POSITION DOCUMENT

USE OF FLUORIDES IN MALAYSIA

Adopted by the
Malaysian Dental Council
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Notes

Water fluoridation is the treatment of community water supplies for the purpose of adjusting the concentration of the free fluoride ion to the optimum level for maximum caries prevention and minimal occurrence of dental fluorosis.

Fluoride supplements are those products that seek to achieve a similar effect on the individual as fluoridation of the water supply. The term is generally limited to fluoride tablets and drops.

Additional sources of fluoride is an all-encompassing term to include all sources of fluoride other than water fluoridation – fluoride drops, rinses, tablets, toothpastes, gels and fluoride in foods and beverages.

Dental fluorosis is the staining or mottling of the teeth as a result of greater than optimal fluoride exposure while a child’s teeth are developing.

Optimum fluoride level in Malaysia is 0.5 ppm since year 2005. This is a downward adjustment from the previous standard of 0.7 ppm adopted from 1972 – 2004.

The National Guidelines for Safe Drinking Water – a document published by the Engineering Services Division of the Ministry of Health, the appointed secretariat for the monitoring for parameters. A range of 0.4 – 0.6 ppm fluoride is cited as the implementation range for water authorities in the document.
Preamble

Fluorides are found naturally throughout the world and are present to some extent in all food and water. In addition, fluorides are used as public health community measures to improve oral health worldwide. Fluoride therapy has been the cornerstone of caries-preventive strategies since the introduction of water fluoridation schemes over six decades ago.

Nevertheless, the use of fluorides generates continuing debate, especially in terms of water fluoridation and its associated public health ethical issues. Controversy relates to the ‘trade-off’ between potential benefits of fluorides in prevention and control of dental caries, and potential harm, defined as the risk of developing dental fluorosis during tooth formation (at the levels of fluorides used for oral health purposes). Of particular importance when considering this ‘trade-off’ is the use of fluorides in children.

In Malaysia, the water fluoridation programme was approved by the Cabinet Committee in 1972. However, due to the many fluoride modalities for caries prevention in use today, and an increasingly knowledgeable population, it is now incumbent on the dental profession to clarify its stand on the use of fluorides in Malaysia. Hence, this position document is aimed at all stakeholders in health and health-related activities with interests in fluoride use.

The dental profession considered many policy documents and position statements from several countries and organisations. Several factors are noted:
- the use of fluorides decreases dental caries but the ingestion of above-optimum amounts of fluoride can result in varying degrees of dental fluorosis
water fluoridation has generated the most debate in terms of public health ethical issues but there is recognition that the assessment of technical evidence is not well suited to public consultation; a synopsis of arguments for decision-making should be made in context of the area/country\(^2\)
- the dental caries situation in Malaysia assessed against the risk of dental fluorosis warrants continued support for water fluoridation as the preferred ‘cornerstone’ fluoride programme
- the primary mechanism of fluoride in preventing tooth decay is topical\(^3\), and fluoridated water, although consumed, is also an effective topical fluoride delivery method, which, together with fluoride toothpaste impart cumulative benefit in the control of dental caries on a population level, and
- young children are considered a vulnerable group to dental fluorosis, with a higher potential for greater-than-optimum ingestion of fluoride from toothpaste and other alternative sources of fluoride; hence, all decision-making must take into account this relative potential for higher fluoride exposure in children.

Workgroup on Use of Fluorides
Oral Health Division
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POSITION DOCUMENT ON USE OF FLUORIDES

The appropriate use of fluorides in dentistry is one of the most successful preventive health measures in the history of healthcare and over 60 years of research has consistently demonstrated the safety and efficacy of fluorides in preventing dental caries. The scientific basis for the use of fluorides has been accepted by many professional organisations, scientific bodies, expert groups and government agencies. There is a considerable body of literature on the various fluoride alternatives that very recently, have produced several systematic reviews4-11.

Overall Use of Fluorides in Malaysia

The dental profession, having the health and safety of the public as the prime concern

- strongly supports fluoridation of public water supplies at the optimum level of 0.5 ppm as the first-line preferred strategy for the prevention and control of dental caries

- recommends fluoride toothpaste use as an additional source of fluoride for further impact on reduction and control of dental caries incidence but with emphasis on supervised use of fluoride toothpaste in very young children

- that fluoride mouth rinses and the use of concentrated topical fluoride varnish, gels or foams be supervised/be limited to applications by dental professionals to limit the occurrence of greater-than-optimal exposure to fluorides

- does not recommend the use of fluoride supplements, salt fluoridation or milk fluoridation given that there should
only be one form of artificially-adjusted systemic source of fluorides\textsuperscript{12}, and that this is already existent in the form of the water fluoridation programme of the Ministry of Health Malaysia with about 75\% of Malaysians in 2008 having access to fluoridated public water supplies at the recommended optimum level of 0.5 ppm\textsuperscript{13}.

The following statements on the various fluoride modalities further clarify the stand of the Malaysian dental profession on each fluoride modality.

**Water Fluoridation**

- Fluoridation of public water supplies is a safe, effective, economical, practical and socially equitable means for prevention and control of dental caries in all age groups, ethnicity, income or education levels.

- The addition of fluoride to public water supplies to the optimum level of 0.5 ppm should be undertaken only when there is insufficient natural fluoride content below that level.

- The public health benefits of water fluoridation far outweigh the possible occurrence of dental fluorosis at the fluoride concentrations recommended for the prevention of dental caries.

- Fluoride levels in water supplies, however, must be tightly monitored and adjusted to ensure consistency in concentrations and to minimise fluctuations.

- There is continued need for surveillance and research to determine the optimal fluoride concentration in water in Malaysia to provide dental caries protection while
reducing the potential for dental fluorosis, given the availability of other sources of fluorides.

**Fluoridated Toothpastes / Dentifrices**

- While recognising that fluoridation of public water supplies is the main preferred method of fluoride delivery, fluoride toothpastes/dentifrices at the range of 1000-1500 ppm over-the-counter (OTC) should be used for further reduction in dental caries incidence

- Fluoride toothpastes should be used at least 2x daily but there must be supervised use in very young children

- Children under 6 years of age should only use a small amount (pea-sized or a smear) of toothpaste and should be supervised during brushing

- Children under 3 years of age should have their teeth brushed by an adult using only a smear of toothpaste

- Any concentrated form of fluoride toothpaste higher than 1500 ppm should
  - only be used on prescription by dental professionals;
  - be professionally-supervised for individuals at high-risk to dental caries

- Dentifrice containers and packaging should display the fluoride concentration, with specific indications for supervised use in children under the age of 6 years.
**Fluoride Mouth Rinses**

- The use of fluoride mouth rinses at appropriate concentrations is an effective adjunct measure for the prevention and control of dental caries.

- Fluoride mouth rinses should be selectively used for the specific needs of individuals or groups of individuals assessed at-risk to dental caries by the dental professional.

- Fluoride mouth rinses should not be administered in children below 6 years of age.

- Any concentrated forms of fluoride mouth rinses that are greater than 230 ppm and available OTC should only be used on prescription and supervision of a dental professional.

**Topical Fluoride Varnishes, Gels or Foams**

- Concentrated forms of topical fluorides such as fluoride varnishes, gels or foams should only be applied by dental professionals or the appropriate allied operating personnel.

- Fluoride varnishes, gels or foams should be limited to individuals who are professionally assessed as being ‘at risk’ to dental caries.

- Any other forms of topical fluoride gels or foams available OTC should only be used on prescription and supervision of a dental professional.
Addendum

The dental profession also makes the following statements on research into fluoride use and relevant issues of note.

• **Research Into Fluoride Use**

The dental profession in making the above position statements, advocates and supports the need for continued research into the risks and benefits of fluoride use, with special mention for

- estimations of fluoride exposures from all sources relevant to determining the optimum fluoride level for public water supplies in Malaysia
- the possible impact of fluoride-reducing factors within the home such as the use of unfluoridated bottled water or various reverse osmosis water filtration devices
- levels of dental fluorosis against levels of dental caries
- levels of fluoride in dentifrices.

• **Role of Members of the Dental Team**

The dental profession also makes the following recommendations on the role of members of the dental team.

- There must be continued monitoring of all peer-reviewed research and evidence related to fluoride use
- Dental personnel should be aware of the water fluoride content in their area, the information of which can be obtained from several sources
- Dental professionals should, for the benefit of their patients, clearly understand,
- the beneficial effects of fluoride in conjunction with the major risk factors for dental caries
- the potential factors that may affect the quality of saliva and hence the caries levels e.g. smoking, substance abuse, effect of certain medications, certain medical conditions, ageing and radiation therapy
- that diet with high frequency and prolonged ingestion of sugars and starch pose the highest risk to dental caries.

- Members of the dental team should give constant and consistent messages to parents of young children on the need to supervise the use of fluoridated toothpaste in their children.
- There is a need to ensure that the fluoride content of bottled drinking water does not exceed 0.6 ppm and that in natural mineral water does not exceed 1.0 ppm.
References


14. Engineering Services Division, Ministry of Health Malaysia
BIBLIOGRAPHY OF POLICY DOCUMENTS / POSITION STATEMENTS


SOME EXCERPTS FROM POSITION / POLICY STATEMENTS ON USE OF FLUORIDE

FEDERATION DENTAIRE INTERNATIONALE (FDI) STATEMENT
http://www.fdiworldental.org/federation/assets/statements/ENGLISH/Prevention/

Fluoride and Dental Caries
‘…….It is clear from a vast amount of scientific evidence that, if used properly, and at the concentrations appropriate for the prevention of dental decay, fluoride is safe and effective. …… Provided that levels of intake are carefully monitored, fluoride is considered to be a most important public health measure in maintaining oral health’.

FDI POLICY STATEMENT
http://www.fdiworldental.org/federation/assets/statements/ENGLISH/2008/

Promoting Dental Health through Water Fluoridation
‘……The public health benefits of water fluoridation far outweigh the possible occurrence of very mild enamel fluorosis/enamel opacities. …The FDI recognises that prevention by using fluoride is the most realistic way of reducing the heavy burden of dental decay worldwide….’

WORLD HEALTH ORGANISATION

‘Water fluoridation, where technically feasible and culturally acceptable, has substantial advantages [in public health] particularly for subgroups at high risk of caries.’

Global Consultation on Oral Health through Fluoride, November 2006
‘...prevention by using fluoride is the only realistic way of reducing this burden [tooth decay]...experts from WHO, FDI and IADR urge governments to take several actions.’

CENTRES FOR DISEASE CONTROL

‘The U.S. Centers of Disease Control and Prevention has recognised the fluoridation of drinking water as one of ten great public health achievements of the twentieth century’. ...

AMERICAN DENTAL ASSOCIATION
http://www.ada.org/prof/resources/positions/statements/fluoride3.asp

ADA Supports Fluoridation
‘The American Dental Association unreservedly endorses the fluoridation of community water supplies as safe, effective and necessary in preventing tooth decay. This support has been the association’s position since policy was first adopted in 1950.’
The AMA urges state health departments to consider the value of requiring statewide fluoridation (preferably a comprehensive program of fluoridation of all public water supplies, where these are fluoride deficient), and to initiate such action as deemed appropriate.’

AUSTRALIAN DENTAL ASSOCIATION

Policy Statement on Fluoride Use (2005)
‘…fluoridation of community water supplies is preferred as a safe and effective means of reducing the prevalence of dental caries in all age groups and should be implemented and maintained in those communities where there is an insufficient natural fluoride contents for this purpose.’

BRITISH DENTAL ASSOCIATION

‘…the British Dental Association, along with many other leading healthcare organisations, supports targeted water fluoridation.’

BRITISH MEDICAL ASSOCIATION

‘The BMA has for many years been in favour of the fluoridation of water supplies. We support this policy on the grounds of effectiveness, safety and equity.’
'The Canadian Association of Public Health Dentistry recognises the benefits of community water fluoridation, and recommends it as a safe, effective and economical public health measure. ...Continuing research into fluoridation is expected and recommended.'

‘CDA supports fluoridation of municipal drinking water ... as a safe, effective and economical means of preventing dental caries in all age groups. Fluoride levels in the water supplies should be monitored and adjusted to ensure consistency in concentrations and avoid fluctuations.’

‘Fluoride should continue to be added to municipal water supplies where natural concentrations are less than 0.3 ppm. A suitable trade-off between dental caries and fluorosis occurs around 0.7 ppm.’

The International Association for Dental Research (IADR), .....fully endorses and strongly recommends the practice of water fluoridation for improving the oral health of nations.
‘The possible relationship between fluoridated water and cancer has been debated at length ….. Studies to date have produced “no credible evidence” of an association between fluoridated drinking water and an increased risk for cancer.’

Statement on Water Fluoridation (July 2004)
‘As noted in Oral Health in America: a Report of the Surgeon General, community water fluoridation continues to be the most cost-effective, equitable and safe means to provide protection from tooth decay in a community.’

‘….The U.S. Public Health Service should continue to recommend the use of fluoride to prevent dental caries.’

Water fluoridation: information for health professionals
‘….Water fluoridation benefits individuals of all ages…..water fluoridation reduces the socio-economic inequalities in caries experience. The beneficial effect of water fluoridation is additional to that of fluoridated toothpaste. With the exception of dental fluorosis, scientific studies have been unable to link community water fluoridation with adverse effects.’
Excerpt from Chapter 7: Case Study: Fluoridation of Water. Nuffield Bioethics. Public Health: Ethical Issues

Summary

7.48 ... Water fluoridation has the potential to contribute to three central goals of the stewardship model: first, the principle of reducing health inequalities between different regional and socio-economic groups; secondly, the possibility of reducing ill health through environmental measures; and thirdly, concern for the health of children, who constitute a vulnerable group.

7.49 .... the acceptability of any policy involving the water supply should be considered in relation to the balance of risks and benefits, the potential of alternatives, and, where there are harms, to the role of consent..

7.50 Regarding consent, it is clear that an approach requiring individual consent is not feasible in practice. ... We suggest the adoption of local decision-making procedures that take into account the context in each area in which a decision is to be taken.

7.51 ... Policy makers and the public need to have access to clear and accurate information, and uncertainties and the strength or weakness of the evidence should be explicitly recognised.....’.

BENEFITS VERSUS RISK IN THE USE OF FLUORIDES: THE MALAYSIAN CONTEXT

Existing data in the country finds dental fluorosis at a level that is acceptable. In the current situation of persistent high caries experience, particularly among adults, such levels of dental fluorosis is an acceptable risk when weighted against the benefits that can be gained for caries prevention and control from water fluoridation and the concurrent use of fluoride toothpaste. The dental profession acknowledges that there needs to be greater vigilance on dental fluorosis in Malaysia. This position document takes note of the need for more research for estimations of fluoride exposures from all sources to determine the optimum fluoride level for public water supplies and to determine levels of dental fluorosis against levels of dental caries.
Appendix 5

ORGANISATIONS THAT RECOGNISE THE PUBLIC HEALTH BENEFITS OF COMMUNITY WATER FLUORIDATION FOR PREVENTING DENTAL DECAY

Academy of Dentistry International
Academy of General Dentistry
Academy for Sports Dentistry
Alzheimer’s Association
America’s Health Insurance Plans
American Academy of Family Physicians
American Academy of Nurse Practitioners
American Academy of Oral and Maxillofacial Pathology
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Academy of Pediatric Dentistry
American Academy of Periodontology
American Academy of Physician Assistants
American Association for Community Dental Programs
American Association for Dental Research
American Association for Health Education
American Association for the Advancement of Science
American Association of Endodontists
American Association of Oral and Maxillofacial Surgeons
American Association of Orthodontists
American Association of Public Health Dentistry
American Association of Women Dentists
American Cancer Society
American College of Dentists
American College of Physicians–American Society of Internal Medicine
American College of Preventive Medicine
American College of Prosthodontists
American Council on Science and Health
American Dental Assistants Association
American Dental Association
American Dental Education Association
American Dental Hygienists’ Association
American Dietetic Association
American Federation of Labour and Congress of Industrial Organizations
American Hospital Association
American Legislative Exchange Council
American Medical Association
American Nurses Association
American Osteopathic Association
American Pharmacists Association
American Public Health Association
American School Health Association
American Society for Clinical Nutrition
American Society for Nutritional Sciences
American Student Dental Association
American Water Works Association
Association for Academic Health Centres
Association of American Medical Colleges
Association of Clinicians for the Underserved
Association of Maternal and Child Health Programs
Association of State and Territorial Dental Directors
Association of State and Territorial Health Officials
Association of State and Territorial Public Health Nutrition Directors
British Fluoridation Society
Canadian Dental Association
Canadian Dental Hygienists Association
Canadian Medical Association
Canadian Nurses Association
Canadian Paediatric Society
Canadian Public Health Association
Child Welfare League of America
Children’s Dental Health Project
Chocolate Manufacturers Association
Consumer Federation of America
Council of State and Territorial Epidemiologists
Delta Dental Plans Association
FDI World Dental Federation
Federation of American Hospitals
Hispanic Dental Association
Indian Dental Association (U.S.A.)
Institute of Medicine
International Association for Dental Research
International Association for Orthodontics
International College of Dentists
March of Dimes Birth Defects Foundation
National Association of Community Health Centres
National Association of County and City Health Officials
National Association of Dental Assistants
National Association of Local Boards of Health
National Association of Social Workers
National Confectioners Association
National Council Against Health Fraud
National Dental Assistants Association
National Dental Association
National Dental Hygienists’ Association
National Down Syndrome Congress
National Down Syndrome Society
National Eating Disorders Association
National Foundation of Dentistry for the Handicapped
National Head Start Association
National Health Law Program
National Healthy Mothers, Healthy Babies Coalition
Oral Health America
Robert Wood Johnson Foundation
Society for Public Health Education
Society of American Indian Dentists
Special Care Dentistry
Academy of Dentistry for Persons with Disabilities
American Association of Hospital Dentists
American Society for Geriatric Dentistry
The Children’s Health Fund
The Dental Health Foundation (of California)
U.S. Department of Defence
U.S. Department of Veterans Affairs
U.S. Public Health Service
Health Resources and Services Administration (HRSA)
Centers for Disease Control and Prevention (CDC)
National Institute of Dental and Craniofacial Research (NIDCR)
World Federation of Orthodontists
World Health Organisation