

Briefing on Water Fluoridation and Children's Dental Health



Survey shows West Midlands is best region for teeth

The West Midlands is the best region in the country for children's dental health, according to the latest nationwide study carried out during 2001/02.

On average, 5-year olds in England and Wales have 50% more teeth affected by decay than those from the West Midlands.

A group of one hundred 5-year olds from the West Midlands could expect to have 102 teeth affected by decay between them. A similar group made up from children living throughout England and Wales would have 152 teeth affected.

For the average West Midlands

child, it means less risk of suffering toothache and having to get a diseased tooth filled or extracted.

These figures are based on the outcome of a survey co-ordinated by the British Association for the Study of Community Dentistry.

This involved 170,731 children (including 31,857 from the West Midlands) having their mouths carefully examined by specially trained dental experts, who recorded the number of teeth they found decayed, missing or filled. The results make it possible to compare dental health in different parts of the country.

Key facts

NATIONAL COMPARISON

On average, 5-year olds in England and Wales have 50% more teeth affected by decay than those from the West Midlands.

PCT PERFORMANCE

Children in 26 out of 30 Primary Care Trusts in the West Midlands have better than the national average level of dental health.

FLUORIDATED WATER

Around 70% of people in the West Midlands are supplied with fluoridated water, compared with about 10% across the UK.



PCT league table: page 2

Dental health map: page 3

Fluoridation map: page 4

Dental health and social deprivation: page 5

Region has 12 of the top 21 Primary Care Trusts

Children in many West Midlands Primary Care Trusts supplied with fluoridated water have significantly better than the national average level of dental health.

Twelve out of the 21 PCTs in England and Wales with the best 5-year olds' dental health are from the West Midlands: Cannock Chase; Redditch and Bromsgrove; East Staffordshire; South Western Staffordshire; Burntwood, Lichfield & Tamworth; North Warwickshire;

Dudley Beacon and Castle; South Warwickshire; Dudley South; Rugby; South Birmingham; Solihull.

The average 5-year old in England and Wales has nearly three times as many teeth affected by decay as the average child in Cannock Chase PCT.

Children in all of the PCTs listed above have around only half to one third of the national average level of tooth decay.

Children's Dental Health in the West Midlands: League Table of Primary Care Trusts



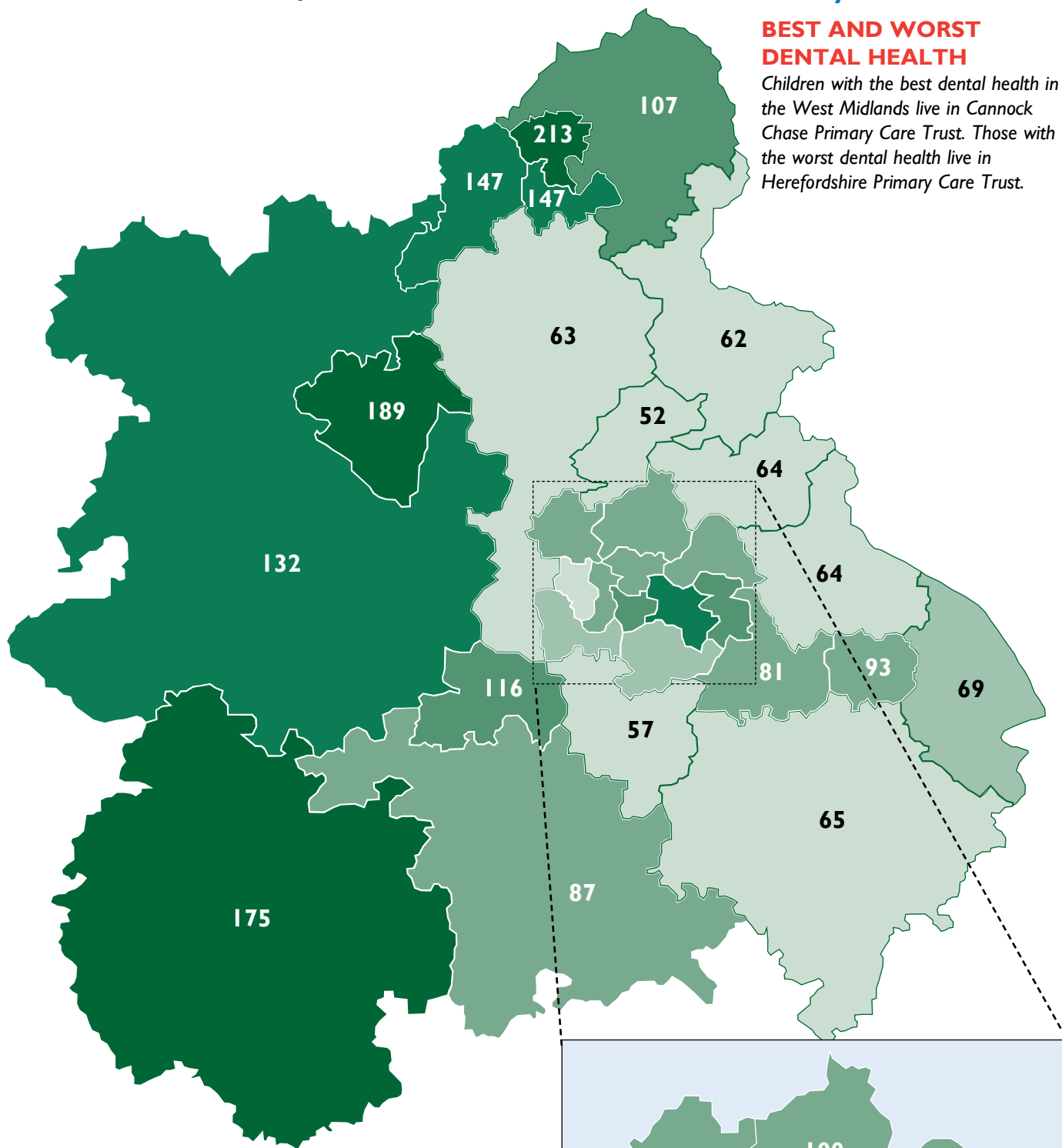
Ranking of PCTs for 5-year old children's dental health: 1 = best; 30 = worst	Ranking of PCTs for level of deprivation: 1 = most deprived; 30 = least deprived	Number of teeth affected by decay per 100 five-year old children	% of five-year olds free of tooth decay	% of people receiving fluoridated water
1. Cannock Chase	16th out of 30	52 teeth affected	79% decay-free	100% covered
2. Redditch & Bromsgrove	26th out of 30	57 teeth affected	78% decay-free	91% covered
3. East Staffordshire	19th out of 30	62 teeth affected	79% decay-free	100% covered
4. South Western Staffordshire	29th out of 30	63 teeth affected	78% decay-free	53% covered
5=Burntwood, Lichfield & Tamworth	23rd out of 30	64 teeth affected	76% decay-free	100% covered
5=North Warwickshire	15th out of 30	64 teeth affected	76% decay-free	100% covered
5=Dudley, Beacon & Castle	12th out of 30	64 teeth affected	75% decay-free	100% covered
8. South Warwickshire	30th out of 30	65 teeth affected	75% decay-free	68% covered
9=Dudley South	22nd out of 30	69 teeth affected	75% decay-free	61% covered
9=Rugby	27th out of 30	69 teeth affected	74% decay-free	100% covered
11. South Birmingham	10th out of 30	78 teeth affected	70% decay-free	100% covered
12. Solihull	25th out of 30	81 teeth affected	73% decay-free	100% covered
13. Wednesbury & West Bromwich	4th out of 30	84 teeth affected	68% decay-free	100% covered
14. South Worcestershire	28th out of 30	87 teeth affected	73% decay-free	32% covered
15. North Birmingham	18th out of 30	88 teeth affected	72% decay-free	100% covered
16. Rowley Regis & Tipton	5th out of 30	90 teeth affected	67% decay-free	100% covered
17. Coventry	11th out of 30	93 teeth affected	69% decay-free	100% covered
18. Wolverhampton	7th out of 30	94 teeth affected	70% decay-free	100% covered
19. Walsall	8th out of 30	100 teeth affected	66% decay-free	100% covered
20. Oldbury & Smethwick	3rd out of 30	101 teeth affected	64% decay-free	100% covered
21. Staffordshire Moorlands	20th out of 30	107 teeth affected	68% decay-free	0% covered
22. Wyre Forest	17th out of 30	116 teeth affected	67% decay-free	14% covered
23. Eastern Birmingham	2nd out of 30	119 teeth affected	65% decay-free	100% covered
24. Shropshire County	24th out of 30	132 teeth affected	64% decay-free	8% covered
25=South Stoke	9th out of 30	147 teeth affected	60% decay-free	0% covered
25=Newcastle-under-Lyme	14th out of 30	147 teeth affected	57% decay-free	0% covered
27. Heart of Birmingham	1st out of 30	157 teeth affected	60% decay-free	100% covered
28. Herefordshire	21st out of 30	175 teeth affected	58% decay-free	0% covered
29. Telford & Wrekin	13th out of 30	189 teeth affected	52% decay-free	0% covered
30. North Stoke	6th out of 30	213 teeth affected	46% decay-free	0% covered

Note 1: Dental health ranking is based on outcome of a survey of 5-year olds' teeth conducted in 2001-2 by the British Association for the Study of Community Dentistry. Note 2: Deprivation ranking is based on DETR multiple deprivation index.

Number of teeth affected by decay per 100 five year old children in each of the 30 West Midlands Primary Care Trusts

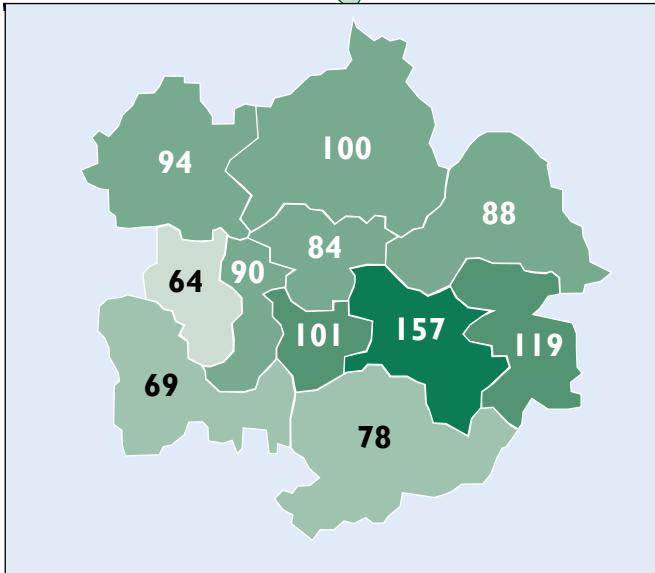
BEST AND WORST DENTAL HEALTH

Children with the best dental health in the West Midlands live in Cannock Chase Primary Care Trust. Those with the worst dental health live in Herefordshire Primary Care Trust.



175 - 213	
132 - 157	
101 - 119	
81 - 100	
69 - 78	
52 - 65	

The shadings on the map indicate different levels of tooth decay across the region. PCTs in the lightest shade of green are those where a group of 100 five year olds have from 52 to 65 teeth affected by decay between them. The precise number is shown in figures within each PCT boundary, and in the table on the page to the left.



West Midlands Primary Care Trusts supplied with fluoridated water

Around 3.7 million people living in 24 out of the region's 30 Primary Care Trusts are supplied with water whose natural fluoride content has been topped up to the optimum level of one part per million parts of water (1ppm).

The six PCTs not supplied with fluoridated water are North Stoke; Telford & Wrekin; Herefordshire; Newcastle-under-Lyme; South Stoke; and Staffordshire Moorlands.

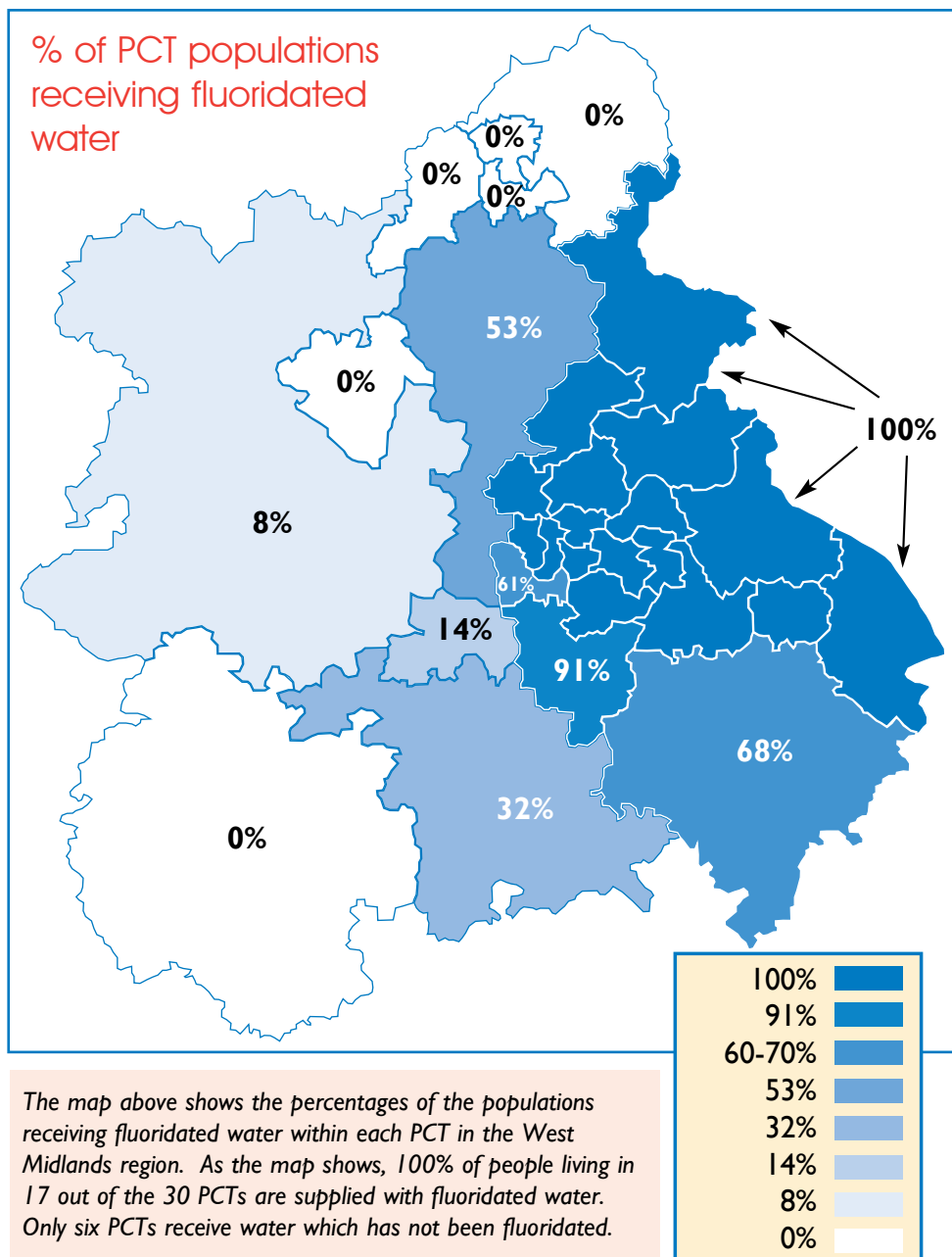
All six non-fluoridated PCTs are in the bottom ten in the region for children's dental health. Five of them are in the bottom six.

All water contains trace elements of fluoride. In some parts of the UK, such as Uttoxeter in Staffordshire, areas of Derbyshire and Hartlepool in the north east of England, the natural level is high enough to reduce tooth decay.

However, in most areas the amount of natural fluoride is too low to make a difference to teeth. Fluoridation is the process of adding fluoride to supplement the natural level. This replicates the dental health benefits which already occur naturally in some places.

The first fluoridation scheme in the West Midlands was introduced in the mid-1960s to serve Birmingham and Solihull. Parts of Warwickshire and Worcestershire followed suit in the early 1970s.

Many other areas, including Coventry, the Black Country and South Staffordshire, started to receive fluoridated water in the 1980s and early 1990s.



Fluoridation in the UK and around the world

The United Kingdom

Fluoridated water is supplied to about 5.5 million people in the UK, including:

- Many parts of the West Midlands
- Newcastle-upon-Tyne and Gateshead
- Parts of Northumberland, Durham, Cumbria, Lincolnshire, South Humberside, Cheshire, Derbyshire and Nottinghamshire.

Around the world

Worldwide, it is estimated that about 300 million people drink fluoridated water.

Countries with fluoridation schemes include:

- Ireland, Spain, the United Kingdom
- Australia, New Zealand
- The United States, Canada, Puerto Rico
- Mexico, Argentina, Brazil, Colombia, Guatemala, Paraguay, Panama
- Malaysia, Singapore, Korea, Taiwan, the Philippines and Israel.

Ireland

In the Irish Republic, all public water supplies are fluoridated by law. Dental health is significantly better in the Republic than in Northern Ireland.

Fluoridated cities

Major cities benefiting from fluoridated water include:

- New York, Washington DC, Chicago, Boston, San Francisco, Los Angeles
- Sydney, Melbourne, Perth, Auckland
- Hong Kong, Jerusalem, Tel Aviv
- Dublin, Birmingham, Newcastle

The United States

The most extensively fluoridated country in the world is the United States, where 162 million people (58% of the total population) are served by schemes, including those living in over 40 of the largest 50 cities.

How water fluoridation reverses the impact of social deprivation

The West Midlands has not always been at the top of the national dental health league table. Thirty to forty years ago, children in many parts of the region suffered from very high levels of tooth decay which, like many other diseases, is linked to social deprivation.

Generally speaking, the higher the level of social deprivation, the higher the level of tooth decay. For example, analysis by the West Midlands Public Health Observatory shows that, all other factors being equal, children living in the most deprived electoral wards in the region are likely to have nearly two and a half times more teeth affected by decay than children from the least deprived wards.

This pattern is replicated nationally.

Deprivation and dental disease are closely linked. Given, therefore, that the West Midlands has higher than average levels of deprivation, the region's children should theoretically

have higher than average levels of tooth decay. So why do they have the best teeth?

The answer is water fluoridation. About 70 per cent of the population (3.7 million people) in the West Midlands drink fluoridated water.

Evidence throughout the world shows that water containing the optimum level of fluoride helps to reduce tooth decay.

Researchers at the University of York, who in 2000 published a systematic review of 24 studies, found that children aged 5 to 15 in fluoridated areas have up to four fewer teeth affected by decay than those in non-fluoridated areas, with an average difference of two decayed teeth.

Children in fluoridated areas are also more likely to be completely free of tooth decay.

The York team also found that, where water is fluoridated, the difference in tooth decay levels between 5-year olds

from the highest and lowest social groups is reduced by around half, compared with non-fluoridated communities.

These findings are borne out by experience in the West Midlands, where children in many relatively deprived areas which receive fluoridated water have better teeth than children living in relatively affluent areas of the country.

For example, it is remarkable that Wednesbury & West Bromwich and Rowley Regis & Tipton PCTs, the fourth and fifth most socially deprived out of the 30 PCTs in the West Midlands, have only around two thirds the level of child tooth decay found in the much more prosperous Windsor, Ascot and Maidenhead PCT in the

Thames valley.

Children in Eastern Birmingham PCT, the second most socially deprived in the West Midlands, have only around three quarters of the national average level of tooth decay. Even in Heart

of Birmingham PCT, with the region's most deprived population, children enjoy about average dental health.

It is reasonable to argue that, if the West Midlands were not the most extensively fluoridated area in the UK, it would more probably find itself below half way down the national dental health league.

Fluoridation is making a major difference to children's teeth in the region - so much so that it is sometimes easy to forget how bad dental health used to be. Multiple extractions of teeth under a general anaesthetic used to be commonplace. Now, they are extremely rare.

Whilst it is true to say that dental health has improved everywhere over the past thirty to forty years, it has improved far more in the fluoridated areas of the West Midlands than in many other areas of the UK. Water fluoridation is working effectively.



Key facts

DEPRIVATION AND DENTAL HEALTH

All other factors being equal, children living in the most socially deprived wards of the West Midlands could expect to have two and a half times more teeth affected by decay than those from the least deprived wards.

REDUCING HEALTH INEQUALITIES

The difference in dental health between 5-year olds from the highest and lowest social groups in fluoridated areas is generally reduced by around half, compared with non-fluoridated areas.

TURNING THE TABLES

Children in some of the most socially deprived PCTs in the region which are supplied with fluoridated water have better dental health than those from much more prosperous areas in the South of England.

ROWLEY REGIS & TIPTON v WINDSOR & ASCOT

Children in fluoridated Rowley Regis & Tipton have less tooth decay than those living in non-fluoridated Windsor & Ascot.

FURTHER INFORMATION

Please contact Paul Castle on 0121-765 4222 or email castle.comm@which.net

Information about fluoridation is also available on the following web sites:

www.dentalhealthwestmidlands.nhs.uk

www.bfsweb.org

www.cdc.gov/OralHealth/topics/fluoridation.htm

Published by the West Midlands Regional Dental Health Promotion Group, which co-ordinates information programmes about water fluoridation on behalf of local health services.

Water fluoridation and general health

The primary purpose of topping up the natural fluoride in water to the optimum concentration of one part per million is to reduce tooth decay. There is substantial evidence that this works effectively.

Opponents of fluoridation claim (wrongly) that fractionally increasing the fluoride in water causes harm. These allegations have been exhaustively investigated by independent researchers.

The outcomes of medical and scientific studies have in turn been reviewed by organisations ranging from the Royal College of Physicians (*Fluoride, Teeth and Health, 1976*) to the World Health Organisation's Expert Committee on Oral Health and Fluoride Use (*Fluorides and Oral Health, 1994*).

No scientifically plausible evidence has been found that, for example, fluoridated water increases cancer

(a common assertion by anti-fluoridation campaigners).

In 1999/2000, a team from the University of York was commissioned by the Department of Health to undertake a systematic review of the evidence on the efficacy and safety of water fluoridation. Having reviewed a total of 26 studies, it found no association between fluoridation and mortality from any cancer, or from bone or thyroid cancers specifically.

The York team also looked at 29 studies of the incidence of hip fractures in fluoridated and non-fluoridated areas (anti-fluoridation campaigners often focus on this issue). It found that people drinking fluoridated water might in some cases be slightly less or more at risk but that, overall, fluoridation makes no real difference either way.



Key facts

KNOX WORKING PARTY

In 1985, a scientific working party led by Professor George Knox of the University of Birmingham concluded that fluoridation is safe and does not have any effect on cancer rates.

US NATIONAL CANCER INSTITUTE

In 1993, a report published by the US National Cancer Institute found no relationship between drinking fluoridated water and cancer.

UNIVERSITY OF YORK SYSTEMATIC REVIEW

Published in 2000, the review found no association between fluoridation and any cancer, or from bone or thyroid cancers specifically.

BONE HEALTH

In 2000, the Medical Research Council's Environmental Epidemiology Unit at the University of Southampton found no evidence of any increase in the risk of hip fracture among people drinking fluoridated water.

DENTAL MOTTLING

Researchers from the University of York reviewing 88 studies from around the world found that, on average, 6% of children living in low natural fluoride areas (0.1 parts of fluoride per million parts of water) are likely to have dental mottling of aesthetic concern; 7% of those drinking water with natural fluoride at 7 ppm; and 10% of those drinking water with fluoride artificially topped up to 1 ppm.

PUBLIC SUPPORT

Opinion surveys undertaken over the past twenty years have consistently found between two thirds and three quarters of the public in favour of adding fluoride to water if it can reduce tooth decay. A poll conducted by MORI in the West Midlands in 2000 found 71% in favour.

Professional and public support for fluoridation

Support for water fluoridation has come from a wide range of bodies representing the health professions. They include the following:

- Association of Directors of Public Health Medicine
- British Medical Association
- British Dental Association
- Royal College of Physicians
- Community Practitioners' and Health Visitors' Association
- Faculty of General Dental Practitioners (UK) of the Royal College of Surgeons of England
- British Dietetic Association
- NHS Consultants Association
- Royal College of General Practitioners
- Royal College of Nursing
- Royal College of Paediatrics and Child Health
- UK Public Health Association

Over the past twenty years, a number of major opinion surveys have been commissioned from organisations such as MORI, Gallup and NOP.

Support for water fluoridation to reduce tooth decay has consistently been expressed by between two thirds and three quarters of those polled.

The most recent survey in the West Midlands was conducted by MORI in 2000. It found that 71% of people were in favour of adding fluoride to water, with 17% not in favour and 12% having no opinion either way.

