Dental Amalgam and the Minamata Convention on Mercury [1]

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Scope

The present FDI Policy Statement covers dental amalgam for tooth restoration in the light of the special provisions for a phase-down in its use, contained in the 2013 Minamata Convention on Mercury[1].

Definitions

Minamata Convention on Mercury: an international treaty governing the mining, use and trade in mercury.

Dental amalgam: a mercury-added product containing approximately 50% mercury, which forms intermetallic alloy with silver, copper, and tin.

Introduction

Dental caries remains one of the most common diseases worldwide, even though substantial progress has been made in its prevention. Dental amalgam is widely used to repair teeth damaged by caries because of its ease of use, appropriate mechanical and bacteriostatic properties and cost-effectiveness. Amalgam has been available for over 150 years, and has one of the longest life expectancies of direct restorative materials used for the repair of carious teeth. Although much research effort has been expended in developing amalgam alternatives, no universal substitute is currently available. Therefore, dentists must have dental amalgam available as a treatment option.

The Minamata Convention on Mercury [2] is a global treaty to protect human health and the environment from the adverse effects of mercury. The major highlights include a ban on new mercury mines, the phase-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining.[1] The Convention also calls for a phase-down approach to dental amalgam (Annex A, Part II) through greater emphasis, notably on prevention, research into new dental materials and best management practice. FDI is on record as supporting the provisions of the Minamata Convention on Mercury[2].

Statement

1. Safety of Dental Amalgam

FDI reiterates the main conclusion of the WHO Consensus Statement on Dental Amalgam [3] (PDF), adopted by the FDI General Assembly in 1997: “The current weight of evidence is that contemporary dental restorative materials, including dental amalgam, are considered to be safe and effective.”[3]

The official position is contained in the FDI Policy Statement '*Safety of Dental Amalgam* [4]', adopted by the FDI General Assembly in 2007.

2. Adverse effect of Dental Amalgam

Possible adverse effects of dental amalgam are detailed in the FDI Policy Statement '*Possible Local Adverse Effects of Amalgam Restorations* [5]', adopted by the FDI General Assembly in 2007.

3. Phase-down of Dental Amalgam

The Minamata Convention calls for a phase-down of dental amalgam, with provisions for monitoring progress. The phase-down will necessitate a reduction in the use of dental amalgam coupled with measures to:

A. Improve the public's awareness of the importance of oral health and linkage to general health through:

- Promotion of education towards the understanding that oral health is integral to general health.
- Encouraging cooperation between members of health professions, governments, intergovernmental, non-governmental organizations, and the media to promote the widespread understanding that most oral diseases and their consequences can be prevented with simple interventions.

B. Increase emphasis on the three basic public health principles of needs assessment, disease prevention and health promotion by:

- Advocating national health policies and programmes that include oral health promotion and preventive measures at population, community, individual, and professional levels.
- Promoting organized collaboration between stakeholders at all levels and the adoption of replicable, reliable and affordable approaches to the integrated prevention of oral disease as part of prevention of other chronic, non-communicable diseases[4].

C. Ensure that health and the environment are protected through health care providers' safe handling practices, effective waste management and appropriate disposal of dental restorative material (environmentally sound lifecycle management) through awareness of:

- Occupational Risk to Oral Health Personnel
  A potential health risk to oral health personnel from mercury exposure exists if working conditions are not properly organized. The application of proper hygienic requirements and procedures for using mercury in dental clinics will significantly reduce exposure to mercury[3].
  Recommendations for handling and disposal of dental amalgam are provided in FDI Policy Statement '*Mercury Hygiene Guidance* [6]', adopted by the FDI General Assembly in 2007.
- Environmental Concerns
  Mercury used in dentistry may contaminate the environment via the disposal of waste products from dental clinics. Equipment is available to collect metallic waste generated during dental amalgam placement and removal. Appropriate collection and recycling technology is also available to reduce mercury pollution of the environment, including pollution from crematoria[3] by installing emission filters.
  Recommendations on the disposal of dental amalgam are detailed in FDI Policy Statement '*Amalgam Waste Management* [7]', adopted by the FDI General Assembly in 2009.

D. Ensure that dentists have the full complement of techniques, procedures and dental restorative materials available. FDI:

- Supports the concept of collaborative research groups within and between countries;
- Encourages the funding of dental research;
- Encourages the use of non-mercury containing filling material when appropriate;
- Encourages research programmes in all of the sciences related to dentistry;
- Encourages academic and industry scientists to promote the development and standardization of high quality equipment, instruments, materials and therapeutic agents; and
- Requests that FDI National Dental Associations and health authorities support or initiate research programmes and procedures that promote these objectives[4].

E. Work with the dental profession in establishing a comprehensive global dental materials research agenda, alongside expanded preventive approaches. FDI:

- Encourages the close cooperation between the dental profession and the research community;
- Encourages the concept of practice-based dental research in order to apply scientific findings in the

practice environment and to stimulate the interests of science in the issues and problems relevant to dental practice; and
- Encourages the practicing profession to keep abreast of advances in science[3].

References

1. http://www.mercuryconvention.org/Convention [8]
2. Resolution on Global Legally Binding Instrument on Mercury, Approved by General Assembly 31.08.2012
3. FDI Policy Statement *WHO Consensus Statement on Dental Amalgam* [9] (1997)
4. FDI Policy Statement Preventing Oral Diseases *[10]* (2008)

Science Committee [11] **Classification:** Amalgam [12]
Dental materials [13]
Mercury [14]
Minamata [15]

Links
[1] https://www.fdiworlddental.org/resources/policy-statements-and-resolutions/dental-amalgam-and-the-minamata-convention-on-mercury
[2] https://www.fdiworlddental.org/what-we-do/advocacy/dental-amalgam/minamata-convention-on-mercury
[3] http://www.who.int/oral_health/publications/dental_material_2011.pdf
[4] https://www.fdiworlddental.org/node/4303
[5] https://www.fdiworlddental.org/node/4304
[6] https://www.fdiworlddental.org/node/4305
[7] https://www.fdiworlddental.org/news/20170517/higher-awareness-of-dental-injuries-addressed-in-fdi-2017-madrid
[8] http://www.mercuryconvention.org/Convention
[9] https://www.fdiworlddental.org/node/4306
[10] https://www.fdiworlddental.org/news/20170405/australia-investigates-oral-health-of-population-in-national-study
[11] https://www.fdiworlddental.org/standing-committees/science-committee
[12] https://www.fdiworlddental.org/policy-statement-classification/amalgam
[13] https://www.fdiworlddental.org/policy-statement-classification/dental-materials
[14] https://www.fdiworlddental.org/policy-statement-classification/mercury
[15] https://www.fdiworlddental.org/policy-statement-classification/minamata