



## FDI POLICY STATEMENT

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

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#### CONTEXT

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

8

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

21

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

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29 The preponderance of available evidence does not link the presence of amalgam  
30 restorations with chronic and degenerative diseases, kidney disease, autoimmune  
31 disease, cognitive dysfunction, adverse pregnancy outcomes or any non-specific  
32 symptoms in the general population. Vulnerable groups are patients with a proven  
33 allergy to amalgam or to one of its components, or with an existing severe renal  
34 disease. As with any other medical or pharmaceutical intervention, caution should  
35 be exercised when considering the placement of any dental restorative materials in

36 pregnant women. Toxicological concerns have also been raised over alternatives to  
37 dental amalgam.<sup>1,2</sup>

38

## 39 **SCOPE**

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

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## 48 **DEFINITIONS**

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

53

54 **Dental amalgam:** filling material for teeth prepared by mixing mercury with dental  
55 amalgam alloy.<sup>3</sup>

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57 **Dental amalgam alloy:** powder or compressed powder pellets of an alloy consisting  
58 mainly of silver, tin and copper which, when mixed with mercury, produces a dental  
59 amalgam.<sup>3</sup>

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## 61 **PRINCIPLES**

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

69

## 70 **POLICY**

71 • All treatment decisions should be based on the current scientific evidence, the  
72 best interests of patients and the sound clinical judgement by the dental  
73 practitioner, while considering the integrity of the environment and the health of  
74 the population.

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76 • Amalgam tattoos cause tissue discoloration but are otherwise benign. No  
77 treatment is necessary. Localized oral lichenoid lesions may occur next to  
78 amalgam restorations in very rare instances, due to many factors such as an  
79 autoimmune reaction or allergic reaction to amalgam components. If such patients  
80 are positive to skin allergy patch testing for mercury or other amalgam

81 components, replacement of the restorations may improve their mucosal lesions.

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83
- 84 • FDI supports the following practices in the phase down of dental amalgam:
    - 85 • Increased emphasis on disease prevention and health promotion.
    - 86 • Enhanced research and development of quality mercury-free materials for
    - 87 dental restorations, including on their potential health and environmental
    - 88 impacts.
    - 89 • Appropriate education in the use of appropriate alternative restorative
    - 90 materials and techniques in universities and continuing education courses.
    - 91 • Reduce and if possible avoid the use of dental amalgam in:
      - 92 ○ lesions that are suitable for other restorative materials, especially in
      - 93 first restorative treatment and young patients;
      - 94 ○ individuals with special medical conditions such as severe renal
      - 95 disease, or those with allergic reactions to amalgam or (erosive)
      - 96 lichenoid contact lesions in the oral mucosa;
      - 97 ○ except when deemed necessary by the dental practitioner based on
      - 98 the specific needs of the patient and the clinical situation. This policy
      - 99 may be implemented differently in various countries or regions and
      - 100 where special regulations may apply.
- 101

## 102 **KEYWORDS**

103 Prevention, alternative restorative materials, education, amalgam, mercury,  
104 Minamata Convention  
105

## 106 **DISCLAIMER**

107 The information in this Policy Statement was based on the best scientific evidence  
108 available at the time. It may be interpreted to reflect prevailing cultural sensitivities  
109 and socio-economic constraints.  
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## 111 **REFERENCES**

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