



No. 0304/ 7062

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30 June B.E. 2564 (2021)

Dear Madam,

Subject: Decision on dental amalgam

In reference to the decision MC-3/2 on dental amalgam, the Conference of the Parties, among other things, encourages parties to take more than the two required measures in accordance with part II of annex A to the Convention to phase down the use of dental amalgam, and requests the secretariat to collect information on the implementation of any such additional measures taken by parties.

In response to such decision, the Pollution Control Department of Thailand as the national focal point to the Minamata Convention on Mercury would like to provide the following information:

1. Preparations for phasing down dental amalgam.

Thailand has prepared relevant information for phasing down dental amalgam as follows:

1.1 Data from the study on the situations of dental fillings, health risks, and the management of waste contaminated with amalgam in the Ministry of Public Health's hospitals (Attachment No. 1)

1.2 Draft conceptual note on the Stakeholder mapping GEF Dental Amalgam Project (Attachment No. 2)

1.3 Results from the Technical Seminar and Public Hearing on Technical Conclusions on the Health Effects of Amalgam Use, 20 December 2018, Centara Grand Hotel at Central World, Bangkok, Thailand organized by the Dental Association of Thailand (Attachment No. 3)

2. Additional measures to reduce the use of amalgam as described in Annex A, Part II.

Thailand has already applied measures (v) and (ix) under the Annex A, Part II and informed the Secretariat when Thailand had submitted the accession instrument to the Convention. However, as of now, Thailand has also applied more measures as follows:

2.1 Measure (ii)...

2.1 Measure (ii) Setting national objectives aiming at minimizing its use

2.2 Measure (iii) Promoting the use of cost-effective and clinically effective mercury free alternatives for dental restoration

2.2.1 Developing the (draft) guideline on the dental restoration of alternative materials in pregnant woman and children under 6 years old.

2.2.2 Developing the proposal on Stakeholder Mapping GEF Dental Amalgam as a cooperative project between environmental and public health sectors and WHO to be granted by the Global Environment Facility.

2.3 Measure (v) Encouraging representative professional organizations and dental schools to educate and train dental professionals and students on the use of mercury-free dental restoration alternatives and on promoting best management practices.

2.4 Measure (viii) Restricting the use of dental amalgam to its encapsulated form.

2.4.1 Only limit the use of dental amalgam to its encapsulated form.

2.4.2 Drafting the (Draft) Notification of the Ministry of Public Health on defining the use of dental amalgam product containers and prescribing dental amalgam products packaged in tablet and powder forms as prohibited medical device for importation.

2.5 Measure (ix) Promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land.

2.5.1 Providing the manual on the use and management of waste dental amalgam in dental clinics.

2.5.2 Publishing the posters of the management of waste dental amalgam in dental clinics to be disseminated to dental professionals.

Please be assured of our full cooperation.

Yours sincerely,



(Mr. Athapol Charoenshansa)
Director General
Pollution Control Department

Enclosure: as stated

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A study on the situations of dental fillings, health risks, and the management of waste contaminated with amalgam in the Ministry of Public Health's hospitals

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Objectives

To carry out the study on the utilization situations of dental fillings and alternatives, the dental personnel behaviors, the management of dental amalgam waste, and the awareness on the Minamata Convention on Mercury of personnel in hospitals under the Ministry of Public Health.

Methodology

1. Retrospective descriptive study was conducted by using the questionnaires survey in 959 central, general, community and academic hospitals under the Ministry of Public Health.
2. Duration of information collection was from December 2018 to July 2019.
3. Sample size was calculated by method of Krejcie & Morgan (1970) at 95% confidence level.

Results

1. **Introduction:** 277 hospitals were participated in questionnaires survey. 84.8% of most respondents to questionnaires were dentists. 11,746 patients were the average patients who received the dental services in 2018.
2. **Dental fillings:** 2,897 patients or 24.7% were came to fill their teeth by dental amalgam fillings of 28.5% and other fillings of 71.5%. 95.7% of amalgam filling materials using in most hospitals were in its encapsulated form. 98.6% and 81.6% of alternative filling materials were composite resin and glass ionomer, respectively.
3. **Prevention activities:** Hospitals conducted the teeth decay prevention activities or programme in every age span coverage in which 53.4% in child age, 17.7% in school age, 11% in working age, and 17.7% in old age.
4. **Health risks protection in dental personnel:** In case of using the protective equipment, the 92.5% and 91.8% of personnel were wearing gloves and masks between dental services, respectively. 47.3% of dental personnel were trained about mercury and amalgam. Hospitals also prevented the mercury releases by 68.2 % of using covered boxes onto the amalgam mixers, 10.9% of using a separated room for mixing amalgam, and 23.5% of mercury accumulation monitoring in dental personnel.

5. **Waste amalgam management:** Most of amalgam scraps were sealed in closed containers in which 73.8% were stored under water and 71.9% were sealed. Capsule peels had segregated as 73% of hazardous wastes, 16.5 % of infectious wastes and 8.2 of solid wastes, respectively in which 47.2 % were treated by private waste processors. Cottons and gauzes that contaminated with amalgam were segregated into 77.2% of infectious wastes, 15.7% of hazardous wastes and 5.2% of mercury hazardous wastes, respectively in which 69.7% were treated by private waste processors. There was 4.7% of mercury monitoring in wastewater from the dental service rooms.
6. **Awareness of Minamata Convention on Mercury:** There was 49.8% of hospitals that aware about the Minamata Convention in which 52.3% were dentist and 31% were dental personnel.

Conclusion

1. The decreasing trend of amalgam filling materials using was in line with the increasing trend of alternative filling materials (composite resins and glass ionomers) using in 2015 – 2018.
2. In case of health risk protection from amalgam using, there were the prevention of mercury diffusion in most hospitals. However, even there was the sound collection of amalgam wastes; not all of them were properly treated. Also there was lack of proper mercury monitoring in discharged water from dental service rooms. The awareness of Minamata Convention in the dental personnel was still limited.
3. Recommendations include the outreach programme of Minamata Convention in order to promote more understanding; safe practices of sound dental amalgam utilization; capacity building of dental personnel in using the alternative filling materials; enhancement of the more effective teeth decay prevention programme in every age span in order to reduce needs of dental filling in long term period; and the development of management mechanism/system of waste contaminated with amalgam.

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Source: Bureau of Dental Health, Department of Health, Ministry of Public Health

Stakeholder mapping
GEF Dental Amalgam Project

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Index of global stakeholders

- WHO CC's, WHO Oral Health Programme Collaborating Centres
- FDI; FDI World Dental Federation and its membership
- IDM; International Association of Dental Manufacturers and its membership
- IADR; International Association for Dental Research and its membership
- ADEAP, ADEE, IFDEA; Associations for Dental Education at global and regional levels and its membership
- Academia; including but not limited to universities and institutions of higher education and International NGOs

1. Knowledge management

Output Standards, technical guidance and tools produced that enable the early implementation of the provisions of the Minamata Convention related to the phase down of the use of dental amalgam, and relevant decisions taken by the Conference of the Parties.

Project main activities	Project sub-activities
1. Conduct situation assessment and inventory of trade, supply, regulation and use of dental amalgam & quality mercury free materials	
2. Document good practice examples and demonstrate the feasibility of voluntary implementation	
3. Produce recommendations on quality mercury free products and processes according to the best knowledge available	<ul style="list-style-type: none"> - Produce recommendations on the selection and use quality mercury free products and processes for dental caries management based on independent experts review process that draws upon existing EU / Member States experiences and reports. - Produce recommendations based on intercessional work of technical working groups

Project main activities	Project sub-activities
	(Minamata and other relevant areas of work) for the best available techniques and best environmental practices to reduce and monitor emissions and releases of dental amalgam waste into air, land, soil, and water, as well as similar practices that could be applied to quality mercury free products as a part of multipollutant control strategy
4. Deliver communication strategy, and accompanying products and resources	- Develop communication strategy, with products and resources; info – fact sheets, developing key global messages, coordination of communications with and across project countries, linkage with Global Mercury Partnership communication strategies and plans
5. Develop standardized assessment tools and protocols for environmentally sound waste management of dental amalgam	- Identification and selection criteria of health / dental facilities for environmentally sound waste management of dental amalgam waste - Under UNEP guidance, develop a standardized assessment tool and protocol for the selection of dental amalgam separators referring to manufacturer products specifications and requirements, and relevant information including threshold values for releases to air, land, soil and water;

2. Multisectoral cooperation

Output Multisectoral cooperation and actions to strengthen health systems in support of Universal Health Coverage to achieve socio-economic, environmental and public health benefits in 3 countries

Project main activities	Project sub-activities
1. Set up national mechanisms to coordinate multisectoral actions	
2. Map financing of oral health services	<ul style="list-style-type: none"> - Collect data on the total expenditures and investment in oral health services - Identify (if necessary develop) protocol and assessment tool for mapping of financing of oral health services in project countries including public and private sectors; - Policy review and analysis of: i.insurance policies and programmes that favor dental amalgam use over mercury-free dental restoration, and ii. Insurance policies and programmes that favor the use of quality alternatives to dental amalgam for dental restoration; in both public and private sectors.
3. Identify active oral health workforce stock	<ul style="list-style-type: none"> - Collect data on size composition and distribution of oral health workforce using WHO National Health Workforce Accounts - Develop a series of (country-specific) health workforce education policy questions to guide and inform the shift from a dentistry-centric approach to population health needs approach;
4. Reorient health workforce education and training in support of population health needs approach	<ul style="list-style-type: none"> - Analysis of national education plans for oral health workforce, and the alignment with national health plans and national health workforce plans and strategies

Project main activities	Project sub-activities
	<ul style="list-style-type: none"> - Hold regional education meetings to host deans of oral health education institutions to examine convergence of accreditation standards and population health needs approach.
5. Strengthen the business and regulatory environment for accelerating early implementation	<ul style="list-style-type: none"> - Identify (if necessary develop) a standard protocol and tool for mapping and assessment of the business and regulatory environment to medical devices with focused attention on materials for dental caries management; - Recommendations for improving and strengthening business and regulatory environment for accelerating early implementation of the use of phase down of dental amalgam.

3. Environmentally Sound Lifecycle Management

Output Regulatory efforts to restrict the use of dental amalgam to its encapsulated form, and to promote the use of best environmental practices to reduce releases of mercury and mercury compounds to air, water, soil and land in 3 countries

Project main activities	Project sub-activities
1. Reinforce regulation to restrict the use of dental amalgam to its encapsulated form, and its diversion into other sectors	<ul style="list-style-type: none"> - Conduct national situation assessment and inventory of trade, supply, regulation and use of dental amalgam & quality mercury free materials
2. Selection, installation, maintenance of dental amalgam separators, and management and disposal of dental amalgam waste at selected sites	<ul style="list-style-type: none"> - Identify health / dental facilities - Select dental amalgam separators using standardized assessment tool and protocol (ref doc. output 1)
3. Strengthen waste management mechanisms and processes at selected sites	

4. Sustainability

Output Project monitoring and evaluation and reporting to inform equitable and sustainable phase down of the use of dental amalgam

Project main activities	Project sub-activities
1. Project monitoring and evaluation	<ul style="list-style-type: none"> - Establish project steering committee; - Provide for a stakeholder forum, which could share and exchange data and evidence, country case examples, and other experiences that could support the effectiveness of the project outputs and outcome; - Identify key performance indicators for project with focused attention on multispectral sustainability and equity
2. Identify common elements and conditions for global scale up	<ul style="list-style-type: none"> - Identify common elements and conditions that create long term sustainability for phase down of use of dental amalgam based on summative outputs of 1, 2 and 3 at project country level.
3. Reporting on effectiveness of measures taken in countries	<ul style="list-style-type: none"> - Establish minimum data set which ensures compatibility and interoperability for reporting on effectiveness and challenges (Article22)

Technical conclusions on the health effects of amalgam usages
By the Dental Association of Thailand

Mercury poisoning depends on its nature, methods and the amount entering to the body. Reducing of mercury uses is beneficial to humanity not only exposure reduction, but also the environmental impact reduction. However, until now, there is *no conclusion and strong accepted scientific evidences that amalgam harms health. Dental amalgam restoration does not increase the health risks of diseases to or adverse effects to the patient bodies*. Even, it has been found that there were some specific responses (local adverse effects) and they could be easily cured.

Among pregnant women and infants, although mercury can pass through the barrier between the blood vessel and the brain, including the placenta; however, based on evidences from findings, there was no relation between mercury exposure from amalgam and the side effects during pregnancy and birth weight of an infant. It was not also found that effects on an infant from breast milk of mother who had oral dental amalgam materials. There was a few clinical studies in children under 6 years old who had oral amalgam fillings and it was not found that there was impact on the brain and nervous system development from exposure to mercury from amalgam materials. Low levels of mercury had been detected below the health hazard threshold level in children population of more than 6 years old who had oral dental amalgam materials. However, if pregnant woman has a need to restore teeth, a dentist should choose methods and materials for dental restorations by considering in some factors, such as health history e.g. blood pressure, renal function, gestational age, amalgam/material/chemical allergies history, etc. While the dental restoration in children, a dentist should consider some elements, such as health history, type of teeth (baby teeth or permanent teeth), remaining periods of the teeth in the oral cavity, teeth number to be treated, etc. Therefore, for the dental restoration in pregnant women and children, a dentist should indicate positive and negative results as well as side effects of each dental filling material for their selection.

It is acceptable that dental personnel are considered to be more exposure to mercury than the general people because of their profession. However, it was not found that there was different health effects between dental personnel and general population. Precautionary measures of mercury uses in patients should be also applied to the dental

personnel in particular mercury management in dental restoration from storage, preparation in the restoration processes, waste amalgam management, and the processes of amalgam dismantling having to be careful in every patient, including the uses of a mount water prevention rubber, coolant water, and high power suction, etc.

"Reducing mercury consumption in response to the Minamata Convention will help in reducing mercury releases to the environment"
