

Policy Statement

Amalgam (Part 2): Safe Use and Phase Down of Dental Amalgam



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KEYWORDS:

Prevention
alternative restorative materials
education
amalgam
mercury
Minamata Convention

CONTEXT

The existing FDI Policy Statements on the safety of dental amalgam (Possible Local Adverse Effects of Amalgam Restorations, 2007; Safety of Dental Amalgam, 2007) and their use in the context of phase down according to the Minamata Convention on Mercury (Dental Amalgam and the Minamata Convention on Mercury, 2014; Dental Amalgam Phase Down, 2018) are updated by and integrated into this Policy Statement.

As dental amalgam contains mercury, concerns have been raised with respect to its potential effects on patients, dentists, dental teams, and the environment. Furthermore, dental amalgam is one of several sources of mercury pollution, albeit a minor one. However, the oral healthcare profession recognizes the need to generally reduce the use of mercury, including dental amalgam consistent with the needs and preferences of the patient. Safe handling of mercury and waste management of amalgam are issues covered by the Policy Statement - Amalgam Part 1: "Safe Management of Waste and Mercury." Notably, phased reduction of the use of dental amalgam is well supported by an increasing focus on caries prevention and research, and development of new cost-effective dental restorative materials with good quality, safety, longevity, adhesive properties, and that are environmentally friendly.

Dental amalgam is a clinically well-proven and successful filling material for teeth. It releases very small amounts (nanograms) of mercury, some of which are absorbed by the body. The level of urinary mercury is positively correlated with the number and size of amalgam restorations, but it is usually more affected by sources other than amalgam. Concerns have been expressed about the safe use of dental amalgam for the general population.

The preponderance of available evidence does not link the presence of amalgam restorations with chronic and degenerative diseases, kidney disease, autoimmune disease, <https://doi.org/10.1016/j.identj.2021.11.007>

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cognitive dysfunction, adverse pregnancy outcomes or any non-specific symptoms in the general population. Vulnerable groups are patients with a proven allergy to amalgam or to one of its components, or with an existing severe renal disease. As with any other medical or pharmaceutical intervention, caution should be exercised when considering the placement of any dental restorative materials in pregnant women. Toxicological concerns have also been raised over alternatives to dental amalgam.^{1,2}

SCOPE

In 2013, the Minamata Convention on Mercury supported a gradual phase down of dental amalgam usage in restorative dental treatment. It was adopted in 2017 making it necessary to plan and act strategically to reduce the need for dental amalgam for restorative treatments. The Convention also emphasized the need to strengthen dental curricula towards disease prevention and health promotion as well as teaching alternative restorative materials and techniques, including the minimum intervention approach as appropriate.

DEFINITIONS

Minamata Convention on Mercury: an international treaty developed by the United Nations Environment Programme, governing the mining, trade in and use of mercury.

Dental amalgam: filling material for teeth prepared by mixing mercury with dental amalgam alloy.³

Dental amalgam alloy: powder or compressed powder pellets of an alloy consisting mainly of silver, tin and copper which, when mixed with mercury, produces a dental amalgam.³

PRINCIPLES

FDI supports the World Health Organization for the phase down of dental amalgam usage, through decreasing demand for its need. Decreasing demand may be accomplished through increased emphasis on disease prevention and health promotion, and research into development and availability of equivalent alternative treatment options. Dental treatment should ensure that dental restorative materials continue to be used in a safe and effective manner for patients and oral healthcare providers, while respecting the environment.

POLICY

- All treatment decisions should be based on the current scientific evidence, the best interests of patients and the sound clinical judgement by the dental practitioner, while considering the integrity of the environment and the health of the population.
- Amalgam tattoos cause tissue discoloration but are otherwise benign. No treatment is necessary. Localized oral lichenoid lesions may occur next to amalgam restorations in very rare instances, due to many factors such as an autoimmune reaction or allergic reaction to amalgam components. If such patients are positive to skin allergy patch testing for mercury or other amalgam components, replacement of the restorations may improve their mucosal lesions.
- FDI supports the following practices in the phase down of dental amalgam:
- Increased emphasis on disease prevention and health promotion.
- Enhanced research and development of quality mercury-free materials for dental restorations, including on their potential health and environmental impacts.
- Appropriate education in the use of appropriate alternative restorative materials and techniques in universities and continuing education courses.
- Reduce and if possible avoid the use of dental amalgam in:
 - lesions that are suitable for other restorative materials, especially in first restorative treatment and young patients;
 - individuals with special medical conditions such as severe renal disease, or those with allergic reactions to

amalgam or (erosive) lichenoid contact lesions in the oral mucosa;

- except when deemed necessary by the dental practitioner based on the specific needs of the patient and the clinical situation. This policy may be implemented differently in various countries or regions and where special regulations may apply.

DISCLAIMER

The information in this Policy Statement was based on the best scientific evidence available at the time. It may be interpreted to reflect prevailing cultural sensitivities and socioeconomic constraints.

REFERENCES

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