes and concluded that residents in the homes visited were generally well-supported with care of their teeth and dentures. In addition, staff were well trained in oral health issues and good practice was in evidence across all of the homes. Healthwatch Islington laid out a set of recommendations that included more information to residents and relatives about wider mouth care and oral health issues generally, and where appropriate, access to preventative dental services should be encouraged.

A further Healthwatch Islington report [30] published in 2021, evaluated the experiences of accessing different health care services by care home residents. Access to dentists during the pandemic was noticeably more difficult due to long waiting times and this had put pressure on GPs as they needed to prescribe antibiotics for dental needs that would usually have been met by a dentist. There was also a change from dentists coming into the homes, to residents needing to travel for dentist appointments and whereas historically, transport was provided, this was no longer the case. Healthwatch Islington acknowledges that hospital transport continues to be a big issue for care home residents and will continue to hold commissioners and service providers to account through a feedback mechanism.

1.3.2.2 Homeless people

Dental problems are widespread among people experiencing homelessness and are a significant area of health inequality in this group. According to the British Dental Association (BDA)[31] many factors contribute to poor dental and oral health among homeless people including: inability to develop consistent eating and personal hygiene routines, low disposable income, a lack of awareness of diet and oral hygiene issues and an acceptance among homeless people that poor dental health is the norm. On top of this, many homeless people suffer from mental health or substance misuse problems, which can seriously undermine oral and dental health due to a lower interest in oral hygiene, an increase in accidents or violence, or as a direct result of the effects of drugs or tobacco.

The NICE guideline (NG 214) [32] covers provision of integrated health and social care services for people experiencing homelessness; it aims to improve access to and engagement with health and social care. Good qualitative evidence obtained during the drafting of the guideline highlighted that some people are unaware of the free or low-cost services available to them, particularly dental care. Often, the relevant forms that enable free access to essential services such as eye care, prescription costs and dental care are not readily available, or are only available electronically. Moreover, these forms can be challenging to fill in and are only available in English. This guideline includes recommendations on ways to improve access to and engagement with health and social care services for people experiencing homelessness. It also gives advice on how commissioners, planners, providers and practitioners across disciplines and agencies can work together to support and improve outcomes for people experiencing homelessness. The guideline also importantly acknowledges the role of peers (experts by experience) in delivering and designing services.

A study [33], 'Healthy Mouths' by Groundswell reveals the extent of oral health problems faced by homeless people in England, with poor access to dental services having a significant impact on their lives. Groundswell engaged over 260 people currently experiencing homelessness through focus groups and one-to-one survey-based interviews, exploring oral health, lifestyle factors and access to dental services. Findings revealed that 90% of participants had an issue with their mouth health since becoming homeless, 30% of homeless people are currently experiencing dental pain, 7 in 10 reported lost teeth since becoming homeless and 15% of homeless people have pulled out their own teeth. In addition, 27% of participants have used alcohol to help them deal with dental pain and 28% have used drugs; the knock-on effect is that other support services may then be under increased pressure. Furthermore, the study showed only 23% had been to the dentist in the last six months, while 58% were not clear on their rights to NHS dentistry. The Groundswell report had several recommendations including additional funding to Community Dental Services (CDS), as well as ensuring that the available oral health promotion services are extensively promoted specifically to services that deal with homeless people.

A recent (June 2022) NCL inclusion health needs assessment of targeted populations (people with a history of imprisonment , sex workers ,Gypsy, Roma and Travellers , vulnerable migrants and people experiencing homelessness) showed that common barriers in accessing healthcare across these groups include: fear of stigma and discrimination, lack of identification or proof of permanent address, lack of awareness of the healthcare system

and entitlements, trauma triggers, language and digital exclusion. Oral health was raised as a particular concern for people experiencing homelessness and sex workers.

1.3.2.3 Adults with learning disabilities and severe mental illness

According to PHE [34], a person with learning disabilities has: a significantly reduced ability to understand new or complex information and to learn new skills, as well as a reduced ability to cope independently. These will have started before adulthood, with a lasting effect on development. According to Mencap [35], there are approximately 1.3 million people with a learning disability in England in 2023.

Severe mental illness (SMI) is a group of primarily psychotic disorders that are chronic and associated with complex needs [36] They include schizophrenia, schizoaffective disorder, bipolar affective disorder, and other nonorganic psychotic disorders. Sometimes major depression is included within SMI. People with SMI experience some of the worst oral health inequalities, compared to the general population, they have on average five more decayed teeth [37]. They are three times more likely to lose all their natural teeth and four time more likely to have gum diseases. Furthermore, people with SMI are two times more likely to have late detection of oral cancer and less likely to receive specialised cancer treatments. Levels are highest amongst institutionalised people with SMI.

There is a legal obligation, under the Equality Act 2010, for dental services to make reasonable adjustments to ensure that their patients with disabilities (including learning disabilities and mental illness) can use their service in the same way as other people. This might include making practical adjustments to the environment or changes in the process. Furthermore, learning disabilities and mental illness were priority areas for health improvement and tackling inequalities in the NHS Long Term Plan and Core20PLUS5 initiative.

Many people with learning disabilities are reliant on others to help them clean their teeth. Carers are often inadequately trained for this and may not see oral care as a priority. In addition, people with learning disabilities may be at an increased risk of some of the general factors that lead to poor oral health and face additional risk factors including: frequent sugar intake, prescription of medications that can reduce saliva flow or increase gingival inflammation, gastroesophageal reflux, lower income and educational levels, difficulty in accessing dental services, being non-oral feeders, reduced dexterity resulting in ineffective tooth brushing, sensory sensitivity making it difficult to co-operate with oral care and difficulty in understanding the importance of daily oral care.

Similarly, compared to the general population, people with SMI have higher levels of oral health risk behaviours such as tobacco and alcohol use, poor diet (with high sugar content) and poor oral hygiene [40]. They face multiple barriers to accessing adequate dental care. Some of their antipsychotic, anti-depressant and mood stabilising medications cause side-effects such as dry mouth and eating dysregulation which are risk factors for many oral diseases. Due to the interrelationship between oral diseases, mental disorders and physical multimorbidity, improving oral health in people with SMI is important for supporting recovery from mental illness [40].

PHE guidance [34] published in 2019 provides information about oral care and dental treatment for people with learning disabilities. This guidance signposts resources that can be

used to support people with learning disabilities with their oral care and advises on strategies that can be used to help reduce anxiety and better prepare people for dental treatment, such as desensitisation. The guidance also emphasises the need for training and education for people with learning disabilities, their family carers and supporters and dental professionals and gives examples of how this can be done.

1.3.2.4 Adults with drugs and alcohol abuse

In England, among people aged 15 to 49 years, alcohol is the leading cause of ill-health, disability, and death. [38] There is a significantly increased risk of oral cancers among drinkers, particularly when combined with smoking or any form of tobacco use. [39] Misuse of drugs and alcohol is associated more often with social deprivation, which in itself is associated with poor general health. The side effects of drugs can cause many oral conditions including dry mouth, Bruxism, increased sugar cravings, high rate of caries (decay) and periodontal disease (gum). Due to lifestyle, drug use, poor oral hygiene, nutritional deficiency such as Vitamin C are also common. In addition, analgesic effects may mask dental pain. [40] Drugs and alcohol misuse is commonly seen in the homeless population. Barriers experienced by homeless people and recommendations to mitigate them have been documented above.

1.3.2.5 Asylum seekers and refugees

Asylum seekers and refugees may have lower health literacy than the host community due to poor access to educational resources and information programmes, compounded by economic, social and language barriers. They may also have difficulty interacting with health information due to low literacy levels as well as different cultural expectations. [42]

According to the Office of Health Improvement and Disparities (OHID) [41], whereas oral health has improved dramatically in the UK over the last few decades, poor oral health is still closely linked to factors which may affect certain migrant groups, including: economic deprivation, social exclusion, cultural differences in perceptions about oral health, availability of dental services in migrants' country of birth or origin. Moreover, prior to their arrival in the UK, some migrants may have never received any dental examinations or treatment advice on oral hygiene and prevention. It is therefore important to understand and discuss a person's previous experiences and/or circumstances of migration with sensitivity, in order to understand their health needs, and importantly, build trust with the healthcare provider.

OHID [41] guidance also states that in England, migrants will be charged for NHS dental services like all other NHS patients, unless the treatment is free for everyone (e.g. removing stitches, stop bleeding in the mouth or repair of dentures). Dentists are not required to ask for proof of identity, proof of address or proof of immigration status from individuals applying to become an NHS patient.

Public Health England (PHE)[42] identified the confusion and barriers to accessing NHS dentists for asylum seekers and refugees, and with input from Leicester stakeholders, developed a 7-step model of care to overcome these barriers, improve knowledge and support access. The model addresses issues around:

- Access and entitlements,
- How to find an NHS dentist
- No proof of address
- Immigration status
- Translation services
- Experiences and expectations
- Promote prevention

1.4 Impact of COVID-19 on oral health

The SARS-CoV-2 (COVID-19) pandemic has posed significant challenges to the health, social, financial, and educational systems globally.

Access to NHS dental care for all has been highlighted as an issue since long before the spread of COVID-19 [43], and there are clear signs that this has been compounded by the pandemic. As a result of the first full national lockdown in the UK in March 2020, all routine, non-urgent dental care was stopped and/or deferred. Practices were advised to provide a virtual emergency assessment service, mainly using a telephone triage system, and only refer to urgent care hubs for essential clinical treatment [44].

In England, non-urgent dental care services resumed on 8 June 2020 (after the first COVID-19 wave) although this was gradual as some practices were not appropriately equipped. However, there were clear inequalities in the uptake of dental services in this initial resumption period, particularly among children and older adults, with 10% more children and older adults in the least deprived areas of England utilising services in October 2020.

While children have not been the face of the pandemic and have largely been spared from the direct health effects, they have been at risk at being among its biggest victims. The subsequent worldwide lockdowns, including in the UK, had consequences on children's services, including declining emergency attendances, delayed presentation and missed childhood immunisation, disruption to schooling, among others.

Table 1: Timeline of COVID-19 events in relation to schools, dentistry and care homes in England

Date	Event
March 2020	• Closure of schools for all in-person teaching, save for vulnerable children and those of key workers, announced • All routine, non-urgent dental care was stopped and/or deferred • Public Health England issued new guidance which said visitors who are feeling unwell should not visit care homes and emphasised the "positive impact" of seeing friends and family. The advisory did not impose a ban on visits

March 23rd 2020	First full national lockdown begins
April 2nd 2020	New guidance for care homes issued jointly by the Department for Health and Social Care and other agencies, stating that visits should only be made in exceptional circumstances, such as end of life.
1 June 2020	Phased re-opening of schools in England
8 June 2020	Dental practices in England allowed to resume face-to-face care
5 November 2020	Second national lockdown comes into force in England
2 December 2020	Second lockdown ends and England returns to a stricter three-tier system of restrictions
6 January 2021	England enters third national lockdown
8 March 2021	Planned return to school for primary and secondary school students in England

The lockdowns also created concerns not only about children's access to food, but the quality of food being consumed and the mental and physical impact of lockdown on their food preferences and eating patterns. A nationwide survey in 2020 [45] was launched by Sustain (an alliance of organisations and communities working together for a better system of food, farming, and fishing, and cultivating the movement for change) and targeted parents and carers of children under the age of 18 years. The research aimed to gather parents' views on lockdown life and ask their views on the future of children's food as schools reopen, what the Government should prioritise in relation to childhood obesity and building a healthier food environment as part of Covid-19 recovery plans. In total, 767 parents and carers took part in the research, which was open to any parent on a voluntary basis who wished to take part. Over 50 percent of surveyed parents mentioned that their children were eating more home-cooked meals during the lockdown period. However, 70% of parents saw a rise in their children snacking habits. Children ate more crisps (35%), ice creams and lollies (46%), cakes and biscuits (40%), sweets and chocolate (30%).

Barraclough et al [7] in their commentary noted that whilst triaging was ongoing within paediatric departments to ensure those most likely to be at risk of pain and infection were a priority, many children remained on waiting lists and continued to suffer from dental caries as of June 2020. There was also concern that more extractions would be necessary, and this would further lengthen dental general anaesthetic (GA) waiting lists. The authors further noted that the suspension of school fluoride varnish and supervised toothbrushing programmes, combined with the prospect of poorer diets and frequent snacking whilst at home, had raised serious concern for dental caries.

PHE (now UKHSA), in its 2021 rapid evidence summary of the wider impacts of COVID-19 on children and young people ([46]), aimed to provide an overview of the key impacts of COVID-19 on CYP in London to inform partnership action to mitigate them. The report highlighted the following issues around reduced access to routine and preventive dental care:

- Children have had long periods with limited access to routine dental care and preventative advice due to COVID-19, leading to long waiting lists
- limited access to prevention including supervised tooth brushing and fluoride varnish programmes due to school closures
- prolonged episodes of pain and repeat prescriptions for antibiotics due to de-prioritisation of general anaesthetic services
- difficulty concentrating on schoolwork and stress for parents due to untreated tooth decay
- Children requiring extensive dental treatment are more likely to fall into vulnerable groups

With the closure of all schools and early years settings (except to the children of key workers) in March 2020, oral health programmes in England were suspended, in particular, the early years and school-supervised tooth brushing and fluoride varnish programmes. This temporary suspension continued after primary schools welcomed back children in June 2020. This break in provision and delay in re-establishment of oral health promotion programmes has potential long-term implications for the oral health of young children. [47]

Similarly, the already poor oral health improvement practices as highlighted in the CQC report [8] were exacerbated by the COVID-19 pandemic. Oral healthcare services and programmes in care homes ceased as oral health professionals and health promoters had limited access to care homes for a prolonged period. However, oral health has now been included in the enhanced 'Health in care homes' framework [48], [49] so dental practices can be linked to care homes through primary care networks.

CHAPTER 2: Universal Policy guidance on the prevention of oral diseases

2.1 National level

In 2005, the Department of Health published an oral health strategy document *Choosing Better Oral Health: an oral health plan for England* [(50)] which provided a framework for tackling oral health inequalities and emphasised the need to reorient oral disease prevention to the main social determinants. It advocated developing locally sensitive interventions that address local needs and priorities through joint working between health professionals and local communities. It identified 6 key areas for action:

- Increase use of fluoride
- Improve diet and reduce sugar intake
- Encourage preventive dental care
- Reduce smoking
- Increase early detection of mouth cancer
- Reduce dental injuries

In 2017, PHE published the *Delivering better oral health – an evidence-based toolkit for prevention* [(51)] which sets out guidance for improved oral health. This includes: the minimum concentrations of fluoride in toothpaste to control caries, clear advice about twice daily brushing, as well as the important role of fluoride varnish as part of clinical activity to control caries. In addition, the report recommends that for all children, there should be a reduction in the quantity and frequency of foods and drinks that contain sugar.

The Scientific Advisory Committee on Nutrition (SACN) in its 2015 *Carbohydrates and Health report* [(52)] recommended that the average intake of 'free' sugars for all age groups from 2 years upwards should not exceed 5% of total dietary energy intake. In line with this, PHE is leading on the national sugar reduction programme [(53)] in a bid to remove and/or reduce sugar from the foods most commonly eaten by children. This programme also challenged all sectors of the food industry to reduce sugar by 20% by 2020 in the categories of food that contribute most to the sugar intakes of children aged up to 18 years. The Year 3 progress report [(54)] published in 2020 showed that overall, there was a 3.0% reduction in the sales weighted average total sugar per 100g in products sold between baseline (2015) and year 3 (2019). There were larger reductions for specific product categories, yogurts and fromage frais down 12.9%, and breakfast cereals down 13.3% compared with baseline. The Soft Drinks Industry Levy (SDIL) has been a success and has shown 43.7% sugar reduction per 100ml in retailer own brand and manufacturer branded products and a 38.5% reduction in the out of home sector proving to be effective. However, there seems to be minimal progress on other products covered by the voluntary programme which averaged just a 3% reduction per 100g. There have been delays in publishing the final report of the voluntary Sugar Reduction Programme and a concrete date for its publication has still not been finalised at the time of writing this report. [(55), (56)].

2.2 Local authority level

Under the arrangements introduced by the Health and Social Care Act 2012[57], Councils have a statutory duty to provide or commission oral health promotion programmes. The responsibility was given to them as part of the transfer of public health to local government in 2013. While dentists are commissioned by NHS England to provide treatment, it is the responsibility of councils to run programmes to promote good oral health and prevent problems occurring where possible.

Public Health England (PHE) and the National Institute for Health and Care Excellence (NICE) have published toolkits and guidance to support local authorities to improve the oral health of their population.

According to the PHE evidence-informed toolkit [58] on improving oral health, Local Authorities are also required to provide or commission oral health surveys. The oral health surveys are carried out as part of the Public Health England (PHE) dental public health intelligence programme (formerly known as the national dental epidemiology programme).

The NICE guidance [59] on oral health is one of several reviews on the clinical effectiveness and cost effectiveness of interventions for improving dental health, especially for local communities. It recommends interventions to improve the population's oral health through reduction in the amount of sugar consumed, ensuring oral hygiene, promoting access to fluoride products, as well as ensuring people have access to a dentist.

An oral health plan of action requires prioritising long-term investment in public health programmes and transforming commissioning pathways to support those with the greatest needs to access oral healthcare services. [60]

2.2.1 Oral Health Integrated Care Systems

Prevention is one of the key drivers for integration and one of the key ICS responsibilities – it must be supported and enabled across organisational boundaries. Currently, local authorities are responsible for oral health improvement programmes, but any potential cost savings are realised by NHSE and not local authorities, deterring them from long-term investment in programmes such as the Fluoride Varnish Programme. In NCL work is underway to address the differing levels of investment in oral health promotion across the sector. Through working with the Integrated Care Boards on oral health we should seek to work collectively to improve oral health outcomes and reduce inequalities for all residents in these boroughs.

Whilst the NCL oral health integrated care system is being formed [61], the implementation and funding plans mentioned in the White Paper [62] will be central to the success of the NHS integration proposals. Systems should look to include dentistry and oral care within their programmes of work and governance structures. There should be a mandated position for dentistry on each ICS Board to ensure that knowledge and experience from across the profession is shared at system level.

2.3 National Guidance for prevention of oral health diseases among targeted groups

There are several groups particularly at risk from oral diseases for whom specific guidance on oral health promotion has been developed.

2.3.1 Early Years

Early years providers have a responsibility to promote the health of children in their setting, as set out in the Early Years Foundation Stage Strategic Framework. [63] Good oral health can form a part of this.

The Dental Check by One (DCby1) [64] campaign, launched to the dental profession in 2017, advises that all parents and guardians should ensure that young children in their care are taken to see a dentist as soon as their first teeth come through, and before their first birthday. This is recommended as it provides a healthy start and accustomed to dental practice visits from an early age.

The World Health Organization [65] and the UK government [66] recommend exclusive breastfeeding for at least the first six months of life, with the introduction of complementary foods from six months of age, whilst continuing with breastfeeding (or formula if the parent chooses).

In 2018, the Scientific Advisory Committee on Nutrition (SACN) published its report on 'Feeding in the first year of life' [67] and as a result policy advice about breastfeeding has not changed. With regard to oral health, the SACN report concluded that breastfeeding up to 12 months of age is associated with a decreased risk of dental caries.

2.3.2 Older Adults

Older people are now more likely to retain their teeth than previous generations, and they need daily care and regular check-up. In addition, as people age, they are likely to live with a range of complex co-existing medical conditions, dependent on multiple factors, which may predispose them to loss of independence, disability and frailty. It is therefore essential that assessment of oral status, maintenance of oral hygiene and arrangement of appropriate dental treatment is prioritised for this group.

In 2016, NICE published its guideline '*Oral health for adults in care homes'* [68], with the aim to maintain and improve the oral health of adults in care homes, including dental health and daily mouth care and ensure their timely access to dental treatment. It also recommends that care staff should be equipped with the knowledge and skills on the importance of oral health and effect on general health, wellbeing and dignity, and that oral health promotional services should be made available to care homes.

In 2017, NICE published a quality standard for oral health in care homes [69] which recommends that adults who move into a care home have their mouth care needs assessed on admission. In addition, those living in care homes should have their mouth care needs recorded in their personal care plan and they should be supported to clean their teeth twice a day as well as to carry out daily care for their dentures.

The Care Quality Commission carried out a review to find out how care home and dental providers were implementing the above NICE guideline, which led to their 2019 report *Smiling matters: oral health care in care homes.* [70] Findings from the report revealed, among others, that staff awareness of the guideline recommendations was low, and not everyone was

supported to keep their teeth or dentures clean. In addition, only around half of the care homes provided specific staff training to support people's daily mouth care.

2.3.3 Vulnerable adults

The term 'vulnerable adults' therefore includes people living with disabilities as well as marginalised and excluded groups, for example, adults with drugs and alcohol abuse and homeless people. As mentioned before, dental diseases and other conditions of the mouth and teeth disproportionally affect the most vulnerable and socially disadvantaged individuals and groups in society, therefore highlighting the issue of health inequalities.

While specific guidance on oral health in vulnerable populations is not readily available in the literature, PHE[51] guidance for the prevention of tooth decay in adults states that adults and parents/carers should be advised regarding the strength of fluoride toothpaste to use for themselves and their children and that after brushing, to spit out excess toothpaste and saliva, not to rinse with either water or a mouthwash. In addition, it should be emphasised that 'drinking alcohol above the national guidelines adversely affects oral health, including significantly increasing the risk of oral cancers. Dental teams should identify any risk and offer brief advice on how to work towards drinking within the consumption guidelines and refer potentially dependent drinkers to local support services.'

There is however limited evidence on the effectiveness and cost effectiveness of community-based oral health promotion programmes among adults in England, particularly for interventions aimed at vulnerable populations.

CHAPTER 3: Interventions for Oral Health Improvement.

3.1 Oral health interventions in children

A number of interventions have been developed aimed at sustaining long-term improvements in oral health and reducing inequalities, as shown below.

3.1.1 Fluoride varnish

Fluoride varnish is a pale-yellow gel that sets quickly when applied to children's teeth using a soft brush.

Public Health England [71] recommends that all children, over the age of 3 years through to adulthood, should receive at least 2 applications of fluoride varnish a year. In addition, there are several practical advantages in the use of fluoride varnish as a topical treatment: it's well accepted and considered to be safe, and its application is simple and requires minimal training. PHE [71] further recommends that fluoride varnish application to child and adult participants should occur as part of a wider package of preventive care, in addition to provision of advice about tooth brushing, diet and other interventions.

According to the PHE guidance [72] for local authorities, it was noted that studies had shown that twice yearly applications of fluoride varnish to children's teeth resulted in the reduction of dental decay in primary teeth by 33% (95% CI:19–48%). PHE therefore recommends that all children from the age of 3 should be offered fluoride varnish treatment at least twice a year. In addition, fluoride varnish should be offered 2 or more times a year for children of all ages with tooth decay or those at high risk of developing it.

NICE [73] recommends that fluoride varnish programmes should particularly be considered for nurseries and primary schools in areas where children are at high risk of poor oral health. It further recommends that where a tooth brushing scheme is not feasible, a community-based programme of applying fluoride varnish at least twice a year in primary schools should be undertaken. In addition, where resources permit, commissioning both tooth brushing and fluoride varnish programmes should be considered.

Studies suggest that fluoride varnish application can reduce caries in both adult and child populations. A systematic review (*Marinho et al, 2013*) [74] to determine the effectiveness and safety of fluoride varnishes in preventing dental caries in children and adolescents found that children and adolescents whose permanent teeth were treated with fluoride varnish experienced on average a 43% reduction in decayed, missing and filled tooth surfaces. In addition, the evidence for the effect of fluoride varnish on first or baby teeth suggested a 37% reduction in decayed, missing and filled tooth surfaces.

A systematic review by *Mishra et al, 2017* [75] aimed to evaluate the scientific evidence regarding the role of fluoride varnish in preventing early childhood caries. Results showed that fluoride varnishes have been used at concentrations of 1% and 5% in the prevention of

Early Childhood Caries (ECC). However, the preventive fraction was influenced by the frequency of application, the duration of study and sample size.

According to the NHS [76], children's first teeth start coming through between six months and twelve months; these are then replaced by permanent teeth with the first permanent molars coming through at around six years old. By the age of 12 to 14, most children have lost all their baby teeth and have their adult teeth.

A randomised controlled allocation-blinded clinical trial by *Chestnutt et al, 2017*[77] sought to compare the clinical effectiveness and cost-effectiveness of fissure sealant (FS) and fluoride varnish (FV) in preventing dental caries in first permanent molars in 6- and 7-year-olds in South Wales. The authors concluded that twice-yearly application of FV resulted in caries prevention much as it was not significantly different from that obtained by applying and maintaining FSs after 36 months. However, the use of FV proved less expensive.

3.1.2 Supervised tooth brushing

In 2014, both NICE[78] and PHE[66] published key documents, which upon reviewing the evidence of effectiveness of oral health improvement programmes, both recommended the commissioning of targeted supervised toothbrushing in early years' settings. In addition, it was recommended that to be most cost effective and maximise the return on investment, the toothbrushing programmes should be targeted, aimed at children in the most disadvantaged communities.

Marinho et al, 2013[74] show that the daily application of fluoride toothpaste to teeth reduces the incidence and severity of tooth decay in children.

Walsh et al., 2019[79], in their review, sought to determine and compare the effects of toothpastes of different fluoride concentrations in preventing dental caries in children, adolescents, and adults. It was concluded that indeed, there are benefits of using fluoride toothpaste at certain strengths to prevent tooth decay when compared with non-fluoride toothpaste, choice of fluoride toothpaste for young children should be balanced against the risk of fluorosis.

da Silva et al, 2016[80] systematically reviewed evidence on effective community-based oral health promotion interventions for preventing caries and gum disease among children from birth to 18 years of age. The authors found little evidence to show that oral health education on its own was effective in prevention of carries. However, oral health promotion interventions combined with supervised tooth brushing with fluoridated toothpaste were generally found to be effective in reducing caries in children's baby and permanent teeth. The authors also concluded that there should be strong links between children's settings and community-based dental services for successful oral health promotion.

A scoping review of supervised tooth brushing programs in primary schools and early childhood settings (*Dickson-Swift et al, 2017*) [81] provides critical information to be considered when establishing and implementing tooth brushing programs in these settings:

- Toothbrush type (age-appropriate small head, soft bristles, labelled with child's name and date, replaced once a term or when bristles become worn or after a period of illness)
- Toothpaste (low fluoride toothpaste <500ppm for children under 6 years (if available), or adult strength between 1000ppm-1450ppm depending on the country and the fluoridation status of the water supply
- Toothpaste amount (a smear if using adult toothpaste for children under 6, or a pea sized amount if using low fluoride), dependent on the fluoridation status
- Toothpaste dispensing by an adult, individually or with pea sized amounts on plastic or paper plates
- Storage system that does not allow brushes to touch each other, good air flow and ability to air dry without contamination. Individual containers can be used but these will need to be cleaned and dried
- Brushing as a supervised group at a specific time each day
- Children should be encouraged to spit out the toothpaste but not rinse after brushing
- Staff training
- Involving parents and gaining consent

A systematic review (*Dos Santos et al, 2018*) [82] undertaken to assess the effects of supervised tooth brushing on caries incidence in children and adolescents found no conclusive evidence regarding the effectiveness of supervised tooth brushing on caries incidence due to great variation in children's age, fluoride content of the toothpaste, baseline caries levels and the way caries incidence was reported, but this depended on the model of implementation chosen.

A recent (quasi-experimental design) study in New Zealand (*Clark et al, 2019*) [83] aimed to ascertain whether a tooth brushing programme could reduce dental caries experience in a high-risk population. Results from the study showed that caries incidence for those in the toothbrushing group was 7.3%; that for the control group was 71.5%. In addition, logistic regression showed that, adjusting for sociodemographic characteristics, those in the intervention group had 0.32 times the odds of having a positive caries increment. The authors concluded that a supervised school tooth brushing programme can reduce caries increment in a population experiencing high levels of dental disease.

3.1.3 Oral Health Promotion

The Early Years Foundation Stage framework (EYFS)[63] requires providers to promote the good health of children attending the setting. Evidence published by Public Health England [12] suggests that more than 1 in 5 children aged 5 have experienced tooth decay with one or more teeth being extracted or filled. The promotion of good oral health in the early years can help reduce the incidences of tooth decay and hospital admissions. Following a formal government consultation of EYFS reforms in 2019/20, [84] oral health was included in the EYFS framework because good oral health habits need to be formed from the earliest age. Settings can decide how to promote oral health, based on what works best in their situation, but they are encouraged to link oral health to things that they already promote, like self-care, healthy eating and physical development. In addition, settings can decide if they want to

bring in supervised toothbrushing but should consult their relevant Local authority, as well as relevant government guidance. [85]

Healthy Early Years London (HEYL) [86] supports and recognises oral health as a core component of a child's health and wellbeing. This awards scheme takes a whole setting approach, and it complements the EYFS framework.

Fraihat et al [87] undertook a review with the main objectives being to assess the clinical effectiveness of oral-health promotion programs (OHPPs) on the oral health of children, specifically dental caries, as well as the cost-effectiveness of the programs. The review included a total of 19 studies and the OHPPs mainly implemented dental-health education, focusing on supervised toothbrushing techniques, using the appropriate type of fluoride toothpaste, following healthy behaviour, avoiding unhealthy dietary habits and performing regular dental check-ups. Studies carried out in the United Kingdom revealed significant proof that OHPPs had a reducing effect on DMFT/S as an OR of 0.04 (95% CI 0–0.58). The same findings were seen in Japan, Ireland, and Finland, countries with an overall OR of 0.03 (95% CI 0.01–0.11). The comprehensive analysis of the OHPPs in the review therefore confirmed a reduction effect on child DMFT, hence, lowering the financial burden of dental-care treatment on health institutions.

3.1.3.1 Integration of Oral Health Promotion into existing services

NICE[72] recommends that health and social care staff working with children at high risk of poor oral health should receive training on a range of issues, including how good oral health contributes to people's overall health and well-being, the consequences of poor oral health, how to prevent tooth decay, techniques for maintaining good oral hygiene (e.g., the use of fluoride toothpaste), and what advice to give parents/carers.

Abou et al, 2016[88] in their review aimed to assess the effectiveness of integrating promotion of oral health of young children and their mothers into nursing and midwifery practice. Twenty-one trials on oral health interventions incorporated into standard nursing practice met the inclusion criteria and were reviewed. Eighteen programmes reported significant positive outcomes including reduction in caries experience, better oral hygiene and dietary habits and increased rates of dental visits amongst young children as reported by their caregivers. The review also showed that it is possible to employ staff from a wide range of specialties and levels of education to deliver interventions targeting oral health promotion successfully. The authors concluded that *'incorporating oral health promotion into nursing practice is a promising initiative for reducing oral health disparities by contributing to a downward trend in caries experience and increased access to dental care especially amongst the poor disadvantaged communities.'*

Prasad et al, 2019[89] in their review aimed to determine integration of oral health into primary health care (PHC) and provide an evidence-based synthesis on a primary oral healthcare approach. The review also showed evidence of how oral health is related to general health and stated that it is determined by diet, hygiene, smoking, alcohol use, stress and trauma which are common to several other chronic diseases. It is therefore imperative that a collaborative approach is adopted in its management. The review examined a variety of ways in which oral health can be integrated into PHC therefore integration of oral health into primary care creates affordable and accessible care for all. It mentions various ways of

integration including through care coordination and referrals, health promotion (including oral health promotion) The authors concluded that if oral health care is to become an integral part of primary healthcare, there is a need to increase inter-professional education, inter-professional collaborative practice, closed-loop referral process, and various public and private partnerships.

3.2 Interventions for oral health improvement in adults.

3.2.1 Older adults

The 2018 PHE review on the effectiveness of oral health improvement programmes for vulnerable older people [90] recommended a number of programmes for older adults oral health improvement and these include:

- daily use of high fluoride toothpastes (2,800 or 5,000 parts per million fluoride) as part of daily effective tooth brushing in this population.
- quarterly application of fluoride varnish as well as effective daily tooth brushing
- supporting vulnerable older people and their carers to maintain a daily oral hygiene routine
- training in oral health for care staff and carers
- protocols for oral care in care settings
- routine denture identification marking
- community water fluoridation

There is strong evidence of effectiveness in the daily use of high fluoride toothpastes (2,800 or 5,000 parts per million fluoride) as part of daily effective tooth brushing in this population. Ekstrand, 2016[91] reviewed available evidence from randomised clinical trials with the primary aim of investigating whether toothpastes containing >1,500 ppm fluoride (2,500-2,800 and 5,000 ppm F) provide an additional caries preventive effect on root caries lesions in elderly patients compared to traditional dentifrices (1,000-1,450 ppm F). Findings (RR appears to be around 0.5) revealed that in the elderly population, there was better caries prevention on root caries lesions with the use of high fluoride-containing toothpaste compared to traditional fluoride toothpaste. This is because high fluoride toothpaste increases the fluoride concentration in saliva during the day, leads to a reduction in the amount of plaque accumulated and possibly promotes calcium fluoride deposits to a higher degree, compared to traditional fluoride-containing toothpaste.

3.3 Interventions for oral health improvement in both children and adults

3.3.1 Water fluoridation

Fluoride is a naturally occurring mineral found in soil, food and drink and also in drinking water supplies, in varying amounts. The World Health Organization [92] recommends a maximum level of 1.5 milligrams of fluoride per litre of water (mg/l). A 2021 report [93] on water fluoridation from the UK Chief Medical Officers states that in some parts of England the level of fluoride in the public water supply already reaches the target concentration of

water fluoridation schemes (one milligram per litre (1mg/l) or one part per million (1ppm)), as a result of the geology of the area. In other areas the fluoride concentration has been adjusted to reach this level as part of a fluoridation scheme.

Water fluoridation schemes involve adding fluoride to community drinking water supplies in areas of low natural fluoride, increasing the level to that known to reduce tooth decay. This happens in approximately 25 countries internationally, covering an estimated 400 million people [(94)]. Water fluoridation schemes can be advantageous as they do not require population behaviour change and can benefit both adults and children who are less likely to engage with other methods. It should however be noted that water fluoridation is not a substitute for good oral hygiene, regular dental check-ups and limiting sugar intake but it has an effect even when those are absent. [(95)]

A report by PHE [(96)] (now UKHSA) found that water fluoridation can substantially reduce hospital admissions for tooth extraction. If all 5-year-olds with drinking water with less than 0.2 mg/l fluoride instead received at least 0.7mg/l from a fluoridation scheme, then the number experiencing caries would be lower. The decline would be 17% in the least deprived areas, rising to 28% in the most deprived, and the number of hospital admissions for tooth extractions in children and young people is estimated to reduce by 45 to 68%.

Based on PHE's return on investment tool (see figure 7) for local authorities, water fluoridation also offers a return on investment after 5 years in areas of high deprivation of £12.71 for every £1 spent.

The UK Chief Medical Officers[(93)] concluded that there is strong scientific evidence that water fluoridation is an effective public health intervention for reducing the prevalence of tooth decay and improving dental health equality across the UK, and should be seen as a complementary strategy, not a substitute for other effective methods of increasing fluoride use.

3.3.2 Reviews of water fluoridation in the UK

The two most important reviews of water fluoridation in the United Kingdom have been the York Review published in September 2000[(97)] and the MRC Report on water fluoridation and health in 2002[(94).]

The Department of Health commissioned the NHS Centre for Reviews and Dissemination at the University of York to produce an up-to-date review of the topic, looking at all relevant studies. The York review confirmed the beneficial effect of water fluoridation on dental caries (cavities), but also highlighted the increased prevalence of dental fluorosis (a defect of the enamel ranging from mild speckling to more gross effects) associated with fluoridation. The review concluded that little high-quality research had been carried out on the broader question of fluoride and health, and that the available evidence did not allow confident estimates to be made of other possible risks to health or of the benefits of water fluoridation in reducing dental health inequalities.

In light of this, the Medical Research Council [(94)], at the request of the Department of Health, made recommendations for future research priorities regarding water fluoridation. These included:

- The impact of water fluoridation on caries reduction in children against a background of widespread topical fluoride use (for example, in toothpastes, gels and varnishes)
- Economic impacts and the effects of fluoridation on health and wellbeing beyond the usual measures of decayed, missing and filled teeth.
- The effect of fluoridation on social disparities in dental caries.
- Effects of fluoridation on the dental health of adults

Cochrane Oral Health[95], in 2015, carried out a systematic review of water fluoridation; however, the included studies were assessed as being at high-risk of bias and most had been carried out prior to the widespread introduction of fluoride toothpastes in the mid-1970s. Separate sub-group analysis showed that the post-1975 studies no longer demonstrated a protective effect. Furthermore, no studies which included adults met the review's inclusion criteria. The reviewers concluded that whilst there was historical evidence of a caries-protective effect, the lack of contemporary evidence made it difficult to determine if water fluoridation remains effective.

In response to the urgent need for more recent evidence on the effects of water fluoridation in children, the UK National Institute of Health Research (NIHR) funded 'CATFISH' (Cumbria Assessment of Teeth – a Fluoride Intervention Study for Health) [98], a study that is currently underway in Cumbria, UK. It is hoped that this 7-year prospective cohort study will address many of the research priorities first posed by the MRC almost 20 years ago. However, it will not address the effectiveness of water fluoridation for adults and no other such studies are in progress. The research will make a major contribution to the understanding of the costs and effects of water fluoridation in the UK in the 21st Century.

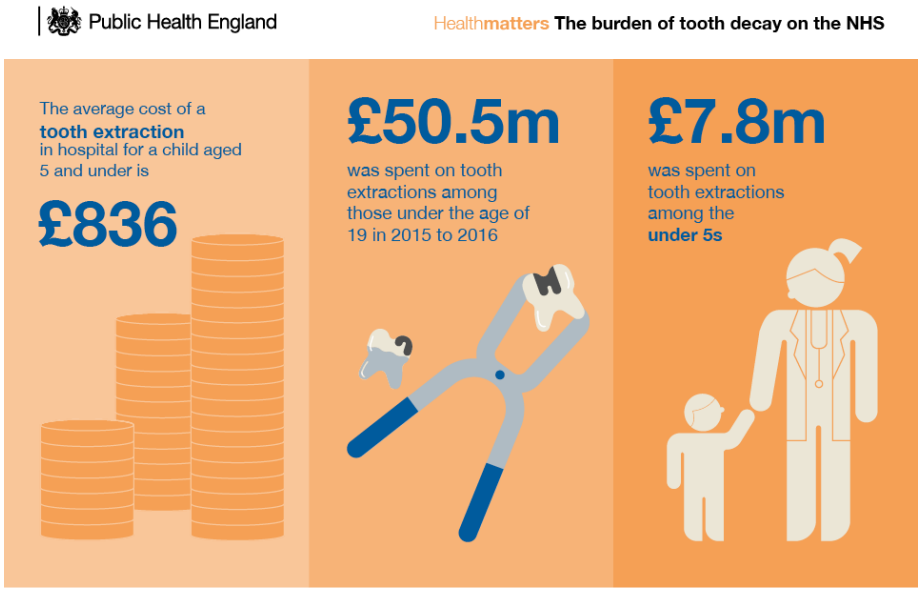
The CATFISH project has come about following the resumption of fluoridation in Cumbria after a break of several years. Fluoridation in West Cumbria was suspended temporarily to allow essential maintenance to be carried out at two water treatment works at Cornhow and Ennerdale. Following maintenance, fluoridation resumed at both sites in the autumn of 2013. This will allow researchers to carry out high quality research comparing rates of decay among children starting primary school this year who are drinking fluoridated water with children of the same age in non-fluoridated parts of Cumbria. Their teeth will be checked in the first year of primary school (Reception class) and again at seven and 11 years.

Since 2013 local authorities have had the responsibility, through the Water Industry Act 1991[99], to propose and consult on new fluoridation schemes and variations to or termination of existing schemes. Local authorities have, however, reported difficulties with the current process, with the added complication being that boundaries of water distribution systems extend into more than one local authority area and is some cases, involve multiple authorities. This increases the complexities of scheme governance. However, the water fluoridation clauses in the 'Health and Care Bill: water fluoridation' [100] published in March 2022 seek to mitigate these challenges by giving the Secretary of State the power to directly introduce, vary or terminate water fluoridation schemes. The revenue costs of the schemes would also transfer to the Secretary of State, allowing central government to directly take responsibility for fluoridation schemes.

3.4 Cost effectiveness of oral health interventions

Despite being largely preventable, dental disease places significant costs on the NHS (see Figure 9). In 2014, all age NHS dental treatment costs were £3.4 billion with an estimated additional £2.3 billion in the private sector [101]. There are several cost-effective interventions to prevent tooth decay that can save money in the long term and reduce the number of children needing time off school for treatment.

Figure 15: The burden of tooth decay on the NHS



A rapid review [102] commissioned by Public Health England (PHE) and published in 2017 describes the cost effectiveness of interventions to improve oral health in children aged 0-5 years, including supervised tooth brushing, fluoride varnish, water fluoridation, provision of toothbrushes and toothpaste and home visits. The review found strong evidence of effectiveness of targeted community fluoride varnish programmes. It further estimates that there is a £2.29 saving for every £1 spent on fluoride varnishing and £3.06 saving for every £1 spent on targeted tooth brushing after five years. After 5 years, targeted supervised tooth brushing can result in an extra 2,666 school days gained per 5,000 children, while targeted community fluoride varnish programmes can result in an extra 3,049 school days gained per 5,000 children.

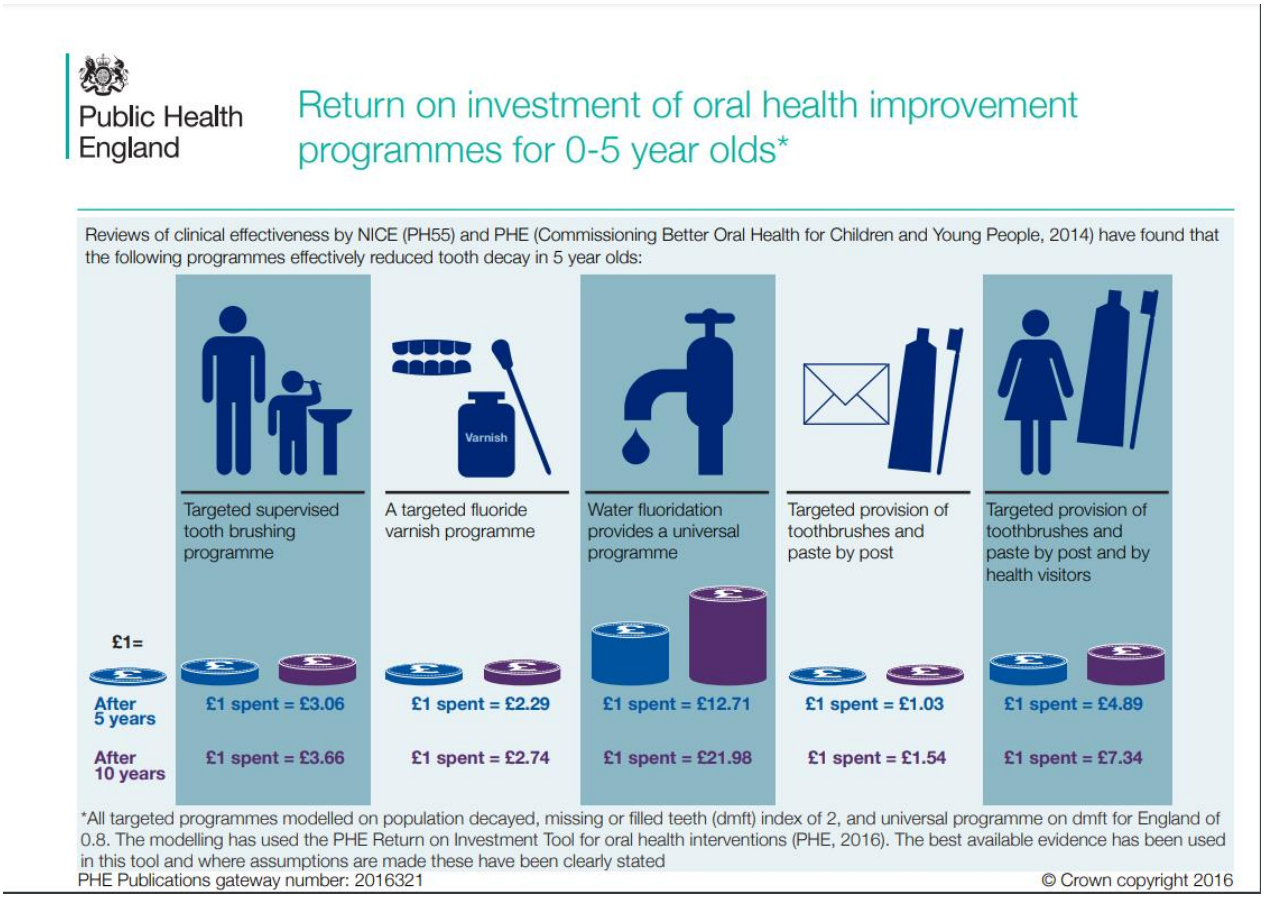
In addition to the above rapid review, PHE also published a Return on Investment (ROI) of oral health interventions tool which focuses on programmes aimed at improving oral health of young children and reducing tooth decay levels in 5-year-olds. The programmes included in the tool are:

- Supervised toothbrushing in early years settings
- Fluoride varnish schemes in early years settings

- Water fluoridation
- Provision of toothbrushes and paste by post
- Provision of toothbrushes and paste by health visitors and post
- Multi-component community promotion

The tool shows that the biggest ROI is with water fluoridation and with the targeted provision of toothbrushes and paste by post and Health Visitors.

Figure 16: PHE Return on Investment of oral health improvement programmes for 0–5-year-olds



CHAPTER 4: Oral Health Service Provision in Camden and Islington

4.1 Structure of dental services in England

In England, NHS dental services fall into 3 main categories:

4.1.1 General Dental Services (GDS)

These services are directly accessed by the public such as high-street dental services.

The NHS [103] provides any clinically necessary treatment needed to keep one's mouth, teeth and gums healthy and free of pain. NHS England directly commissions all dental services for the NHS.

Decisions about which treatment is appropriate will be based on a clinical assessment and clinical judgement; dentists must make clear which treatments can be provided on the NHS and which can only be provided on a private basis, and the costs associated for each. Dentistry is one of the few NHS services where one has to pay a contribution towards the cost of one's care and the amount to spend will depend on what treatment is needed. There are 3 NHS charge bands:

Band 1: £23.80

Covers an examination, diagnosis and advice. If necessary, it also includes X-rays, a scale and polish, and planning for further treatment.

Band 2: £65.20

Covers all treatment included in Band 1, plus additional treatment, such as fillings, root canal treatment and removing teeth (extractions).

Band 3: £282.80

Covers all treatment included in Bands 1 and 2, plus more complex procedures, such as crowns, dentures and bridges.

There are however some categories of people who are exempt from payment including:

- Children under 18, (or under 19 and in full-time education)
- pregnant or have had a baby in the last 12 months
- being treated in an NHS hospital and your treatment is carried out by the hospital dentist (but you may have to pay for any dentures or bridges)
- receiving low-income benefits, or you're under 20 and a dependant of someone receiving low-income benefits

In response to the growing paediatric waiting times across London, which were further compounded by the COVID-19 pandemic, NHS England working with North Thames and South Thames paediatric Networks commissioned 'Project Tooth Fairy'. The project aims to combat waiting times by providing additional paediatric dental capacity that will be available

to Trusts across London and the surrounding local areas. This additional capacity is for non-complex dental paediatric day-case procedures only, aged between 2-16 years old and with no co-morbidities.

4.1.2 Community Dental Services (CDS)

Sometimes known as salaried services, these provide care to patients, who may have difficulty accessing high street dental services due to their social, medical or dental need. Specialised dental services are commonly provided by community dental services. These are available in a variety of places including hospitals, specialist health centres and mobile clinics, as well as home visits or visits in nursing and care homes. People who may need community dental services include children with extensive untreated tooth decay who are particularly anxious or uncooperative, children with physical or learning disabilities or medical conditions, children referred for specific treatment children who are "looked after" or on the "at risk register", adults with complex needs, adults with medical conditions and housebound and homeless people. Often, an initial referral from a medical or dental professional is required to access the community dental service and the admission criteria and services offered vary locally. NHS dental patient charges apply to these services too.

4.1.3 Hospital Dental Services (HDS)

These include specialist dental services such as complex orthodontics (braces), oral surgery (such as difficult extractions) and maxillofacial surgery (such as cleft palate surgery). To access these services requires a referral from a medical or dental professional. These services are commissioned by NHS England.

4.2 Dental services in Camden and Islington

The tables (2,3,4,5) below show the costs for dental services in dental practices in Islington and Camden and are based on the costs for treatment in each banding category. It is worth noting that data on hospital dental services or services provided privately are not included as some adults will pay for treatment privately hence this might not show in the data. The highest of costs for children and paying adults in both boroughs are due to treatments in Band 2. However, treatment costs for non-paying adults in both boroughs are highest in Band 3, more so in Camden than Islington. In addition, the high costs for Band 3 treatment among non-paying adults could be explained by the fact that the most vulnerable adults may require more extensive dental treatments like dentures, crowns etc because of their lifestyle or age. Again, the number of treatments and hence costs for non-paying adults are higher in Camden. A recent (June 2022) NCL inclusion health needs assessment (see Annex) showed that Camden has a higher number of people experiencing homelessness (particularly rough sleepers) and this could possibly and/or partly explain the higher costs in Band 3. These higher costs emphasise the need to put more thorough focus on prevention of tooth decay and other oral health problems, to limit the number of people needing treatment in Bands 2 and 3

Table 2: Dental treatment costs for children and paying adults from dental practices in Islington, March 2021-March 2022

Bands	Children: number of treatments	Children: costs	Adults: number of treatments	Adults: costs	Total Costs
Band 1 (£23.80)	14,067	£ 334,795	16,720	£ 397,936	£ 732,731
Band 2 (65.20)	7,173	£ 467,680	9,260	£ 603,752	£ 1,071,432
Band 3 *£282.80	266	£ 75,224	1841	£ 520,635	£ 595,859
Total costs for children and paying adults					**£ 2,400,022**

Source: NHS Dental statistics for England Dashboard,2021

Table 3: Dental treatment costs for non-paying adults from dental practices in Islington, March 2021-March 2022

Bands	Number of treatments	Costs
Band 1 (£23.80)	5,821	£ 138,540
Band 2 (65.20)	8,850	£ 577,020
Band 3 *£282.80	6,150	£ 1,739,220
Total costs for non-paying adults		**£ 2,454,780**

Source: NHS Dental statistics for England Dashboard,2021

Table 4: Dental treatment costs for children and paying adults from dental practices in Camden, March 2021-March 2022

Bands	Children		Adults		Total Costs
	Number of treatments	costs	Number of treatments	Costs	
Band 1 (£23.80)	16,561	£394,152	22,266	£529,931	£924,083
Band 2 (65.20)	9591	£625,333	9465	£617,118	£1,242,451
Band 3 *£282.80	403	£113,968	2653	£750,268	£864,236
Total costs for children and paying adults					**£3,030,770**

Source: NHS Dental statistics for England Dashboard,2021

Table 5: Dental treatment costs for non-paying adults from dental practices in Camden, March 2021-March 2022

Bands	Number of treatments	Costs
Band 1 (£23.80)	5903	£140,491
Band 2 (65.20)	8229	£536,531
Band 3 *£282.80	7675	£2,170,490
Total costs for non-paying adults		**£2,847,512**

Source: NHS Dental statistics for England Dashboard,2021

Table 6 below shows the number of child patients seen in dental practices in both boroughs per last quarter of the respective years. The percentage of patients seen steeply declined in

2020 possibly as a result of the disruption in dental services due to the COVID-19 pandemic and subsequent lockdowns. However, the percentage of patients seen increased again in 2021 with resumption of dental services although it was still below the pre-pandemic levels, and this is consistent with the situation nationally. **Table 7** shows that the proportion of children who've received general dental treatment in 2022/23 was generally lower in Camden than Islington. Again, this could be due to the number of children treated by Private dentists in Camden as these figures only include treatments by NHS dentists.

Table 6: Child patients (0-5 years) seen in dental practices, by Local Authority

Year	England	Camden	Islington
Dec 2021	**24.9%**	**16.8%**	**17.3%**
Dec 2020	**17.3%**	**11.9%**	**13.8%**
Dec 2019	**39.9%**	**28.3%**	**35%**

Source: NHS Dental statistics for England Dashboard,2021

Table 7: Proportion of child population (0-17 years) who received NHS general dental treatment (excluding orthodontic) during 2022/23, split by geographic area.

Category	Islington	Camden	London
Proportion of children seen by an NHS general dentist	**41%**	**28.3%**	**45%**
Proportion of children who received Band 1 treatment	**29.9%**	**20.1%**	**31.5%**
Proportion of children who received a Band 2 or Band 3 treatment	**14.8%**	**11.2%**	**17.9%**
Proportion of children who received an urgent treatment	**3.2%**	**2.7%**	**3.7%**
Proportion of children who received Fluoride varnish	**20.9%**	**16.1%**	**25.%**

Source: NHSBSA, Child Health Insights report ,2022-23

4.3 Current model of oral health service provision on Camden and Islington

Camden Council commissions Whittington Hospital NHS Trust to deliver an Oral Health Promotion (OHP) service in Camden and Islington. The team from Whittington Hospital NHS trust works closely together with teams across the council to contribute towards improving oral health outcomes. The target groups that the service works with are: -

a) Children living in communities with high levels of untreated disease (as indicated by higher rates of decayed missing and filled teeth),
b) Older people living in residential and care homes and those living independently,
c) Adults and children with learning disabilities and other special care needs,
d) Adults with alcohol and substance misuse problems,
e) People with serious mental illness,
f) Homeless people.

Much of the work of the OHP service involves raising awareness of the importance of prevention and the serious implications of poor dental health, focussing on the importance of good oral health habits and the importance of accessing dental services, including for preventative care. Programmes currently delivered under the current contract include:

- Brushing for Life (training and distribution of toothbrush/paste packs)
- Teeth4Life (supervised tooth brushing)
- Fluoride Varnish programme
- Adults with special needs
- Older people in nursing and residential homes

The provider delivers the Service in a variety of locations, including but not limited to:

a) Schools

b) Children centres and nurseries

c) Sheltered Housing

d) Residential and Care homes

e) Adult day centres

4.4 Comparison of oral health promotion across London

A benchmarking exercise (see attached) was undertaken in 2022 to compare different oral health promotion contracts in London to Camden and Islington. Initial findings from the benchmarking appear to show that Camden and Islington have a higher value contract than other Local Authorities. Local Authorities with comparable rates of poor oral health were likely to have commissioned based on funding available and not on need. The benchmarking has not shown that an alternative oral health programme of a lower value could produce greater outcomes. Based on the above evidence from the benchmarking exercise and needs assessment, modifications were made to the service specification. The mobilisation of the revised model enabled officers to test out its viability for any future recommissioning of the service beyond May 2023.

In the current operating model, the children's oral health promotion staff have been more effectively integrated within existing Children and Young Peoples services in both boroughs.

Within the current contact, Council Officers have worked closely with the Provider to refresh the membership of the steering group which now involves key stakeholders who can influence and inform the targeting strategy.

The Benchmarking has not yet sufficiently provided us with any examples of older people's and/or vulnerable adults oral health promotion to feasibly compare costs or to consider best practice.

4.5 Oral health stakeholder engagement in Camden and Islington

Public Health undertook some stakeholder engagement across children and adult social care. The aim of this exercise was to obtain feedback on what has worked well (or not) with regards the current oral health service provision, and to suggest recommendations going forward.

4.5.1 Early Years

Council Officers in early years settings across both boroughs provided feedback on the current oral health service which showed that parents appear to be happy to engage in the programme.

> "*Parents on home visits seem eager for their child to engage in the programme. Parents seem happy that this is being encouraged at nursery as this can improve willingness to brush their child's teeth at home."*

Staff in the various settings valued an oral health professional coming in to deliver training and toothbrushing demonstrations, not only to staff, but also to parents and children. In particular, they appreciated the aspect of engaging parents in the conversation of their children's dental care.

Parents took part in focus group discussions about oral health promotion in Camden in May 2022 – findings showed that they had a good knowledge of what consists of good or poor oral health and ways to improve oral health such as reducing sugar intake, brushing teeth twice a day and flossing for older children.

However, there is frustration around the difficulties in accessing dentists including lack of and/or very long waiting times for dental appointments. There were also specific concerns around access to dental services for children with Special Education Needs (SEN) and parents felt that local dentists should receive training to deliver SEN-friendly appointments.

Furthermore, parents are generally aware of the local oral health promotion activities and specifically thought that Supervised Toothbrushing was a great programme and were particularly happy that nurseries and children's centres engaged in this. However, they felt there was a gap in primary and secondary school oral health promotion.

Discussions with parents also revealed that there is still some lack of awareness about the FV programme in schools, and there is some hesitancy around participation due to misinformation about the harmful effects of fluoride varnish, as well as issues around it being haram among Muslim communities. However, parent champions are working hard to dispel this information encourage parents to consent to FV application.

Primary School Heads and other staff in charge of the Fluoride Varnish programme in the respective schools in both boroughs provided feedback on the programme in July 2022, through an online survey. There were 54 respondents and they generally all agreed that the fluoride varnish programme helps to improve the oral health of children. Over 45% of the respondents were also happy with the communication that they received from the Oral Health Promotion team. Whereas majority didn't feel that the school routine was disrupted by the programme, about 20% felt some disruption was caused. Suggested ways to improve fluoride varnish consent from parents included: translation of consent forms, use of digital

consent forms as well providing parents with information (through coffee mornings, workshops, newsletter) prior to application dates of fluoride varnish.

4.5.2 Vulnerable Adults

Similarly, in 2020 a series of discussions were held with Adult Social Care Commissioners and stakeholders about the current service provision and how best the oral health outcomes for various groups (including elderly, alcohol/substance misuse; homeless; mental health, learning disability, dementia, BAME) could be improved.

Feedback showed that in addition to access to dental care and treatment there was a need for more oral health promotion generally in particular among rough sleepers and those living in hostels. It was recommended that the contract should have some flexibility to enable oral health promoters to work with outreach workers on the streets.

It is also a general feeling across the board that Public Health are best suited to coordinate this aspect or oral health promotion and there is a need to think creatively on how best to link with various services that are already doing work with these groups of people.

Training of staff working with these groups was also considered to be a valuable aspect of oral health promotion and this is something they felt should continue to be provided.

CHAPTER 5: Conclusions and Recommendations

5.1 Conclusions

- Oral health is a key marker of general health of a community, and while tooth decay and other oral diseases are preventable, they remain a serious public health problem worldwide.
- Although oral health is improving in England, the oral health survey of 5-year-olds in 2017 showed that just under a quarter (23.3%) have tooth decay. The latest 2019 survey shows that the levels of tooth decay in 5-year-olds hasn't significantly changed (23.4%).
- The data trends confirm that the oral health of young children in Camden in particular, has significantly improved. This is contrary to Islington and national trends. However, there is a possibility that the COVID-19 pandemic will have had an effect on these findings in the last couple of years, and the findings from the ongoing 2021/22 oral health survey for 5-year-olds, when published, might shed more light on this.
- The COVID-19 pandemic exacerbated already existing inequalities and had a detrimental impact on the oral health of both children and adults with the closure of dental practices and interruption of the oral health promotion services that were delivered in schools and care homes. Moreover, upon resumption of dental services, there are clear inequalities among children and older adults, with more deprived groups having lower uptake of dental service use than more affluent groups.
- Access to dentists has declined in both Camden and Islington, exacerbated by the COVID-19 pandemic. Access in both boroughs has improved in the last year but is still below pre-COVID-19 levels.
- Costs of dental treatment for children and paying adults are highest in Bands 2 and 3 in both boroughs, and the costs for non-paying adults are higher in Camden than Islington, possible due to a higher population of vulnerable adults.
- There is strong evidence of the role of fluoride varnish in the prevention of tooth decay and the government recommends that programmes should particularly be considered for nurseries and primary schools in areas where children are at high risk of poor oral health.
- Oral health promotion interventions combined with supervised tooth brushing with fluoridated toothpaste are generally effective in reducing caries in children's and babies' permanent teeth, especially in a population experiencing high levels of dental disease.
- The research into interventions to improve oral health in children aged 0-5 years, shows that there is strong evidence of cost effectiveness of targeted community fluoride varnish programmes. The PHE Return on Investment (ROI) tool concluded that the biggest ROI is with water fluoridation and with the targeted provision of

toothbrushes and paste by post and Health Visitors, followed by targeted supervised toothbrushing and Fluoride Varnish programmes.

- There is strong scientific evidence that water fluoridation is an effective universal public health intervention for reducing the prevalence of tooth decay and improving dental health equality across the UK, and should be seen as a complementary strategy, not a substitute for other effective methods of increasing fluoride use.

- There is a general appreciation of the oral health promotion service among parents and stakeholders working across both children and adult settings who feel it's a valuable service that should be continued, under the guidance of Public Health.

5.2 Recommendations

- There is a need to increase the reach of oral health improvement programmes that have evidence of effectiveness in reducing oral health inequalities, such as community water fluoridation and daily, supervised tooth brushing in early years settings, targeted distribution of toothbrush and paste packs, fluoride varnish application and community water fluoridation:

    - supervised tooth brushing programmes should continue to be implemented as effective interventions for prevention of tooth decay, especially among children in areas of high deprivation.
    - Community water fluoridation is an oral health intervention that has been shown to have the biggest return on investment. Consideration should be made on how The Association of Directors of Public Health (ADPH) could lobby central government to introduce water fluoridation programme across London.

    - There is a need to review the Fluoride varnish aspect of the oral health contract, especially since fluoride varnish application is available free of charge (on the NHS) to children through local community dentists. In order to address this, it will be necessary to work with local Dental Committees and Integrated Care Boards to consider the wider oral health inequalities that exist within North Central London.

- Camden and Islington oral health commissioners should work closely with other NCL (oral health) commissioners and ICSs to develop an action plan to address oral health inequalities that have widened because of the COVID-19 pandemic through more defined targeting of vulnerable groups and ensuring that commissioning pathways prioritise equity of access to oral health services.

- Further to this, oral health promotion services should be better targeted to specific populations and/communities that have consistently shown poor outcomes, and further investigation should be carried out to ascertain the reasons for poor oral health in these groups.

- The oral health promotion provider and public health commissioners should work together, and in collaboration with the Family Hubs to ensure that the oral health improvement requirement is being met and provide necessary support where required.
- The oral health promotion and Public Health team should advocate for improved access to Dentists (post pandemic) for vulnerable groups.
- The oral health promotion and Public Health team should continue to engage with services and/or settings in both Children and Adult Social Care to gain a better understanding of training needs, and tailor training accordingly.
- There is an ongoing need to increase the visibility of the oral health promotion service among various services and/or settings.
- Encourage participation in the oral health surveys to monitor the oral health status of the population.

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- Contributor: Manasi Hansoge, Assistant Public Health Strategist, Camden Council.