# Improving oral health through community water fluoridation

February 2020

Northumberland County Council

HAVE YOUR SAY

# Contents



HAVE YOUR SAY

# Introduction and background

Thank you for taking time to read this document which contains information about why we wish to consider varying the existing community water fluoridation scheme in our local area.

As a local authority it is our responsibility to think about the best way to improve the oral health of our communities. Northumberland County Council is considering varying the existing community water fluoridation scheme which would involve providing fluoridated water across additional areas of the county.

This is part of an overall strategic approach to improving oral health and preventing tooth decay, which is part of each local authority's public health responsibilities. Northumberland County Council has a range of interventions which are in place or planned to improve the oral health of the local community. Varying the current community water fluoridation scheme is one of a number of  oral health promotion initiatives.

Some communities that already have fluoridated water in the North East region include Newcastle upon Tyne, North Tyneside, Gateshead, parts of County Durham including Derwentside and parts of Northumberland including Hexham and Alnwick. Hartlepool has naturally fluoridated water.

Oral health is important for general health and wellbeing. Poor oral health can affect someone's ability to eat, speak and smile. Also, the pain and appearance of decayed teeth can affect people's ability to socialise normally.  Dental pain can result in sleepless nights, days off school and time off work.

While children's oral health has improved over the last twenty years, tooth decay remains the most common oral disease affecting children and young people in England, yet it is largely preventable.

Our most recent data shows nearly a quarter (23.9%) of 5-year olds in the north east had tooth decay in 2017 (our most recent data) and almost 9 out of 10 hospital tooth extractions among children aged 0 to 5 years are due to preventable tooth decay.

Public Health England (PHE) data shows tooth extraction is the most common cause of hospital admissions among children aged 6 to 10 years old. These children will generally be having a general anaesthetic which is never without risk and can be traumatic for the child and their family or carers.

We know that children living in areas of deprivation or disadvantaged communities are at higher risk of having poorer oral health, however, children living in areas of deprivation or disadvantaged areas with fluoridated water have better oral health than comparable areas without fluoridated water.

At this stage we are seeking views on this proposal to vary the current community water fluoridation scheme with specific stakeholders, like you, who may have a professional, a representative or policy interest in reducing health inequalities and improving oral health.

We want to make sure that we talk to as many individuals, organisations or groups as possible to draw upon your expertise and experiences.

The views and information we gather will be used to inform the discussion and potential development of a wide-ranging public consultation, which would give local communities and the general public, who will be affected, the opportunity to comment on whether we should vary the existing scheme.

We would be grateful if you could look at the information contained in this document and give it due consideration.  We would very much appreciate you taking the time to consider some key questions we pose and feedback your views in a way that is best for you. We have provided some further information about how you can do this later in the document.

Thank you for your time, we value the contributions you make, they will help us to really consider all the issues involved, so we can make better decisions. We look forward to discussing these important topics around oral health with our communities later in the year.

**Liz Morgan FFPH**
Director of Public Health,
Northumberland County Council

# Fluoridation and oral health

## What is fluoride?

Fluoride is a mineral that occurs naturally in the environment - it's found naturally in both drinking water and seawater, in the soil and in certain foods.

When combined with other minerals, fluoride strengthens tooth enamel. The addition of fluoride to toothpaste has contributed over the last few decades to an overall improvement in dental health in England.

## What is community water fluoridation?

Community water fluoridation (CWF) is the addition of fluoride to the drinking water supply. It adjusts the naturally occurring level of fluoride to an optimum concentration of around 1 part per million, and is recommended as a public health measure to reduce tooth decay. Water fluoridation is supported by the World Health Organisation, numerous medical and dental organisations in other countries and in England by the NHS, Public Health England and our own regional and local dental committee and network.

Fluoride in water has contributed to the decline in dental decay over the past 60 years since research in the United States discovered that people living in an area of naturally fluoridated water had much better dental health than those who did not. This is because fluoride protects teeth in a number of ways that combine to prevent and slow the decay process. These effects benefit children and these benefits continue into adulthood. Fluoride works in a number of ways. When teeth are forming during early childhood, it becomes part of the tooth enamel and makes it stronger and more resistant to decay. Fluoride can also help even after teeth are formed, it works with saliva to protect tooth enamel from plaque and sugars.

There is good evidence that fluoride is effective in reducing decay and that water fluoridation is an effective way of using fluoride to reduce decay. Other fluoride interventions, such as fluoride toothpaste and fluoride varnish, are also important, effective ways of reducing tooth decay and there is an even greater reduction in decay levels when, for example, fluoride toothpaste is used together with water fluoridation. However, water fluoridation, is the only intervention which can potentially benefit everyone in an area.

Research also shows, that where people receive water that is fluoridated at a concentration of around 1 part per million, it does not cause significant aesthetic effects on teeth (dental fluorosis - a mottling of the teeth) and no convincing evidence of other health harms have been identified.

Links to sources of information can be found at the end of this document.

## Which areas have fluoridated water?

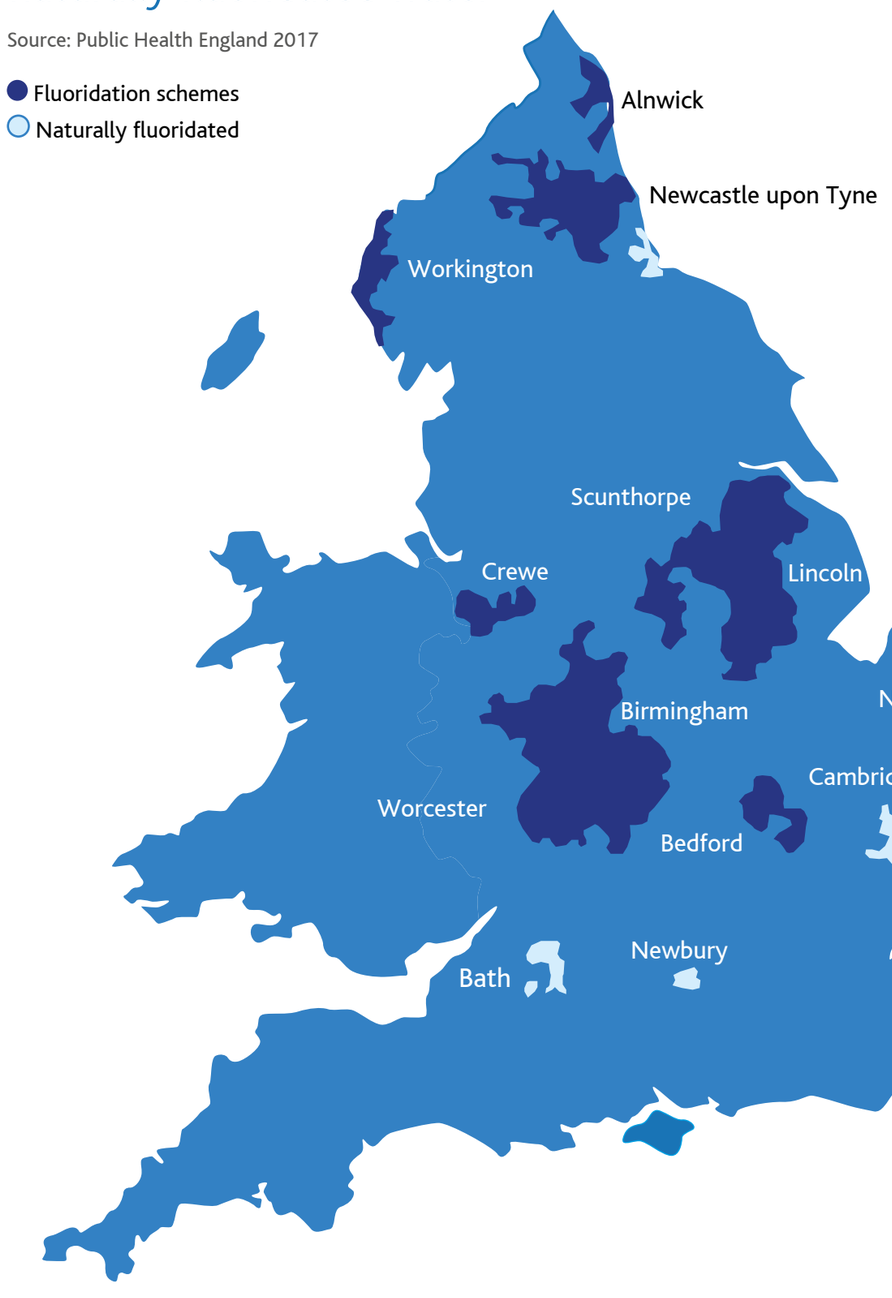
In England six million people already live in areas with fluoridated water, including many in parts of the North East, as well as the West and East Midlands.

Currently 26 local authorities have community water fluoridation schemes covering the whole or parts of their area.

The communities with fluoride added to the water supply in the North East are Newcastle upon Tyne, North Tyneside, Gateshead, parts of County Durham including Derwentside and parts of Northumberland including Hexham and Alnwick. Hartlepool is supplied with water that is naturally fluoridated. In general, the dental health of children in areas which have fluoridated water is better than in comparable areas without it.

## Map showing fluoridation schemes and naturally fluoridated water

Source: Public Health England 2017



## Why is community water fluoridation being considered?

Water fluoridation is associated with a reduction in the number of 5-year olds who experience dental decay and it also decreases the severity of the decay. Public Health England's Health Monitoring Report for England 2018 found that for 5-year olds living in areas of deprivation or disadvantage, water fluoridation decreases the likelihood of experiencing dental decay by 52%. Admissions to hospital for dental decay related extractions in children and young people aged 0 - 19 years has also been shown to be lower in areas with fluoridated water.

Water fluoridation also strengthens and preserves adult teeth. It is an important way to help the rising number of people living into older age the best possible chance of keeping their teeth for a lifetime.

5 year-olds in **fluoridated** areas are **28% less likely** to have had **tooth decay** than those in non-fluoridated areas

In **fluoridated areas** there are **55% fewer hospital admissions** of very young people for tooth extractions than in non-fluoridated areas

Source: Public Health England 2017

## Who will benefit?

In the main children and vulnerable adults would benefit the most from water fluoridation. There would also be positive impacts for other vulnerable people, like those with disabilities or for new breastfeeding mothers.There is substantial evidence to show that people from areas of deprivation or disadvantaged backgrounds experience considerably more dental disease than other residents. This is because their social circumstances often make it difficult for them to take the steps which promote good oral health like having a healthy diet, regular tooth brushing using fluoride toothpaste and visiting a dentist. Vulnerable groups in society are also more likely to suffer from poor oral health, for example, people with disabilities, people with poor mental health, those in care settings and the frail or older people.

The Public Health England Water Fluoridation Health monitoring report for England 2018, which compared a range of health indicators for local authorities in this country, found lower rates of tooth decay among children from fluoridated areas than those from non-fluoridated areas. No convincing evidence of harm to the health of people supplied with fluoridated water was found.



## Other approaches for improving oral health

**Supervised fluoride tooth brushing schemes**

Regular use of fluoride toothpaste has been shown to reduce levels of dental decay and the increased use of fluoride toothpaste has been largely responsible for the reductions in dental decay that have been observed over the last 20-30 years.

Published research has indicated that these schemes are effective in reducing levels of dental decay and that there remains a significant reduction in decay levels between children in test and control groups at 30 months after the schemes have ended. Evidence also shows that the introduction and uptake of a tooth brushing program contributes positively to the dental health of children and reduces dental health inequalities.

Tooth brushing schemes can be established in targeted settings such as early year's day care facilities. They can also be used to promote other oral health messages, such as seeing a dentist.

**Fluoride varnish**

Fluoride varnish is another option for increasing the availability of topical fluoride, (i.e., fluoride applied to the surface of the tooth) regardless of the levels of fluoride in the water supply. Public Health England recommends that all children have fluoride varnish applied to their teeth twice a year. Research has shown that this can reduce dental decay in baby teeth by 37%, and in adult teeth by 43%. However, when provided as a public health measure it is a relatively expensive intervention and it can only be provided by dental health care professionals.

## Is community water fluoridation cost effective?

The cost effectiveness of water fluoridation can be estimated by comparing the savings that would be made from treating fewer instances of dental decay.

£836
was the average cost of a **hospital tooth extraction** for a child **aged 5 and under**

£50.5m
was spent on **tooth extractions** among those **under the age of 19** 2015-2016

£7.8m
was spent on **tooth extractions** among the **under 5s**

Source: Public Health England 2017

Reviews of clinical effectiveness by NICE (PH55) and Public Health England (Commissioning Better Oral Health for Children and Young People, 2014) have found that the return on investment for water fluoridation for £1 spent is £12.71 after five years and £21.98 after 10 years, this compares favourably with £3.06 and £3.66 for a targeted tooth brushing scheme over the same time frames.

## Return on investment of oral health improvement programmes 0-5 year olds*

Reviews of clinical effectiveness by NICE (PH55) and PHE (Commissioning Better Oral Health for Children and Young People, 2014) have found that the following programmes effectively reduced tooth decay in 5 year olds:


* All targeted programmes modelled on population decayed, missing or filled teeth (dmft) index of 2, and universal programme on dmft for England of 0.8. The modelling has used the PHE Return on Investment Tool for oral health interventions (PHE, 2016). The best available evidence has been used in this tool and where assumptions are made these have been clearly stated PHE Publications gateway number 2016321.

Source: Public Health England

## Are there arguments against water fluoridation?

Public Health England have reported that no convincing evidence has been found of harms to health associated with water fluoridation.

It is true that too much fluoride can cause dental fluorosis, this affects the appearance of teeth causing them to appear mottled. Dental fluorosis is one of a number of different conditions which can affect the appearance of teeth. In England dental fluorosis usually appears as paper white flecks or fine white lines. However, it can vary in appearance from barely visible white lines to patches which may be of aesthetic concern. The risk period for the development of dental fluorosis in adult teeth is when teeth are growing in the jaws; it cannot develop after teeth are formed.

In England, it is uncommon for instances of dental fluorosis to be severe enough to seriously affect the appearance of teeth because fluoride levels in water are carefully monitored by the Drinking Water Inspectorate and adjusted if necessary. Even with fluoride in toothpaste and in the water and the addition of fluoride varnish onto a child's teeth, there is no risk of overexposure.

### Choice

Some people argue that, even if fluoride is safe, people should be free to choose whether they want fluoride through alternatives like toothpaste and fluoride tablets.

Any dialogue we have with residents will allow the opportunity to engage with this agenda and make their views heard.

## What are the legal requirements around community water fluoridation?

Water fluoridation is expressly permitted in legislation by parliament. The Health and Social Care Act 2012 amended the Water Industry Act 1991 and returned responsibility for decisions on water fluoridation to local authorities as part of their public health responsibilities. Legislation is in place to govern the way in which a new scheme can be introduced by Local Authorities and how an established scheme may be varied or terminated.

Legislation also sets out the process for formal public consultation on a fluoridation proposal. It includes guidance on collaborating with other local authorities whose residents may be affected by the proposal; and for taking account of a range of key factors when making final decisions.

# Oral health in our region

### Adults

Data available from the most recent national Adult Dental Health Survey which took place in 2009 showed that 92% of the North East residents had some teeth. Generally, the more teeth a person retains the better their oral health and function will be; 21 teeth are generally considered adequate. In 2009 86% of the residents of the UK had at least 21 teeth compared to 82% in the North East. This was the lowest rate between all the England Strategic Health Authorities at the time.

### Older residents

We have an increasing proportion of older residents and older people are retaining their teeth for longer. We need to consider how the oral health of this growing group will be managed, especially for those with additional complications such as dementia for whom receiving dental care can be very difficult. Thorough assessments, and support from skilled and knowledgeable staff can help prevent the pain, disturbed sleep and health problems that poor oral health can cause.

### Children

Public Health England's National Dental Epidemiology Programme for England: oral health survey of five-year-old children in 2017 found that 23.3% of all 5-year olds had experience of dental decay.  The average number of teeth that were decayed, missing or filled was 3.4 (at age five, children normally have 20 primary teeth). Areas with poorer oral health tend to be in the north and in the areas of more deprivation or disadvantage.

## Percentage of 5 year olds with experience of visually obvious dental decay: 2016-17

| Area | Value |
|---|---|
| England | 23.3 |
| North East | 23.9 |
| Middlesbrough | 32.1 |
| Sunderland | 28.4 |
| Darlington | 26.4 |
| County Durham | 25.8 |
| Redcar and Cleveland | 24.9 |
| Gateshead | 23.2 |
| Northumberland | 22.6 |
| South Tyneside | 21.7 |
| Stockton-on-Tees | 20.6 |
| Hartlepool | 20.5 |
| North Tyneside | 20.0 |
| Newcastle upon Tyne | 19.3 |

## Average numbers of decayed, missing or filled teeth in 5 year olds: 2016-17

| Area | Value |
|---|---|
| England | 0.78 |
| North East | 0.75 |
| Middlesbrough | 1.16 |
| Sunderland | 0.99 |
| Redcar and Cleveland | 0.89 |
| Darlington | 0.87 |
| County Durham | 0.79 * |
| Newcastle upon Tyne | 0.69 ** |
| South Tyneside | 0.66 |
| Stockton-on-Tees | 0.64 |
| Northumberland | 0.64 * |
| Gateshead | 0.62 ** |
| Hartlepool | 0.57 ** |
| North Tyneside | 0.54 ** |

** Fully fluoridated
* Partly fluoridated

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

# Why we are asking your views

We want to hear your views, both about Community Water Fluoridation and how we can best consult with our communities.

We are keen to reach as many stakeholders as possible. Northumberland County Council has been working together with the local dental community and local professional network (clinical). Here are some of the groups we are sharing this information with.

- MPs and elected members
- Health and Wellbeing Board
- NHS Northumberland CCG
- NHS Foundation Trusts
- Drinking Water Inspectorate
- Senior Local Authority officers
- British Fluoridation Society (BFS)
- British Dental Association (BDA)
- Health and Wellbeing Overview and Scrutiny (HOSC)
- NHS England
- Healthwatch
- Anti Fluoridation Alliance

## Next steps

During February and March 2020 Northumberland County Council is seeking the views of local stakeholders who represent their communities at this formative stage. We will be asking five main questions that will provide views, information, detail and knowledge to help us understand the issues.

1 We want to ensure that our consultation reaches as many people as possible. What do you think are the best ways to gain the views of local people?

2 Community Water Fluoridation could benefit the following groups:
- Children and young people
- People from deprived communities
- People from protected or vulnerable groups or communities such as people with learning and/or physical disabilities

Please tell us about any specific issues, concerns or views that we need to consider to ensure that we are engaging these groups during the public consultation stage.

3 Please detail below any other comments you wish to make or any additional issues you think we need to consider as part of this consultation planning stage.
Please indicate yes/no if we can contact you about this offer of help in the future?
Please provide a key contact name, telephone and email (optional)

4 Are you in support of this scheme? (choose one)
- Yes, very much so
- Yes, to some extent
- Neutral
- Not really in support
- Strongly against the scheme
- Don't know / not sure

5 Are any of the groups you work with representative of any of the following equality groups (protected characteristics) as defined by the Equality Act 2010?
- Age (all age groups or specific younger/older)
- Disability (pan disability or specific disabilities or health conditions)
- Gender reassignment
- Pregnancy and maternity
- Race
- Religion and belief
- Sex
- Sexual orientation

**Survey link:**
https://www.surveymonkey.co.uk/r/GSFJ9B9

Through the programme we will gather the responses from our targeted stakeholders. We will look at what we have learned from which stakeholders and public from research, involvement, engagement and other activities.

This key information and insight will allow us to share and gain a collective understanding of the things to consider. The feedback provided will help inform the development of our approach to any formal consultation held later in the year.

It is likely that our approach for formal consultation would consist of:

- A three-month consultation period with key, consistent messages so that time is given for consideration and response.
- Information and materials being available for residents across all affected areas in Northumberland.
- Targeting those groups that will be most affected by the proposals, based on learning from this initial information gathering phase and intelligence from the Equality Impact Assessment.
- Public engagement through a website page hosting consistent and key information.
- Paper versions of documentation available on request or to meet a specific community need.
- Face to face engagement activities such as presentations and discussion with existing networking groups.
- Analysis of all feedback and responses via an independent analyst and a draft report published so that people can read it in advance of any decision being made.

As a result of this work responses and submissions would be analysed and used to inform any future decision on varying the current scheme.

# Sources of information

**Improving oral health: a community water fluoridation toolkit for local authorities:**
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/774128/Fluoridation_Toolkit_-_Publications_gateway_version_20160304.pdf

**Water Fluoridation Health Monitoring Report for England 2018:**
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692754/Water_Fluoridation_Health_monitoring_report_for_England_2018_final.pdf

**Public Health England: Water Fluoridation Health Monitoring Report for England 2018. Executive summary:**
https://assets.publishing.service.gov.uk/government/uploads/syst em/uploads/attachment_data/file/692756/EXECUTIVE_SUMMAR Y_Water_Fluoridation_Health_monitoring_report_for_England_20 18_DR.pdf

**National Dental Epidemiology Programme for England: oral health survey of five-year-old children 2017 A report on the inequalities found in prevalence and severity of dental decay:**
https://www.gov.uk/government/publications/water-fluoridation-health-monitoring-report-for-england-2018

**Public Health England: Child and Maternal Health: Oral health profile of five-year olds:**
https://fingertips.phe.org.uk/profile/child-health-profiles/data#page/9/gid/1938133263/pat/6/par/E12000001/ati/202/are/E06000047