

13 December 2023

Agenda Item:4

REPORT OF THE CHAIR OF THE NOTTINGHAMSHIRE HEALTH AND WELLBEING BOARD

WATER FLUORIDATION IN NOTTINGHAMSHIRE

Purpose of the Report

1. To inform members on water fluoridation in Nottinghamshire and seek comment on work to advocate for its expansion for the benefit of all our local population.

Information

Background

2. In the UK, tooth decay is the most common reason for hospital admission in children aged between 6 and 10 years. The consequences of tooth decay are lifelong and poor oral health can lead to:
 - a) significant but avoidable suffering and pain
 - b) days off school – with potential impacts on learning and school performance
 - c) time off work – with economic and productivity consequences
 - d) low self-esteem and confidence
 - e) hospital admissions and treatment under general anaesthetic for children
 - f) costly dental treatment.
3. Many children in Nottingham and Nottinghamshire experience worse dental health than many other parts of England. In 2022, the average number of teeth affected by dental decay amongst 5-year-olds in Nottingham City was 1.3 teeth. This is significantly higher than the England average (0.8 teeth). Similarly, over a third of 5-year-olds had visually obvious signs of dental decay (34.2%); significantly worse compared to the England average (23.7%).
4. Overall levels of tooth decay in children in Nottinghamshire are better than the England average, however there are still significant inequalities in oral health outcomes across the county. In 2022, the average number of teeth affected by dental decay amongst 5-year-olds in Nottinghamshire was 0.62 teeth, slightly lower than the England average. The most recent

data also indicates that 18.1% of local five-year olds had experience of decay in 2021/22.¹ National evidence confirms the association between sub optimal oral health and deprivation.

5. At a meeting of Nottinghamshire County Council in July 2023 the Chair of the Nottinghamshire Health and Wellbeing Board was granted delegated responsibility to work ‘with other local councils, Integrated Care Partnerships, and the water companies serving the county, to champion the oral health agenda, including water fluoridation.’
6. Water fluoridation is a population-level public health intervention which has been shown to reduce the likelihood and scale of tooth decay in children and adults. Reviews of studies conducted around the world confirm that water fluoridation is an effective and safe public health measure, providing the greatest value for money of all oral health interventions for 0–5-year-olds.²
7. Improving the oral health of the local population involves a package of interventions. Water fluoridation compliments work already underway in Nottinghamshire County Council and Nottingham City Council to promote good oral health including oral health promotion and training, and targeted supervised toothbrushing in Early Years and schools. Joint working arrangements are well established through the Nottingham and Nottinghamshire Oral Health Steering Group.

Water Fluoridation

8. All water contains the mineral fluoride naturally in varying amounts; it is also present in some food. Nottinghamshire has a low natural level of fluoride in its water. Water fluoridation involves adjusting the fluoride level in drinking water supplies to an amount that is optimal for dental health (1mg/l). For children younger than 8 years, fluoride helps strengthen the adult (permanent) teeth that are developing under the gums. For adults, exposure to fluoridated water supports tooth enamel, keeping teeth strong and healthy.
9. About six million people, or 10% of the UK population, live in areas with fluoridated water supplies.³ In Nottinghamshire County, about 247,000 people (30% of all residents), predominantly in Ashfield, Bassetlaw and Mansfield, benefit from artificially fluoridated water supplies under arrangements dating back to the 1970s. **Appendix 1** gives more information about the current local water fluoridation schemes.
10. Adjustment of fluoride levels in drinking water supplies in England is permitted in legislation. The Health and Care Act 2022 put new provisions in place, which empowers the Secretary of State for Health and Social Care (SoS), instead of upper tier local authorities, to establish new, vary or terminate existing water fluoridation schemes in England.⁴ Before any fluoridation scheme could be varied feasibility studies, consultations and the capital and revenue costs would need to be assessed by the Secretary of State. Local councils may still lobby central government to consider new or varied schemes in their areas.

¹ OHID, 2023, National Dental Epidemiology Survey of five-year olds, 2021/22

² Public Health England (PHE), 2020, Improving oral health: a community water fluoridation toolkit for local authorities
York Health Economics Consortium for PHE, 2016, A rapid review of the evidence on the cost effectiveness of interventions to improve the oral health of children aged 0-5 years.

³ PHE, 2018, Water Fluoridation: Health monitoring report for England

⁴ Health and Care Act 2022: Regulation 3 brought into force on 1st November 2022 sections 175 (fluoridation of water supplies) and 176 (fluoridation of water supplies: transitional provision) of the Act in so far as they relate to water supplied to areas in England.

11. Estimates of the potential benefits of extending water fluoridation to other areas of Nottingham and Nottinghamshire from 2022/23 baseline include:

- a. A 35% reduction in decayed, missing and filled teeth (dmft) in five-year-old children from an average of 0.62 to 0.4 dmft in Nottinghamshire County and from 1.3 to 0.85 teeth in Nottingham City.⁵
- b. A 15% increase in five-year-old children with no tooth decay at all (approximately 1,215 per year) across Nottinghamshire County and Nottingham City.⁶
- c. An approximate 30% reduction in hospital admissions for tooth extractions in children living in areas not already fluoridated in Nottinghamshire County (approximately 115 fewer extractions a year in children aged 0-19 years old). Plus around a 56% reduction in hospital admissions for tooth extractions in children from the most deprived 20% of areas of Nottingham City (approximately 89 fewer extractions a year). This equates to 204 avoided hospital admissions across Nottingham and Nottinghamshire in total.⁷
- d. There would be reductions in tooth decay in adults, with cost savings to individuals from avoided dental treatment and to the wider NHS.⁸
- e. Across Nottinghamshire County and Nottingham City oral health would improve for up to 130,000 more people aged over 65 who are particularly at risk of some oral health conditions that can be prevented or reduced in severity through fluoridation.⁹
- f. Wider benefits for adults would be seen, including improved productivity in the workplace and healthier ageing. General wellbeing for individuals would be enhanced, as oral health affects people's ability to speak, eat, smile and socialise.
- g. There would be an estimated return of £12.71 after five years and £21.98 after ten years for every £1 invested in fluoridation.¹⁰

12. Although there have been no recent complaints in relation to water fluoridation in Nottinghamshire, nationally concerns are sometimes voiced about water fluoridation. Routine monitoring of health in fluoridated areas for over 50 years and scientific reviews have not revealed any health problems associated with optimal levels of water fluoridation.¹¹

⁵ Modelling based on:

a) Office for Health Improvement and Disparities (OHID), 2023, National Dental Epidemiology Survey of five-year olds, 2021/22

b) Cochrane Review, 2015, Water Fluoridation to prevent tooth decay

⁶ Ibid

⁷ Modelling based on:

a) OHID, 2022, Water Fluoridation: Health Monitoring Report for England 2022

b) [Hospital tooth extractions in 0 to 19 year olds: 2022 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/hospital-tooth-extractions-in-0-to-19-year-olds-2022)

c) Community Dental Services-CiC tooth extraction data 2021/22

d) Nyakutsikwa, Blessing (2021): Water fluoride concentrations (mgF/L) per Lower Super Output Area (LSOA) in England (2009 - 2020). University of Manchester.

⁸ There is an estimated 27%-35% reduction in tooth decay among those who have spent their whole life in fluoridated areas (Griffin et al. 2007). It is not possible to quantify the local scale of this estimated reduction, as recent robust local prevalence estimates for tooth decay among adults are not available.

⁹ Modelling based on:

a) Nyakutsikwa, Blessing (2021): Water fluoride concentrations (mgF/L) per Lower Super Output Area (LSOA) in England (2009 - 2020). University of Manchester.

b) Nottinghamshire County Council, 2019, Adult Social Care and Public Health Strategy

c) Office for National Statistics, 2021, Census 2021

¹⁰ York Health Economics Consortium for PHE, 2016, A rapid review of the evidence on the cost effectiveness of interventions to improve the oral health of children aged 0-5 years.

¹¹ Bardsley et al., 2014, Health Effects of Water Fluoridation: A review of the scientific evidence

13. A summary evaluating the effects of fluoridation is provided in **Appendix 2**.
14. Although children from both affluent and deprived areas benefit from fluoridation, the most significant impacts of water fluoridation on improving oral health are seen in least advantaged areas, because of the well-established correlation between deprivation and sub-optimal dental outcomes. Currently the Nottingham and Nottinghamshire Integrated Care System (ICS) population includes just over 13,500 (22%) children under five years of age benefiting from fluoridation and just over 47,300 (78%) living in non-fluoridated areas.
15. Currently, the areas in the County that are fluoridated are those of greatest deprivation. However, there are pockets of deprivation within the remaining districts and all residents are likely to have some benefit from water fluoridation. There are no children in Nottingham City currently benefitting from water fluoridation.
16. Within the County, in 2021/22, the highest prevalence of tooth decay experienced in five-year-olds was identified in Newark and Sherwood (23.5%), an area where the majority of water is not fluoridated. In Mansfield 16.9% and Ashfield 16.1% of five-year-olds experienced tooth decay. Both of these areas are fluoridated; the evidence shows that without this, the oral health of these children would likely be worse.
17. Comparing the oral health of these children with those in non-fluoridated areas with similar socio-economic characteristics demonstrates that the oral health of children from similar areas without water fluoridation is worse than the national average. For example, in Boston in Lincolnshire (non-fluoridated area which is a Chartered Institute of Public Finance and Accountancy (CIPFA) statistical neighbour of Mansfield), 32.0% of five-year old children had visible decay experience compared to Mansfield, where it is 16.9% of five-year old children.¹²
18. Enhancing fluoridation schemes locally will contribute towards improving the overall oral health of the local population and reduce oral health inequalities and future demand on dentistry. It also supports the delivery of NHS England's Core20PLUS5 clinical priority to reduce tooth extractions due to decay for children (aged 10 years and under) admitted as inpatients in hospital.¹³

Progress and Next Steps

19. In July 2023, Nottinghamshire County Council Full Council approved a resolution to work with other local councils, the Integrated Care Partnership and water companies to champion the oral health agenda, including the expansion of water fluoridation to all parts of Nottinghamshire. In September 2023, Nottingham City Council Full Council re-affirmed its commitment to improving dental health, including advocating for a local water fluoridation scheme for Nottingham City.
20. In October 2023, the Integrated Care Partnership endorsed a letter from the Chairs of the two Health and Wellbeing Boards, the Chair of the Integrated Care Partnership and the Chief Executive of the Integrated Care Board, to the Secretary of State for Health and Social Care which requests the expedition of the extension of water fluoridation for every community in Nottingham and Nottinghamshire. Integrated Care Board endorsement was given in November 2023.

¹² OHID, 2023, National Dental Epidemiology Survey of five-year olds, 2021/22

¹³ NHS England, 2021, [Core20PLUS5 an Approach to Reducing Health Inequalities](#)

21. Both local authorities are working jointly to engage with key stakeholders and developing a formal request letter to the Secretary of State to expedite a more detailed exploration of water fluoridation schemes that benefit all Nottingham and Nottinghamshire residents.
22. The process for extending water fluoridation can be split into two distinct phases:
- a. **Phase One** (September 2023 – March 2024): Stakeholder engagement and development of a request letter to the Secretary of State. This will be led by local authorities and a fluoridation working group with the aim that the Secretary of State agrees to explore expanding the existing fluoridation schemes. Executive sponsorship/leadership for phase One is provided by the Chairs of the Nottingham and Nottinghamshire Health and Wellbeing Boards, Cllr John Doddy (Nottinghamshire) and Cllr Linda Woodings (Nottingham City).
 - b. **Phase Two** (if Phase One is successful, 2024 onwards may take three to ten years to fully implement): Exploring and expanding water fluoridation schemes locally, led by the Department for Health and Social Care (DHSC). This will involve feasibility studies, public consultation and if successful building infrastructure. The local system will be asked to support rather than lead this phase. The steps within Phase Two are detailed in **Appendix 3**.

Conclusion

23. Reviews of studies conducted around the world confirm that water fluoridation is an effective and safe public health measure, providing the greatest value for money of all oral health interventions, in particular for 0–5-year-olds and those living in the most deprived areas of Nottinghamshire.
24. A letter from the Chairs of the Nottingham and Nottinghamshire Health and Wellbeing Boards, the Chair of the Integrated Care Partnership and the Chief Executive of the Integrated Care Board will be sent to the Secretary of State for Health and Social Care to request the expedition of the extension of water fluoridation in Nottingham and Nottinghamshire. The Health and Wellbeing Boards will be kept informed of any outcomes, alongside other key stakeholders in the Integrated Care System.

Other Options Considered

25. There is the option to not inform members of the Nottinghamshire Health and Wellbeing Board on progress made to engage with partners and champion the oral health agenda within the Integrated Care System. This option was discounted as the Chair had received delegated authority and responsibility to do so as part of Nottinghamshire County Council's approved motion in July 2023.

Reasons for Recommendation

26. Water fluoridation is a population-level public health intervention which has been shown to reduce the likelihood and scale of tooth decay in children and adults. Reviews of studies conducted around the world confirm that water fluoridation is an effective and safe public health measure, providing the greatest value for money of all oral health interventions in

particular for 0–5-year-olds and those living in the most deprived areas of the Nottinghamshire. The Chair of the Health and Wellbeing Board has been granted responsibility to work with relevant stakeholders to champion the extension of water fluoridation.

Statutory and Policy Implications

27. This report has been compiled after consideration of implications in respect of crime and disorder, data protection and information governance, finance, human resources, human rights, the NHS Constitution (public health services), the public sector equality duty, safeguarding of children and adults at risk, service users, smarter working, sustainability and the environment and where such implications are material they are described below. Appropriate consultation has been undertaken and advice sought on these issues as required.

Financial Implications

28. The Health and Care Act 2022 put new provisions in place, which empower the Secretary of State, instead of local authorities, to establish new, vary or terminate water fluoridation schemes in England. National government is now responsible for the associated work of fluoridation, such as the cost of feasibility studies, consultations and the capital and revenue costs of new and existing schemes (as outlined in paragraph 10). Therefore, there are no direct financial implications arising from this report.

Consultation

29. There are no plans for consultation at this stage. A public consultation would need to be completed by the Secretary of State to expand, vary or terminate any water fluoridation scheme. Local support for expanding fluoridation is being sought with a range of partners across the Nottingham and Nottinghamshire Integrated Care System. The process for expansion of water fluoridation is summarised in paragraph 22 and **Appendix 3**.

Human Resources Implications

30. There are no implications for human resources. If successful in advocacy for expanding water fluoridation, resource for the next phase is planned and sourced from existing Health and Wellbeing Board and Public Health divisional capacity.

Human Rights Implications

31. There are no direct implications for human rights, however the topic of fluoridation can prompt debates about ethics. Dental and health professionals argue that combating tooth decay using a safe and effective public health measure is a necessary and highly ethical course of action to take. However, ethical concerns can focus on issues around the population being unable to choose whether or not to drink fluoridated water. Nevertheless, fluoride already occurs naturally in water supplies. Water fluoridation schemes adjust fluoride levels to replicate a naturally occurring benefit that would occur where fluoride is already present at the optimal level of 1.0 part per million (ppm).

Implications in relation to the NHS Constitution

32. Expanding the current fluoridation schemes would ensure that future generations in every community in Nottinghamshire enjoy its benefits. It would reduce pressure on dental services commissioned by the Nottingham and Nottinghamshire Integrated Care Board (ICB).

Implications for Residents

33. Water fluoridation schemes currently operate in North Nottinghamshire, serving around 247,000 (30%) of Nottinghamshire County residents. Areas covered are parts of Ashfield, Mansfield and Bassetlaw, plus a small area in Newark and Sherwood. To expand the scheme to the rest of the county would deliver oral health benefits for future generations across the whole of Nottinghamshire.

Implications for Sustainability and the Environment

34. Fluoride already occurs naturally in water supplies across the UK. Water fluoridation schemes adjust fluoride levels to replicate a naturally occurring benefit. In 2009, the European Commission Scientific Committee on Health and Environmental Risk (SHER) review of water fluoridation concluded that the 'levels of fluoride used for fluoridation of drinking water is not expected to lead to unacceptable risks to the environment.' Water companies have continuous fluoride monitoring, linked to automatic shut-down to eliminate the possibility that concentrations could be above the permitted level.

RECOMMENDATION

The Nottinghamshire Health and Wellbeing Board is asked:

- 1) To comment on and support the work programme to champion better oral health outcomes for children and young people and advocate for the expansion of water fluoridation in Nottinghamshire.

Councillor Dr John Doddy
Chair of Nottinghamshire Health and Wellbeing Board
Nottinghamshire County Council

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Constitutional Comments (KA 30/11/23)

35. The recommendation falls within the terms of reference of the Nottinghamshire Health and Wellbeing Board (24 May 2023).

Financial Comments (DG 27/11/23)

36. There are no direct financial implications arising from this report.

Background Papers and Published Documents

Except for previously published documents, which will be available elsewhere, the documents listed here will be available for inspection in accordance with Section 100D of the Local Government Act 1972.

- Nottinghamshire County Council, Full Council Motion, 13 July 2023

Electoral Division(s) and Member(s) Affected

- All