

**AMERICAN PUBLIC HEALTH ASSOCIATION**  
**Section/SPIG/Caucus/Affiliate/Individual**  
**Policy Statement Review Form**

The APHA Environment Section opposes Resolution B3—“Dental Amalgam: Preserving a Proven Dental Material.” In the Section’s view, the following items render the resolution unsupportable as currently drafted:

- The proposed resolution is plainly inconsistent with the Association’s comprehensive, precautionary approach to anthropogenic mercury pollution sources outlined in APHA Resolution 9910—“Preventing Human Methylmercury Exposure to Protect Public Health”. In particular, Resolution 9910 specifies that APHA:  
  
“encourages ... actions that ultimately reduce human exposure to mercury, [including] ... Reduc[ing] the use of mercury-containing products and increase the use of less toxic alternatives by: urging medical product suppliers to continue to develop, produce, and bring to market appropriate, cost-competitive, environmentally protective, mercury-free replacements; [and] calling upon the manufacturers and suppliers of mercury-bearing products to label these products with clearly-worded, prominent labels identifying them as such, both to provide information needed by consumers seeking less-toxic or non-toxic alternatives to make informed decisions, and to facilitate recycling in health care facilities; [and] calling upon health care professionals to encourage the institutions with which they are associated to adopt policies that will lead toward the eventual elimination of mercury-containing products where feasible, effective, and safer alternatives are available; [and] urging health professional schools and associations to educate students and professionals on the appropriate use and disposal of mercury-contaminated products; [and] urging hospitals, health clinics and their trade associations to follow the example of the American Hospital Association in promoting mercury-free hospitals, and the reduction of hospital waste; and Reduc[ing] mercury emissions at the source by: urging all health care facilities to promptly eliminate mercury-containing waste from the waste that is stream fed into incinerators; [and] encouraging health professionals, as advocates for public health, to be involved in community-based mercury reduction efforts in their local communities, including efforts to cease man-made mercury emissions from all sources.”<sup>1</sup>
  
- The proposed resolution may understate the potential for mercury pollution associated with the application and disposal of mercury-containing dental amalgam. The draft resolution states that “the contribution of dental amalgam to overall mercury pollution is negligible,” and “dental amalgam accounts for a mere 0.5% of total air, water, and solid waste releases.”<sup>2</sup> In our view, these statistics selectively understate the importance of mercury amalgam’s contribution to more meaningful mercury pollution levels—in this case pollution from medical sources, where use of amalgam in the oral health setting is discretionary and satisfactory alternatives are largely available.<sup>3</sup> The U.S. Environmental Protection Agency (EPA) more appropriately contextualizes the total amount of mercury in amalgam when it notes that: “the Interstate Mercury Education and Reduction

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<sup>1</sup> APHA, Public Policy Resolution No. 9910, Preventing Human Methylmercury Exposure to Protect Public Health (1999). Available at <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=181>.

<sup>2</sup> Arevalo et al. Draft APHA Public Policy Resolution No. B3 – Preserving a Proven Dental Material (2013) at 4,7.

<sup>3</sup> Erdal, S. Mercury in Dental Amalgam and Resin-based Alternatives: A Comparative Health Risk Evaluation. 2012. Available at

[http://www.wfpha.org/tl\\_files/images/Newsletter%202012/July/Res%20Colab%20Amalgam%20Risk%20Final.pdf](http://www.wfpha.org/tl_files/images/Newsletter%202012/July/Res%20Colab%20Amalgam%20Risk%20Final.pdf).

Clearinghouse (IMERC), managed by the Northeast Waste Management Officials' Association, reports that the total mercury sold in dental amalgam in 2004 was 30.4 tons (26% of mercury in all products).<sup>4</sup> In addition, the proposed resolution fails to acknowledge that once released into the environment, elemental mercury in dental amalgam can transform into methylmercury, bioaccumulate in fish and result in exposure to the neurotoxin when fish is consumed. Methylmercury, which is absorbed into the body more easily than inorganic mercury, can cross the blood-brain and placental barriers, allowing it to react directly with brain and fetal cells. While the proposed resolution references a September 27, 2010 press release from the Environmental Protection Agency (EPA), the authors failed to fully capture the negative environmental implications of the agency statement: "Approximately 50 percent of mercury entering local waste treatment plants comes from dental amalgam waste. Once deposited, certain microorganisms can change elemental mercury into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish. Fish and shellfish are the main sources of methylmercury exposure to humans. Methylmercury can damage children's developing brains and nervous systems even before they are born."<sup>5</sup> And as EPA notes, "Amalgam separators can separate out 95 percent of the mercury normally discharged to the local waste treatment plant."<sup>6</sup> While separators are desirable and the Section supports the authors' prescriptive requirement for separator installation in Action Step 4, a non-trivial amount of mercury pollution from amalgam sources will still reach the waste stream, even under a best-case, 95 percent clearance assumption. In this sense, the authors' contention that the continued use and disposal of mercury amalgam does not violate the precautionary principal (p. 8-9) because "there is no harm to humans" is flawed; mercury is a well-characterized neurotoxin subject to strict environmental and public health regulatory controls, and amalgam is an acknowledged contributor to anthropogenic mercury pollution. Indeed, the authors admit that only 40-51 percent of American dentists are currently using mercury separators.<sup>7</sup> Wider use of separators and clinical best-practice standards should certainly be encouraged, but the authors' broader argument that mercury amalgam is safe and effective *in situ* and can therefore generally be left to dentists' clinical discretion ignores the importance of mercury amalgam's

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<sup>4</sup> U.S. Environmental Protection Agency (EPA). "Mercury in Dental Amalgam." (undated) Available at: <http://www.epa.gov/hg/dentalamalgam.html>. More recent statistics indicate that this number may have declined somewhat – private communication with the Northeast Waste Management Officials Association (NEWMOA) indicates that the 2010 estimate was 13.52 tons of mercury from amalgam sources (*but note*: one of the major suppliers apparently did not report its sales and comprehensive totals are still undetermined). Note also that the 2004 totals remain relevant to some extent; the expected 10-15 year lifetime of amalgam fillings make prior-year usage levels important to understanding current residual risks.

<sup>5</sup> U.S. Environmental Protection Agency (EPA). "EPA will propose rule to protect waterways by reducing mercury from dental offices: existing technology is available to capture dental mercury" [press release, September 27, 2010]. Available at <http://yosemite.epa.gov/opa/admpress.nsf/e77fdd4f5afd88a3852576b3005a604f/a640db2ebad201cd852577ab00634848!opendocument>.

<sup>6</sup> *Id.*

<sup>7</sup> Arevalo et al. at 7. Mercury separator usage rates cited by the authors are likely atypically high. An article on this topic reports: "A 2009 ADA survey found that 40% to 51% of dentists use amalgam separators, but that dropped to 28% to 36% in states where they are not required by law. The response rate to the survey, done by mail and Internet, was so low that the ADA admitted it was uncertain about the accuracy of these numbers." Harrison, L. "EPA Pressed to Require Amalgam Separators." [www.drbcuspids.com](http://www.drbcuspids.com) June 2, 2010. Available at <http://www.drbcuspids.com/index.aspx?sec=sup&sub=rst&pag=dis&ItemID=304783>.

environmental fate and its meaningful contribution to air and wastewater pollution. As a result, the authors consequentially ignore the substitution principal at the heart of environmental and public health science, repeatedly endorsed by APHA—less hazardous substances that reduce the risks to the environment should be used whenever possible.

- On the subject of mercury pollution from amalgam sources, we would also note the authors' failure to address, or to propose remediation recommendations, for mercury pollution arising downstream from in-office application, and in particular, from the combustion of amalgam fillings in human remains in crematoria settings. Cain et al. estimated that more than 2 tons of mercury were emitted annually by crematoria in 2005.<sup>8</sup> (Alexis Caine is an EPA Region 5 scientist at the regional office in Chicago, IL). Not only is cremation a significant source of mercury, its contribution is likely to increase as a pollution source for two reasons. First, the rate and number of cremations in the United States is expected to grow rapidly. The Cremation Association of North America's 2007 trends analysis projects that in 2025, about 56% of all corpses will be cremated, for a total of 1,706,000 corpses.<sup>9</sup> Second, many of the deceased in prior decades possessed false teeth, which have no fillings. As baby boomers who retained more of their natural teeth begin to die, many more natural teeth that incorporate amalgam fillings will be combusted.
- The proposed resolution mischaracterizes its interaction with the Minamata Convention on Mercury that was recently negotiated by the United States and 139 other countries to gradually reduce broad-spectrum mercury use worldwide over a period of years.<sup>10</sup> In particular, the treaty endorsed a phase-down of the use of dental amalgam, which the resolution authors explicitly fail to endorse. The Minamata Convention anticipates a phase-down that "tak[es] into account the Party's domestic circumstances and relevant international guidance, and shall include two or more of the measures from the following list<sup>11</sup>:
  - setting national objectives aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration;
  - setting national objectives aiming at minimizing the use of dental amalgam;
  - promoting the use of cost-effective and clinically effective mercury-free alternatives for dental restoration;
  - promoting research and development of quality mercury-free materials for dental restoration;
  - 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;

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<sup>8</sup> Cain et al. Substance Flow Analysis of Mercury Intentionally Used in Products in the United States, *Journal of Industrial Ecology*, Volume 11, Number 3 (2007). Available at [http://www.chem.unep.ch/mercury/Call\\_for\\_information/US\\_1214\\_abe.pdf](http://www.chem.unep.ch/mercury/Call_for_information/US_1214_abe.pdf).

<sup>9</sup> John Reindl, Summary of References on Mercury Emissions from Crematoria (25 Sept. 2012). Available at <http://www.ejnet.org/crematoria/reindl.pdf>.

<sup>10</sup> United Nations Environment Programme (UNEP). "Minamata Convention Agreed by Nations." January 19, 2013. Available at <http://www.unep.org/newscentre/default.aspx?DocumentID=2702&ArticleID=9373>; World Dental Federation. "Oral health and environment protected under Minamata Convention."

<sup>11</sup> Harrison L. "UN Treaty Calls for Dental Amalgam Reduction." *Medscape Today*, January 25, 2013. Available at <http://www.medscape.com/viewarticle/778273>.

- discouraging insurance policies and programs that favor dental amalgam use over mercury-free dental restoration;
- encouraging insurance policies and programs that favor the use of quality alternatives to dental amalgam for dental restoration;
- restricting the use of dental amalgam to its encapsulated form; and
- promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land.

The Environment Section in particular regards that Minamata framework as a consensus-based approach to this contentious issue and encourages the resolution authors to consider reframing their work along these lines, reflecting the need for a gradual but certain phase-down of amalgam usage over time and specific action items to assist environmental and public health regulators and oral health professionals in achieving this objective.