

The great dental amalgam debate

Susie Sanderson OBE is past President of the British Dental Association, the Speaker of the FDI World Dental Federation General Assembly and is a member of the Council of European Dentists Working Group on Dental Materials and Medical Devices.

Key points

- Phase out of dental amalgam requires investment in prevention measures, research and development of alternative materials, and effective waste management processes.
- The dental profession is supporting the phase-down of dental amalgam but dentists need the full armoury of dental materials and must be trusted to share decision-making with their patients about clinical choices.
- Unintended consequences of a rapid global phase-out of dental amalgam must be properly understood before it is universally imposed.



How soon can we safely provide oral health services without dental amalgam? The short answer is that we simply do not know. Several European Union (EU) countries have already mandated full restrictions and others are aspiring to it. The UK is governed by its Mercury Regulations and Northern Ireland will be subject to further EU regulatory changes. The global Minamata Convention on Mercury, in which dental amalgam features significantly, aims to protect human health and the environment from the negative effects of mercury. The FDI World Dental Federation, International Association of Dental Research and World Health Organisation (WHO) joined with the American Dental Association to present evidence for an accelerated phase-down, in preference to phase-out, of dental amalgam at the fourth Minamata Conference of Parties in 2022.

In fact, phase-down is rapid – progress aided by patient choice. But the effects of socioeconomic crises and backlogs from the COVID-19 pandemic will last many years, including for the UK, which has an NHS dental system ‘on its last legs’.¹ Available alternative restorative materials suitable for large posterior cavities are more expensive in both money and time to place in the mouth, are prone to failure sooner than dental amalgam² and are simply not in the patient’s best interest in some clinical situations. Without access to dental amalgam, we risk the avoidable use of more crowns, more extractions and more oral health inequalities worldwide.

There is confidence that dental amalgam is safe for the general population, except for those with allergies to components or severe renal disease. Used for 150 years, there is considerable research to evidence its safety. Nevertheless, the imperative to remove mercury globally as an environmental pollutant is compelling. Those with a single phase-out agenda, however, do not seem to consider the unintended consequences of putting all our eggs into the composite resin basket. The safety profile of its biocompatibility is still not fully understood. The EU Scientific Committee on Emerging and Newly Identified Health Risks said in 2015: ‘non-mercury-containing alternatives are not free from any concerns about adverse effects’.³

Research and development funding is inadequate in this field and, although bisphenol-free materials are being developed, the timeline for bringing them to market is long and slow, with many years needed for assessment of safety, longevity and accessibility. While we know that we are removing 95% of waste dental amalgam by using separators, there is no similar mechanism to catch the plastic ‘dust’ created when placing or removing composite resin restorations. Each such episode allows a small quantity of plastic microparticles into our waste-water systems. Cumulatively, it may be significant.

A Utopian world would see proper investment and commitment by all national governments to public health measures that include prevention actions, education, workforce planning and universal health coverage. Reducing caries levels reduces the

need for all dental materials. The WHO’s ‘Draft global strategy on oral health’ places a long-awaited spotlight on prevention of oral disease. But improvements will not be made overnight.

In the meantime, phasing down the use of dental amalgam is surely the right way to go. The EU is consulting on the feasibility of a phase-out by 2027 or 2030. Decisions either to phase-out or continue to phase-down will both attract passionate criticism. The reality is that each country needs to reaffirm commitment to progress at its own pace. Regardless, more information about the environmental and health impacts of alternative materials is critical to public safety. Until there are suitable alternative materials, obligations to investment, results of universal prevention measures and effective waste management systems for all materials, dentists need the full current armoury of materials to manage the need for care. The solution is to trust and support dentists to share the decision-making with their patients and to use whatever is appropriate at the time. ■

References

1. British Dental Association. NHS Dentistry: New figures show service on its last legs. 2022. Available at <https://www.bda.org/news-centre/press-releases/Pages/NHS-Dentistry-new-figures-show-service-on-its-last-legs.aspx> (accessed September 2022).
2. Burke F J T, Lucarotti P S K. The ultimate guide to restoration longevity in England and Wales. Part 4: resin composite restorations: time to next intervention and to extraction of the restored tooth. *Br Dent J* 2018; **224**: 945–956.
3. Scientific Committee on Emerging and Newly Identified Health Risks. The safety of dental amalgam and alternative dental restoration materials for patients and users. 2015. Available at https://ec.europa.eu/health/scientific_committees/emerging/docs/scenih_r_o_046.pdf (accessed September 2022).