Introduction

The fluoridation of public drinking water supplies to reduce the levels of tooth decay in local populations is a long established public health intervention. In 2003 the United Kingdom Parliament debated the matter again and following consideration of the scientific and ethical issues, decided through a free vote that existing legislation on water fluoridation should be strengthened via clauses in the Water Act 2003. This legislation established that consultation on and implementation of any future fluoridation schemes was the responsibility of Strategic Health Authorities (SHAs).

Primary Care Trusts (PCTs) are responsible for assessing the oral health needs of their populations. In this regard they are encouraged by the Chief Dental Officer to consider the option of fluoridating local drinking water supplies. To assist PCTs in the development of services to improve oral health for local communities, the North West SHA identified some key measures to act as a focus for PCT work. These included:

- Improving population oral health – measured by the amount of tooth decay in children at five years old and eleven years old.
- Improving access to dental services measured by the proportion of the population receiving care in a two year period, the supply of NHS dental provision and the success of local measures to manage demand for NHS dentistry.

In response to this new commissioning responsibility and to consider the issue of fluoridation further, in December 2006 the PCTs in the North West established the North West PCTs’ Fluoridation Evaluation Group (NWFEG). The purpose of this group was to consider the fluoridation issue as it impacted on the North West in great detail, looking at a whole range of issues, including water flows in relation to PCT boundaries. The NWFEG report was published on 7 July 2008 and in summary provided information on the following topics:

- An overview of the latest DH/Chief Dental Officer Guidance (February 2008)
- An understanding of the population’s dental health in the North West
- A summary of the literature surrounding evidence of effectiveness of fluoridation
- An overview of the available evidence on the safety of fluoridation
- An overview of the ethical issues of fluoridation
- A review of public opinion of fluoridation
- An assessment of the technical feasibility of fluoridation in the North West through the consideration of 4 possible fluoridation schemes
- An indication of costs for possible fluoridation schemes.
- Identification of next steps

On the basis of this information NWFEG made a series of recommendations:

1. That the North West PCT Chief Executives receive the report.
2. That the North West PCT Chief Executives note the initial review of potential water fluoridation schemes.
3. That PCT boards consider whether they wish to request the SHA to explore the possibility of fluoridation of the public water supply.

4. That in the event a PCT does request the SHA explore the possibility of fluoridation they express a view on any preferences they may have for the potential water fluoridation schemes presented in this report.

5. That PCT boards frame a response to the SHA in accordance with the SHA guidance issued.

6. That following the production of this report, the NWFEG is disbanded.

Points one, two and six have now taken place. This paper is concerned with point three above and the activity that flows from it.

The NWFEG report may be found in full on the Ashton, Leigh and Wigan PCT website at the following link:

http://www.alwpct.nhs.uk/Health%20Developments/Fluoridation/Fluoridation%20Evaluation.asp

**Dental Health in North West England**

Regular surveys of children’s oral health allow for comparisons between communities within the North West and with the rest of England. Dental health is measured using the Decayed Missing Filled Tooth (dmft) score. In 2005/06, the North West SHA had the worst dmft score in England and was the second worst in terms of the percentage of five year olds affected by tooth decay. This means that typically a five year old child in the North West will have two teeth affected by decay and 47% of North West children will have experienced tooth decay by the age of five. There is, as might be expected, wide variation in these numbers between PCTs and within individual PCT boundaries.

The profile of individual lifetime dental health is essentially established between the ages of zero and seven years old. In general, dental health in England has been improving since the introduction of fluoride toothpaste. There is however a strong correlation between poor dental health and social and economic deprivation, and this has not noticeably improved over time, in spite of a range of public health interventions. In consequence significant dental health inequalities now exist between socio-economic groups, with children in poor families experiencing high levels of dental disease.
Levels of caries prevalence (the percentage of individuals affected by tooth decay) and average levels of severity (the numbers of teeth affected by tooth decay) in children, at both PCT and Local Authority level vary throughout the Lancashire. Figure One compares the most recently published caries prevalence and severity statistics for PCTs in the North West.

Fig 1

5-year-old children’s average tooth decay levels (dmft) and the percentage affected by tooth decay in 2005/06

The percentage of children with one or more decayed, missing or filled teeth is shown in brackets.
The proportion of children in some parts of Lancashire with dental caries at five years of age, measured in 2005/2006 far exceeds the national target from 2003 (30%) and is greater than the statistic for England (38%). This is illustrated in Figure Two.

Fig 2

Percentage of five-year-old children with decay experience (dmft>0) in 2005/06
More detailed analysis at ward level (Figure Three) shows that there are marked inequalities with respect to levels of caries prevalence within PCT areas. There are parts of Central, East and North Lancashire where more than 50% of the 5 year old population have dental caries, compared with the 2005/2006 national statistic for England of 38%.

Fig 3
The consequences of suffering from dental caries for individuals and their families include severe pain, abscess formation, sleep loss for patients and parents or carers and behavioural problems. There may also be a need for extractions under general anaesthesia with its associated, potentially life-threatening risks. In 2005/2006 more than 2300 child residents of from Central, East and North Lancashire were admitted to hospital for the extraction of teeth. Further, suffering from caries in childhood is the strongest predictor for suffering from caries in adulthood.

There are no local adult dental caries prevalence data available for Lancashire PCT. However, national data collected in the most recent UK Adult Dental Health Survey in 1998 suggest that, at local level there are likely to have been decreases in the levels of caries in adults since the 1970s. Notwithstanding the general reduction in caries prevalence across the country, marked regional differences were noted. For example, almost two-thirds (65%) of dentate adults in the North had at least one decayed or unsound tooth, compared with just over half of those living in the Midlands (52%) and the South (51%). This, added to the high levels of dental caries in children will mean that dental caries and its consequences will continue to affect a substantial proportion of local populations for the foreseeable future, unless additional preventive interventions are introduced.

Next Steps

In response to the NWFEG report the North West SHA has now approved a framework for decision making process regarding fluoridation (attached). It has asked all PCTs to consider the report, to informally sound out local stakeholders on the proposed process and then to decide whether or not they wish the SHA to develop the work of NWFEG further. This decision is required to be made by the end of October 2008.

The SHA is the body with statutory responsibility for identifying a fluoridation scheme to consult on, so this further development stage will focus chiefly on the development of a single, technically feasible fluoridation scheme with more detailed capital and revenue cost information than is presently available. Proposals will also be developed on how an effective region-wide public consultation might be delivered.

Once this work has been completed and published, North West PCTs will determine if they wish the SHA to initiate formal consultation on the preferred scheme with communities in the North West. If such a consultation should take place, it is likely to happen in the summer of 2009.

For clarity, no assumptions have been made that a feasible scheme will be developed or that a consultation will take place.

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