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Something in the water: opening the public health law policy window for fluoridation?

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ABSTRACT

Alongside the more widely debated provisions relating to the organisation and delivery of healthcare services in the National Health Service in England, the Health and Care Act 2022 contains measures relating to public health. This article offers a critical examination of one of these, that relating to fluoridation of water supplies. The nature of this intervention as a response to problems of poor oral health is considered, and the changes made by the 2022 Act are explained. It is argued that there are clear reasons for altering the statutory framework, but that it is less immediately apparent why this development is taking place at this point in time. In order to answer this question, John Kingdon's concept of a 'policy window' is deployed as a framework for understanding agenda-setting in this context. Additionally, this can facilitate analysis of the future likelihood of use of the powers conferred by the 2022 Act in this controversial area of public health.

Keywords: Health and Care Act 2022; fluoridation; agenda-setting; policy window; evidence; ethics; legitimacy.

INTRODUCTION

The Health and Care Act 2022 has attracted most attention for the manner in which it reconfigures delivery of healthcare in the National Health Service (NHS) in England, especially in respect of the move towards 'integrated care'.[1] However, buried in the 'miscellaneous' provisions contained in Part 6 of the Act are two measures which relate to public health, concerning less healthy food and drink, and fluoridation. The focus of this article is on the second of these matters, although brief reference will also be made to the first.

Fluoridation of water supplies is a public health intervention which dates from the mid-twentieth century.[2] However, it remains highly controversial, affording a useful case study in the political acceptability of such interventions. This article will explore the changes made by the

1 Health and Care Act 2022, Part 1.

2 See nn 37–38 below and accompanying text.

2022 Act, seeking to understand how this intervention has – perhaps somewhat unexpectedly – reappeared on the policy agenda, and its prospects of remaining there in the coming years.

ORAL HEALTH AS A PUBLIC HEALTH ISSUE

Oral health has been described as a 'neglected' area of population health.[3] Globally, it affects over 3.5 billion people (about 44% of the world's population), and untreated dental caries is the most prevalent health condition worldwide.[4] It has been argued that oral healthcare in high-income countries remains rooted in an interventionist and technological paradigm in which the underlying social determinants of ill health are, at best, secondary considerations to the treatment of disease.[5] This stands in contrast to the dominant strand of recent thinking on public health typified by the work of Sir Michael Marmot.[6]

In England, the cost of treating oral health conditions to the NHS has been estimated at approximately £3.6 billion per year.[7] There is a particular problem in respect of children, with one quarter of five-year-old children having decay in primary teeth, and hospital admissions of children aged 0 to 19 due to avoidable decay being twice the level of the next most common cause for admission.[8] Poor oral health is also a matter of health inequality, with a social gradient existing across various indicators (such as dental caries, periodontal diseases and tooth loss),[9] similar to that observed in the famous 'Whitehall Study'.[10] There are also stark geographical variations,[11] particularly among children.[12]

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3 R Watt et al, 'Ending the neglect of global oral health: time for radical action' (2019) 394 The Lancet 261, 261.

4 Ibid.

5 Ibid 262.

6 See eg M Marmot and R Wilkinson (eds), *Social Determinants of Health* 2nd edn (Oxford University Press 2005); M Marmot et al, *Fair Society, Healthy Lives* (The Marmot Review 2010); M Marmot, *The Health Gap* (Bloomsbury 2015). Marmot led the World Health Organization's Commission on Social Determinants in Health and was co-author of the highly influential *Closing the Gap in a Generation* (World Health Organization 2008).

7 Public Health England, *Adult Oral Health: Applying All Our Health* (2022).

8 G Lowery and S Bunn, POST: Rapid Response: *Water Fluoridation and Dental Health* (2021).

9 See Public Health England, *Inequalities in Oral Health in England* (2021) 17–25.

10 For the original study, see D Reed et al, 'Cardiorespiratory disease and diabetes among middle-aged male civil servants' (1974) 303 The Lancet 469; and for the follow-up, see M Marmot et al, 'Health inequalities among British civil servants: the Whitehall II study' (1991) 337 The Lancet 1387.

11 Public Health England (n 9 above) 25–39.

12 Ibid 30–34.

There would therefore seem to be a strong case for some form of intervention to address problems of oral health in England. That is, poor oral health should be viewed as a matter of *public health* – understood as a matter which generates a normative obligation upon government to take action to ameliorate suffering and enhance wellbeing at a population level[13] – for at least four reasons.

First, and most broadly, oral diseases continue to cause 'pain, infection, and low quality of life',[14] and thus, in Sen's terms, limit 'the extent to which people have the opportunity to achieve outcomes that they value and have reason to value'[15] in their lives. Arguably, it is incumbent upon the state to seek to provide conditions that allow people to achieve good oral health through appropriate exercise of a 'stewardship' role.[16]

Relatedly, and second, the economic costs of poor oral health provide a basis for public health intervention because, in a publicly funded health system such as the NHS whose resources are necessarily finite, management of these conditions reduces the capacity to treat patients with other forms of illness. In a somewhat indirect sense, then, there is justification for intervention based around a Millian harm principle, since the poor oral health of person A may cause harm (for example) to diabetic person B by (say) making B wait longer for NHS treatment. However, beyond this, since the NHS can be regarded as an exemplar of 'joint work necessary to the interests of society of which [the individual] enjoys the protection',[17] state activity is permissible even on Mill's liberal account.[18]

Third, and to return to Mill, there is a rationale for intervening in order to protect vulnerable categories of individuals, since 'those who are still in a state to require being taken care of by others, must be protected against their own actions as well as against external injury'.[19]

13 See J Coggon, *What Makes Health Public? A Critical Evaluation of Moral, Legal, and Political Claims in Public Health* (Cambridge University Press 2012) especially ch 3; also L Gostin and L Stone, 'Health of the people: the highest law?' in A Dawson and M Verweij (eds), *Ethics, Prevention and Public Health* (Oxford University Press 2007).

14 Watt et al (n 3 above) 261.

15 A Sen, *Development as Freedom* (Alfred A Knopf 1999) 291.

16 See Nuffield Council on Bioethics, *Public Health Ethics* (2007) [2.41]–[2.44]. For critiques, see A Dawson and M Verweij, 'The steward of the Millian state' (2008) 1 Public Health Ethics 193; J Coggon, 'What help is a steward? Stewardship, political theory and public health law and ethics' (2011) 69 Northern Ireland Legal Quarterly 599; S Hølm, 'From steward to Stuart: some problems in deciding for others' (2011) 69 Northern Ireland Legal Quarterly 617.

17 J S Mill, 'On liberty' in S Collini (ed), *On Liberty and Other Essays* (Cambridge University Press 1989) 14.

18 See further Nuffield Council on Bioethics (n 16 above) [2.17].

19 Mill (n 17 above) 13.

In this regard, we may note the particular problems of poor oral health among children, who 'are susceptible to dental caries, are less able to make informed choices about their dental health, and are dependent on parents and carers to assist with or promote preventative measures such as tooth brushing'.[20]

Fourth, there are strong legal and ethical drivers for intervention based on the existence of inequalities in oral health. From the former standpoint, section 1C of the National Health Service Act 2006 imposes an obligation on the Secretary of State to 'have regard to the need to reduce inequalities between the people of England with respect to the benefits that they can obtain from the health service';[21] comparable duties are placed on NHS England,[22] and Integrated Care Boards.[23] From an ethical perspective, in light of the fact that 'health is among the most important conditions of human life and a critically significant constituent of human capabilities which we have reason to value',[24] inequalities in health are central to conceptions of justice. Avoidable inequalities in oral health may inhibit the attainment of fair equality of opportunity,[25] and Marmot notes that he has 'never heard anyone who subscribes to democracy, politician or academic, say that equality of opportunity is a bad thing'.[26]

However, the presence of rationales for a public health intervention in oral health does not in itself tell us *what form/s* such an intervention might most appropriately take. Famously, Gostin has provided a typology of legal interventions in public health,[27] some of which – such as strategies to alter the informational environment – might be considered to amount to 'law' only on a very expansive definition of

20 Nuffield Council on Bioethics (n 16 above) [7.17]. See also the statement of Nigel Carter, Chief Executive of the Oral Health Foundation, quoted in Department of Health and Social Care, Policy Paper, *Health and Care Bill: Water Fluoridation* (updated 10 March 2022): 'We believe that water fluoridation is the single most effective public health measure there is for reducing oral health inequalities and tooth decay rates, especially amongst children.'

21 As inserted by Health and Social Care Act 2012, s 4.

22 National Health Service Act 2006, s 13G, as inserted by Health and Social Care Act 2012, s 23.

23 National Health Service Act 2006, s 14Z35, as inserted by Health and Care Act 2022, s 25(2).

24 A Sen, 'Why health equity?' in S Anand, F Peter and A Sen (eds), *Public Health, Ethics, and Equity* (Oxford University Press 2006) 23.

25 See Nuffield Council on Bioethics (n 16 above) [7.19].

26 M Marmot, 'Capabilities, human flourishing and the health gap' (2017) 18 Journal of Human Development and Capabilities 370, 373.

27 See L Gostin and L Wiley, *Public Health Law: Power, Duty, Restraint* 3rd edn (University of California Press 2016) 27–33.

that term.[28] Similarly, albeit from a perspective more grounded in political philosophy, the Nuffield Council on Bioethics has developed a well-known public health 'intervention ladder':

> with progressive steps from individual freedom and responsibility towards state intervention as one moves up the ladder. In considering which 'rung' is appropriate for a particular public health goal, the benefits to individuals and society should be weighed against the erosion of individual freedom.[29]

The higher the rung on the ladder (which ranges from 'do nothing or simply monitor the situation' at the bottom to 'eliminate choice' at the top), the more there is intrusion on individual liberty, and the greater the justification which is said to be needed.

Most interventions adopted to date in England have had a behavioural and/or educational focus and have been most comprehensively developed in relation to children. They include oral health training for professionals (such as health visitors, teachers and pharmacists), media campaigns to promote the value of good oral health, healthy food and drink policies, supervised teeth-brushing schemes, facilitating access to dental services, and targeted community-based fluoride varnish programmes.[30] Such strategies can be considered to be 'softer forms of social control'[31] and since they involve relatively minimal intrusions upon individual liberty, would seem to require little in the way of justification. A 'harder' measure is the so-called 'sugar tax' (soft drinks industry levy) introduced in 2018,[32] although this was rationalised as a means of addressing obesity, particularly among children,[33] rather than being connected to oral health.[34]

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28 For a broad definition which incorporates 'softer means of social control', see J Coggon, K Syrett and A M Viens, *Public Health Law: Ethics, Governance and Regulation* (Routledge 2017) 67 and ch 4 generally.

29 Nuffield Council on Bioethics (n 16 above) [3.37].

30 See Public Health England, *Local Authorities Improving Oral Health: Commissioning Better Oral Health for Children and Young People* (2014) ch 3.

31 Coggon et al (n 28 above).

32 See Finance Act 2017, Part 2.

33 See HM Treasury, 'Soft drinks industry levy comes into effect' (5 April 2018).

34 See eg Nigel Carter, Oral Health Foundation, quoted in Oral Health Foundation, 'Launch of new sugar tax leaves "bitter taste" when it comes to oral health' (3 April 2018): 'The sugar tax falls short when it comes to oral health and it does not do enough to address the crisis we have seen develop as a result of excessive sugar consumption in the UK over recent years ... We want to see the sugar tax reviewed with a greater focus on oral health, it needs to cover more products and also must seriously consider putting some of the funds it generates into oral health preventive programmes in schools, which have been proved to be effective.'

FLUORIDATION AS AN ORAL PUBLIC HEALTH INTERVENTION

Fluoride is the term given to various compounds of the element fluorine which occur naturally and are released from rocks into soil, air and water. It is present in almost all water (both salt and fresh) at varying levels.[35] It acts on teeth by stimulating remineralisation, thus making tooth enamel more resistant to the acid present in sugary foods and drinks, which can cause cavities.[36]

Epidemiological studies conducted in the United States (US) in the 1930s and 1940s demonstrated that, as the levels of fluoride increased, so the incidence of dental caries decreased, with no significant health side effects other than an increase in dental fluorosis (a developmental defect of dental enamel).[37] A community trial conducted in the city of Grand Rapids from 1945 onwards, in which fluoride was added to drinking water, had positive outcomes and, in 1951 the Surgeon General stated fluoridation to be an official policy of the US Public Health Service.[38] By 2018, 73 per cent of the US population had access to fluoridated water;[39] worldwide approximately 400 million people are covered by artificial fluoridation schemes, and another 50 million consume water with fluoride naturally occurring at similar levels.[40]

In England, approximately 6 million people live in areas covered by water fluoridation schemes, with a further one-third of a million being supplied with naturally fluoridated water.[41] The longest-standing community water fluoridation scheme is that established in Birmingham and Solihull in 1964, with several others in the north east and north west following before the turn of the decade. As of 2020, 26 unitary and upper-tier local authorities had schemes covering all or part of their geographical areas; this includes some large population centres such as Birmingham, Coventry, Newcastle-upon-Tyne and Wolverhampton.[42]

Notwithstanding the original twentieth-century US studies, there is continuing debate around the evidence basis of water fluoridation as a public health intervention. In its policy paper accompanying the

35 See Centers for Disease Control and Prevention, 'About fluoride'.

36 See Lowery and Bunn (n 8 above).

37 See M Lennon, 'One in a million: the first community trial of water fluoridation' (2006) 84 Bulletin of the World Health Organization 759, 759.

38 Ibid 760.

39 Centers for Disease Control and Prevention, 'Water fluoridation data and statistics'.

40 Department of Health and Social Care (n 20 above).

41 Public Health England, *Improving Oral Health: A Community Water Fluoridation Toolkit for Local Authorities* (2020) 7.

42 Ibid [2.3].

Health and Care Bill, the Department of Health and Social Care argued that 'evidence supports water fluoridation as an effective public health measure that has the ability to benefit both adults and children, reduce oral health inequalities and offer a significant return on investment', and noted that there is no evidence of health harms arising from areas with artificial or natural fluoridation in England.[43] However, it did make reference to studies reporting associations with adverse developmental neurological effects,[44] and to indications of other conditions, including bone cancer, Down's Syndrome and kidney issues, while somewhat glibly dismissing such concerns on the basis that 'various authoritative expert evaluations from different international organisations all agree that there is no convincing evidence that fluoride in drinking water at levels used in fluoridation schemes ... is harmful to general health'.[45]

A more comprehensive evaluation of the evidence was presented in a systematic review commissioned by the Department of Health under the Blair Government.[46] Although this prompted the enactment of the measures contained in the Water Act 2003 which are discussed in the next section of this article, the conclusions of the review were ambivalent. The researchers noted that 'although there has been considerable research in this area, the quality is generally low', that 'the miscellaneous other adverse effects studied did not provide enough good quality evidence on any particular outcome to reach conclusions', and that 'the association between water fluoridation, caries and social class needs further clarification'.[47] The Nuffield Council on Bioethics noted that this hesitancy was 'somewhat surprising, given that fluoridation has been implemented as a policy option for several decades'.[48]

Others have been more forthright. Cheng, Chalmers and Sheldon observe that 'while the quality of evidence on potential long term harms of fluoridated water may be no worse than that for some common clinical interventions, patients can weigh potential benefits and risks before agreeing to treatments',[49] in a manner which is much less open

43 Department of Health and Social Care (n 20 above).

44 On this, see further L Gravitz, 'The fluoride wars rage on' Nature Outlook (27 October 2021).

45 Ibid.

46 Department of Health, *Saving Lives: Our Healthier Nation* (Cm 4386 1999) [9.20].

47 NHS Centre for Reviews and Dissemination, *A Systematic Review of Water Fluoridation* (University of York 2000) [12.9], [12.4], [12.3].

48 Nuffield Council on Bioethics (n 16 above) xxix.

49 K Cheng, I Chalmers and T Sheldon, 'Adding fluoride to water supplies' (2007) 335 British Medical Journal 699, 700.

to them in the case of fluoridation.[50] They also argue that fluoride should be classified as a medicine,[51] and that as such:

> evidence on its effects should be subject to the standards of proof expected of drugs, including evidence from randomised trials. If used as a mass preventive measure in well people, the evidence of net benefit should be greater than that needed for drugs to treat illness.[52]

The authors enumerate various jurisdictions and locations in which fluoridation schemes have been withdrawn, including Germany, the Netherlands, Sweden, and Basel, Switzerland.[53] By contrast, fluoridation is mandatory in the Republic of Ireland.[54]

THE LEGAL FRAMEWORK FOR FLUORIDATION SCHEMES IN ENGLAND: BEFORE AND AFTER THE 2022 ACT

Part III, Chapter IV of the Water Industry Act 1991, which incorporates the content of the Water (Fluoridation) Act 1985, permits the making of 'arrangements' to increase the fluoride content of water supplies by water companies. Any agreement incorporating such arrangements – a 'fluoridation scheme' – is made between the Secretary of State and the relevant water company or companies.[55] The latter are obliged to comply with a request to establish such a scheme by section 58 of the Water Act 2003, subject to provision of an indemnity against any liabilities arising therefrom.[56] This represents an important departure

50 For discussion of issues relating to the giving of consent, see nn 139–147 below and accompanying text.

51 There is support for this in an opinion of Lord Jauncey in the Court of Session, see *McColl v Strathclyde RC* 1983 SC 225, wherein he stated that he was satisfied that fluoride fell within the definition of a 'medicinal product' for the purposes of Medicines Act 1968, s 130. See also *New Health New Zealand Inc v South Taranaki DC* [2018] NZSC 59, in which it was held that fluoridation of drinking water constituted medical treatment for the purposes of New Zealand Bill of Rights Act 1990, s 11. See further the discussion at nn 142 and 147 below and accompanying text.

52 Cheng et al (n 49 above), 701.

53 Ibid, 700.

54 Health (Fluoridation of Water Supplies) Act 1960.

55 In Wales, by the Welsh Ministers. The Health and Care Act 2022 makes no substantial change to the position in Wales, and the Welsh Government has indicated that it has no present intention to fluoridate water supplies: see Senedd Cymru/Welsh Parliament WQ84109(e) (16 December 2021). Accordingly, this article focuses upon the position in England only; note that the provisions on fluoridation do not apply to Northern Ireland or Scotland.

56 Water Industry Act 1991, s 90.

from the 1991 legislation, under which the increase of fluoride content by water companies was a matter of their discretion.[57]

Responsibility for instigating action on schemes was conferred on local authorities in England by the Health and Social Care Act 2012, in consonance with the transfer of duties relating to public health to the local level of government under section 12 of that statute.[58] Hence, section 88 of the Water Industry Act, as amended by the 2012 Act,[59] empowers local authorities to make a 'fluoridation proposal' to the Secretary of State, defined as being one to 'enter into arrangements with one or more water undertakers to increase the fluoride content of the water supplied by the undertaker or undertakers to premises within such area or areas in England as may be specified in the proposal'.[60] Any such proposal requires consultation with the Secretary of State and water companies supplying water to premises within the affected area(s) and determination that the consequent arrangements would be 'operable and efficient'.[61] In a situation where other local authorities are affected by plans to proceed with a scheme, these are to be notified and given opportunity to decide for themselves whether further steps should be taken in relation to the proposal.[62] This carried important implications for the feasibility of this process, which will be noted in the subsequent section of this article.

In addition, and importantly, section 88E(2) of the 1991 Act provided that, prior to undertaking further steps to take forward a fluoridation proposal, the proposing local authority 'must comply with such requirements as may be prescribed in regulations made by the Secretary of State as to the steps to be taken for the purposes of consulting and ascertaining opinion in relation to the proposal'. These requirements were set out in the Water Fluoridation (Proposals and Consultation) (England) Regulations 2013.[63] The object of these, given that 'fluoridation is controversial', was to ensure that 'no decisions are taken on fluoridation until after a public consultation is conducted'.[64] There is an obligation to publish details of the proposal and the intended steps in appropriate local newspapers and other accessible local media and to provide a period of at least three months during which representations can be made by affected individuals and bodies with an interest in the proposal.[65] The regulations do not

57 Ibid s 87(1).
58 Inserting s 2(B) into National Health Service Act 2006.
59 S 36.
60 S 88B(2).
61 Ss 88C(2) and (3).
62 Ss 88D(2) and (3).
63 SI 2013/301.
64 Explanatory Memorandum to the Regulations, para [7.2].
65 SI 2013/301, reg 5.

specify a particular mechanism for determining the outcome of the local consultation process, although the accompanying explanatory memorandum states that 'government does not consider that decisions on fluoridation proposals should be determined solely by a count of the number of representations received or by local referendums'.[66] However, regulation 6 provides that a decision on whether to request the Secretary of State to make the necessary arrangements with water companies under section 87 must have regard to consultation responses with a view not only to assessing the level of support for the proposal, but also 'the strength of any scientific evidence or ethical arguments advanced'. Other factors which must be taken into account are any assessment of relevant needs contained in a joint strategic needs assessment and/or joint health and wellbeing strategies prepared under section 116 of the Local Government and Public Involvement in Health Act 2007; other available scientific evidence, including evidence of benefit to the health and wellbeing of affected individuals; and, significantly, the capital and operating costs of giving effect to the proposal.

The provisions on water fluoridation in the 2022 Act amount to just two sections,[67] 'slipped, virtually unnoticed, into the nether regions' of the statute.[68] The primary effect of these is to amend section 88 of the 2001 Act,[69] such that fluoridation schemes in England are now to be initiated (or varied or terminated) by *central government*, in the person of the Secretary of State for Health and Social Care, as distinct from local authorities. In so doing, the minister is obliged to consult with the relevant water companies as to whether the scheme would be operable and efficient,[70] as well as on a wider basis by virtue of an extension of the provisions of section 89 of the 2001 Act, which previously applied only to Wales.[71] To this end, the 2013 Regulations are revoked and replaced by broadly similar provisions made under section 89(3) of the 2001 Act.[72] The 2022 Act also transfers responsibility for meeting the capital and operating costs of any such scheme from local authorities to central government, although a power is conferred upon the Secretary of State to make regulations disapplying this obligation, and these may

66 Explanatory Memorandum (n 64 above) para [7.3].
67 Ss 175, 176.
68 HL Deb, 7 December 2021, vol 816, col 1869 (Lord Reay).
69 And, by extension, s 36 Health and Social Care Act 2012: see Health and Care Act 2022, s 175(7).
70 Water Industry Act 1991, s 87(11), as amended by Health and Care Act 2022, s 175(2)(g).
71 Health and Care Act 2022, s 175(5).
72 Water Fluoridation (Consultation) (England) Regulations 2022, SI 2022/1163.

also require public bodies to meet such costs which would otherwise be borne by government.[73]

UNDERSTANDING THE CHANGES MADE BY THE 2022 ACT

As noted in the preceding section, the alterations to the provisions on water fluoridation contained in the recent Health and Care Act work against the grain of the approach to public health issues taken under the Health and Social Care Act 2012. That statute conferred responsibility on local government in England (with an additional role played by Public Health England at national level) to address matters of population health, as had also been the case prior to 1974. This was justified on the basis that local authorities had a natural population focus, the ability to shape services to meet local needs and to promote wellbeing, the capacity to influence the social determinants of health, and an ability to tackle health inequalities given their 'ample experience of the reality of health inequalities in their communities'.[74] Why, then, has the 2022 Act moved in a different direction?

The most straightforward answer to this question is that the previous legislation was wholly inefficacious in achieving the improvements in population health which the addition of fluoride to drinking water is intended to bring about.[75] Although approximately six million people in England live in areas covered by fluoridation schemes,[76] no such schemes have in fact ever been made under the statutory regime initially established by the Water (Fluoridation) Act 1985.[77] A number of related factors would appear to explain this inactivity.

First, there was the problem of a disparity between local authority boundaries and the areas covered by water companies, whose boundaries are determined by water distribution systems. This meant that instigation of a fluoridation scheme would frequently necessitate the engagement of several local authorities, and this rendered the process 'complex and burdensome'.[78] As noted above,[79] the Water

73 Water Industry Act 1991, ss 87(6)(A) and (B), as inserted by Health and Care Act 2022, s 175(2)(d).

74 Department of Health, *Factsheet: Public Health in Local Government: Local Government Leading for Public Health* (2011).

75 For further discussion of evidence on the health benefits of fluoridation, see n 37 above and accompanying text.

76 See Department of Health and Social Care (n 20 above).

77 See Public Health England (n 41 above) [4.4].

78 Department of Health and Social Care (n 20 above).

79 See n 62 above.

Industry Act 1991 required that other affected local authorities be notified on proposals for schemes, and their agreement secured for the undertaking of the necessary public consultation. Regulations set out the process for making decisions in situations where 'any local authority notifies the proposer … that it is not in favour of further steps being taken in relation to the proposal'.[80] In such circumstances, the progress of any fluoridation scheme was to be determined by a process of weighted voting across authorities, with each authority having a block vote, the size of which was calculated on the basis of the proportion of affected individuals resident in the authority's area.[81] For the proposal to proceed, a two-thirds (actually, 67%) majority of the block vote must be obtained.[82] The legislation then prescribes that further steps towards the establishment of the scheme, including the holding of public consultation, must be taken by an existing or specially established joint committee of the respective authorities,[83] or a Health and Wellbeing Board established by them.[84] Following consultation, decisions on whether or not to take the scheme forward were also to be determined by weighted block vote.[85]

This process was intended to secure suitable levels of democratic input from all affected authorities, local engagement being considered crucial for the legitimacy of this controversial form of intervention, as noted by the Nuffield Council.[86] However, it should be apparent from the preceding discussion of the relevant legislative provisions that securing the necessary agreement and progressing the scheme was a far from straightforward matter. The 2022 Act can therefore be seen as a means of 'streamlining the process for the fluoridation of water in England by moving the responsibilities for doing so, including consultation responsibilities, from local authorities to central government'.[87]

The second basis for moving responsibility for fluoridation schemes from local to central government relates to cost. Under the previous legislation, the operational costs entailed by any scheme were to be borne

80 Water Fluoridation (Proposals and Consultation) (England) Regulations 2013 (n 63 above), reg 3(7).
81 Ibid reg 4(1) and sch.
82 Ibid reg 4(2).
83 Water Industry Act 1991, s 88F(2).
84 Under Health and Social Care Act 2012, s 194.
85 Water Fluoridation (Proposals and Consultation) (England) Regulations 2013 (n 63 above), reg 7.
86 Nuffield Council on Bioethics (n 16 above) [7.40]. See further the discussion at n 160 below and accompanying text.
87 Department of Health and Social Care, White Paper, *Integration and Innovation: Working Together to Improve Health and Social Care for All* (2021).

by the affected local authorities,[88] although in practice these would have initially been paid by Public Health England and then charged back to the authorities.[89] Local authorities were also responsible for bearing the cost of feasibility studies and of the required public consultation prior to the decision to progress. Capital costs would have been met by Public Health England.

Obviously, these costs would be variable across the country, but as illustration, a scheme proposed by Hull City Council in 2017 was estimated to cost £330,000 per year,[90] while a proposed expansion of an existing scheme to cover the entirety of County Durham, also dating from 2017, was estimated to cost £156,000 annually.[91] These figures need to be set against the backdrop of declining local authority public health grant allocations from central government funds: these fell by 24 per cent, or approximately £1 billion, on a real-term *per capita* basis between 2015–2016 and 2021–2022.[92] Given these straitened financial circumstances, meeting the operation and consultation costs of fluoridation could be regarded as a 'burden'.[93] Thus, the transfer of responsibility for expenditure from local to central government, which is brought about by the 2022 Act,[94] appears more likely to push fluoridation forward than the previous approach.

This connects closely to the third driver, which is that, under the pre-2022 framework, local authorities were required to set poor oral health – and fluoridation as a potential intervention to address it – against numerous other demands upon the limited resources which were allocated to them for the purposes of public health. In light of the traditionally marginalised status conferred on oral health,[95] the low priority which it was accorded is scarcely surprising. The absence of clear evidence on cost-effectiveness in the case of adults provided further rationale for giving precedence to other interventions;[96] as

88 Water Industry Act 1991, s 88H.

89 Public Health England (n 41 above) 60.

90 See the Hull City Council Scheme. Net expenditure on public health for Hull City Council in 2017–2018 was £71,235,000: see Kingston Upon Hull City Council Statement of Accounts 2017–2018 at 17.

91 See Durham City Council, Health and Wellbeing Board, Oral Health Update (27 November 2017) para 29.

92 See The Health Foundation (Press Release 16 March 2021).

93 See Department of Health and Social Care (n 87 above).

94 See n 73 above.

95 See Watt et al (n 3 above) and accompanying text.

96 For discussion of the challenges of studying water fluoridation in adults, see D Moore et al, 'How effective and cost-effective is water fluoridation for adults? Protocol for a 10-year retrospective cohort study' (2021) 7(3) British Dental Journal Open.

for children, although evidence of cost-effectiveness does exist,[97] the long-term savings have to be set against the necessary short-term expenditure (and consequently, higher council tax bills) entailed in instigating and establishing a fluoridation scheme.[98]

Political considerations such as levels of electoral support are likely to be especially germane to decisions on whether to establish fluoridation schemes, given the considerable ethical controversy to which this activity gives rise (examined further below). Vocal, organised opposition to fluoridation will very likely persuade local decision-makers that proceeding is not worthwhile.[99] A vivid example of this is afforded by the proposal for a fluoridation scheme covering Southampton in 2008, which was withdrawn six years later following a vociferous campaign of opposition – including an (unsuccessful) judicial review challenge[100] – led by an *ad hoc* pressure group, Hampshire Against Fluoridation. As the Chair of this group stated in evidence to the Select Committee on Health and Social Care's inquiry into the White Paper which preceded the 2022 Act, 'local Councillors knew that they were likely to lose their seats if they imposed water fluoridation, so strong was the reaction against it'.[101]

Of course, transfer of responsibility from local to central government will not serve to eliminate the ethical and political controversy arising from fluoridation, but it does function to dissipate it in so far as the range of factors which determine political (un)popularity nationally will be much broader and varied than at local level, meaning that decisions on fluoridation carry less electoral weight on their own. This would therefore seem to offer greater possibility of advancement of the strategy than was the case with the previous framework. In this regard,

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97 For children aged five, the return on investment for every £1 spent on a water fluoridation scheme is estimated at £12.71 after five years and £21.98 after 10: see Public Health England, *Return on Investment of Oral Health Programmes for 0–5 Year Olds* (2016).

98 Of course, it is commonplace for public health interventions to show positive effects only after a lapse of a period of time, and thus not to correspond to the electoral cycle. On the matter in general, see W Nordhaus, 'The political business cycle' (1975) 42 Review of Economic Studies 169; and for public health in particular, see L Gostin, *Global Health Law* (Harvard University Press 2014) 422.

99 For discussion, see D Westgarth, 'Turning the taps on: is water fluoridation closer to becoming a reality?' (2021) 34 British Dental Journal in Practice 12.

100 *R (Milner) v South Central Strategic Health Authority* [2011] EWHC 218 (Admin).

101 Health and Social Care Committee, 'The Government's White Paper proposals for the reform of health and social care' (First Report, 2021–22, HC 20: written evidence submitted by John Spottiswoode, Chair of Hampshire Against Fluoridation (HSC0015)).

the Act might be seen as functioning to 'remove a barrier to delivery' of fluoridation, as stated in the accompanying White Paper.[102]

Taken overall, therefore, the effect of the 2022 Act is to facilitate the making of fluoridation schemes in England by shifting the task of instigating, progressing and funding them from local government to the centre. This would seem to render this a much more tenable mode of public health intervention in the future than was previously the case, not only because the obstacles identified above will prove much less awkward at national level than at local but also, more fundamentally, because 'for some time, it has been clear that water fluoridation is supported in Westminster'.[103] Notably, the then Secretary of State for Health and Social Care signified support for fluoridation,[104] reinforced by a statement from the UK's Chief Medical Officers that 'on balance, there is strong scientific evidence that water fluoridation is an effective public health intervention for reducing the prevalence of tooth decay and improving dental health equality'.[105]

WHY NOW?

The discussion in the preceding section provides an explanation for the change in the legislative framework relating to fluoridation which the Health and Care Act 2022 has brought about. However, it does not account for the *timing* of this development. Why has fluoridation now secured a place on the political agenda in England, and arguably more prominently so than ever before (given that responsibility for this form of intervention had always previously rested with local decision-makers, whether in local authorities or the NHS)?

This raises the question of how the 'science' of public health becomes translated into legislative policy. One well-known model for analysis of this issue is presented by Richmond and Kotelchuck,[106] who identify three interdependent factors: knowledge base, social strategy and political will. The first of these consists of the epidemiological and health economic evidence; in this case, we may point to the research carried out in the US as long ago as the 1930s and 1940s,[107]

102 See Department of Health and Social Care (n 87 above).

103 'Barriers to water fluoridation to be demolished in radical NHS reforms' (*The Dentist* 9 February 2021).

104 See C Smyth, 'Fluoride will be added to drinking water' *The Times* (London 23 September 2021).

105 Department of Health and Social Care, 'Statement on water fluoridation from the UK Chief Medical Officers' (23 September 2021).

106 See J Richmond and M Kotelchuck, 'Political influences: rethinking national health policy' in C McGuire et al, *Handbook of Health Professions Education* (Jossey-Bass 1983).

107 See n 37 above and accompanying text.

complemented by more recent (albeit, somewhat ambivalent) evidence on cost-effectiveness.[108] The second factor refers to 'a blueprint for goals and how to reach them'.[109] In this instance, we may regard these as consisting of the improvement of oral health and the reduction of oral health inequalities (and thus overall health and wellbeing) through particular interventions which include fluoridation schemes, although as noted above there are other, behavioural, educational and fiscal strategies which can be, and have been, used.[110] 'Political will' denotes the desire and commitment to fund and implement (or modify) interventions. For the reasons identified in the preceding section, this has been absent in the case of fluoridation as regards *local* government, with whom responsibility previously rested. Accordingly, all of the conditions for policy reform have not previously been present, since 'deliberating on health policy in the absence of any one of these components is like trying to balance on a two-legged stool'.[111]

This model is useful in explicating that translation of public health research and evidence into legislative or other forms of intervention is not a straightforwardly linear matter, but rather turns on an interdependency of factors, not all of which have existed in the case of fluoridation. However, it does not provide a full response to the question of timing posed here. The distribution of power and responsibility to act on public health is a much more fluid matter in England than it is in the US,[112] which is the basis of the Richmond and Kotelchuck framework. Where local government cannot, or chooses not to, act, it remains legally open to central government to do so in its stead, if necessary by using its control of the Commons to secure legislative authorisation for its preferred form of intervention: this is, of course, precisely what has happened in this case. As noted above, there has been support for fluoridation at central government level for some time – so what is the reason for taking action now, rather than at an earlier stage?

Here, it is submitted that the multiple streams analysis and its familiar concept of the 'policy window' developed by John Kingdon is of assistance.[113] In a general sense, this connotes 'an idea whose

108 See nn 46 and 97 above and accompanying text.

109 Richmond and Kotelchuck (n 106 above).

110 See nn 30–34 above and accompanying text.

111 K Attwood, G Colditz and I Kawachi, 'From public health science to prevention policy: placing science in its political and social contexts' (1997) 87 American Journal of Public Health 1603, 1605.

112 For discussion of the state/federal divide on matters of public health, see Gostin and Wiley (n 27 above) ch 3.

113 This was initially set out in J Kingdon, *Agendas, Alternatives and Public Policy* (Little Brown 1984).

time has come'.[114] Rather than being a product of linear, rational decision-making from problem to solution, policy action emerges from the interplay between various, independent streams, and 'solutions largely chase problems rather than vice versa'.[115] When the three streams enumerated by Kingdon – problem (there is a policy issue which is framed as needing attention); policy (a feasible solution to that problem is available); and politics (decision-makers are receptive to transforming the solution into policy)[116] – converge, a window of opportunity opens, albeit that 'these policy windows, the opportunities for action on given initiatives, present themselves and stay open for only short periods'.[117] On this analysis, 'receptivity to an idea is more important than the idea itself',[118] and 'an idea's time arrives not simply because the idea is compelling on its own terms, but because opportune political circumstances favour it'.[119]

Kingdon's analysis helps us to understand that there has not been a recent conversion to the value of fluoridation as an oral health intervention which led to the changes made in the 2022 Act: as noted previously, this strategy has consistently been favoured by many Whitehall politicians over a period of time. Rather, there is enhanced receptivity to act on this policy which has come about as a consequence of an event which has made 'some things possible that were impossible before'.[120]

That event is the Covid-19 pandemic. Its impact as a precipitating factor for the changes made in the Health and Care Act 2022 can be clearly discerned from the documents which accompanied the Bill. The White Paper proclaimed, in general, that 'our legislative proposals capture the learning from the pandemic'[121] and, in respect of the proposals relating to public health (including those on fluoridation) in particular, stated that 'our experience of the pandemic underlines the importance of a population health approach: preventing disease, protecting people from threats to health, and supporting individuals and communities to improve their health and resilience'.[122] Similarly, the factsheet addressing the fluoridation proposals concluded with the

114 Ibid 1.

115 R Durant and P Diehl, 'Agendas, alternatives and public policy: lessons from the US foreign policy arena' (1989) 9 Journal of Public Policy 179, 180.

116 See also P Cairney, *Understanding Public Policy: Theories and Issues* 2nd edn (Red Globe Press 2020) 196–199.

117 Kingdon (n 113 above) 174.

118 Cairney (n 116 above) 202.

119 R Lieberman, 'Ideas, institutions and political order: explaining political change' (2002) 90 American Political Science Review 691, 709.

120 Kingdon (n 113 above) 152.

121 Department of Health and Social Care (n 87 above).

122 Ibid.

pronouncement that 'our experience of the pandemic underlines the importance of a population health approach, informed by the evidence, supporting individuals and communities to improve their health, including their oral health'.[123]

These statements indicate that the pandemic has motivated government to accord greater weight to public health approaches. Since these do not correspond well with the electoral cycle,[124] this may seem surprising; the more so given that then Prime Minister Boris Johnson had previously expressed criticism of so-called 'nanny state' health policies, consonant with his ideologically conservative position.[125] Johnson's shift to a stance more sympathetic towards interventions on population health can be attributed at a micro level to his personal experience of Covid-19 which was thought to be connected to his overweight status.[126] At a macro level, evidence emerged of a 'syndemic' – a 'set of closely intertwined and mutual enhancing health problems that significantly affect the overall health status of a population within the context of a perpetuating configuration of noxious social conditions'[127] – of Covid-19, chronic disease and health inequalities. That is, 'the prevalence and severity of the Covid-19 pandemic [was] magnified because of the pre-existing epidemics of chronic disease—which are themselves socially patterned and associated with the social determinants of health'.[128] In this sense, two of Kingdon's streams may be said to have been impacted by the pandemic; it visibly exposed poor population health and inequalities as a significant policy problem; and it motivated policy-makers to take steps to address that problem through specific interventions in population health so as to forestall future occurrences, especially to avoid the pressures that these might place on the NHS.

In the particular case of fluoridation, the problem stream might be viewed as somewhat less prominent than was the case for obesity, there being no specific evidence that poor oral health contributed to worse Covid-19 outcomes. That said, and as noted previously,[129] low standards of oral health connect to health inequalities and can therefore be regarded as a dimension of the broader problem which

123 Department of Health and Social Care (n 20 above).

124 See further n 98 above.

125 See eg G Rayner, 'Boris Johnson aims to put an end to the "nanny state" and its "sin taxes" on food' *The Telegraph* (London 3 July 2019).

126 See S Lister, 'Boris Johnson: "My health wake-up call – and why it's a wake-up call for the WHOLE of Britain' *Daily Express* (London 27 July 2020).

127 M Singer, 'A dose of drugs, a touch of violence, a case of AIDS: conceptualizing the SAVA syndemic' (2000) 28 Free Inquiry in Creative Sociology 13, 13.

128 C Bambra et al, 'The Covid-19 pandemic and health inequalities' (2020) 74 Journal of Epidemiology and Community Health 964, 965.

129 See nn 9–12 above.

was exposed by the pandemic. Furthermore, fluoridation schemes provided an established 'solution' to the problem, backed by evidence (albeit not universally accepted) and, at least in central government, political support. The window of opportunity for fluoridation was therefore easily opened when the pandemic provided the motivation for central government to act to improve population health.

KEEPING THE POLICY WINDOW OPEN?

Kingdon's work also reminds us that the opportunity to implement policy change can be a very fleeting one: 'an idea's time comes, but it also passes'.[130] The window may shut just as swiftly as it opens, and for reasons which may be equally as unpredictable as those which precipitated the initial opening.

This is clearly demonstrated by developments relating to the second major area of population health addressed by the 2022 Act. Sections 172–174 of the Act contain measures which are intended to reduce the exposure of children to advertising of less healthy food and drink on television and online, by introducing a 9pm watershed for television and those on-demand services under the jurisdiction of the UK, and a restriction on paid-for advertising of such substances online and in on-demand services beyond the UK's jurisdiction. Here again, the pandemic provides the key to understanding how a government whose ideological orientation would ordinarily make it opposed to such forms of intervention became receptive to them, as the factsheet accompanying the Bill makes apparent:

> COVID-19 has brought the dangers of obesity into sharper focus, with evidence demonstrating that those who are overweight or living with obesity are at greater risk of being seriously ill and dying from the virus. We know that reducing excess weight is one of the few modifiable risk factors for COVID-19. Obesity is also associated with reduced life expectancy. It is a risk factor for a range of chronic diseases including cardiovascular disease, type 2 diabetes, some types of cancer, liver and respiratory disease. Therefore, the government has been clear that for the future resilience of the population, we need to address the risks obesity presents to our whole population now.[131]

The measures were intended to come into effect on 1 January 2023. However, in May 2022, it was announced that they would be delayed

130 Kingdon (n 113 above) 169.

131 Department of Health and Social Care, Policy Paper, *Health and Care Bill: Advertising of Less Healthy Food and Drink* (updated 10 March 2022).

by a year.[132] This was justified 'in light of [the] unprecedented global economic situation and in order to give industry more time to prepare for the restrictions on advertising'.[133] The delay was subsequently extended to (at least) 1 October 2025.[134]

We might therefore observe that the initial 'problem' stream of poor population health and inequalities has been trumped by another, relating primarily to the 'cost of living crisis' caused by rising rates of inflation.[135] Less explicitly, changes have also occurred in the 'politics' stream, with low poll ratings and a poor local election performance for the governing Conservative Party in early May 2022 alerting the leadership to the need to take steps to protect its electoral position. This was especially the case in areas which it had captured from the Labour Party in the December 2019 general election, whose low-income voters were among those most affected by inflation.[136] The confluence of these now differently flowing streams has led to a – purportedly temporary – closure of the policy window in respect of these interventions in population health.

The provisions on fluoridation in the 2022 Act are distinguishable from those relating to advertising of less healthy food and drink in that they are power-conferring in character: they facilitate the future establishment of fluoridation schemes by reallocating responsibility for them, but they do not constitute a direct public health intervention in themselves. Hence, in this instance the question is whether, having been furnished with these statutory powers, central government will choose to make use of them; or alternatively, whether there are reasons to predict that the window of opportunity may pass and that no further action on fluoridation is (ever?) taken.

While acknowledging, as previously noted, that the streams may change flow in unpredictable ways, there is certainly cause to doubt that the policy window for fluoridation will continue to stay open. The reason for this scepticism is that fluoridation is a highly controversial public health intervention. Certain of the drivers of this controversy

132 See Department of Health and Social Care, 'Government delays restrictions on multibuy deals and advertising on TV and online' (Press Release 14 May 2022). A delay was also announced to volume price promotions of less healthy foods (such as 'buy one get one free') and free refills for soft drinks as specified in the Food (Promotion and Placement) Regulations 2021, SI 2021/1368, regs 5 and 6.

133 Ibid.

134 Ministerial Statement, UIN HCWS 433 (9 December 2022).

135 For discussion, see D Harari and others, *Rising Cost of Living in the UK* (House of Commons Library Research Briefing 9428, 2022).

136 See ibid [4.3].

relate to the uncertain evidence base for the benefits of fluoridation and possible harms, and have been discussed previously in this article.[137] However, an important further dimension warrants exploration: that is, the ethical objections to fluoridation.

The salience of these is signalled by the fact that the 2007 report produced by the Nuffield Council on Bioethics devotes an entire chapter to fluoridation as a case study in public health ethics.[138] The most potent ethical argument against this intervention is that it is not wholly consonant with the principle of consent which 'is rightly at the centre of clinical medicine',[139] and which underpins the concept of autonomy which is fundamental to contemporary bioethics and medical law.[140] The problem is that fluoridation is an intervention which affects the entirety of the population in the geographical area which falls within the scope of the scheme in question, and it is therefore not feasible to obtain the consent of all of those affected. Hence:

> considerations about consent could ... be used to argue that the measure should not be introduced either where some individuals, however few, were opposed to it, or where individuals who had not agreed to it might be affected by it, such as those from outside the area.[141]

Rhetorically, this is most potently captured in the assertion by opponents of fluoridation that it amounts to 'mass' or 'forced medication', with the weight of this claim in part resting on the disputed question of whether fluoride should be classified as a medicine.[142]

These arguments surfaced in the committee debates on the Bill: for example, the UK Freedom from Fluoride Alliance stated that 'when deciding what we want to eat and drink as individuals in a democratic society, we should be free to decline or accept a medicine added to our drinking water, just as we can with any other medicine';[143] the chair of the group which had opposed the earlier Southampton scheme claimed that 'it is a basic human right to be able to say "no" to forced

137 See nn 43–52 above and accompanying text.

138 Nuffield Council on Bioethics (n 16 above) ch 7.

139 Ibid [2.24]. See also General Medical Council, *Decision-Making and Consent* (General Medical Council 2020).

140 For a valuable discussion of the relationship of the concepts of consent, autonomy and liberty, see J Coggon and J Miola, 'Autonomy, liberty and medical decision-making' (2011) 70 Cambridge Law Journal 523.

141 Nuffield Council on Bioethics (n 16 above) [7.20].

142 See n 51 above. The Nuffield Council observes that the Medicines and Healthcare Products Regulatory Authority considers it not to be a medicinal product: ibid 130. See further the comments of Lord Reay (n 147 below).

143 Public Bill Committee, Health and Care Bill 2021: written evidence submitted by UK Freedom from Fluoride Alliance, HCB 47.

medication';[144] and the group Bromsgrove for Pure Water asserted that 'individual choice is subsumed by the urge to treat us as a mass. We are individuals and we should have the right (according to the NHS Constitution) to refuse compulsory treatment.'[145] Concerns were also expressed in the House of Lords debate on the Bill, with a Green Party peer stating that 'this is about not mass medicating without consent',[146] while Lord Reay, a Conservative, argued that:

> If fluoridated water were treated as a medicine, individuals would then have the absolute right to refuse the administration of water fluoridation by choice, and industrial-grade fluoridating chemicals would not be allowed. Of course, if it were defined as a medicine, it could not be administered without consent. When fluoride is delivered via toothpaste, the individual has a choice in the matter. When it is carried through the public water supply, there is no individual choice and the ingested fluoride goes to every tissue in the body, including those of the unborn child.[147]

Additionally, the Nuffield Council delineates two further ethical objections to fluoridation which may be advanced irrespective of whether this intervention is considered to be akin to mandatory medical treatment. These are closely connected: first, that individuals should be able to exercise choice over what they place within their bodies; and second, that individuals should not be coerced into leading healthy lives.[148] Both of these speak to the primacy accorded in a liberal society to autonomy, as self-governance.[149]

The weight of these arguments, especially the first, raises questions as to the likelihood of the policy window for fluoridation remaining open. Returning to Kingdon's work, we might surmise that the third, politics, stream reflects not only an enhanced motivation for government to act on poor oral health as a consequence of the pandemic, but also a belief that such action will be more likely to be comprehended and accepted by a public which is now attuned to the need to take measures to protect and improve population health as a result of its experience of Covid-19 and the subsequent vaccine rollout. Expressed differently, the assumption is that public health interventions such as fluoridation will have greater *legitimacy* post-pandemic than was the case prior to 2020. However, whether this outcome will eventuate is, at best, uncertain. It seems clear from the contributions to the debates on the

144 Health and Social Care Committee: written evidence submitted by John Spottiswoode (n 101 above).
145 Ibid: written evidence submitted by Bromsgrove for Pure Water, HSC0020.
146 HL Deb, 31 January 2022, vol 818, col 703 (Baroness Bennett of Manor Castle).
147 Ibid, col 682 (Lord Reay).
148 Nuffield Council on Bioethics (n 16 above) [7.21]–[7.22].
149 Ibid [2.10].

Bill that were noted above that dissenting voices will continue to make themselves powerfully heard on this issue. It is, therefore certainly plausible that any future proposal to introduce fluoridation schemes will be confronted with such significant opposition – of the type seen in the Southampton case[150] – that central government will be dissuaded from acting on the powers which it has acquired under the 2022 Act.

Of course, this is not to say that it is impossible to construct contrary ethical claims to these (as distinct from those ethical arguments *in favour of intervening to improve oral health* which were noted earlier).[151] The Nuffield Council delineates one important counter-argument in stating that 'requirements for individual consent can sometimes be over-emphasised in the context of public health'.[152] In pointing towards a distinction between ethics in population health and in clinical medicine, this (albeit obliquely) connects to potentially differing conceptualisations of autonomy in the former context. It is beyond the scope of this article to explore this matter in detail, but in short it has been argued that a relational understanding of autonomy is more apposite to the mission of public health,[153] and that the Nuffield Council itself has adopted a conception of liberty and autonomy which is too thin and negative,[154] as the underpinning for its intervention ladder.[155]

In a situation, such as this, where competing ethical perspectives are at play and there is no consensus as to which most appropriately applies in order to determine the best way forward, there is often a turn to procedural justice as 'an appropriate means of reconciling different preferences within a population, even if the final policy does not meet with everyone's approval'.[156] The model of 'accountability for reasonableness' which was originally developed in the context of allocation of scarce healthcare resources, is the most widely applied

150 See n 100 above and accompanying text.

151 See nn 14–26 above and accompanying text.

152 Nuffield Council on Bioethics (n 16 above) [7.38]. For further discussion of the specific issue of consent in the public health context, see J Berg, 'All for one and one for all: informed consent and public health' (2012–2013) 50 Houston Law Review 1.

153 See eg J Owens and A Cribb, 'Beyond choice and individualism: understanding autonomy for public health ethics' (2013) 6 Public Health Ethics 262; F Zimmerman, 'Public health and autonomy: a critical reappraisal' (2017) 47 Hastings Center Report 38.

154 See P Griffiths and C West, 'A balanced intervention ladder: promoting autonomy through public health action' (2015) 129 Public Health 1092.

155 See n 29 above and accompanying text.

156 Nuffield Council on Bioethics (n 16 above) [7.39].

framework for securing legitimacy via procedural justice.[157] This model is specifically cited by the Nuffield Council in relation to fluoridation,[158] as well as more generally for public health.[159] To this end, the Council emphasises the importance of implementing consultation processes to justify fluoridation policy in lieu of securing individual consent: it recommends that these should occur at a local level, 'because the need for, and perception of, water fluoridation varies in different areas'.[160]

As noted above, the 2022 Act preserves the requirement for public consultation to take place.[161] However, the Consultation Regulations 2022 do not restrict eligibility to respond to those affected by the proposal (ie those who reside or work in the area in question), although the Secretary of State is obliged to consider whether representations made by such individuals and/or bodies with an interest should be accorded additional weight.[162]

This commitment to national, rather than purely local, consultation would seem likely to give greater scope to those who are most vociferously opposed to fluoridation on principle to continue to feed into the decision-making process for proposed new schemes. Moreover, discussion of fluoridation, comparably to Covid-19 and vaccines for it,[163] has often been characterised by 'misinformation'.[164] Taken overall, it therefore seems probable that the procedure will not be characterised by the type of rational deliberation on benefits and harms which the Nuffield Council believes will follow from requiring 'accountability for reasonableness' in this context.[165] Far from

157 For discussion, see N Daniels and J Sabin, *Setting Limits Fairly* 2nd edn (Oxford University Press 2007). For a powerful critique, see R Ashcroft, 'Fair process and the redundancy of bioethics: a polemic' (2008) 1 Public Health Ethics 3.

158 Nuffield Council on Bioethics (n 16 above) [7.41].

159 Ibid [2.25].

160 Ibid [7.40].

161 See n 71 above and accompanying text.

162 Water Fluoridation (Consultation) (England) Regulations 2022 (n 72 above), reg 5(1)(b).

163 Analogies between Covid-19 'anti-vaxxers' and opponents of fluoridation are drawn in J Ashton, 'Covid-19 and the anti-vaxxers' (2021) 114 Journal of the Royal Society of Medicine 42, 42; D Westgarth 'Fluoridation: a cost-effective, simple solution' (2021) 34 BDJ in Practice 10, 10; Science Media Centre, 'Expert reaction to statement from the UK Chief Medical Officers on water fluoridation' (23 September 2021) (Dr J Morris).

164 See eg R Arcus-Ting, R Tessler and J Wright, 'Misinformation and opposition to fluoridation' (1977) 10 Polity 281; Gravitz (n 44 above); Ashton (n 163 above). For a discussion relating to the UK in the 1960s, when 'vocal anti-fluoridators carried the day in terms of policy', see C Sleigh, Fluoridation of Drinking Water in the UK, c 1962–7: A Case Study in Misinformation before Social Media (2021) 2.

165 Nuffield Council on Bioethics (n 16 above) [7.41], [7.50].

resolving any 'legitimacy problem' which persists following the 2022 Act,[166] the proposed procedure may serve instead to exacerbate it, and thus to contribute to the closure of the policy window on fluoridation as the matter becomes too much of a political hot potato for any government to handle.

CONCLUSION

This article has explored the range of difficult questions concerning evidence, ethics and legitimacy which lie beneath the two sections of the Health and Care Act 2022 dealing with fluoridation of water supplies in England. While experience of the Covid-19 pandemic raises the possibility of enhanced public acceptability of this legislative strategy, it is argued that, in practice, it is likely to remain highly contentious, although the full extent of the controversy is unlikely to become apparent unless and until a proposal to establish a new fluoridation scheme eventuates under the powers accorded to central government by the Act.[167]

The present discussion should serve as an important reminder that, irrespective of the existence of 'scientific' evidence for a population health intervention (albeit that this itself is a matter of debate in this context), such interventions remain profoundly political in character.[168] As such, in order to understand how they come to be adopted (and dropped), whether through law or via other forms of regulation, it is necessary to appreciate the inherent messiness and contingency of the policy-making process. This article has sought to demonstrate that the multiple streams approach and policy window metaphor developed by Kingdon offers a valuable mechanism in this regard. Scholars in this field may wish to give consideration as to how best to make use of this framework to enhance their future analysis of public health law and policy.

166 For the connection between problems of legitimacy, deliberation and accountability for reasonableness, see N Daniels and J Sabin, 'Limits to health care: fair procedures, democratic deliberation and the legitimacy problem for insurers' (1997) 26 Philosophy and Public Affairs 303; Daniels and Sabin (n 157 above).

167 For a possible candidate, see Nottinghamshire County Council, 'Nottinghamshire County Council champions expansion of water fluoridation schemes' (Press Release, 24 July 2023).

168 See Coggon (n 13 above).