

---

# **Water Fluoridation in Leicester City**

Public Health and Health Integration Scrutiny Commission

Date of meeting: 16<sup>th</sup> April 2024

Lead director: Rob Howard

---

## Useful information

- Ward(s) affected: All.
- Report author: Grace Brough, Acting Consultant in Public Health. Mike Taylor, Public Health Registrar
- Author contact details: [grace.brough@leicester.gov.uk](mailto:grace.brough@leicester.gov.uk)
- Report version number: 1

### 1. Summary

This paper describes a proposition for an agreement in principle to water fluoridation being implemented in Leicester City. It also advises our plans to request Leicester City is considered by the Secretary of State for Health and Social Care as an area for which the water supply is fluoridated.

### 2. Recommended actions/decision

2. Public Health and Health Integration Scrutiny Commission are invited to:

- Note our plans to join other local authorities in the East Midlands to write to the Secretary of State for Health and Social Care to request that we are considered for fluoridation of our water supply in future.

### 3. Scrutiny / stakeholder engagement

- 3.1. We have liaised with colleagues from NHS England Midlands, Nottingham City Council and Nottinghamshire County Council about their plans to implement water fluoridation in Nottingham and Nottinghamshire to explore how we can best promote and advocate for water fluoridation in Leicester City. Nottingham and Nottinghamshire local authorities submitted a letter to the Secretary of State for Health and Social Care in January 2024, with the aim of securing their agreement to fluoridation of their local water supply.
- 3.2. We would wish to collaborate with Leicestershire County Council and Rutland County Council to implement water fluoridation across Leicester, Leicestershire and Rutland. Initial, informal discussions with public health colleagues are at an early stage.
- 3.3. We have discussed our proposition with the Leicester, Leicestershire and Rutland Oral Health Promotion Partnership Board, who are supportive of this proposal. Members of our Local Dental Network, who are members of the board, are in strong agreement.
- 3.4. We have discussed this with the lead member Cllr Russell and the City Mayor, who support these plans.

## 4. Background

When fluoride being present in a water supply at a concentration of one part per million (1mg/L), this reduces likelihood and limits the severity of tooth decay and therefore is beneficial to anyone with any natural teeth<sup>1,2</sup>. In some parts of the UK, the water supply has this level of fluoride naturally. In others where it is lower, water fluoridation programmes may be implemented to raise it to 1mg/L<sup>1</sup>.

### **Dental caries: a preventable public health problem**

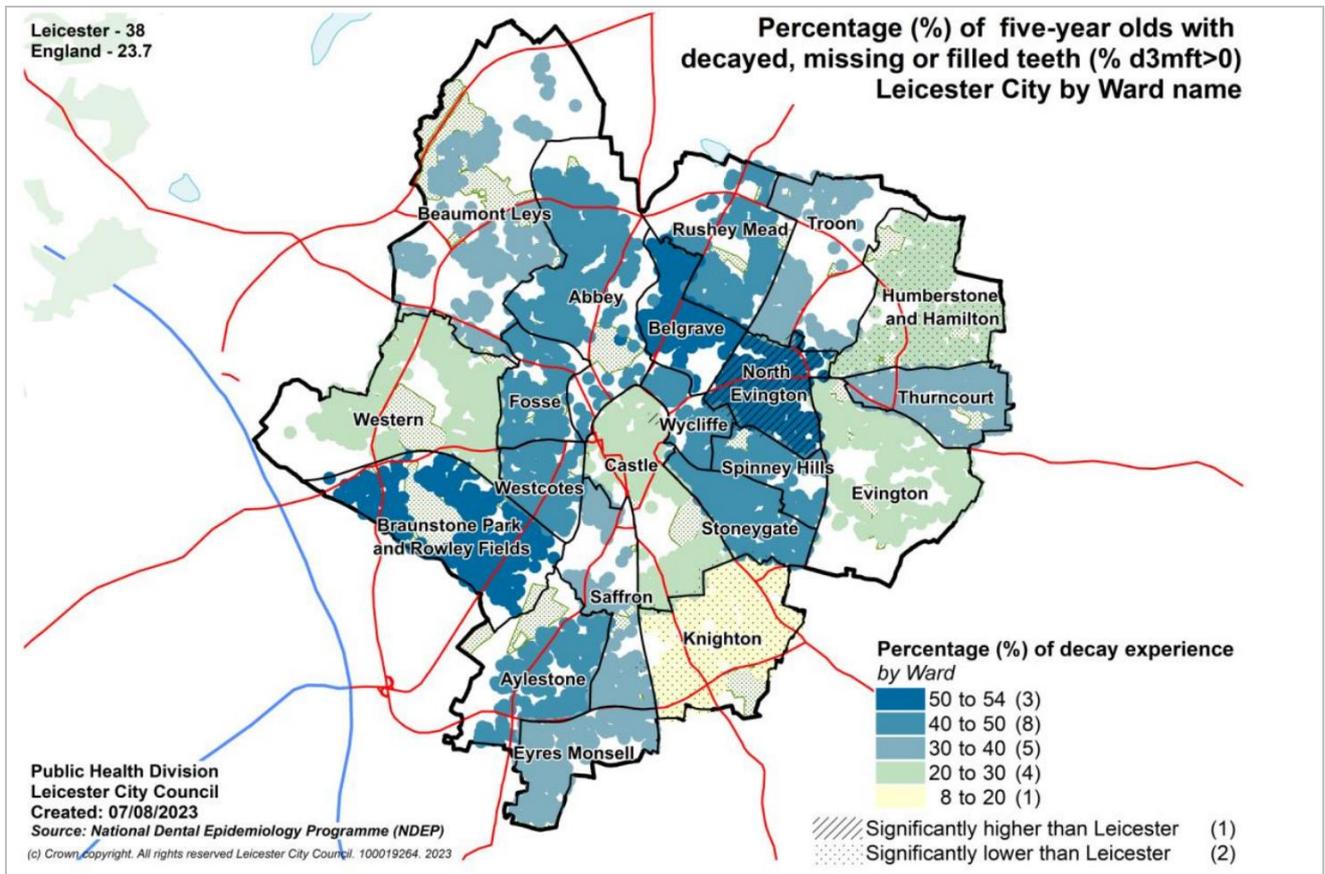
Tooth decay caused by dental caries is associated with high costs, health harms, and an increased risk of a requirement for hospital admission, anaesthesia and time away from school due to tooth extraction<sup>3</sup>. In 2022, 23.7% of 5-year-old children in England had at least one decayed, missing or filled tooth and yet caries is mostly preventable<sup>4</sup>. Furthermore, caries incidence is associated with inequities with the likelihood of decay experience being significantly greater for children living in areas of higher deprivation<sup>5</sup>.

### **Dental caries in Leicester children**

Following a concerning finding in 2012 that more than half of Leicester 5-year-olds had at least one decayed, missing or filled tooth (DMFT), prevalence of this metric reduced considerably over the following five years to eventually fall below 40%. It has since plateaued, having been 38.7% in 2017, 38.6% in 2019 and was recently found to be 37.8% in 2022<sup>4</sup>. This prevalence is 9<sup>th</sup> highest out of the 132 local authorities that provided data and Figure 1 below shows how most of the city has higher local rates of DMFT than the England average of 23.7%.

The most recent of the above findings is from the National Dental Epidemiology Programme for England Oral Health Survey (OHS) 2021/22<sup>4</sup>. This OHS also found Leicester 5-year-olds to be significantly more likely to have decay experience if they lived in a more deprived area (41% prevalence in the most deprived quintile) or if they were of Asian or Asian British ethnicity (44% prevalence)<sup>4</sup>.

***Figure 1: Proportion of 5-year-olds with 1≥ decayed, missing or filled tooth.***



**Evidence for effectiveness of water fluoridation in preventing caries.**

High quality Cochrane systematic review evidence indicates that water fluoridation is effective for reducing child tooth decay incidence<sup>4</sup>. A key finding was that introducing water fluoridation led to 35% fewer DMFT for baby teeth and 26% fewer for permanent teeth<sup>4</sup>. Further systematic reviews<sup>7,8</sup> and the Office for Health Improvement and Disparities (OHID) 2022 Health Monitoring Report for England suggest water fluoridation to be effective in preventing caries and reducing associated oral health inequalities<sup>7,8</sup>.

**Evidence for the safety of water fluoridation**

The OHID 2022 Health Monitoring Report for England indicated water fluoridation to be safe<sup>9</sup>. No convincing evidence exists that is suggestive of fluoride in drinking water at 1mg/L being harmful to general health<sup>6</sup>. An increase in fluoride levels in drinking water (or ingestion of large amounts of fluoride-containing products such as toothpaste) can increase the chance of fluorosis in developing teeth wherein parts of the teeth become more opaque<sup>6</sup>. When mild, fluorosis causes faint white streaks that may only be identifiable by dental practitioners; when moderate, the white areas are more visible and can cause 'mottling'<sup>6</sup>. Severe fluorosis can cause brown colouring, pitting, and loss of enamel<sup>6</sup> but this is generally only seen in countries with groundwater containing very high levels of naturally occurring fluoride (e.g., India, Sri Lanka, China, Eastern Africa, Middle East, and South America)<sup>10</sup> which is significantly above the 1mg/L present in water fluoridation schemes.

**Areas in England with fluoridated water**

Around 10% of people in England have a drinking water supply that has been fluoridated<sup>9</sup>. Water fluoridation schemes currently operating in England serve parts of the East and West Midlands, South Yorkshire, the North-West and the North-East. Most of these were set up in the 1960s, 70s or 80s<sup>11</sup> and there has been little further development since then. In addition, around a quarter of a million people in England, such as those living in parts of Suffolk, the South-West and the North-East, have a water supply with a high natural fluoride concentration of over 0.7mg/L.

## References

1. Department of Health & Social Care [Internet]. GOV.UK. [updated 2022 Mar 10; cited 2024 Jan 10] Available from: <https://www.gov.uk/government/publications/health-and-care-bill-factsheets/health-and-care-bill-water-fluoridation>
2. Parnell C, Whelton H, O'mullane D. Water fluoridation. *European Archives of Paediatric Dentistry*. 2009 Sep;10:141-8.
3. Aljafari AK, Gallagher JE, Hosey MT. Failure on all fronts: general dental practitioners' views on promoting oral health in high caries risk children-a qualitative study. *BMC oral health*. 2015 Dec;15(1):1-1.
4. Office for Health Improvement and Disparities. National Dental Epidemiology Programme (NDEP) for England: oral health survey of 5 year old children 2022 [Cited: 16<sup>th</sup> January 2024]. <https://www.gov.uk/government/statistics/oral-health-survey-of-5-year-old-children-2022/national-dental-epidemiology-programme-ndep-for-england-oral-health-survey-of-5-year-old-children-2022>
5. McGrady MG, Ellwood RP, Maguire A, Goodwin M, Boothman N, Pretty IA. The association between social deprivation and the prevalence and severity of dental caries and fluorosis in populations with and without water fluoridation. *BMC public health*. 2012 Dec;12(1):1-7.
6. Iheozor-Ejiofor Z, Worthington HV, Walsh T, O'Malley L, Clarkson JE, Macey R, Alam R, Tugwell P, Welch V, Glenny AM. Water fluoridation for the prevention of dental caries. *Cochrane database of systematic reviews*. 2015(6).
7. McLaren L, Singhal S. Does cessation of community water fluoridation lead to an increase in tooth decay? A systematic review of published studies. *J Epidemiol Community Health*. 2016 May 13.
8. Shen A, Bernabé E, Sabbah W. Systematic review of intervention studies aiming at reducing inequality in dental caries among children. *International journal of environmental research and public health*. 2021 Feb;18(3):1300.
9. Office for Health Improvement and Disparities. Water fluoridation Health monitoring report for England 2022 [Published 21 March 2022; Cited: 16<sup>th</sup> January 2024]. <https://assets.publishing.service.gov.uk/media/622ee4518fa8f56c1d3113dd/water-fluoridation-health-monitoring-report-2022.pdf>
10. Shahroom NS, Mani G, Ramakrishnan M. Interventions in management of dental fluorosis, an endemic disease: A systematic review. *Journal of family medicine and primary care*. 2019 Oct;8(10):3108.
11. Goodwin M, Emsley R, Kelly MP, et al. Evaluation of water fluoridation scheme in Cumbria: the CATFISH prospective longitudinal cohort study [Internet]. Southampton (UK): National Institute for Health and Care Research; 2022 Nov. (Public Health Research, No. 10.11.) Chapter 3, History and implementation of water fluoridation as a public health intervention. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK586997/>

## 5. Detailed report

### Process for water fluoridation being commenced in a new area.

Water fluoridation functions and associated operational costs have been centralised as of 2022, and the decision to fluoridate a new area comes from the Secretary of State (SoS)

for Health and Social Care. The process, which may take a total of 5-10 years, is as follows:

1. The process of fluoridation would start by the SoS or a minister to whom responsibility has been delegated deciding that fluoridation can potentially be implanted in a new area.
2. After this, a feasibility study would be centrally commissioned, which a water undertaker would conduct.
3. If this demonstrated feasibility of the scheme, then public consultation would be organised and this would be conducted by the SoS.
4. After considering this, the SoS would decide whether fluoridation will be implemented in the area.
5. Confirmation that fluoridation can commence would necessitate a legal agreement being developed by the SoS and water undertaker.
6. Once this is in place, the water undertaker would arrange the building of new plants and the implementation of the fluoridation in the water supply.

The public consultation would be legally required for a proposed new scheme, and it is a statutory duty of the Secretary of State to conduct this. This consultation would need to run for at least 12 weeks, be published in appropriate media and include: i) the action being proposed by the SoS; ii) justification for the proposed actions; iii) the affected location. The SoS would then consider the extent of support; cogency of relevant arguments; and strength of scientific evidence in relation to the proposal. As well as the consultation, the SoS would also consider the costs, population health needs and evidence for expected impact of the scheme upon individuals.

### **Proposal by Nottingham and Nottinghamshire to fluoridate their water supply.**

Colleagues from Nottingham City and Nottinghamshire County Council submitted a letter to the SoS in January 2024, with the aim of securing their agreement and commencing the process for fluoridating their water supply (which is expected to take 5-10 years in total). Severn Trent, which supplies much of Nottinghamshire, also supplies Leicester City and Leicestershire.

### **Engaging with our local communities**

In addition to the consultation that the SoS would undertake, it is important that as a local authority, we provide an opportunity for the people of Leicester to engage with the process and have their views heard. It will be important to effectively disseminate our plans regarding fluoridation across all communities of Leicester and that all population groups, including those who are vulnerable or for whom health literacy or English language proficiency are low, are supported to engage.

### **Risks and controversies to Leicester City Council and these can be addressed.**

Concern from communities might be expected, as well as mobilisation of groups opposed to fluoridation. Therefore, it is important we have good quality accessible information on hand that addresses common questions and myths around fluoridation or similar.

### **Monitoring and evaluation**

If water fluoridation for Leicester is agreed, it will be important to adopt this intervention as part of a multifaceted approach to preventing tooth decay in children. It will also be important to monitor its implementation and evaluate its effectiveness. Useful sources will include: The OHID Water fluoridation Health monitoring report for England<sup>9</sup>; epidemiological reports of tooth decay in children (e.g., the OHS); calculations of the number of people receiving the fluoridated water; cost effectiveness analysis including return on investment calculations.

### **Conclusion**

The above proposal by Nottingham and Nottinghamshire local authorities may present an opportunity to expediate water fluoridation in Leicester. We intend to join these local authorities in writing to the Secretary of State for Health and Social Care, to request that we are considered for fluoridation of our water supply in future.

## **6. Financial, legal, equalities, climate emergency and other implications**

### 6.1 Financial implications

The report at this stage outlines plans to request consideration by the Secretary of State for Health and Social Care to fluoridate the water supply in future, as such there are no immediate financial implications. However, if agreed and the proposals would require further intervention, this would need to be revisited to see if there are any financial implications.

Yogesh Patel – Accountant (ext 4011)

### 6.2 Legal implications

#### Legal Commercial Implications

The following legal commercial implications must be taken into consideration:

#### Consultation

As detailed in the report at section 5, a formal process must be carried out prior to implementing any plans and this requires the participation of the secretary of state and a public consultation. The report details the requirements of the consultation in relation to timescales and what information must legally be provided.

In addition to this, the general rule in relation to any consultation undertaken by the Council, is that it should be meaningful and conducted appropriately to ensure it is free from challenge. There is non-statutory government guidance on how to conduct a consultation and a copy of this and the Council's consultation guidance has been provided to clients.

Clients should clarify with the secretary of state whether the consultation will be led by central government or whether it is the responsibility of the Council to carry this out.

#### Agreement with the Secretary of State and Water Company relating to water fluoridation.

It is likely that the Secretary of State and water company will require the Council to agree to standard government terms and conditions. However, clients should liaise with Legal

Services who can advise on the terms of the agreement and any obligations of the Council and accompanying risks.

Tracey Wakelam  
Principal Lawyer  
Commercial, Property and Planning

### 6.3 Equalities implications

When making decisions, the Council must comply with the public sector equality duty (PSED) (Equality Act 2010) by paying due regard, when carrying out their functions, to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations between people who share a 'protected characteristic' and those who do not.

We need to be clear about any equalities implications of the course of action proposed. In doing so, we must consider the likely impact on those likely to be affected by the options in the report and, in particular, the proposed option; their protected characteristics; and (where negative impacts are anticipated) mitigating actions that can be taken to reduce or remove that negative impact.

Protected characteristics under the public sector equality duty are age, disability, gender re-assignment, pregnancy and maternity, marriage and civil partnership, race, religion or belief, sex and sexual orientation.

The paper describes a proposition for an agreement in principle to water fluoridation being implemented in Leicester City. A number of available indicators show that oral health in Leicester compares poorly to England as a whole with various health inequalities. Oral health is a key indicator of overall health, wellbeing and quality of life. Oral health is inextricably linked to general health and wellbeing at every stage of life. A healthy mouth enables nutrition of the physical body, but also enhances social interaction and promotes self-esteem and wellbeing. The mouth can act as an early indicator for the rest of the body, providing signals of general health disorders. As fluoridation would be provided to all members of the population covered, it has the capability to affect all of the population, irrespective of protected characteristic.

In order to identify any potential disproportionate impacts on a particular protected characteristic an equality impact assessment should be undertaken. The Equality Impact Assessment, should influence decision making from an early stage and throughout the decision making process.

It is therefore important to ensure that any consultation is fair and accessible, and involves children and young people as well as parents. The Equality Impact Assessment should inform the development of the consultation, in order that it can be utilised to identify and understand any potential equalities impact. The findings from the consultation should then be used to

further inform the Equality Impact Assessment and in identifying any mitigating actions that are required to lessen or remove any disproportionate negative impact.

Equalities Officer, Surinder Singh Ext 37 4148

#### 6.4 Climate Emergency implications

There are likely to be limited climate emergency implications directly associated with this report. More widely however, this work may have a positive impact, with some research suggesting that water fluoridation is likely to have a lower overall carbon and environmental impact than alternative methods of addressing these issues, particularly where this involves treatment as opposed to prevention.

Aidan Davis, Sustainability Officer, Ext 37 2283

#### 6.5 Other implications (You will need to have considered other implications in preparing this report. Please indicate which ones apply?)

Not applicable.

#### **7. Background information and other papers:**

None

#### **8. Summary of appendices:**

- A PowerPoint document is attached, which outlines key points from this document.

#### **9. Is this a private report (If so, please indicate the reasons and state why it is not in the public interest to be dealt with publicly)?**

No

#### **10. Is this a “key decision”? If so, why?**

No