

Examples of authoritative reviews of the safety and/or effectiveness of fluoridation

- 1. Ministry of Health, Department of Health for Scotland, Ministry of Housing and Local Government. (1953): The fluoridation of domestic water supplies in North America as a means of controlling dental caries. Report of the United Kingdom Mission. London: HMSO.**

Background

This is the report of a mission to the USA which was undertaken on the recommendation of the Medical Research Council. The objective was to study the fluoridation of water supplies as a means of reducing the incidence of dental caries.

Conclusion

- That there is no evidence of any danger to health from continued consumption of water containing fluoride in low concentration.
- The evidence is conclusive that water fluoridated at a level of 1 part per million reduces tooth decay rates.
- There is nothing to suggest that water containing fluoride, naturally derived, has properties different from those of a water to which fluoride has been added.
- That around 10% of children drinking fluoridated water may develop very mild mottling of the teeth; that this is not a hazard; and that it cannot be recognised without expert examination.
- There was no evidence that fluoridated water had an adverse effect on industrial processes.

Membership

The Mission membership was **Jean Forrest**, Dental Officer, Ministry of Health, **J Longwell**, Principal Scientific Officer in the Department of the Government Chemist, in charge of the Division dealing with the Examination and Treatment of Water, **Professor HH Stones**, Professor of Dental Surgery and Director of Dental Education, University of Liverpool, Director and General Consultant Liverpool Dental Hospital, Member of the Dental Research Committee, Medical Research Council, Member of the Liverpool Regional Hospital Board and of the Board of Governors of the Liverpool United Hospitals, **AM Thomson** Research Lecturer, Department of Midwifery, University of Aberdeen.

References - 115 references listed.

- 2. World Health Organisation (1958) *Report of Expert Committee on Water Fluoridation. Technical Report Series No 146. World Health Organisation. Geneva.***

Background

This review was undertaken 13 years after the implementation of first artificial water fluoridation scheme in Grand Rapids USA.

Conclusion

The most convincing evidence of the safety of water fluoridation comes from the numerous population groups (3 million in the USA 0.5 million in England) who have drunk naturally fluoridated water containing 1 part per million or more during their lifetime. Medical practitioners and specialists in these areas have never detected or defined a systematic aberration in health of any kind related to the fluoride consumed.

3. Ministry of Health, Scottish Office, Ministry of housing and Local Government. (1962): *The conduct of the fluoridation studies in the United Kingdom and the results achieved after five years. Reports on public health and medical subjects No. 105.* London. HMSO.

Background

It was a recommendation of the earlier UK Mission to US that selected UK communities should be studied before general adoption of fluoridation. This was the first of two reports of the results.

Conclusion

- No evidence of harm from fluoridation has been discerned despite continuous vigilance.
- Five years of fluoridation in three study areas has brought about in each a substantial improvement in the teeth of young children.
- The results obtained so far are in line with American experience.
- The addition of fluoride to water supplies at a specified level has presented no technical difficulties.

Membership

The Steering Committee included officials knowledgeable in the relevant dental, medical, chemical, water supply and statistical matters drawn from the Ministry of Health, Department of Health for Scotland, Welsh Board of Health, Laboratory of the Government Chemist, Ministry of Housing and Local Government and its Welsh Office and Ministry of Education. The Medical Research Council were also represented, and subsequently, the committee was joined by the medical officers of health and water engineers of the local authorities concerned and representatives of the Ministry of Health and Local Government of Northern Ireland, the Central Council for Health Education and the British Dental Association.

References - 41 listed.

4. Department of Health and Social Security, Scottish Office, Welsh Office. (1969): *The fluoridation studies in the United Kingdom and the results achieved after eleven years. Reports on public health and medical subjects No. 122.* HMSO.

Background

This was the second report of the fluoridation studies of selected UK communities.

Conclusion

- **The fluoridation of water supplies at the level of 1 part per million is a highly effective way of reducing dental decay and is completely safe.**
- The Research Committee has been unable to find any harmful effects resulting from the fluoridation of water supplies. Alternative measures are no effective substitute - none offers such certainty of general improvement in the teeth of children.
- The strength of the case for fluoridation of water supplies lies in the consistency of results from different parts of the world. The findings in this report add to the already substantial volume of evidence of the effectiveness of this important public health measure.
- After 11 years under review, medical practitioners reported only two patients with symptoms which they felt might have been associated with fluoridation. Careful investigation in both instances failed to attribute the symptoms to the drinking of fluoridated water.

Membership

The Committee on Research into Fluoridation was chaired by RM. Shaw, and members were: Dr W Alcock, Professor DAK Black, Dr ER Bransby, Dr G Crompton, JK Foreman, Surg.R/Admiral W Holgate, Professor GN Jenkins, Professor JN Mansbridge, Dr BR Nisbet, Miss JD Oswald, J Rodgers, Professor MA Rushton, Professor AI Darling, Professor GL Slack, Professor AM Thomson, Dr AE Martin

References - 40 listed.

5. World Health Organisation. (1970): *Fluorides and human health*. Geneva: World Health Organisation Monograph Series No 59.

Background

This report followed a request to the World Health Organisation from the International Dental Federation for an authoritative up-to-date report on the metabolism of fluorine (sic). The objective was to provide an impartial review of the scientific literature on the varied aspects of fluoridation, and the many complex questions relating to the metabolism of fluorides and their utilisation in medicine and public health.

Conclusion

The controlled enrichment of drinking water with fluoride has the support of overwhelming evidence.

Membership

29 international expert contributors and 93 international expert reviewers.

References - over 800 listed.

6. Royal College of Physicians. (1976): *Fluoride Teeth and Health*. Bath: Pitman Medical.

Background

The Royal College of Physicians appointed a special committee in response to requests from the dental profession for views on the medical aspects of fluoridation. The committee worked for 18 months, and examined “*a mass of data relating to the effects of fluoride, and fluoridation of water supplies in particular.*” Oral evidence was taken from the leading members of organisations opposed to fluoridation and the literature published by these bodies was examined in detail.

Conclusion

- The consumption of water containing approximately 1mg/litre of fluoride in a temperate climate is safe irrespective of the hardness of the water.
- Fluoride in water added or naturally present at a level of approximately 1mg/litre over the years of tooth formation substantially reduces dental caries throughout life.
- In comparison with fluoridation, systemic fluoride supplements such as tablets, drops and fluoridated salt have not been shown to be as effective on a community basis.
- Fluoridation does not harm the environment.
- The College recommends fluoridation of water supplies in the United Kingdom where the fluoride level is appreciably below 1mg per litre.

Membership

Representatives of the dental profession and specialists in general medicine, paediatrics, community medicine, toxicology, epidemiology, and genetics.

References - 47 listed.

7. Clemmesen, J. (1983): The alleged association between artificial fluoridation of water supplies and cancer: a review. *Bull. World. Health. Organ.* 61, 871-883.

Background

This review followed allegations, from a single source, of increased risk of cancer associated with water fluoridation.

Conclusion

The review showed the allegations to be erroneous.

“This misleading and refuted suggestion of an association between artificial fluoridation and cancer, which, even if true, would not have proved a causal relationship, has been responsible for a considerable waste of effort and resources that are sorely needed for research and prevention in other fields.”

Membership

Single author: **J Clemmesen** (Formerly Chief Pathologist in Finsen Institute, Copenhagen, and Director of the Cancer Registry for Denmark, and member of the WHO Advisory Group on Cancer.)

References - 32 listed

8. Lord Jauncey. (1983): *Opinion of Lord Jauncey in causa Mrs Catherine McColl (A.P.) against Strathclyde Regional Council.* Edinburgh: The Court of Session.

Background

Scottish legal challenge seeking to prevent fluoridation of Strathclyde water supplies. The Petitioner alleged (*inter alia*) that fluoridation would be harmful, particularly in relation to the causation of cancer.

The court sat on 201 days making this the longest and costliest case in Scottish legal history. The Judge, Lord Jauncey, took almost 12 months to consider the massive evidence.

Conclusion

Lord Jauncey completely vindicated the safety and efficacy of fluoridation. However, the Petitioner’s plea-in-law, that fluoridation was ultra vires, was sustained.

9. Knox, E. G. (1985): *Fluoridation of water and cancer: a review of the epidemiological evidence.* London: HMSO.

Background

Following allegations that fluoridation causes cancer the Department of Health set up a Working Party to undertake a fresh review of the epidemiological studies on cancer incidence and mortality amongst populations whose drinking water is either artificially fluoridated or contains high levels of fluoride from natural sources.

Conclusion

The enquiry “*found nothing in any of the major classes of epidemiological evidence which could lead to a conclusion that either fluoride occurring naturally in water, or fluoride added to water supplies, is capable of inducing cancer, or of increasing the mortality from cancer. This statement applies both to cancer as a whole, and to cancer at a large number of specific sites. In this we concur with the great majority of scientific investigators and commentators in this field.*”

Membership

The Working Party was **chaired by Professor EG Knox**, Professor of Social Medicine, University of Birmingham, and membership **included 10 eminent UK scientists** from the disciplines of Cancer Research, Cancer Epidemiology, Medical Statistics, Biostatistics, Pathology and Water Research.

References - 110 references cited.

10. Ad Hoc Subcommittee on Fluoride of the Committee to Coordinate Environmental Health and Related Programs. (1991): *Review of Fluoride Benefits and Risks*. Washington DC: Public Health Service, Department of Health and Human Services, USA.

Background

This comprehensive review and evaluation of the public health benefits of fluoride in drinking water and other sources was prompted by a study of the national Toxicology Program which found “equivocal evidence” of carcinogenicity based on the occurrence of a small number of malignant bone tumours (osteosarcomas) in male rats.

Conclusion

In humans, optimal fluoridation of drinking water does not pose a detectable cancer risk as evidenced by extensive human epidemiological data reported to date, including new epidemiological studies prepared for this report. No trends in cancer risk, including the risk of osteosarcoma, were attributed to the introduction and duration of water fluoridation. Chronic low level fluoride exposure of normal individuals is not associated with birth defects or Down Syndrome, nor is there any indication that it presents a problem in any organ systems such as gastrointestinal, genitourinary or respiratory. Furthermore skeletal fluorosis is not a public health problem in the US.

Membership

The Ad-Hoc Subcommittee on Fluoride of the Committee to Coordinate Environmental Health and Related Programs US Public Health Service was **chaired by Frank Young MD PhD**. Membership included **over 30 eminent US Public Health Service scientists** and utilised the Committee to Coordinate Environmental Health and related Programs to organise and guide the work of the Subcommittee.

References - 52 pages of references listed.

11. Murray, J. J., Rugg-Gunn, A. J., and Jenkins, G. N. (1991): *Fluorides in Caries Prevention*. 3rd ed. Oxford: Wright.

Background

The first edition was published in 1975, the stated aim of the book was to present the evidence concerning the clinical effectiveness of fluoride, in its various forms, as a caries-inhibitory agent.

Conclusion

- The results of the review of 113 community water fluoridation schemes show, beyond reasonable doubt, that artificial fluoridation is effective in reducing caries experience by approximately 50%, regardless of climate, race or social conditions.
- The effect of water fluoridation on general health has been thoroughly investigated in a series of population studies. There is no evidence that the consumption of water containing approximately one part per million of fluoride (in a temperate climate) is associated with any harmful effect.

Authorship

3 authors: **Professor JJ Murray**, Professor and Head, Department of Child Dental Health, University of Newcastle upon Tyne Dental School, **Professor AJ Rugg-Gunn**, Professor of Preventive Dentistry, departments of Child Dental Health and Oral Biology, University of Newcastle upon Tyne Dental School, **Professor GN Jenkins**, Emeritus Professor of Oral Physiology, University of Newcastle upon Tyne.

References - 36 pages of references listed.

12. National Health and Medical Research Council. (1991): *The effectiveness of water fluoridation*. Canberra: Commonwealth of Australia.

Background

The Australian National Health and Medical Research Council (NHMRC) established a working group to assess claims that the benefits of water fluoridation have been greatly exaggerated. The working group assessed the three main issues: effectiveness, scientific fraud or misuse of data, and time-trends in caries rates. In addition, the working group reviewed available evidence of any adverse effects of fluoride exposure.

Conclusion

- Water fluoridation continues to contribute to the prevention of dental caries and therefore to provide an important community-wide and readily achievable foundation to dental public health.
- A concentration of 1 ppm secures most of the caries preventive effect available from fluoridated water, while maintaining minimal contribution of water fluoride to dental fluorosis in children.
- There is no evidence of adverse health effects attributable to fluoride in communities exposed to a combination of fluoridated water (1ppm) and contemporary discretionary sources of fluoride.
- Avoidance of high individual intake of fluoride in childhood can best be achieved by control of discretionary sources of fluoride.
- Communities whose water supply is not fluoridated should be encouraged to do so.

Membership

Professor AJ McMichael, Professor of Occupational and Environmental Health, Department of Community Medicine, University of Adelaide, Ms Hilda Bastian, Consumer's Health Forum, Canberra, **Professor RM Douglas**, Director, National Centre for Epidemiology and Population Health, Australian National University, Canberra, **Dr BT Homan**, Department of Dentistry, The University of Queensland, **Dr BG Priestly**, Department of Clinical and Experimental Pharmacology, The University of Adelaide, **Professor AJ Spencer**, Professor of Social and Preventive Dentistry, The University of Adelaide, **Dr SR Wilson**, Statistics Research Section, School of Mathematical Sciences, Australian National University, Canberra, **Mr GD Slade**, Public Health Research Fellow, Department of Dentistry, The University of Adelaide.

References - 200 references listed.

13. Medical Research Council Physiological Medicine and Infections Board (1993) *Report of the Working Group on fluoridation of drinking water - link with osteoporosis*. 17 December 1993. MRC. London

Background

In view of concerns that had been raised about the possible relationship between the fluoridation of public water supplies and incidence of osteoporosis, the Working Group had been convened. The Group's remit was to review the evidence regarding the possible effects of fluoridation of public water supply on the incidence of osteoporosis, and to advise Council on whether further studies were necessary.

Conclusion

- The Working Group remained unconvinced that the risk of hip fracture outweighed the benefits of dental protection conferred by fluoridated drinking water.
- Additional research to improve current knowledge and to underpin public health policy was recommended.

Membership

The Group was chaired by **Dr A Lucas**, MRC Dunn Nutrition Unit, Cambridge, and membership was: **Dr C Cooper**, MRC Environmental Epidemiology Unit, Southampton, **Professor JJ Murray**, Department of Child Dental Health, University of Newcastle upon Tyne, **Dr J Reeve**, Bone Diseases Group, Department of Medicine, Cambridge, **Professor RGG Russell**, Department of Human Metabolism & Clinical Biochemistry, Sheffield University.

References - 17 listed

14. Public Health Commission. (1993): *Fluoridation of water supplies. Draft Policy Statement.* May 1993. Wellington, New Zealand.

Background

The University of Otago was asked by the New Zealand Government's Public Health Commission to review the evidence and make recommendations for a national policy on fluoridation as a means of promoting dental health.

Conclusion

- Dental caries remains a significant problem for New Zealanders. The adjustment of fluoride to 1 ppm in the water is the most effective and efficient way of preventing dental caries in the whole community receiving a reticulated water supply. The balance of evidence regarding health effects is that there is no justification for changing current policy on fluoridation.
- The Public Health Commission recommends the continuation of water fluoridation programmes and their extension where technically feasible.

Membership

Dr Elizabeth Treasure, Senior Lecturer, Department of Community Dentistry, University of Otago, **Dr Bernadette K Drummond**, Senior Lecturer, Department of Community Dental Health, University of Otago, **Dr Heather A Buchan**, Senior Research Fellow, Department of Preventive and Social Medicine, University of Otago, **Dr Michael G Beasley**, Research Fellow, National Toxicology Unit, **R Mark Henaghan**, Senior Lecturer, Faculty of Law, University of Otago, **Dr Barbara R Nicholas**, Assistant to the Director, Bioethics Research Centre, University of Otago.

References - 94 references listed

15. National Research Council: National Academy of Sciences Committee on Toxicology. (1993): *Health effects of ingested fluoride.* Washington DC: National Academy Press.

Background

The US Environmental Protection Agency (EPA) requested that the National Research Council's Board on Environmental Studies and Toxicology (BEST) review the current toxicological and exposure data on fluoride and determine whether EPA's maximum contaminant level of 4mg of fluoride per litre of drinking water is acceptable for protecting the public from potential adverse health effects of fluoride. In response to EPA's request, BEST's Committee on Toxicology (COT) established the Subcommittee on Health Effects of Ingested Fluoride. The subcommittee based its evaluation on a detailed examination of the data in the following areas:

- Intake, metabolism, and disposition of fluoride.
- Dental fluorosis.
- Bone strength and the risk of bone fracture.
- Effects on the renal, gastrointestinal, and immune systems.
- Reproductive effects in animals.
- Gentotoxicity.
- Carcinogenicity in animals and humans.

Conclusion

Currently allowed fluoride levels in drinking water do not pose a risk of health problems.

Membership

The subcommittee was chaired by **Bernard M Wagner**, Wagner Associates Inc, New Jersey, and members were: **Brain Burt**, University of Michigan, **Kenneth P Cantor**, National Cancer Institute, **Steven M Levy**, University of Iowa, **Ernest Eugene McConnell**, Raleigh, NC, **Gary M Whitford**, Medical College of Georgia, Augusta, GA

References - 400 references listed

16. Expert Committee on Oral Health Status and Fluoride Use. (1994): *Fluorides and oral health*. WHO Technical Report Series No. 846. Geneva: World Health Organisation.

Background

Reports of the World Health Organisation Expert Committee on Oral Health Status and Fluoride Use provide the World Health Organisation with the latest scientific and technical advice on the most appropriate public health use of fluoride for caries control.

Conclusion

Community water fluoridation is safe and cost-effective and should be introduced and maintained wherever it is socially acceptable and feasible.

Membership

The Expert Committee was chaired by **Professor BA Burt**, School of Public Health, University of Michigan, and members were: **Dr Y de Paiva Buischi**, São Paulo, Brazil, **Dr I Ghandour**, Faculty of Dentistry, University of Khartoum, Sudan, **Professor JJ Murray**, University of Newcastle upon Tyne, England, **Dr DL Mwaniki**, Medical Research Centre, Kenyan Medical Research Institute, Nairobi, Kenya, **Professor D O'Mullane**, Department of Preventive and Paediatric Dentistry, University College, Cork, Ireland, **Dr P Phantumvanit**, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand, **Professor SH Wei**, Dean, Faculty of Dentistry, University of Hong Kong, Hong Kong. Special contributions were made by a further seven international experts in the fields of medicine and dentistry.

References - 15 references listed.

**17. Health Promotion Wales (1996) *Effective oral health promotion: literature review*
Technical Report N° 20. Cardiff. Health Promotion Wales.**

Background

Literature review by University College of Wales College of Medicine in partnership with Health Promotion Wales. The main aim of the review was to identify oral health promotion practices which have been shown to be effective or ineffective.

Conclusions

- Water fluoridation is effective at preventing dental caries. It is cheap, safe and reaches the whole population.
- There is evidence that it reduces inequalities in health.
- This literature review has found no measures that will achieve the same levels of prevention as fluoridation for the same resources.

References

109 references listed.

**18. Proceedings of the International Symposium on Water Fluoridation (1996)
Community Dental Health 13 Suppl 2.**

Background

These proceedings contain the scientific papers presented at the International Symposium on Water Fluoridation held in Birmingham, England on 1 and 2 June 1995. In particular, the impact of water fluoridation on cancer, on bone health, and on the immune function is reviewed by UK experts in the relevant fields.

Conclusions

- Fluoride in drinking water has not been shown to cause an increase in the risk of developing cancer. - **Dr Paula Cook-Mozaffari, MRC Cancer Epidemiology Research Group, Oxford, UK.**
- The burden of evidence suggesting that fluoridation might be a risk factor for hip fracture is weak and not sufficient to retard the progress of the water fluoridation programme. - **Professor Cyrus Cooper, MRC Environmental Epidemiology Unit, University of Southampton, Southampton, UK.**
- There is no evidence of any deleterious effect on specific immunity following fluoridation nor any confirmed reports of allergic reactions. - **Professor SJ Challacombe, Department of Oral Medicine and Pathology, UMDS, Guy's Hospital, London, UK.**

References - Cancer:38 listed; Bone health: 38 listed; Immunology: 15 listed.

**19. Kay L, Locker D (1997) *Effectiveness of oral health promotion: a review*. London.
Health Education Authority**

Background

In 1996 the Health Education Authority commissioned a review of the research evidence on the effectiveness of oral health promotion interventions. The research was carried out by Dr Liz Kay, of the Department of Oral Health and Development, University of Manchester, and Professor David Locker of the Community Dental Health Services Research Unit, University of Toronto.

Conclusions

- Evidence concerning the effectiveness of fluoride is strong.
- There is no evidence that oral health promotion *per se* affects caries rates, even if changes in behaviour are achieved, unless fluoride is being used.

References - 164 articles were reviewed.

20. Jones, G., Riley, M., Couper, D., and Dwyer, T. (1999): Water fluoridation, bone mass and fracture: a quantitative overview of the literature. *Australia and New Zealand Journal of Public Health* 23, 34-40

Background

This study used the technique of meta-analysis to attempt to answer the questions:

1. Is water fluoridation associated with altered fracture risk (particularly of the hip) at a population level?
2. Are the differences between studies consistent with confounding or chance variation between studies?

Conclusions

Water fluoridation both at levels aimed at preventing dental caries and, possibly, at higher naturally occurring levels appear to have little effect on fracture risk, either protective or deleterious, at a population level.

Authorship

Dr Graeme Jones, Malcolm Riley, David Couper, Terence Dwyer, Menzies Centre for Population Health Research, University of Tasmania, Hobart, Tasmania.

References - 40 listed.

21. Faculty of Public Health Medicine of the Royal College of Physicians of Ireland (1999): *Water Fluoridation and Public Health*. Royal College of Physicians of Ireland. Dublin.

Background

This review was conducted by the Research Committee of the Royal College of Physicians of Ireland's Faculty of Public Health Medicine, and was issued by the Faculty as a policy document in October 1999.

Conclusion

The Committee concluded that the epidemiological evidence that fluoride protects against dental caries is overwhelming, and that concerns about adverse effects other than dental fluorosis have not been substantiated. The Committee strongly supported the continuation of the current water fluoridation policies in Ireland.

Authorship

Research Committee of the Royal College of Physicians: Dr M O'Connor, Dr P Fitzpatrick, Dr H Johnson, Dr L Thornton.

References - 81 listed.

22. Burt, B. A., and Eklund, S. A., eds. (1999): *Fluoride Human Health and Caries Prevention and Fluoridation of Drinking Water*. In: *Dentistry, Dental Practice, and the Community*. 5th ed. pp 279-314 : WB Saunders. Philadelphia.

Background

The stated purpose of Burt and Eklund's book is to present dentistry and dental practice against the backdrop of social events: economic, technological, and

demographic trends, as well as the distribution of the oral diseases. The chapters on fluoride and fluoridation review and interpret the evidence on all aspects of water fluoridation.

Conclusion

The controlled use of fluoride has improved the quality of life for all it reaches. Community water fluoridation is the most cost-effective method of bringing fluoride to a community, and it benefits the socially-deprived relatively more than the socially advantaged.

Authorship

Brian A Burt, BDS, MPH, PhD, and Stephen A Eklund, DDS, MHSA, DrPH, Program in Dental Public Health, School of Public Health, University of Michigan, Michigan, USA.

References – 314 listed.

23. Public Health Branch, Ontario Ministry of Health (1999). *Benefits and Risks of Water Fluoridation: An Update of the 1996 Federal-Provincial Sub-committee Report*

Background

The report was commissioned by the Ontario Ministry of Health as part of Ontario's public consultation on water fluoridation levels. It consists of a review of the literature published between 1994 and 1999 concerning the benefits and health risks associated with drinking water that has been fluoridated to optimum levels. The final report is available on the Ministry of Health's website at www.gov.on.ca/health

Conclusion

- The balance of evidence suggests that rates of dental decay are lower in fluoridated than non-fluoridated communities
- In communities where the prevalence of dental caries is low, a careful assessment of the balance between reductions in dental decay and increases in dental fluorosis should be undertaken
- Guidelines on water fluoride levels should be flexible to accommodate communities with different prevalence of dental decay
- Studies to date do not provide systematic and compelling evidence of adverse health effects

Membership

Submitted by Dr David Locker of the Community Dental Health Services Research Unit, University of Toronto.

References – 266 listed

24. University of York NHS Centre for Reviews and Dissemination (2000): *Fluoridation of the Water Supply: a Systematic Review of its Efficacy and Safety*. University of York. UK.

Background

In its 1999 public health White Paper *Saving Lives: Our Healthier Nation* the UK Government committed itself to new legislation to ensure that water suppliers fluoridate supplies when asked to do so by health authorities. This commitment was subject to confirmation of the benefits and safety of water fluoridation by this independent systematic review of the evidence. The review was carried out by the University of York's NHS Centre for Reviews and Dissemination and was published

on 6 October 2000. The final report is available on their website at:
<http://www.york.ac.uk/inst/crd/fluorid.htm>

Conclusion

- The report confirms that fluoridation reduces tooth decay by, on average, 2 ¼ teeth per child and increases by 15% the proportion of children completely free from tooth decay.
- The review could find no evidence that water fluoridation is linked to cancer, bone disease, or any other adverse health effect.
- On inequalities in dental health the report states that “There appears to be some evidence that water fluoridation reduces the inequalities in dental health across social classes in 5 and 12 year olds...”
- The review found that the quality of studies was low to moderate.

Membership

Team members: Dr Matthew Bradley, NHS Centre for Reviews and Dissemination (CRD); Professor Jos Kleijnen, CRD; Dr Marian McDonagh, CRD; Kate Misso, CRD; Penny Whiting, CRD; Dr. Ivor Chestnutt, Dental Public Health Unit, Cardiff; Professor Elizabeth Treasure, Dental School, University of Wales College of Medicine, Cardiff.

Advisory Panel: Professor Trevor Sheldon, York Health Policy Group, University of York (Chair); The Earl Baldwin of Bewdley, Vice President National Pure Water Association; Dr. Iain Chalmers, UK Cochrane Centre; Dr. Sheila Gibson, Vice President National Pure Water Association; Ms. Sarah Gorin, Help for Health Trust; Professor MA Lennon, Department of Clinical Dental Sciences, University of Liverpool School of Dentistry, and Chairman British Fluoridation Society; Dr. Peter Mansfield, President National Pure Water Association; Professor JJ Murray, Dean of Dentistry, University of Newcastle; Mr. Jerry Read, Department of Health; Dr. Derek Richards, Centre for Evidence-Based Dentistry; Professor George Davey Smith, Department of Social Medicine, University of Bristol; Ms. Pamela Taylor, Water UK.

References

The reviewers identified 3,236 references of which 251 met their inclusion criteria.

25. Medical Research Council Working Group Report (2002): *Water fluoridation and health.* www.mrc.ac.uk

Background

In response to the finding from the University of York CRD in relation to the quality of research into the safety and benefits of water fluoridation, the Government asked the MRC to advise on how the evidence base might be strengthened. The MRC established a Working Group to identify where the existing knowledge base and public health policy might benefit from further research, and how this evidence might best be obtained.

Conclusions

Support for the findings of the York CRD review that fluoridating water helps to reduce tooth decay and reduce inequalities in dental health

The Working Group did not consider that the evidence supported claims that fluoridated water affects the immune system, the reproductive system, child development, the kidneys or the gastro-intestinal tract and consequently they did not recommend any further research in these areas.

The main research recommendations focussed on:

- more information on the prevalence of different forms of dental fluorosis;
- better understanding of total exposure to fluoride of individuals;
- a study to confirm that uptake of fluoride from artificially fluoridated water is the same as that from naturally fluoridated water;
- further studies to better estimate the size of the effect of fluoridation against a background of widespread use of fluoride toothpaste and to extend our knowledge of the how the effects of water fluoridation vary with social class.

Membership

- Professor Anthony McMichael (Chair; London School of Hygiene & Tropical Medicine – left the Working Group July 2001); Dr. Paul Harrison (Deputy Chair; MRC Institute for Environment and Health, Leicester); Professor David Coggon (MRC Environmental Epidemiology Unit, Southampton); Ms Ailsa Harrison (MRC Consumer Liaison Group); Dr. Timothy Key (University of Oxford); Professor Michael Lennon (University of Liverpool); Dr. Peter Mansfield (Lincolnshire – left the Working Group September 2001); Professor Stephen Palmer (University of Wales College of Medicine); Dr. Mark Petticrew (MRC Social and Public Health Sciences Unit, Glasgow); Professor Nigel Pitts (University of Dundee); Professor Andrew Rugg-Gunn (University of Newcastle); Professor Elizabeth Treasure (University of Wales College of Medicine); Dr. Alan Glanz (Department of Health); Dr. Michael Waring (Department of Health); Mr Jerry Read (Department of Health); and Dr. Anthony Peatfield (MRC Head Office, replaced by Dr Declan Mulkeen in September 2001), Dr. Angela Cooper (MRC Head Office, replaced by Dr Matthew Wakelin in July 2001).
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- **References** – 140 listed

26. Department of Health and Children (2002): *Forum on Fluoridation Ireland.* <http://www.doh.ie/publications/fluoridation.html>

Background

The Forum on Fluoridation was established by Mr Micheal Martin TD, Minister for Health and Children, in May 2000 to undertake the first major review of water fluoridation in Ireland since its introduction in 1964. The overall objective of the Forum was to review the fluoridation of public piped supplies in Ireland and the associated programme of research and then to make recommendations to the Minister for Health and Children.

Conclusion

- Water fluoridation has been very effective in improving the oral health of the Irish population, especially of children, but also of adults and the elderly
- The best available and most reliable scientific evidence indicates that at the maximum permitted level of fluoride in drinking water (1ppm), human health is not adversely affected.
- There is evidence that the prevalence of dental fluorosis is increasing in Ireland, and therefore, the report recommends that:
 - the optimal level of fluoride in drinking water be reduced from between 0.8 and 1.0ppm to between 0.6 and 0.8ppm with a target value of 0.7ppm.
 - parents of children under the age of 2 should be advised to brush their children's teeth with a toothbrush and tap water.

Membership

Professor Patrick F Fottrell, MSc, PhD, DSc, MRIA. Forum Chairperson, former President and Professor of Biochemistry of National University of Ireland, Galway; Dr Wayne Anderson, BSc (Hons), PhD, MIFST, – Chief Specialist in Food Science, Food Safety Authority of Ireland; Professor William Binchy, Regius Professor of Law, Trinity College Dublin; Professor John Clarkson, BDS, MA, PhD, Professor of Dental Public Health and Dean of Dublin Dental School and Hospital; Dr Dominique Crowley, Deputy Chief Medical Officer, Department of Health & Children until 15/09/00, then – Lecturer, Department of Community Medicine and Epidemiology, University College Dublin until June 2001; Dr Elizabeth Cullen, MB, MSc (Community Health), Diploma in Pollution Control (Open), Co-Chair, Irish Doctors' Environmental Association, Thomastown, Kilcullen, Co. Kildare since December 2000; Dr Patrick Flanagan, PhD, BSc, Environmental Protection Agency; Mr Oliver Fogarty, BE, CEng, MIEI, MCIWEM, Engineering Inspector, Department of the Environment and Local Government; Ms Dorothy Gallagher, Vice-Chair, Consumers' Association of Ireland; Dr Gerard Gavin, Chief Dental Officer, Department of Health and Children; Ms Dora Hennessy, Principal Officer, Department of Health and Children (until April 2001); Dr Howard Johnson, MRCPI, FFPHMI, Specialist in Public Health Medicine, Eastern Regional Health Authority; Professor Cecily Kelleher, Professor of Health Promotion, National University of Ireland, Galway; Mr Kevin Moyles, BSc, Regional Public Analyst, Dublin; Dr Joe Mullen, BDS, BA (Public Administration), BSc (Information Technology), MA (Healthcare Management), Principal Dental Surgeon, North Western Health Board; Professor Moira O'Brien, FRCPI, MA, FTCD, Professor of Anatomy, Trinity College, Dublin; Dr Máire O'Connor, MB, BCh, BAO, MRCPI, MPH, FFPHMI, MD, Specialist in Public Health Medicine, South Eastern Health Board and Faculty of Public Health Medicine, Ireland; Professor Denis O'Mullane, BDS, FDS, FFD, PhD, Head of Department of Oral Health and Development and Director of Oral Health Services Research Centre, University Dental School and Hospital, Cork; Dr Carmel Parnell, BDS, MPH, Acting Senior Clinical Dental Surgeon, North Eastern Health Board, and Irish Dental Association; Professor Miriam Wiley, MSc (Econ), PhD, Head, Health Policy Research Centre, The Economic and Social Research Institute, Dublin; Dr Miriam Owens, MB, MPH, MFPHMI, Rapporteur to the Forum; Ms Nessa O'Doherty, Secretary to the Forum, Department of Health and Children until November 2001; Dr Margaret Shannon, Forum Secretariat, Department of Health and Children; Mr Shane Devine, Secretary to the Forum, Department of Health and Children, from; November 2001.

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27. Continuous monitoring by Department of Health

In Health Circular HC(87)18, to Regional Health Authorities and District Health Authorities giving guidance on the introduction of schemes to fluoridate water supplies following the passage of the 1985 Water (Fluoridation) Act, the Government undertook to:

“...continue to monitor any further relevant evidence on the safety and effectiveness of fluoridation and bring any significant new developments to the attention of health authorities.”

We understand that this monitoring is ongoing and includes periodic reviews by the Committee on Carcinogenicity in Food, Consumer Products and the Environment, the Committee on Medical Aspects of Food Policy, the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment, and the Physiological Medicine and Infections Board of the Medical Research Council.