Health and Wellbeing Scrutiny Committee
Policy Review 2019 – 2020

Oral Health in Sunderland

Draft Final Report

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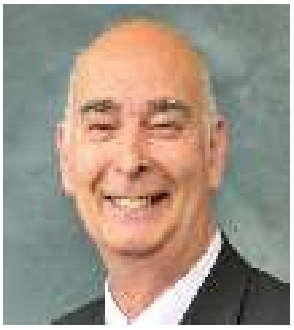
1 Foreword from the Chair of the Health and Wellbeing Scrutiny Committee

The mouth is a portal into the rest of the body.
Dr. Donald Ratcliffe Chairman of the Department of Dental Medicine at Staten Island University Hospital in New York



This review has been an extremely important piece of work not only for the committee and the council but also for the people of Sunderland. The importance of good oral health cannot be underestimated, a healthy mouth should be very important to everyone.

We often take our teeth and oral health for granted, but they play a very important role in our lives. Teeth help us chew and digest food, they help us to talk and speak clearly and they also give our face its shape. Good oral health provides greater confidence for people as well as influencing our social lives, careers and our relationships.

Maintaining good oral hygiene is also important in a person's overall health. Oral health research has linked gum disease to heart disease, premature birth and even knee arthritis. So oral health is extremely important not only to looking good but to feeling good too.

The Health and Wellbeing Scrutiny Committee has taken evidence from wide ranging sources and on behalf of the Committee I would like to express our gratitude to everyone for their time and cooperation during our evidence gathering. It is through gathering a variety of viewpoints and opinions from experts, key stakeholders and interested parties that the Committee look to get a balanced view and form recommendations.

Finally, I would also like to thank all the Members of the Committee for their support and commitment to the Health and Wellbeing Scrutiny Committee and this review.

Councillor Darryl Dixon
Chair of the Health and Wellbeing Scrutiny Committee

2 Introduction

2.1 The Annual Scrutiny Workshop provided a variety of scrutiny issues for potential review during the coming year. The Health and Wellbeing Scrutiny Committee agreed to undertake a review around oral health in Sunderland.

3 Aim of the Review

3.1 To provide a better understanding of the state of oral health in Sunderland and investigate the arguments for and against a number of interventions to inform Sunderland's strategy to improve the oral health of the local population.

4 Terms of Reference

4.1 The title of the review was agreed as 'Oral Health in Sunderland' and its terms of reference were agreed as:

(a) To determine the oral health of the population of Sunderland; understanding the significant factors contributing to oral health issues and identifying the key risk groups within the city;

(b) To determine the effectiveness of a number of interventions including adding fluoride to the water supply as a means of improving dental health, reducing dental decay in children and addressing dental health inequalities;

(c) To explore the ethical issues associated with oral health interventions;

(d) To identify the benefits, risks and wider health concerns in respect of adding fluoride to the water supply;

(e) To understand the current legal position, procedural process and financial implications for making changes to the water supply;

(f) To provide an agreed report that can be discussed by Cabinet.

5 Membership of the Committee

5.1 The membership of the Health and Wellbeing Scrutiny Committee during the current Municipal Year is:

Cllrs Darryl Dixon (Chair of the Health and Wellbeing Scrutiny Committee), Michael Butler, Jack Cunningham, Ronny Davison, Michael Essl, Juliana Heron, Shirley Leadbitter, Neil MacKnight, Pam Mann, Barbara McClennan, Dominic McDonough and Stephen O'Brien.

6 Methods of Investigation

6.1 The approach to this work included a range of research methods namely:

(a) Desktop Research;
(b) Use of secondary research e.g. surveys, questionnaires;

(c) Evidence presented by key stakeholders;
(d) Evidence from members of the public at meetings or focus groups; and,
(e) Site Visits.

6.2 Throughout the course of the review process the committee gathered evidence from a number of key witnesses including:

(a) Kathryn Bailey – Public Health Specialist;
(b) Lynne Bennett - Governance Law Specialist – Sunderland City Council;
(c) Lisa Brownbridge - Dental Lead Sunderland 0-19 Service;
(d) Rachael Fitzsimmons – Health Education England – North East;
(e) Pauline Fletcher – Local Lead NHS Commissioner for dental services;
(f) Dave Forrest – Fight Against Fluoridation;
(g) Linda Forrest – Fight Against Fluoridation;
(h) Dr Marie Holland – Clinical Director of the salaried dental service;
(i) Colwyn Jones – NHS Health Scotland Dental Public Health Consultant
(j) Diane Jones - Service Manager Sunderland 0-19 Service;
(k) Dr Peter Knops – Chair of Sunderland Local Dental Committee;
(l) David Landes – Public Health England Consultant;
(m) Professor Emeritus Mike Lennon OBE – British Fluoridation Society;
(n) Dr John Morris – Senior Lecturer in dental public health;
(o) Brian Plemper – Senior Network Analyst – Northumbrian Water;
(p) Joanne Purvis - Oral Health Promotion Lead/Manager South Tyneside and Sunderland NHS FT;
(q) Tom Robson – Chair of Local Dental Network;
(r) Eric Rooney – Public Health England;
(s) Malcolm Smith - Post Graduate Dental Dean Health Education England;
(t) Dr Simon Taylor – Chair of Local Dental Network;
(u) Dr Christopher Vernazza – Consultant in Paediatric Dentistry;
(v) Joy Warren – UK Freedom From Fluoride Alliance (UKFFFA);
(w) Alice Wiseman – Director of Public Health – Gateshead.

6.3 Statements in this report are based on information from a variety of published sources and from individual witnesses. No guarantees can be given as to the accuracy or completeness of such information. Views and opinions expressed by individual witnesses may or may not be representative of the views of the majority but are worthy of consideration nevertheless.

7 Findings of the Review

Findings relate to the main themes raised during the committee's investigations and evidence gathering.

7.1 What is Oral Health?

7.1.1 Oral health is a key indicator of overall health, wellbeing and quality of life. The World Health Organisation defines oral health as "a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing.[1]"

7.1.2 What does this mean in practice, the illustration below highlights the differences between healthy and unhealthy mouths.

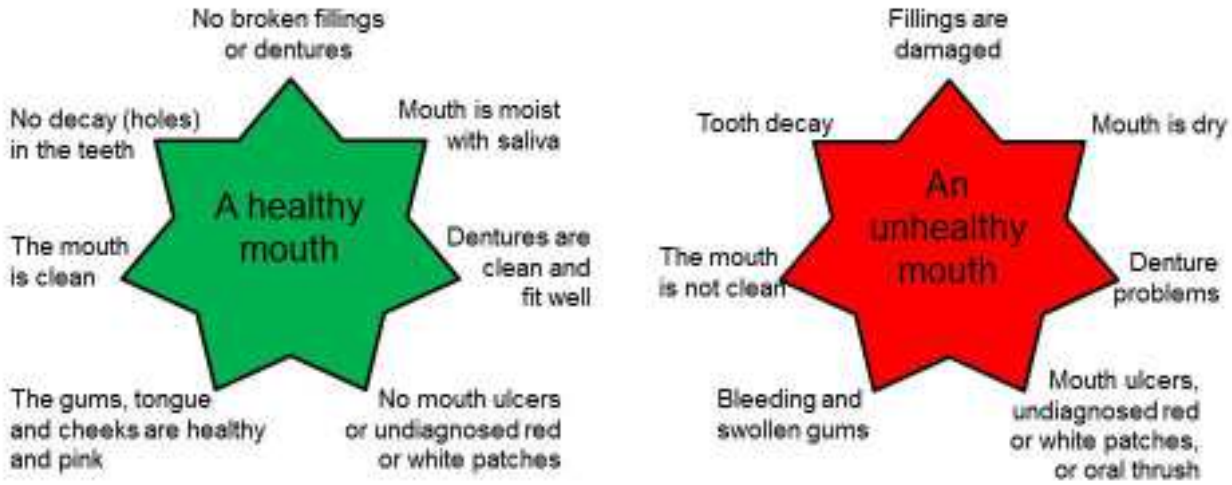


Diagram 1: Differences in healthy and unhealthy mouths

7.1.3 Oral health is inextricably linked to general health and well-being at every stage of life. A healthy mouth enables not only nutrition of the physical body, but also enhances social interaction and promotes self-esteem and well-being. The mouth can act as an early indicator for the rest of the body, providing signals of general health disorders. For example, mouth lesions may be the first signs of HIV infection, pale and bleeding gums can be an indicator for blood disorders, bone loss in the lower jaw can be an early indicator of skeletal osteoporosis, and changes in tooth appearance can indicate bulimia or anorexia. The presence of many compounds (e.g., alcohol, nicotine, opiates, drugs, hormones, environmental toxins, antibodies) in the body can also be detected in the saliva.

7.1.4 Oral conditions have an impact on overall health and disease. Bacteria from the mouth can cause infection in other parts of the body. It is important to recognise that oral health and general health are interlinked, particularly when determining appropriate oral health care programmes and strategies at both individual and community care levels. That the mouth and body are integral to each other

[1] World Health Organisation. World Health Report 2003.

underscores the importance of the integration of oral health into holistic general health policies and recognising that we need to start putting the mouth back in the body.

7.1.5 Members heard from the chair of the local dental network that oral health was linked to many factors including self-worth, nutrition and also direct links to lung and cardiovascular disease. Members noted that poor oral health frequently equated to poor general health.

7.2 The Main Oral Diseases and Conditions

Dry Mouth (Xerostomia)

7.2.1 A dry mouth is caused by a lack of saliva in the mouth. Saliva is important in helping with swallowing and talking as well as helping to repair tooth enamel and removing food debris from the mouth. There are a range of causes for a dry mouth including mouth breathing, dehydration and some types of medication. A dry mouth can range in severity and can lead to plaque build up and result in tooth decay and gum disease.

Tooth Decay (Dental Caries)

7.2.2 Tooth decay is a process of destruction of tooth tissue by acid produced by bacteria living in the mouth reacting with sugars in the diet. Tooth decay may not cause any pain, but if you have dental caries, you might have toothache, tooth sensitivity, grey, brown or black spots appearing on your teeth, bad breath and an unpleasant taste in the mouth. Tooth decay is very preventable through control of sugar in the diet, good oral hygiene and the use of fluoride, which helps to prevent, control and stop decay.

Gum Disease (Periodontal Disease)

7.2.3 Gum disease is an inflammatory disease of the gums and the bones that surround the teeth. In the early stages of gum disease (gingivitis) gums are inflamed and red and can bleed when brushed. At this stage the condition is reversible through good oral hygiene. However, if left untreated, gum disease can progress to periodontitis where the inflammation destroys the ligaments and bone that support the teeth, leading to tooth loss. At this stage the condition is irreversible, but progression can be halted with treatment and improved oral hygiene.

Tooth Wear

7.2.4 Tooth wear occurs in three main ways, they are through erosion (prolonged exposure to acid), abrasion (too much pressure when brushing teeth) and attrition (grinding of teeth). The overall result is loss of tooth tissue and is becoming more common with changes in diet, habits, lifestyle and increasing age.

Oral Cancer

7.2.5 There are many differing types of oral cancer and the risk factors are typically, smoking tobacco, alcohol, chewing tobacco, genetic factors and human papillomavirus (HPV). The impact of oral cancer and its treatment can be very severe and therefore early detection is essential for increasing both survival rates and quality of life.

Mouth Ulcers

7.2.6 Mouth ulcers are sores in the mouth which appear as white or cream ovals surrounded by red inflammation, they are most common on the cheeks and lips.

Mouth ulcers are generally very sore and painful but will normally resolve themselves within a couple of weeks.

Oral Thrush

7.2.7 Oral thrush is an infection of the mouth caused by the fungus candida. Candida can be present in a healthy mouth and is usually kept in check by the body's immune system. Risk of oral thrush is increased in people who have a dry mouth, smoke, take steroids, wear dentures or have an impaired immune system.

Angular Cheilitis

7.2.8 This is a condition where one of both corners of the mouth become red, inflamed, crusted and cracked. This can lead to infection by bacteria and fungus.

Dental Fluorosis

7.2.9 Fluoride is a mineral that prevents tooth decay and occurs naturally in water at varying levels, it can also be added to water supplies with the aim of preventing tooth decay. Fluoride is also present in most toothpastes and is also available in mouth rinses, varnishes and gels. There is a risk of young children swallowing too much fluoride while permanent teeth are developing resulting in white marks developing on these teeth, known as dental fluorosis. The condition does not usually affect the function of the teeth or cause pain but may cause some concern for people in relation to how their teeth look.

Dental Trauma

7.2.10 Trauma to the teeth causes irreversible damage and can affect the function and appearance of the mouth. Trauma can be caused by falls, participation in sports and other high-risk activities, road traffic accidents or violence.

7.3 The Current State of Oral Health in Sunderland

7.3.1 The Committee has looked at the current state of oral health in Sunderland and looked at how this compares with our regional neighbours and the England averages. A useful data set is produced by Public Health England, who have undertaken intermittent surveys into the oral health of 5-year old children, through its National Dental Epidemiology Programme for England. These surveys provide information on the prevalence and severity of dental decay for local authority areas.

7.3.2 The most recent survey for which data is available was undertaken in 2017, this was undertaken as a "full census" as requested by Sunderland City Council, therefore this sample size was large enough to provide ward level data.

7.3.3 Sunderland performs extremely poorly in relation to measures of prevalence of tooth decay in 5-year olds. Results from the 2017 survey show that:

- 71.6% of 5-year olds examined were free from tooth decay; the remaining 28.4% of 5-year olds had tooth decay. Equivalent figures for England are 76.7% free from decay and 23.3% experiencing decay.

- The prevalence of tooth decay is higher than the England average and Sunderland is ranked 11 of 12 when compared with other local authorities in the North East.

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	-	-	0.78	0.77	0.79
North East region	-	-	0.75	0.72	0.78
Middlesbrough	-	-	1.16	0.97	1.34
Sunderland	-	-	0.99	0.89	1.09
Redcar and Cleveland	-	-	0.89	0.72	1.05
Darlington	-	-	0.87	0.72	1.03
County Durham	-	-	0.79	0.72	0.86
Newcastle upon Tyne	-	-	0.69	0.59	0.79
South Tyneside	-	-	0.66	0.56	0.76
Stockton-on-Tees	-	-	0.64	0.53	0.76
Northumberland	-	-	0.64	0.56	0.71
Gateshead	-	-	0.62	0.53	0.71
Hartlepool	-	-	0.57	0.44	0.69
North Tyneside	-	-	0.54	0.46	0.62

Source: Dental Public Health Epidemiology Programme for England: oral health survey of five-year-old children 2017

Table 1: Decayed, Missing or Filled Teeth (dmft) in 5-year-olds compared to regional neighbours
Source: Dental Public Health Epidemiology Programme for England. 2017

7.3.4 Sunderland also performs poorly in relation to measures of severity of tooth decay in 5-year olds. Results from the 2017 survey show that:

- The average number of teeth affected by decay (decayed, missing or filled teeth) was one compared to 0.8 across England.
- 4% of Sunderland 5-year olds had had at least one tooth extracted, compared to 2.4% across England.
- When limited to children experiencing some decay, the average number of teeth affected by decay (decayed, missing or filled teeth) was 3.5 compared to 3.4 across England.
- The Care Index shows that only 12% of decayed teeth were filled, compared with 11.8% across England. This may indicate use of restorative activity by local dentists, though it should be noted that evidence of the benefits of filling primary (milk) teeth is not clear.
- 8.3% of 5-year olds had a serious mouth infection (e.g. dental abscess) sepsis compared to 1.4% across England resulting from the dental decay process or, in some cases, from traumatic injury of the teeth.

7.3.5 The survey concludes by stating that the Sunderland local authority area has levels of decay that are higher than the average for England. It can be seen that areas with higher prevalence of tooth decay also tend to have a higher severity of decay. Both prevalence and severity of tooth decay are strongly linked to deprivation. Table 2 provides a detailed breakdown at Sunderland ward level of tooth decay in 5-year-olds.

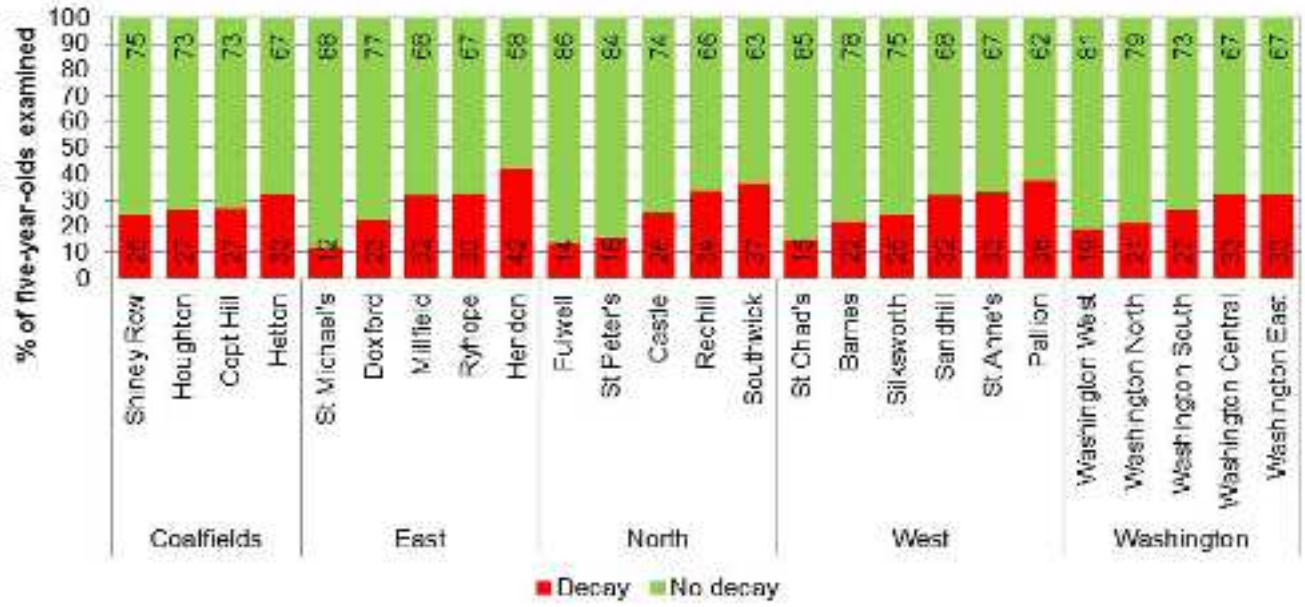


Table 2: Prevalence of tooth decay in 5-year-olds by ward

7.3.6 In one of the committee's evidence gathering sessions, Members heard from local dentists who acknowledged that they were experiencing a rise in tooth decay cases and admitted that they were struggling to combat this rise in Sunderland. It was also noted that this rise in dental caries was predominately identified in those from lower socio-economic groups. Research evidence also generally concludes that children and adults with special needs and vulnerable older adults suffer worse oral health than the general population. While local figures might not be available for these groups the development of an oral health strategy will help to gain a better perspective on the situation in Sunderland.

7.4 Dental Access in Sunderland

7.4.1 The importance of access to a dentist to ensure oral health is maintained and issues are diagnosed and treated is very important for every resident of Sunderland. In Sunderland there are a number of services in place as follows:

Oral Health Promotion – this is through the 0-19 public health contract with Harrogate and District NHS Foundation Trust and the community dental team from South Tyneside and Sunderland NHS Foundation Trust.

Primary Dental Services – there are currently 26 general dental practices across Sunderland.

Orthodontics Services – this is through one general dental practice with a further two specialist orthodontic practices.

Community Dental Services – clinics are held in Houghton, Monkwearmouth and Washington.

Domiciliary Care – this provides care through home visits or visits to nursing and care homes via general dental practices and/or community dental services.

Specialist Dentistry – some of this is provided at Sunderland Royal Hospital through the Head and Neck Service, the remainder is provided by Newcastle upon Tyne NHS Foundation Trust at Newcastle Dental Hospital.

Out of Hours, Urgent and Emergency Access to Dental Services – NHS 111 will undertake triage and direct to self-care, community pharmacy support, in-hours primary dental services, out of hours dental service or emergency department with oral and maxillofacial services as required.

7.4.2 As previously mentioned there are 26 general dental practices across Sunderland providing general dental access to adults and children. Members were informed by the Primary Care Commissioning Manager (Dental) that during the period April 2018 to March 2019 there were 539,395 Units of Dental Activity (UDAs) commissioned to support general patient access across Sunderland. It was also noted that a recent audit of practices across Sunderland (August 2019) identified that 85% had capacity to accept new patients for urgent and routine treatment.

	Adults (18+) (24 Months)	**Children (0-17) (12 Months)**
Sunderland	51.6%	53.5%
Cumbria & North East	55.9%	64.5%
North of England	56.1%	62.4%
All England	50.5%	59.4%

Table 3: Patients seen by NHS Dentist as a % of population
Source: NHS England (June 2019)

7.4.3 The Primary Care Commissioning Manager (Dental) for NHS North East explained to the Committee that NHS dental access was impacted both positively and negatively by individual or family behaviours. This can include such factors as age, gender, social class, level of income, area of residency, work patterns and dental anxiety. It was unlikely that NHS dental access would ever reach 100% as there are those who seek NHS dental care on an 'irregular' basis or not at all, and those who choose to secure private dental services. However, children aged under 18 years are entitled to free NHS dental treatment so it should be possible to improve on the position where just over half of Sunderland children access a dentist regularly.

7.4.4 Members were made aware that current NHS dental contracts do not encourage dentists to concentrate on preventative types of work, although an evolving process (National Dental Contract Reform Programme) was looking at reforming the contract framework. Recent information to the Health and Social Care Committee inquiry in to dental services also reinforced this by stating that it was important to prioritise prevention so that it is strategic and across health, social care and education platforms.

7.4.5 In discussion with local dentists the committee did note that the cost of dental treatment was recognised as a barrier to access and may prohibit any treatment required. In fact, a recent survey conducted by Sunderland City Council identified the top three barriers to regular attendance at the dentists as affordability, anxiety and the view that it was not necessary.

7.5 Water Fluoridation

A Brief History of Water Fluoridation

7.5.1 Members were informed that Fluoride is a naturally occurring mineral found in water and some foods, including tea. The amount of naturally occurring fluoride in water varies across the country. In some areas, the natural level of fluoride is close to, or even slightly greater than, the level that water fluoridation schemes aim to achieve.

7.5.2 Professor Lennon from the British Fluoridation Society explained that the protective properties of naturally fluoridated water were identified in the 1930s, leading to several large-scale studies. This included the Grand Rapids (USA) trial in 1945, a community intervention which tested the theory that artificial fluoridation would reduce incidence of dental decay. Based on the trial results, several American and Canadian towns decided to increase the fluoride content of their water supplies in the late 1940s.

7.5.3 In 1953, a group of British scientists examined the North American studies and recommended to the Ministry of Health that similar research be undertaken in the UK. These studies yielded similar results to those in North America, influencing several areas around the country to artificially fluoridate their water supplies.

7.5.4 Most of the community water fluoridation (CWF) schemes in England were introduced by local authorities. Birmingham City Council and Solihull Borough Council established the first substantive scheme in 1964 and were followed by Worcestershire County Council in 1965 and Cumberland County Council in 1968, with Northumberland, Gateshead and Newcastle making fluoridation agreements the same year and by Durham in 1970. Further schemes, predominantly in the West Midlands, were introduced by the NHS from the late 1970s onwards. At 1 January 2016, around 26 local authorities had CWF schemes covering the whole or parts of their area with some six million people in England receiving a fluoridated water supply, principally in the North-East and in the West and East Midlands[2].

Community Water Fluoridation Schemes

7.5.5 Dr John Morris, University of Birmingham, informed Members that water fluoridation schemes can reach an entire population - both children and adults. Dr Morris also identified water fluoridation as the only effective intervention to improve oral health that requires no change in behaviour by individuals, which can be difficult to achieve particularly for those in disadvantaged communities. Water fluoridation has demonstrated that it can reduce oral health inequalities and child admissions to hospital for dental extractions.

7.5.6 Gateshead has operated a CWF scheme since the 1960s this was, acknowledged by their Director of Public Health as, the most cost-effective way to reach the whole population. Also, in terms of the ethical considerations it provided the best benefits to the most disadvantaged communities.

7.5.7 The review also noted the recently published Public Health England report, “Water Fluoridation Health Monitoring for England (PHE 2018)”, which compared a range of dental and non-dental health indicators in fluoridated and non-fluoridated areas. Its conclusions concurred with those of other authoritative reviews in finding no

[2] Improving Oral Health. Public Health England. March 2016.

convincing evidence of harm to health due to fluoridation schemes and lower levels of tooth decay in fluoridated areas. These findings were consistent with the previous report published in 2014[3].

7.5.8 Members also heard evidence from local dentists that highlighted the comparisons between 5-year-old children in Sunderland and Hartlepool, with Hartlepool having lower rates of dental disease. The diagram illustrates those areas which are fully fluoridated** either naturally or by artificial schemes (Durham and Northumberland have populations that have partial artificial and/or natural coverage*) have lower levels of dental disease compared to non-fluoridated areas despite them having similar or worse socio-economic challenges in their communities. It was argued as a result of this that water fluoridation should be considered as a public health measure to address dental disease.

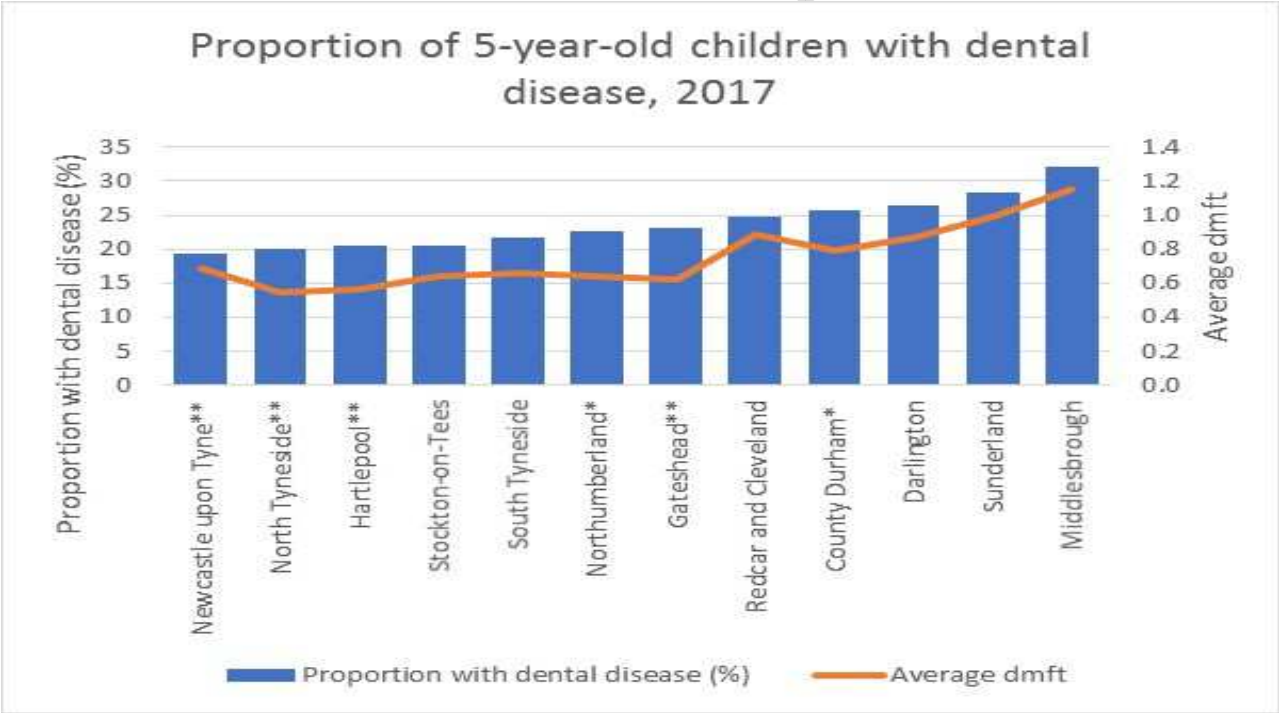


Table 4: Proportion of 5-year-old children with dental disease. 2017
Source: NHS England

7.5.9 One of the key considerations that Members have looked at is around the safety of adding fluoride to a community water supply. Water fluoridation schemes in the UK use either Disodium Hexafluorsilicate ($Na_2(SiF_6)$) or Hexafluorosilicic Acid ($(H_3O)_2SiF_6$). Several reviews of fluoridation have stated that CWF is safe. In particular Public Health England reports show no harm to health, also in the USA the CDC (Centres for Disease Control and Prevention) have published a new statement (2018) expressing the fact that there is no convincing scientific evidence to any potential adverse effects of CWF schemes.[4]

7.5.10 Oral health specialists reported that there were two known harms/unwanted effects from chronic exposure to fluoride these were skeletal fluorosis and dental

[3] Community water fluoridation and health outcomes in England: a cross-sectional study. Young N., Newton J., Morris J., Morris J., Langford J., Iloya J., Edwards D., Makhani S., Verne J. Community Dentistry and Oral Epidemiology 2015.
[4] Water fluoridation health monitoring report for England 2014 & 2018. Public Health England. Young et al. Water Fluoridation and Human Health in Australia. NHMRC (Australia).
Statement on the Evidence Supporting the Safety and Effectiveness of Community Water Fluoridation. Centers for Disease Control and Prevention (USA).

fluorosis. Both can occur irrespective of the source of the fluoride. Skeletal fluorosis is extremely rare in the UK; the very small numbers of cases are related to individuals who migrate in from areas with very high exposure to environmental fluoride (e.g., > 8 parts per million in water), suffer an industrial accident or who have extreme and unusual dietary habits. In terms of dental fluorosis there are only a very small number of very mild cases reported via the referral centre in Newcastle. It is also reported to the committee that it would be very difficult to ingest enough fluoride to cause acute toxicity, the science around fluoride safety was noted as being robust.

7.5.11 When discussing dental fluorosis, a mottling of the teeth, it was reported that the overall risks can increase from 1.6% where there is no CWF scheme to 3.5% when 1.0 mg/l or 1.0 parts per million (ppm) of fluoride is added to the water supply. The upper limit for public and private water supplies in England is 1.5mg per litre of water (1.5ppm). Interestingly the upper limit for bottled mineral water in England is 5mg/l (due to coming under food regulations rather than water regulations) and a cup of tea also contains approx. 5mg/l. By way of comparison a fluoride toothpaste contains up to 1,500 mg/l or 1,500 ppm.

7.5.12 Dr Morris also advised Members that it was almost impossible to scientifically prove that something is safe, instead scientists and policy-makers have continued to look for evidence of harm, and this has been ongoing since 1940s. The Chair of the Local Dental Network also remarked that despite millions of people drinking fluoridated water in England there had been no significant health issues reported, and that there would always remain a challenge to any CWF scheme.

7.5.13 The review also noted the resolutions passed by the World Health Assembly and reports published by the World Health Organisation which have consistently endorsed water fluoridation.

7.5.14 The Public Health England return on investment demonstrates the relative cost effectiveness of water fluoridation against other oral health improvement programmes for 0-5-year-olds. There are also international studies which highlight the cost effectiveness of CWF schemes.[5]

[5] The costs and benefits of water fluoridation in New Zealand. BMZ Oral Health. 2017
Economic Evaluation of Community Water Fluoridation: A Community Guide Systematic Review. 2018

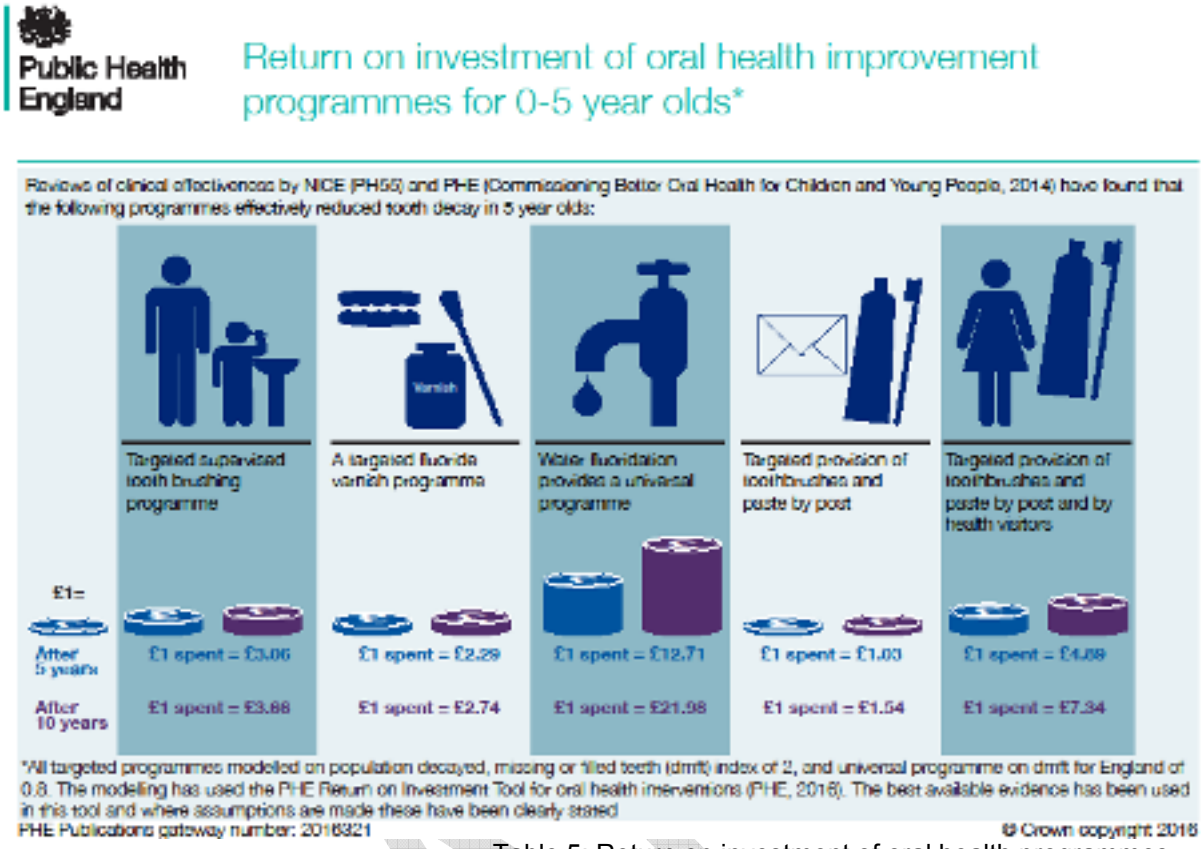


Table 5: Return on investment of oral health programmes
Source: Public Health England

7.5.15 While the role of decision-making rests with local authorities and their responsibilities are clearly defined in regulations and supporting documents[6] the recently published green paper on prevention[7] discusses the removal of funding barriers for CWF Schemes. This may indicate the Government's desire to encourage more local authorities to develop proposals for CWF schemes. Also given that the return on investment heavily benefits the NHS it was rational that the NHS and/or central Government should share accountability for any recurrent costs associated with a CWF Scheme.

7.5.16 During the review, Members had the opportunity to visit a water treatment plant that provided fluoridated water and the regional control centre of our water company to learn about the water distribution system for Sunderland and to see at first hand the layers of monitoring, control and intervention ensure the safe, effective and efficient delivery of water to households, businesses and organisations across the City.

Opposition to Community Water Fluoridation Schemes

7.5.17 Members also recognised that both positive and negative arguments existed for water fluoridation and that to get a balanced view any negative arguments would need to be considered too. Members invited representatives of the UK Freedom From Fluoride Alliance (UKFFFA) to attend a meeting and provide evidence for the committee.

[6] Improving Oral Health: a community water fluoridation toolkit for local authorities. Public Health England. 2016
[7] Advancing our health: prevention in the 2020s. Department of Health and Social Care. 2019

7.5.18 UKFFFA raised questions over Public Health England's costs and savings associated with water fluoridation schemes. It was suggested that Public Health England (PHE) should have used similar criteria across all schemes to better reflect the return on investment of the highlighted oral health improvement programmes. Members were also informed that in any water scheme ongoing maintenance costs would be the responsibility of the local authorities involved. It was stated that PHE would pay the capital costs initially but may also seek to recover these costs from local authorities.

7.5.19 Members were informed that there had been a tremendous reduction in dental decay over the past 40 years, whether water has been fluoridated or not. It was stated that dental decay rates were universally low. It was also reported, to the committee, that both the York and Cochrane reports highlighted a reduction in dental caries levels of 15% through water fluoridation, which was just under half of that identified by the PHE tool.

7.5.20 One of the main concerns raised by UKFFFA was that adding fluoride to the local water supply removes freedom of choice for an entire population affected. If added to the water supply, it is impossible to control the amount being used by individuals. The main people at risk from fluoridation are the very young, the very old, those with kidney problems, those who drink a lot of water, such as manual workers, nursing mothers, take part in a lot of sport, or who are exposed to fluoride at work or in the environment.

7.5.21 UKFFFA representatives argued that CWF Schemes are indiscriminate, non-consensual, take no account of a person's health and make no impact on a person's behaviour.

7.5.22 It was reported to the Committee that any dental health benefits from fluoride were derived from the topical application to the exterior surface of the teeth. The UKFFFA argued that no dental benefit was gained from swallowing fluoride but the risks of exposure to adverse health effects were increased. It was noted that there was nothing positive about swallowing fluoride and the view was expressed that fluoridation was not the solution as there were too many side effects to its use, including dental fluorosis and an effect on intelligence.

7.5.23 Representatives from the UKFFFA, acknowledged the importance of improving dental health education to tackle the causes of tooth decay and not the symptoms. The various supervised tooth brushing schemes across the country were highlighted as a positive way forward.

7.5.24 UKFFFA raised concerns on the effects of exposure to fluoridated water and the link to a decrease in intelligence levels. It was also argued that it had led to increased cases of hypothyroidisms in fluoridated areas and in particular in the West Midlands.

7.5.25 UKFFFA also claimed that water fluoridation, as practised by the majority of fluoridating water treatment works in England was not compatible with primary UK Law. It was also reported that water companies were indemnified against any issues as a result of a CWF Scheme.

7.5.26 UKFFFA summed up their argument by stating that water fluoridation was:

- Inefficient and costly as a treatment for patients;
- Unnecessary as there were better alternatives;
- Set a precedent of using the public water supply to deliver medication to individuals;
- Breached the fundamental rights of an individual;
- Widely opposed;
- Legality is questionable;
- Uncertainty over the benefits;
- Exposes populations to inadequately safeguarded harmful risks[8].

Ethical and environmental issues associated with water fluoridation

7.5.27 There are ethical and environmental issues associated with instigating a CWF scheme. In terms of environmental issues questions have been raised across Europe on the ecological effects of artificial water fluoridation levels on water-dwelling life. Research, from the Scientific Committee on Health and Environmental Risks, indicates that adding fluoride to drinking water does not result in unacceptable risk to water-dwelling life[9].

7.5.28 The Nuffield Council on Bioethics have conducted an extensive case study around the ethics of water fluoridation[10]. Members of the Committee have considered their findings which suggested that the evidence on both the benefits and dangers of water fluoridation were weak and difficult to truly evaluate.

7.5.29 Professor Lennon from the British Fluoridation Society also concurred with the Nuffield Council in that the decision to proceed, or not, with a CWF scheme requires validation. Local decision-making procedures allow for the opportunity to consider the views of the local population, the specific health needs and possible alternative courses of action.

7.5.30 Members also noted from the Nuffield Council report that it would be important to ensure that any interaction with the public needs to be extremely clear and accurate as much of the information is based around scientific knowledge which is complex and difficult to evaluate.

Legislative framework

7.5.31 Members took advice on the legal considerations from the council's Governance Law Specialist. It was noted that there were a number of key issues in terms of the legal aspects and decision-making responsibilities in relation to the introduction of water fluoridation schemes in England. Decisions about whether to introduce such schemes have always been made at a local level in the UK either by local authorities or by health authorities.

7.5.32 From 2013, the decision-making responsibility has rested with local authorities. An authority wishing to introduce a new CWF scheme or to vary/extend an existing scheme makes an initial proposal to the Secretary of State and a decision is made as to whether the proposal is 'operable and efficient'. Then the proposer would

[8] Presentation against a proposed water fluoridation programme. UK Freedom From Fluoride Alliance. 2019
[9] Critical review of any new evidence on the hazard profile, health effects, and human exposure to fluoride and the fluoridating agents of drinking water. SCHER (Scientific Committee on Health and Environmental Risks) of the European Commission. 2011
[10] Nuffield Council on Bioethics. Public Health: Ethical Issues. 2007

notify any other local authorities affected by the proposal and they would have three months to respond.

7.5.33 If there is no consensus, weighted voting would apply (calculated on the basis of relative size of population affected by the proposal) with a 67% majority required to proceed further. If the decision was for the proposal to proceed, a joint committee would be established to consider the proposal and a three-month public consultation would be undertaken.

7.5.34 Following public consultation, the decision to proceed would, in the absence of consensus, require a majority vote of 67%. This is again a weighted vote with a single block vote for each local authority calculated on the basis of percentage of affected individuals resident in their area. If the requisite majority is not achieved, the proposal goes no further. If there is a majority to proceed then a formal request is made to the Secretary of State under the relevant provision of the Water Industry Act 1991 for the necessary arrangements to be entered into.

7.5.35 If the statutory procedures have been correctly followed the Secretary of State enters into an agreement with the water undertaker. Water companies are required by law to accede to requests made by the 'relevant authority' to fluoridate specified water supplies[11]. The initial set-up costs (capital) and the costs of replacing equipment are paid by the Secretary of State. (Statute provides that these costs may be recovered from the participating local authorities but the practice is that this is not pursued.) Operating costs are covered by the participating local authorities.

7.6 Further Oral Health Interventions

7.6.1 The Committee, has through this review, endeavoured to look at and assess some of the other key interventions available with the aim of improving the oral health in a population.

Promotion of Oral Health

7.6.2 In discussions with local dentists it was highlighted how important it was to promote oral health and ensure that all children had a dental check by the age of one. This was further supported by Sunderland's 0-19 service which also recognised the poor dental health rates and the importance of starting with positive oral health messages in nursery and school settings for children.

7.6.3 Members were informed that many dentists were not providing advice on improving oral health or that the message was not consistent with that provided in the Delivering Better Oral Health publication. The Committee acknowledged that this was partly due to the current dental contract being structured on bands of dental activity, focusing on treatment and the repair of teeth, rather than the prevention of future disease.

7.6.4 Members were also concerned to learn that the recent survey of dentists had identified that 10% of dentists were worried about seeing and treating children

[11] *"If requested to do so by a relevant authority, a water undertaker shall enter into arrangements with the relevant authority to increase the fluoride content of the water supplied by that undertaker to premises specified in the arrangement"*. The Water Act 2003.

under two-years-old. It should be noted that the General Dental Contract makes no exclusions for young children.

7.6.5 Again, the importance of ensuring that any promotion was consistent in the message promoted was identified by the Committee. Members were clear that all the strands of advice, guidance and intervention were acknowledged in any strategy or promotion used throughout Sunderland.

Advice and Support for Parents/Carers

7.6.6 In promoting oral health, Members were informed by Sunderland's 0-19 service that it was important to start with oral health messages as soon as possible and that included at the ante-natal stage with parents.

7.6.7 Members were informed that every parent/carer was provided with a Personal Child Health Record (PCHR or red book) by their midwife. This is a national standard health and development record given to parents/carers at a child's birth. It was acknowledged that parents/carers are the 'gatekeepers' of oral health for children. It is parents/carers who make the food and drink choices for their children and it is important that these choices are as informed as is possible.

7.6.8 Members also raised concerns around looked after children and children entering the care system. In Sunderland, Together for Children ensure where possible that children attend an annual review of their oral health with a dentist in line with expected standards.

7.6.9 Dentists also have an important role to play in advice for parents/carers as they are recognised as the experts on dental hygiene. At one of the evidence gathering sessions, it was noted that dentists will provide information sheets to families explaining the many hidden sugars that exist in the average family diet.

Fluoride Varnishing

7.6.10 Fluoride varnish provides additional protection against tooth decay, for children, when used in addition to brushing. Fluoride varnish is a gel that sets quickly when applied to children's teeth using a soft brush. Scientific studies have shown that fluoride varnish provides added protection to teeth against decay when used in addition to brushing teeth regularly with fluoride toothpaste. In discussing this with dentists it was noted that this would be used for high risk patients and referrals. It is certainly an approach that, along with other interventions, can provide positive benefits to young children and it is recommended that such a varnish is applied twice-yearly from the age of three[12].

7.6.11 Members recognised that it was important for fluoride varnishing to be promoted in schools, as several of the key risk groups may not visit a dentist and miss the opportunity to have the treatment applied. The Committee acknowledged the requirement to ensure that this was acknowledged in any strategy or promotion in early years services.

Supervised Tooth Brushing Schemes

7.6.12 Public Health England reports that multiple research studies have shown that the daily application of fluoride toothpaste to teeth reduces the incidence and severity of tooth decay in children. However, as the review has highlighted, children in more deprived areas are less likely to brush their teeth at least twice daily. Therefore,

[12] NHS England

childhood settings such as nursery and school can provide a suitable supportive environment for children to take part in a supervised toothbrushing programme, teaching them to brush their teeth from a young age and encourage support for home brushing. Children should be educated to 'spit not rinse' after brushing with toothbrushing supervised by an adult.

7.6.13 This form of supervised brushing each day at school over a two-year period was noted as being effective for preventing tooth decay and the establishment of life-long behaviour to promote oral health. Members of the Committee were also keen that this school based toothbrushing activity should promote and support toothbrushing in the home as well as in school or the early years setting.

7.6.14 Members were informed that the current 0-19 service was looking to introduce toothbrushing schemes as a targeted intervention into a number of schools. These targeted interventions are aimed at those vulnerable areas in terms of levels of tooth decay against areas of deprivation. Members acknowledged the success of similar schemes operated in other parts of the UK and this reinforced the success of schemes beyond their initial period.

7.6.15 Members also heard from Dr Colwyn Jones, NHS Scotland ChildSmile scheme, which highlighted the Scottish supervised brushing scheme as a positive intervention that looked at promoting a sustained behavioural change in children and parents. Dr Jones reported that the universal provision of nursey schools in Scotland had been a big advantage to the success of the scheme.

An Oral Health Strategy

7.6.16 The importance of a current oral health strategy that sets out how the local authority and its health partners will address the oral health needs of the local population was recognised by members as a key requirement in addressing oral health inequalities in Sunderland.

7.6.17 The review has outlined a number of oral health interventions and an underpinning strategy can assist in the determination of commissioning arrangements for intervention both for the population as a whole and those deemed more vulnerable to oral health issues.

7.6.18 An important issue that was raised on several occasions was around 'putting the mouth back in the body' namely recognising that oral health is the domain of a number of organisations and services. Identifying and working in partnership with the organisations and services that can help to improve oral health in communities, including those working in children's services, education and health will be important.

7.6.19 Any strategy will also help in monitoring and evaluating the effect of the local oral health programmes and interventions as a whole and will help to achieve the healthy city objectives of the Council's City Plan.

8 Conclusions

The Committee made the following overall conclusions:-

8.1 The Review recognises that oral health in England has improved significantly, as a whole over recent decades, across the population but inequalities remain. Poor oral

health outcomes for children, young people and adults are linked to socio-economic factors. Risk factors for dental caries may include: living in a deprived area; experiencing deprivation, social exclusion or isolation; belonging to a particular minority ethnic group; experiencing mental health problems; having impaired physical mobility; smoking, drinking alcohol and having a poor diet; or having a chronic medical condition. Those with complex needs, such as older people who are frail or people who misuse alcohol or drugs are also at higher risk of poor oral health and longer-term oral conditions including oral cancer.

8.2 Despite the improvements in oral health Sunderland still performs poorly when compared to regional and national indicators. Levels of dental caries in Sunderland 5-year-olds are higher than national averages which was reinforced in conversations with local dentists who reported seeing increased levels of tooth decay.

8.3 Oral health is a big issue and should involve a wide range of services, providers and stakeholders. As the review has mentioned it is about recognising that the mouth is part of the body and poor oral health commonly results in poor general health. An oral health strategy for the city is central to identifying and improving the oral health of the local population and in particular those from recognised high-risk groups. An oral health strategy is also useful to assist in developing and targeting interventions through to the monitoring and evaluation of these interventions.

8.4 Promotion of good oral health messages across the city was recognised by Members as an integral part of improving outcomes for all groups. Although it was highlighted as important to begin these messages as soon as possible even in the pre-natal stages with parents. Oral health can be promoted in a number of ways through midwives, family nurse practitioners and early years services. Also working with families is equally important in ensuring that parents and carers understand how good oral health contributes to overall health, development and wellbeing. There are important messages to convey around diet, nutrition, toothbrushing and how to minimise the potential for tooth decay. However oral health is promoted across Sunderland, the message needs to be consistent, clear and concise.

8.5 Despite the progress in oral healthcare provision within NHS Dentistry; those in most need often have the greatest difficulty in accessing services. This has been highlighted in a Care Quality Commission (CQC) Report[13] on the state of oral health care in care homes across England. Programmes such as Mouth Care Matters supported by Health Education England aim to improve oral health in hospital and community care settings. Also the Faculty of General Dental Practice (UK) publication Dementia-Friendly Dentistry: Good Practice Guidelines is designed to help support patient management and clinical decisions for those patients with dementia. These types of initiatives should be welcomed as an attempt to address some of the inequalities within oral health care.

8.6 The report has considered water fluoridation extensively. The adding of fluoride into the water supply is a subject that polarises opinion with numerous studies that support the arguments both for and against its use, but these are often weak and difficult to evaluate. The reason for committing to a community water fluoridation scheme is to reduce the cases of dental caries in the local population without the requirement for behavioural change and deliver improvements to all areas including those identified with the poorest oral hygiene.

[13] Smiling matters: oral health care in care homes. Care Quality Commission. 2019

8.7 One of the key concerns is around the safety and adverse health impacts of water fluoridation. The latest PHE Fluoride monitoring report states: 'The findings of this 2018 monitoring report are consistent with the view that water fluoridation is an effective and safe public health measure to reduce the prevalence and severity of dental caries and reduce dental inequalities'[14]. Members also heard from many oral health professionals who reported that researchers have continued to look for evidence of harm since the 1940s and this remains a challenge in terms of fluoridation.

8.8 The report has highlighted that fluoridation of a local water supply is the only intervention that requires no behavioural change by individuals. It can also help to reduce the oral health inequalities that are prevalent across local communities. Although other interventions can also play a key part in improving oral health including supervised tooth brushing schemes and oral health strategies which are well documented in the Commissioning Better Oral Health[15] report. Such interventions can help to elicit behavioural change, address inequalities and are realistically deliverable.

8.9 Reducing dental decay and improving oral health in a population requires activity at national, regional, local and individual levels. It is about reducing sugar consumption, maximising the appropriate use of fluoride and ensuring oral health interventions and messages are tailored to the Sunderland population. The effects of interventions and preventions be they sugar reduction strategies, programmes in schools, community water fluoridation schemes should not be viewed as competing alternatives but seriously considered as a collective approach to reducing tooth decay and improving oral health across the population.

8.10 In deciding on progressing with a CWF scheme all viewpoints need to be taken into consideration and these need to be carefully considered. It is not the role of the committee to endorse water fluoridation or condemn it, nor would the committee wish to stop further consideration of such a scheme. There are several prescriptive stages in the process of implementing a CWF scheme and the importance of robust consultation that allows all opinions to be brought forward and discussed is vital. Only then can local policy makers and the local population make an educated and informed response to proposals. Ultimately any decision should be determined by each local authority based on the evidence, the oral health of its population and the strength of feeling of its local people to such a scheme.

9 Recommendations

9.1 The Health and Wellbeing Scrutiny Committee has taken evidence from a variety of sources to assist in the formulation of a balanced range of recommendations. The Committee's recommendations to Cabinet are:-

a) To develop an oral health strategy for the City that:
   i) identifies the oral health of the local population;
   ii) develops and targets oral health interventions to improve health;
   iii) looks at the promotion of oral health across the City.

[14] Water fluoridation health monitoring report for England 2018. Public Health England. 2018
[15] Local authorities improving oral health: commissioning better oral health for children and young people. Public Health England. 2014

b) To promote with the wider population the value of regular attendance at a dentist including information on NHS dentist locations, availability of NHS dentists and the eligibility for free NHS treatment.

c) That the local authority, health partners and commissioners look at the promotion of good oral health and suitable interventions for the most vulnerable in the local population including the homeless, the elderly and those admitted to hospital.

d) That the Council looks to support and promote with health commissioners the 'dental check by one' campaign to ensure that all young children are seen by a dentist before their first birthday.

e) To consider the implementation of supervised tooth brushing schemes and fluoride varnish programmes for primary schools with a particular focus on those areas where children are at a high risk of poor oral health.

f) That oral health promotion is included in the service specifications for all early years services provided by the Council and health partners including health visiting teams, maternity services and frontline health and social care practitioners to ensure a consistent message on the principles and practices that promote good oral health. This offer should also be extended to local schools and nurseries.

g) That further consideration is given to any proposed community water fluoridation scheme through the prescribed process and that following robust consultation, with all interested parties, the local authority makes an appropriate determination on the suitability of entering into such a scheme based on all the available evidence and representations.

10. Acknowledgements

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(g) Linda Forrest – Fight Against Fluoridation;
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(j) Diane Jones - Service Manager Sunderland 0-19 Service;
(k) Dr Peter Knops – Chair of Sunderland Local Dental Committee;
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(u) Dr Christopher Vernazza – Consultant in Paediatric Dentistry;
(v) Joy Warren – UK Freedom From Fluoride Alliance (UKFFFA);
(w) Alice Wiseman – Director of Public Health – Gateshead.

11. Background Papers

11.1 The following background papers were consulted or referred to in the preparation of this report:

World Health Report 2003. World Health Organisation. 2003

Improving Oral Health. Public Health England. March 2016.

Water fluoridation health monitoring report for England 2014 & 2018. Public Health England.

Water Fluoridation and Human Health in Australia. NHMRC (Australia).

Statement on the Evidence Supporting the Safety and Effectiveness of Community Water Fluoridation. Centers for Disease Control and Prevention (USA) 2018.

The costs and benefits of water fluoridation in New Zealand. BMZ Oral Health. 2017

Economic Evaluation of Community Water Fluoridation: A Community Guide Systematic Review. 2018

Improving Oral Health: a community water fluoridation toolkit for local authorities. Public Health England. 2016

Advancing our health: prevention in the 2020's. Department of Health and Social Care. 2019

Nuffield Council on Bioethics. Public Health: Ethical Issues. 2007

Smiling matters: oral health care in care homes. Care Quality Commission. 2019

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