FDI World Dental Federation Submission

Information on non-mercury alternatives to dental amalgam

FDI World Dental Federation (FDI) fully supports the United Nations Environment Programme's (UNEP) Minamata Convention on Mercury, including its nine provisions on the phase down of use of dental amalgam defined in Annex A, Part II of Article 4.

FDI serves as the principal representative body for more than one million dentists worldwide through its membership, which is comprised of 200 national dental associations and specialist groups in over 130 countries.

The organization is in official relations with the World Health Organization (WHO) and, with its members, stands ready to support countries in the implementation of the phase down of dental amalgam according to the World Health Assembly Resolution adopted at the 67th World Health Assembly in 2014 (WHA67.11).

The Convention is an environmentally focused instrument. However, there are many articles in which Ministries of Health play a leading role in its implementation, and measures to phase down dental amalgam is one such example[1].

To support Parties and UNEP in gathering information on non-mercury alternatives and planning strategies around the phase down of dental amalgam. FDI recommends the following:

1. **Invest in disease prevention and health promotion**
   The Minamata Convention presents a unique opportunity for primary prevention of dental caries to be promoted as being the optimum strategy to phase down dental amalgam. Resources should, therefore, be invested in population-wide cost-effective public health measures[2] and strategies to improve health literacy. This will help lessen the need for any restorative work and reduce the demand for dental amalgam.

2. **Breakdown silos and work together with all relevant stakeholders to develop the most sustainable strategies to manage the phase down of dental amalgam**

   In line with WHA67.11 and as preparatory work for COP3, the WHO conducted a survey in October 2019 among Chief Dental Officers, senior advisors and academics in oral health at the Ministry of Health, and directors of WHO Collaborating Centres (Appendix 1). A total 79 participants from 71 countries and territories completed the survey. Worryingly, approximately half of the participants reported they had not been involved in meetings organized either by the Ministry of Environment or Ministry of Health to discuss the implementation of the Convention or the phase down in use of dental amalgam.

   When gathering information on non-mercury alternatives and outlining strategies for the phase down of dental amalgam, Parties, specifically the Ministries of Environment, must work with their Ministries of Health, National Dental Associations and Chief Dental Officers (where they exist), to understand the challenges and the feasibility of any recommended approaches.

   It is vital that these ministries' Parties to the Convention engage the oral health community during the discussions, strategic planning, and delivery of activities to phase down the use of dental amalgam to ensure all views are considered.

   Setting up a national coordination committee under the leadership of the Ministry of Environment and Ministry of Health could create an environment conducive to consensus building for the health sector.

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3. Increase research into fully effective alternatives to dental amalgam and make evidence-based recommendations according to the latest science

A phase down approach is the only equitable and feasible strategy that should be enforced at this time. According to WHO, phasing out dental amalgam without the required supporting evidence on alternatives, national situation assessments, and the involvement of key stakeholders could compromise the delivery of quality dental treatments and increase health inequalities in access to essential oral healthcare and therefore impact the achievement of Universal Health Coverage (Appendix 1).

Increased research and development of quality mercury-free materials for dental restorations, including their potential environmental impact is needed. FDI advocates that all treatment decisions should be based on the best available scientific evidence, the best interests of the patient and the best clinical judgement by the practitioner while considering the integrity of the environment[3].

FDI fully supports the joint submission from the International Association for Dental Research (IADR) and the American Dental Association[4]. Dental amalgam is the most affordable treatment option in many cases both in terms of cost of placement and how long it lasts. FDI agrees that *"By working together to promote research into fully effective alternatives to dental amalgam, the world community can assist in efforts to reduce reliance on mercury while still protecting the health of the public. In other words, the current approach to dental amalgam memorialized in the Minamata Convention offers the best chance to protect both the environment and the public.*"

4. Ensure access to safe, effective and affordable alternative restorative materials

Dental amalgam has been used for over 150 years around the world as a safe, durable, and cost-effective material to repair tooth decay (dental caries). Although much progress has been made in developing alternative restorative materials, they are still not "technically and economically feasible" for many resource-limited settings. FDI agrees with the latest research update on alternative materials from the IADR[4], which found that alternative restorative materials *"… are not practical for all clinical settings or in settings that lack a reliable source of electricity or other necessary equipment …" and "… addressing deficiencies of alternatives to dental amalgam … require[s] continued investments in research to accelerate development of these products, move them from the lab to the market, and to increase their affordability"*.

The phasing down of dental amalgam before the availability of safe, effective, and affordable alternatives, particularly in resource-limited settings, would negatively impact oral health from both an individual and population perspective. It is important to reiterate the need for further research, both private and public, to make available a quality mercury-free restorative material that is affordable, biocompatible, clinically effective, user-friendly, and environmentally sound.

5. Implement dental amalgam phase down strategies that are most appropriate to the national context

As highlighted by WHO (Appendix 1), FDI recognizes that the phase down and potential phase out of dental amalgam is not a "*one-size fits-all solution*" for all countries and tailored strategies should be implemented at the country level based on specific needs and situations. However, substantial preliminary work is required at both global and national levels before moving towards a complete phase out of dental amalgam. Phasing out of dental amalgam without the required supporting evidence on alternatives could lead to quality dental treatments being compromised, an increase in the number of teeth extractions as access to appropriate treatment regimens are no longer available, specifically in low- and middle-income countries (LMICs), and a reduced quality of life for people.

FDI fully supports the WHO position in that efforts should focus on accelerating the phase down in use of dental amalgam through a comprehensive, stepwise, and inclusive process that considers a timescale for implementation according to national contexts. Phasing out dental amalgam in the short-term is seen as premature, particularly for LMICs with a high prevalence of untreated dental caries.

FDI advocates for the continued phase down of use of dental amalgam, but countries and dentists must be given access to safe, effective, and affordable alternative restorative materials as well as the appropriate training for their use. This will not become a reality in many countries, particularly in resource-limited settings, without sustainable funding, a greater emphasis on prevention, increased research on amalgam alternatives, and best management practices for amalgam waste.

References

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2. World Health Organization. *Tackling NCDs: 'best buys' and other recommended interventions for the prevention and control of noncommunicable diseases*. Geneva: World Health Organization; 2019. Available from: https://apps.who.int/iris/handle/10665/259232 [Accessed 13 July 2020].

3. FDI World Dental Federation. *Policy statement: Dental Amalgam Phase Down*. Available from: https://www.fdiworlddental.org/resources/policy-statements/dental-amalgam-phase-down [Accessed 13 July 2020].

4. ADA and IADR. *Minamata Convention Conference of Parties 4 Statement*. Available from: http://www.mercuryconvention.org/Portals/11/documents/meetings/COP4/submissions/ADA_and_IADR_DentalAmalgam.pdf [Accessed 13 July 2020].

APPENDIX 1

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Perception and perspective of policy makers in dental public health about the phase down in use of dental amalgam and the proposal to amend Annex A of the Minamata Convention on Mercury

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Background

The third meeting of the Conference of the Parties to the Minamata Convention on Mercury (COP3), 25-29 November 2019, will consider a proposal to amend Annex A of the Convention to move dental amalgam out of Part II and place it in Part I, specifically, to not allow after 2021 the manufacture, import and export of dental amalgam for use in deciduous teeth, children under 15 years, pregnant women, and breastfeeding women, and after 2024, dental amalgam, except where no mercury-free alternatives are available after 2024 (UNEP/MC/COP.3/21).

In line with World Health Assembly Resolution 67.11 (2014), the World Health Organization (WHO) Oral Health Programme conducted a survey in October 2019 among Chief Dental Officers, senior advisors and academics in oral health at the Ministry of Health, and directors of WHO Collaborating Centers (WHO CCs). All are members of an online community of practice hosted by WHO and called the WHO Global Oral Health Network Platform. The aim of the survey was to better understand the awareness, involvement, and views of this group of policy makers in dental public health about the Minamata Convention on Mercury and the proposed amendment to Annex A. In line with Article 16, subparagraph 2(a) of the Convention, which provides that the COP should consult with WHO in considering health-related issues, the intention of this work was to inform the discussions during COP3.

It is important to note that the survey results are based only on the views expressed by the participants alone and they do not necessarily represent the views, decisions, or policies of the institutions with which they are affiliated. 150 individuals were invited to participate in the survey. Of the 150, 79 participants from 71 countries and territories completed the survey, which resulted in a response rate of 52.7%. Of the 79 participants, 34 were from high-income countries, 32 from middle-income (upper and lower) countries, and 13 from low-income countries.

Setting the context

The majority of participants (n=70, 88.6%) reported that dental amalgam is still used in their countries, which included all participants from low-income countries. 61 respondents (77.2%) reported that mercury-free alternatives were available in their countries whereas 13 (16.5%) indicated these alternatives were not available. Among them, 11 (84.6%) were from low- and middle-income countries. Of the 61 participants that reported mercury-free alternatives were available in their countries, 37.7% (n=23) indicated that these were not affordable to the most vulnerable and marginalized population groups. When combining the “no” responses of all participants from both questions on availability and affordability, almost half of the respondents (n=36, 45.6%) reported that mercury-free alternatives were either not available or affordable to the most vulnerable and marginalized population groups in their countries. Most of these participants (n=24, 66.7%) were from low- and middle-income countries.

Minamata Convention and the phase down in use of dental amalgam

Most respondents (n=69, 87.3%) were aware of the Minamata Convention. Approximately half of the participants (51.9% to 54.4%) reported they had not been involved in meetings organized either by the Ministry of Environment or Ministry of Health to discuss the implementation of the Convention or the

phase down in use of dental amalgam. About half of the participants (n=38, 48.1%), including most of the participants from low-income countries (10 out of 13), were either “not at all involved” or “slightly involved” in the implementation of the phase down in use of dental amalgam in their countries.

Approximately half of the respondents (n=42, 53.2%) reported that their countries were currently implementing activities related to the phase down in use of dental amalgam. Of the 30 who reported no activities were being implemented, 23 (76.7%) were from low- and middle-income countries. Activities reported were in line with the nine provisions listed in the Convention. The top priority provision mentioned by the respondents was “*Setting national objectives aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration”.* The least activities reported by the respondents were related to amending insurance policies and promoting research on mercury-free alternatives.

The Convention does not specify an implementation timeline to phase down the use of dental amalgam. Participants were asked to provide what they considered would be a realistic timeline to implement the phase down for their countries. The dates proposed varied depending on participants’ national contexts and the complexity of activities they currently undertake. In broad terms, most participants provided a timeframe between 2020 to 2030 to complete the phase down in use of dental amalgam. Conversely, a few responded that it was difficult to estimate a realistic timeline due to the specific challenges encountered in their countries.

Proposal to amend Annex A of the Convention

About half of the participants (n=40, 51,3%) were aware of the proposed amendment to Annex A of the Convention. 42.3% of the respondents (n=33) agreed with the proposal whereas 57.7% (n=45) partially agreed/disagreed, disagreed or were unsure (respectively 32.1% (n=25) partially agreed/partially disagreed, 20.5% (n=16), disagreed and 5.1% (n=4) were unsure).

Participants had an opportunity to freely comment on the proposed amendment through optional open-ended questions. The most common themes reported are presented below.

Irrespective of agreeing or disagreeing with the proposed amendment, 49 participants reported concerns associated with phasing out dental amalgam which included the following: 26 mentioned issues with their countries’ readiness to implement the proposal within the timeframe proposed due to lack of supporting structures or because the proposed phase out date is soon. 21 mentioned delivery of low quality dental restorative treatments and potential therapeutic failures given that dental amalgam has specific clinical indications and a true substitute for dental amalgam was not yet available in the market. 31 participants mentioned it could negatively impact access to dental care due to the higher cost of mercury-free alternatives and lack of appropriate equipment and infrastructure in resource-limited settings which could lead to increased health inequalities.

There were participants who reported that the proposed amendment would cause no significant impact in the delivery of oral health services in their countries, especially for the 2021 phase out date (n=38) in comparison to the 2024 phase out date (n=27). One of the main reasons was reported by 18 participants who explained that their countries had already taken similar policy measures to avoid the use of dental amalgam in deciduous teeth, children, pregnant or breastfeeding women; and a few also mentioned that the material could still be used when it was deemed strictly necessary. 10 out of the 18 participants were from high-income countries. It also was interesting to note that of the 18 participants, 7 agreed with the proposed amendment, 3 partially agreed/disagreed, and 8 disagreed.

It is worth noting that a few participants also expressed their concerns about the potential environmental implications of mercury-free alternatives, especially now that plastic pollution has gained significant international attention.

Conclusion and Recommendations

The perception and perspective of policy makers in dental public health about the phase down in use of dental amalgam and the proposal to amend Annex A of the Minamata Convention on Mercury varied among participants depending on national contexts and levels of income. The results showed that dental amalgam is still used in most of the countries and is viewed as a restorative material that is needed for the equitable delivery of oral health care services. The affordability of dental amalgam has been one of the reasons for its availability. Even though 61 participants reported the availability of mercury-free alternatives, among them, 23 (37.7%) indicated that these were not affordable for the most vulnerable and marginalized population groups. A substantial number of participants reported they were not fully prepared to phase out the dental amalgam within the timeframe proposed in the amendment and anticipated negative consequences due to the lack of a true substitute of dental amalgam in the market and the higher cost of alternatives. Furthermore, the results also drew attention to the weak level of involvement of half of the participants in the phase down of the use of dental amalgam in their countries.

Based on this survey, it appears that a phase out of dental amalgam approach is not a one-size-fits-all solution for all countries but an ultimate goal that should be reached at some point, and certainly an option that should be implemented in some countries based on specific needs and situations. In any case, substantial preliminary work is required at both global and national levels before moving toward the goals suggested by the proposed amendment to Annex A. Phasing out dental amalgam without the required supporting evidence on alternatives, national situation assessments, and the involvement of key stakeholders could compromise the delivery of quality dental treatments and increase health inequalities in access to essential oral health care and therefore impact the achievement of Universal Health Coverage.[1]

In this regard, the WHO position remains unchanged and efforts should focus on accelerating the phase down in use of dental amalgam through a comprehensive, stepwise, and inclusive process that considers a timescale for implementation according to national contexts. Phasing out dental amalgam in the short-term is seen as premature, particularly for low- and middle-income countries with a high prevalence of untreated dental caries.

In light of the results, reinforcement of the collaboration between Ministries of Health and Environment appears to be a matter of urgency. These ministries' Parties to the Convention should engage the oral health community during the discussions, strategic planning, and delivery of activities to phase down the use of dental amalgam to ensure all views are considered. Setting up a national coordination committee under Ministry of Health and Ministry of Environment leadership could create an environment conducive to consensus building for the health sector. In the meantime, it is important to reiterate the need for further research, both private and public, to make available a quality mercury-free restorative material that is affordable, biocompatible, clinically effective, user-friendly, and environmentally sound.

Finally, the implementation of the Minamata Convention provides the opportunity to rethink the model of dentistry towards health promotion and integrated disease prevention, along with the wider use of mercury-free alternatives and minimally invasive care. From an environmental perspective, the environmental impact of mercury-free alternatives still needs to be carefully assessed.

[1] Universal health coverage is defined as ensuring that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user the financial hardship.