International Academy of Oral Medicine and Toxicology (IAOMT)
Position Statement against Dental Mercury Amalgam Fillings
for Medical and Dental Practitioners, Dental Students, and Patients

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INTRODUCTION

Position Statement Objectives:

(Adapted from IAOMT’s “Position statement on dental amalgam from the International Academy of Oral Medicine and Toxicology submitted to the European Commission”):

1) To end the use of dental mercury amalgam fillings. Many other mercurial medical devices and mercury-containing substances have been removed from use, including mercurial wound disinfectants, mercurial diuretics, mercury thermometers, and mercurial veterinary substances. In this era when the public is advised to be concerned about mercury exposure through fish consumption, dental mercury amalgam fillings should also be eliminated, especially because they are the predominant source of mercury exposure in the general population.

2) To assist medical professionals and patients as a whole in understanding the scope of mercury in dental mercury amalgam fillings. The risk of illness or injury associated with the use of dental mercury presents an unreasonable, direct, and substantial danger to the health of dental patients and the health of dental personnel.

3) To establish the health benefits of mercury-free, mercury-safe, and biological dentistry.

4) To educate dental and medical professionals, dental students, and patients about safe removal of dental mercury amalgam fillings while raising the standards of scientific biocompatibility in dental practice.

History of Regulations:

According to the United States Food and Drug Administration (FDA), “Dental amalgam is a mixture of metals, consisting of liquid mercury and a powdered alloy composed of silver, tin, and copper. Approximately 50% of dental amalgam is elemental mercury by weight. Dental amalgam fillings are also known as ‘silver fillings’ because of their silver-like appearance.”

Millions of dentists around the world routinely use dental mercury amalgam to repair decayed teeth, but controversy has surrounded the use of mercury in dentistry since the 1800’s, when the neurotoxin was first widely introduced as a filling material. The American Society of Dental Surgeons, the predecessor to the American Dental Association, made its members pledge not to use mercury because of its known toxicity, and in more recent years, government officials, scientists, dentists, consumers, and many others have raised serious concerns about the risks dental mercury poses to humans and to the environment at large.

Global Regulations:

The governments of Norway, Sweden, and Denmark have banned the use of mercury amalgam fillings in dentistry, France has recommended that alternative mercury-free dental materials be used for pregnant women, and Germany, Finland, Austria, and Canada have worked to reduce the use of dental mercury amalgam fillings for pregnant women, children, and patients with kidney problems.
The United Nations Environment Programme’s Intercessional Negotiating Committee agreed upon the text of a global, legally-binding mercury treaty in January 2013. Article 6, Annex C, Part II, of the international treaty includes provisions with regards to dental mercury amalgam such as setting national objectives aiming at minimizing its use, promoting the use of cost-effective and clinically effective mercury-free alternatives for dental restoration, and discouraging insurance policies and programs that favor dental amalgam use over mercury-free dental restoration.  

U.S. Regulations:

In the United States, brochures have been created to educate patients about their choices for dental fillings in California, Connecticut, Maine, and Vermont. The brochures, some of which are legally required to be presented to dental patients, contain information about the release of mercury vapor from dental mercury amalgam fillings and concerns related to dental mercury amalgam usage, as well as information about mercury pollution to the environment caused by dental mercury.

Employee exposure to mercury is regulated in the United States by the 1970 Occupational Health and Safety Act and Workers’ Rights Handbooks which require employers to train employees to avoid or minimize exposures, offer informed consent at least as detailed as the Material Safety Data Sheet (MSDS), and for each incident when it is reasonable to assume exposure is likely, to follow work practices that minimize exposure, institute engineering controls to reduce exposure, provide personal protective equipment to all exposed employees, monitor the facility contaminant levels, medically test employees for symptoms related to exposure, and maintain records of all of the above in their Hazards Communication Notebook for a minimum of 30 years.

United States Food and Drug Administration (FDA) Regulations:

In September of 2006, a joint panel of FDA scientific experts rejected an FDA White Paper’s assurances of the safety of dental mercury amalgam.

On July 28, 2008, the IAOMT sponsored a Citizen’s Petition demanding FDA classify dental mercury amalgam in conformance with the mandate of the Medical Device Amendments of 1976.

Exactly one year later, on July 28, 2009, FDA announced that it was classifying dental mercury amalgam for the first time in Class II without requiring any significant special controls. FDA’s Final Rule on this issue was published on August 4, 2009.

FDA also published an Addendum in support of its Final Rule, which attempted to address the recommendations of the joint panels that convened in September 2006 when they rejected the proclamations of dental mercury amalgam safety set forth in the FDA’s White Paper on amalgam fillings.
An FDA warning for dental mercury amalgam use in developing children and fetuses\textsuperscript{22} was then removed from the FDA website.

Following the issuance of the FDA’s Final Rule, the IAOMT sponsored a Petition for Reconsideration in 2009 which identified at least seventeen errors committed by FDA in its discussion of risk assessment principles.\textsuperscript{23}

Based on the IAOMT petition, the FDA scheduled a meeting of the Dental Products Panel of the Medical Devices Advisory Committee in December 2010. At the meeting, Dr. Suresh Kotagal, a pediatric neurologist at the Mayo Clinic announced, “…I think that there is really no place for mercury in children.”\textsuperscript{24} The Dental Products Panel encouraged the FDA to consider limiting dental mercury amalgam use in pregnant women and children and to consider labeling that would warn consumers about the risks of this mercury-containing product.\textsuperscript{25}

Due to the meeting, a decision on the issue was expected from the FDA by December 31, 2011,\textsuperscript{26} but as of April 14, 2013, no decision has been issued.

**IAOMT’s Position on Regulations:**

Founded in 1984, the International Academy of Oral Medicine and Toxicology (IAOMT) is an organization of dentists, physicians, and research professionals devoted to the examination, compilation, and dissemination of scientific research relating to the biocompatibility of oral/dental materials. The fundamental mission of the IAOMT is to promote the health of the public. In this regard, the IAOMT continually examines and compiles scientific research relating to the biocompatibility of oral/dental materials.

Thus, this position statement was formulated by thoroughly analyzing available scientific data, reviewing personal experiences of IAOMT members in clinical settings, synthesizing expert opinions, funding relevant research to explore various aspects of dental mercury amalgam and non-amalgam alternate dental materials, and evaluating information about the issue provided by governmental authorities, health organizations, and environmental groups from around the world.

Additionally, this position statement clearly outlines significant quantities of reputable research that challenge the safety of dental mercury amalgam fillings by applying two cornerstones of public health policy: 1) Risk Assessment and 2) the Precautionary Principle.

1) “Risk Assessment” has been defined by the FDA as follows: “Risk assessment consists of identifying and characterizing the nature, frequency, and severity of the risks associated with the use of a product. Risk assessment occurs throughout a product’s lifecycle, from the early identification of a potential product, through the premarking development process, and after approval during marketing. Premarking risk assessment represents the first step in this process prior to marketing.”\textsuperscript{27}

Risk assessment expert Dr. G. Mark Richardson was invited by the FDA to present the results of a major risk assessment analysis of dental mercury amalgam fillings at the 2010 FDA meeting.\textsuperscript{28}
Richardson’s work, which established that millions of Americans exceed the intake of mercury vapor considered “safe” by the U.S. Environmental Protection Agency due to the presence of dental mercury amalgam fillings, was published shortly thereafter.  

FDA’s report about the 2010 meeting noted, “The Panel deliberated on the exposure to mercury from dental amalgam, reference exposure levels, human clinical studies and the strength and weaknesses of the available evidence.”

The continued deliberation over data and analysis leads to a second cornerstone of public health policy known as the precautionary principle.

2) In June 1992, the United Nations Environment Programme ratified the Rio Declaration on Environment and Development which, among other principles, established the precautionary approach among UNEP member states. In particular, Principle 15 states: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

Further to the Rio Declaration, in January 1998 at an international conference involving scientists, lawyers, policy makers, and environmentalists from the United States, Canada and Europe, a formalized statement was signed and became known as the “Wingspread Statement on the Precautionary Principle.”

In it, the following advice is given: “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof.”

When the precautionary principle is applied to dental mercury amalgam fillings, it is clear that they should not be used.

Based on the scientific evidence and concepts of risk assessment and the precautionary principle, it should also be noted here that the IAOMT is concerned that dental mercury amalgam fillings are following the same delayed route to safety regulations as occurred with cigarettes and lead-based paint.
SUGGESTED ACTION BY MEDICAL AND DENTAL PRACTITIONERS AND PATIENTS:

INTERVENTIONS--

Summary of Interventions:

1) The main ingredient for mercury amalgam fillings is mercury, approximately 50% by weight. Therefore, the appropriate terminology is “dental mercury amalgam fillings.”
2) Dental mercury amalgam fillings should not be used in dentistry.
3) The detrimental impact of mercury on fetuses, pregnant women, women of childbearing age, children, patients experiencing health issues, and dental workers mandate that special attention be given to these populations with regards to dental mercury amalgam fillings.
4) Removal of existing dental mercury amalgam fillings requires safety measures for dentists, dental staff, dental students, and patients.

Detail of Interventions:

1) The main ingredient for mercury amalgam fillings is mercury, approximately 50% by weight. Therefore, the appropriate terminology is “dental mercury amalgam fillings.”

All dental amalgam restorations contain approximately 50% mercury, and it is scientifically proven that these fillings emit mercury vapors. Thus, while these restorations are commonly referred to as as “silver fillings,” “dental amalgam,” and/or “amalgam fillings,” it would be more accurate to recognize them as “dental mercury amalgam fillings,” “mercury silver fillings,” or “mercury fillings.”

Terminology recognizing the main ingredient of mercury is needed so that medical and dental practitioners, dental students, and patients are aware that mercury is the main ingredient in this medical device. As such, this document refers to these restorations as “dental mercury amalgam fillings.”

Additionally, an understanding of the terminology associated with dentists that aim to end the use of dental mercury amalgam fillings and define how they practice is helpful to medical professionals and patients. These terms are commonly used, and dentists often choose one or several of these terms to describe their practice:

- “Mercury-free” is a term with a wide-range of implications but typically refers to dental practices that do not place dental mercury amalgam fillings.
- “Mercury-safe” typically refers to dental practices that use safety measures to limit or prevent mercury exposure, such as in the case of removing previously existing dental mercury amalgam fillings and replacing them with non-mercury alternatives.
- “Biological” or “Biocompatible” dentistry typically refers to dental practices that consider the impact of dental materials and treatments on oral and systemic health.
2) *Dental mercury amalgam fillings should not be used in dentistry.*

Exposure to mercury, even in minute amounts, is known to be toxic and poses significant risks to human health. A [World Health Organization report](https://www.who.int/mediacentre/factsheets/fs318/en/) warns of mercury: “It may cause harmful effects to the nervous, digestive, respiratory, immune systems and to the kidneys, besides causing lung damage. Adverse health effects from mercury exposure can be: tremors, impaired vision and hearing, paralysis, insomnia, emotional instability, developmental deficits during fetal development, and attention deficit and developmental delays during childhood. Recent studies suggest that mercury may have no threshold below which some adverse effects do not occur.”

Current scientific evidence demonstrates that dental mercury amalgam exposes dental professionals, dental staff, and dental patients to mercury vapor, mercury-containing particulate, and other forms of mercury contamination.

Dental mercury amalgam is therefore not a suitable material for dental restorations.

Furthermore, mercury vapor is known to be released from dental mercury amalgam fillings at higher rates during chewing, brushing, cleaning, clenching of teeth, etc., and mercury is also known to be released during the placement, replacement, and removal of dental mercury amalgam fillings.

A series of recent studies demonstrate that urinary mercury concentrations consistently increase as the number of amalgam fillings increases.

In these studies, the average urine mercury content is consistently greater in groups with amalgam fillings than in those without, and urine mercury content consistently increases as the number of dental mercury amalgam fillings increases. Numerous studies have also demonstrated that the mercury exposure or concentration increases with increasing dental mercury amalgams in the following tissues and situations:

- Due to chewing, brushing, and bruxism
- In exhaled or intra-oral air of persons with amalgam fillings
- In saliva of persons with amalgam fillings
- In blood of persons with amalgam fillings
- In various organs and tissues of amalgam bearers, including the kidney, pituitary gland, liver, and brain or parts thereof
- In feces of amalgam bearers
- In amniotic fluid, cord blood, placenta, and various fetal tissues including liver, kidney and brain, in association with maternal amalgam load
- In colostrum and breast milk in association with maternal amalgam load
Scientific evidence confirms that in most individuals with dental mercury amalgam fillings, mercury exposure exceeds the Reference Exposure Level (REL). [REL is a term used to denote the exposure level defined by national and international regulatory agencies at which there is an expectation of no negative health outcomes within the population.]

Also, reports from the World Health Organization (WHO) and Canada’s federal department of health (Health Canada) conclude that mercury vapor from dental amalgam is the greatest source of human exposure to mercury in non-industrial settings.

Additionally, in research published in 2011, Dr. G. Mark Richardson reported that more than 67 million Americans aged two years and older exceed the intake of mercury vapor considered “safe” by the U.S. EPA due to the presence of dental mercury amalgam fillings, whereas over 122 million Americans exceed the intake of mercury vapor considered “safe” by the California EPA due to their dental mercury amalgam fillings.

3) The detrimental impact of mercury on fetuses, pregnant women, women of childbearing age, children, patients experiencing health issues, and dental workers mandate that special attention be given to these populations with regards to dental mercury amalgam fillings.

Mercury’s damaging influence on the developing brain and neurological system makes dental mercury amalgam fillings an inappropriate material for use in children, pregnant women, and women of childbearing age.

Additionally, physicians and dentists should, where patients are suffering from pathological states and/or disease of unclear causation, consider in their differential diagnosis whether exposure to mercury released from dental mercury amalgam fillings might be a contributing or exacerbating factor in such adverse health conditions.

Finally, dentists, dental staff, and dental students are exposed to mercury at a greater rate than their patients. Severe exposures from past practices include hand-squeezing of fresh amalgam, where drops of liquid mercury would run over the dentist’s hands and contaminate the entire office. Research has demonstrated that dangerous levels of mercury are generated in the dental workplace.

Dental workers require protection from mercury exposures when working with dental mercury amalgam.

4) Removing dental mercury amalgam fillings requires safety measures for dentists, dental staff, and patients.

Chronic (low dose, long-term) exposure to mercury for dentists, dental staff, dental students, and dental patients does not exist when alternative materials are used for dental fillings. However,
there is a high risk of acute (high dose, short-term) mercury exposure to dentists, dental staff, dental students, and dental patients when dental mercury amalgam fillings are drilled out. The challenge is training dentists to use effective engineering controls and personal protective equipment as they remove the thousands of tons of mercury currently stored in the mouths of patients with dental mercury amalgam fillings. An additional challenge is meeting the current OSHA standards for exposure to dental workers and the EPA standards for patients during the removal process.

There are levels of increasing protection for limiting exposure during mercury-related dental procedures. Depending on the level of protection, health risks will vary.

OUTCOMES CONSIDERED--

First, it should be noted that mercury influences each individual differently based on a wide-range of co-existing factors. For example, underlying health conditions, the number of amalgam fillings in the mouth, general predisposition, dental plaque, genetic predisposition, gender, consumption of milk or alcohol, and other circumstances can play a role in each person’s unique response to mercury.

Whereas individual response varies, evidence supports the potential for a decrease of symptoms related to mercury exposure and chronic mercury toxicity when dental mercury amalgam fillings are safely removed.

However, an outcome of dental mercury amalgam removal is acute exposure to mercury vapor and particulate for dentists, dental staff, dental students, and dental patients, especially endangering pregnant women, lactating women, women of childbearing age, fetuses, children being breastfed, and other sensitive populations.

Another outcome is the chronic exposure to individuals in less obvious areas of the dental office. We are at the very beginning of considering this as a source of chronic mercury exposure; however, this includes

- Mercury exposure to staff, patients, and visitors in other parts of the office not directly involved in the removal process
- Environmental mercury exposure caused by the waste from removal and storage of amalgam, especially because the ADA’s "Best Management Practices for Amalgam Waste" is voluntary
- Storage and disposal of workplace protective clothing and instruments used during procedures involving dental mercury amalgam
- Mercury vapor exposure from sterilization of instruments used on dental mercury amalgam fillings
- Mercury vapor and particulate on the clothing, and under/around the dentist, staff, dental students, and patients in the immediate removal area
- Mercury particulate that is carried home in hair, on shoes, and other clothing from the dental office
The IAOMT has safety guidelines to be used during removal of existing dental mercury amalgam fillings to mitigate mercury exposure.

In conclusion, the following populations could substantially benefit with improved health by taking the suggested measures:

1) Minimization of exposure to dental mercury, vapor, and particulate for
   • All dental professionals, dental staff (including hygienists), and dental students who work with dental mercury amalgam
   • All patients with existing dental mercury amalgam fillings
   • All patients requiring the cleaning and/or removal of dental mercury amalgam fillings

2) Avoidance of dental mercury amalgam fillings for
   • All patients requiring new dental fillings
   • Pregnant or lactating women
   • Fetuses
   • Breast-fed children
   • Women of childbearing age
   • Patients genetically predisposed to mercury toxicity (Individuals with CPOX4, APOE(3,4) and BDNF polymorphisms)
   • Patients with
     o Allergies, especially allergy to mercury
     o Alzheimer’s disease
     o Amyotrophic Lateral Sclerosis (Lou Gehrig’s disease)
     o Antibiotic resistance
     o Autism Spectrum Disorders
     o Autoimmune disorders
     o Cardiovascular problems
     o Chronic Fatigue Syndrome
     o Complaints of unclear causation
     o Hearing loss
     o Immunodeficiency
     o Kidney disease
     o Micromercurialism
     o Multiple sclerosis
     o Oral lichenoid reaction and oral lichen planus
     o Parkinson’s disease
     o Periodontal disease
     o Reproductive dysfunction
     o Symptoms of chronic mercury poisoning
   • Patients undergoing chelation treatment or other detoxification treatments
MAJOR RECOMMENDATIONS

Recommendations:

1) Dental mercury amalgam fillings should not be used in dentistry.

2) Furthermore, safety precautions should be taken when working with and/or removing previously existing dental mercury amalgam fillings so as not to expose dentists, dental staff, dental students, and dental patients to mercury.

3) Moreover, based on scientific evidence, the practice of mercury-free and mercury-safe dentistry as a means of improving public health should especially be considered for the following reasons:

   o WORKPLACE EXPOSURE:
     • Dentists, dental professionals, dental staff, and dental students are occupationally and chronically exposed to mercury released from dental mercury amalgam, and researchers and clinicians have raised concerns about the safety of dental personnel who work with dental mercury amalgam. This includes mercury released during hygiene, cleaning, and polishing procedures.
     • This includes mercury released during removal of old mercury amalgam fillings and replacement with new ones.
     • Scientific data indicates that female dental personnel are severely impacted by occupational exposure to mercury.

   o PATIENT EXPOSURE:
     • Mercury vapor is continuously emitted from dental mercury amalgam fillings, and particulate can also be discharged from dental mercury amalgam fillings, which means that people are directly exposed to mercury. This includes mercury released during hygiene, cleaning, and polishing procedures.
     • This includes mercury released during placement of new restorations and removal of old ones.
     • Ergo, men, women, and children patients are all at risk from the hazards of mercury released from dental mercury amalgam fillings.
GENETIC PREDISPOSITION:
- Mercury exposure from dental mercury amalgam particularly threatens individuals who are genetically unable to excrete mercury and/or genetically impaired in excreting mercury such as those with CPOX4, APOE(3,4) and BDNF polymorphisms.
- Recent research has identified a genetic predisposition to neurological impacts by mercury exposure from dental amalgam in male children.

WOMEN AND CHILDREN:
- Fetal and infant exposure to mercury via maternal dental mercury amalgam can have serious health consequences.
- Mercury is excreted in breast milk of mothers with dental mercury amalgam fillings, and the mercury concentration in breast milk increases as the number of amalgam fillings in the mother increases.
- Children are at-risk for health impairments caused by dental amalgam mercury fillings.

ADDITIONAL AT-RISK POPULATIONS:
- The mercury in dental mercury amalgam fillings can exacerbate and contribute to all of the conditions stated below, as well as a myriad of other health problems:
  - Patients with
    - Allergies
    - Alzheimer’s disease
    - Amyotrophic Lateral Sclerosis (Lou Gehrig’s disease)
    - Antibiotic resistance
    - Autism Spectrum Disorders
    - Autoimmune disorders
    - Cardiovascular problems
    - Chronic Fatigue Syndrome
    - Complaints of unclear causation
    - Hearing loss
    - Immunodeficiency
    - Kidney disease
    - Micromercurialism
    - Multiple sclerosis
    - Oral lichenoid reaction and oral lichen planus
    - Parkinson’s disease
    - Periodontal disease
    - Reproductive dysfunction
    - Symptoms of chronic mercury poisoning
  - Patients undergoing chelation treatment or other detoxification treatments
ALLERGY TO MERCURY:

- This is a completely separate health issue from toxicity.
- Most dentists do not test their patients for mercury allergy, but millions of patients are unknowingly allergic or sensitive to the dental mercury amalgam fillings in their mouths from the mercury or the other components.\textsuperscript{706 707 708 709 710 711 712 713 714 715 716 717}
- It is estimated that approximately 21 million American are allergic to mercury,\textsuperscript{718} and studies also establish that exposure to dental mercury amalgam fillings correlates with higher prevalence of mercury allergies.\textsuperscript{719 720 721 722}
- At Baylor College of Dentistry, of 171 dental students patch tested, 32\% were positive for mercury allergy. The percentage of positive tests correlated with the students’ own amalgam scores and with the length of time they had been in dental school.\textsuperscript{723}

Additional Data Supporting Recommendations:

The data on the following pages provides additional information about the hazards of dental mercury amalgam fillings and mercury exposure presented in these recommendations:

**TABLE/CHART #1:** This chart shows that dental mercury amalgam is the major route of mercury exposure for the general public.

Sources of Human Mercury Exposure (World Health Organization, 1991)*

*Note: In 1991, the WHO Environmental Health Criteria 118 concluded that “[e]stimated average daily intake and retention” from dental amalgam was 3.8-21 (3-17) \textmu g/day.\textsuperscript{724} In the 2003 Executive Summary of this document, WHO states, “Dental amalgam constitutes a potentially significant source of exposure to elemental mercury, with estimates of daily intake from amalgam restorations ranging from 1 to 27 \textmu g/day.”\textsuperscript{725}
**TABLE/CHART #2:** This is a list of common symptoms of mercury poisoning to be considered by practitioners when evaluating the possible side effects of dental mercury amalgam.\(^{726}\)

<table>
<thead>
<tr>
<th>Symptom Category</th>
<th>Common Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritability</td>
<td>Anxiety, Nervousness, Loss of Memory, Inability to concentrate</td>
</tr>
<tr>
<td>Lethargy/Drowsiness</td>
<td>Insomnia, Depression, Despondency, Numbness and tingling of hands, feet, fingers</td>
</tr>
<tr>
<td>Loss of balance</td>
<td>Loss of self-confidence, Decline of intellect, Tremors/trembling of hands, legs, and eyelids</td>
</tr>
<tr>
<td>Stiff neck/shoulder pain</td>
<td>Bleeding gums, Muscle weakness, Shocks and pain in brain; Oral galvanism</td>
</tr>
<tr>
<td>Alveolar bone loss</td>
<td>Loosening of teeth, Metallic taste, Numbness in side of face</td>
</tr>
<tr>
<td>Burning sensation with tingling of lips</td>
<td>Tissue pigmentation, Ringing in ears, Speech impairment; Difficulty in articulation</td>
</tr>
<tr>
<td>Food sensitivities</td>
<td>Abdominal pains, Nausea; Vomiting, Lymphadenopathy, bilateral cervical</td>
</tr>
<tr>
<td>Allergies/Sensitivities</td>
<td>Flu Symptoms, Chronic Headaches, Dermatitis</td>
</tr>
<tr>
<td>Subnormal body temperature</td>
<td>Cold, clammy skin, especially hands/feet, Excessive perspiration, Unexplained sensory symptoms</td>
</tr>
<tr>
<td>Chronic fatigue</td>
<td>Edema, Joint pains, Panic with difficulty in breathing</td>
</tr>
</tbody>
</table>
EVALUATION OF SUGGESTED ACTION BY MEDICAL AND DENTAL PRACTITIONERS, DENTAL STUDENTS, AND PATIENTS:

POTENTIAL BENEFITS--

By minimizing mercury exposure from dental mercury amalgam fillings or completely avoiding the use of dental mercury amalgam fillings, an individual’s total body burden of mercury is beneficially reduced.

Minimizing or eliminating mercury exposure can potentially result in improvement and/or decreased risk of disease/illness/health impairments for:

- All dental professionals, dental staff (including hygienists), and dental students who work with dental mercury amalgam
- All patients with existing dental mercury amalgam fillings
- All patients requiring the cleaning and/or replacement of dental mercury amalgam fillings
- All patients requiring new dental fillings
- Pregnant or lactating women
- Fetuses
- Breast-fed children
- Women of childbearing age
- Patients genetically predisposed to mercury toxicity (Individuals with CPOX4, APOE(3,4) and BDNF polymorphisms)
- Patients with:
  - Allergies, especially allergy to mercury
  - Alzheimer’s disease
  - Amyotrophic Lateral Sclerosis (Lou Gehrig’s disease)
  - Antibiotic resistance
  - Autism Spectrum Disorders
  - Autoimmune disorders
  - Cardiovascular problems
  - Chronic Fatigue Syndrome
  - Complaints of unclear causation
  - Hearing loss
  - Immunodeficiency
  - Kidney disease
  - Micromercurialism
  - Multiple sclerosis
  - Oral lichenoid reaction and oral lichen planus
  - Parkinson’s disease
  - Periodontal disease
  - Reproductive dysfunction
  - Symptoms of chronic mercury poisoning
- Patients undergoing chelation treatment or other detoxification treatments
As far as considering the costs of implementing these recommendations, the IAOMT co-released a 2012 report from Concorde of Brussels, Belgium, which noted: “In order to obtain a useful perspective on the ‘external’ costs to society that are not included in the fees a dental patient pays the practitioner, we have examined 1) the costs of keeping dental mercury releases from being released into the environment, and 2) when dental mercury is no longer released into the environment, the various benefits accrued to human health and society. …[W]hichever analytical approach one chooses, even when using conservative assumptions, and even allowing for the uncertainties inherent in much of the cost data, it is clear that the real cost of using amalgam far outweighs the cost of using mercury-free composite, not to mention an even cheaper alternative such as ART.”

**POTENTIAL HARMS--**

1) There is a risk of additional mercury exposure to dentists, dental staff, hygienists, dental students, and patients from current unsafe procedures involving mercury amalgam fillings, especially if treatment, hygiene routines, removal, and/or replacement of fillings are conducted without taking appropriate protective measures.

2) As such, special consideration of any dental work involving amalgam mercury fillings should be given to:

   - All dental professionals, dental staff (including hygienists), and dental students who work with dental mercury amalgam
   - All patients with existing dental mercury amalgam fillings
   - All patients requiring the cleaning and/or removal of dental mercury amalgam fillings
   - All patients requiring new dental fillings
   - Pregnant or lactating women
   - Fetuses
   - Breast-fed children
   - Women of childbearing age
   - Patients genetically predisposed to mercury toxicity (Individuals with CPOX4, APOE(3,4) and BDNF polymorphisms)
   - Patients with:
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     - Micromercurialism
Multiple sclerosis
Oral lichenoid reaction and oral lichen planus
Parkinson’s disease
Periodontal disease
Reproductive dysfunction
Symptoms of chronic mercury poisoning
Patients undergoing chelation treatment or other detoxification treatments

3) Alternative dental restorative materials should likewise be assessed for safety and biocompatibility, especially on an individual basis.

4) Some insurance companies only cover the cost of dental mercury amalgam fillings which means that oftentimes consumers have to pay additional fees for alternative materials and techniques. 

Furthermore, whereas less than 50% of U.S. dentists are using dental amalgam mercury fillings, according the Journal of the American Dental Association, these fillings are still being used routinely on 53.4% of Black/African Americans, on 72.9% of American Indians/Alaska Natives/Asians/Pacific Islanders, and on more than 75% of posterior restorations for new recruits to the U.S. Navy and Marines.

However, the United Nations Environmental Programme’s INC5 recently agreed on a global legally-binding treaty that specifically discourages insurance policies and programs favoring dental amalgam use over mercury-free dental restoration.

**CONTRAINDICATIONS**--

1) Dentists, dental staff, and dental students working with mercury amalgam fillings during procedures such as cleaning, hygiene, and/or replacement are significantly exposed, along with their patients, to mercury. Safety measures, when used, diminish but do not totally eliminate exposure.

2) Removal of dental mercury amalgam fillings without appropriate protection causes significant mercury exposure to dentists, dental staff, dental students, and patients, especially women of childbearing age, pregnant or lactating women, fetuses, breast-feeding children, and other sensitive populations.

3) Due to mercury release, work on dental mercury amalgam fillings should not be done by dental personnel who are pregnant or lactating or conducted upon patients who are pregnant or lactating.

4) Alternative dental restorative materials should likewise be assessed for safety and biocompatibility, especially on an individual basis.
QUALIFYING STATEMENTS--

Whereas the American Dental Association (ADA), the United States Food and Drug Administration (FDA), and other groups have endorsed the use of dental mercury amalgam, hundreds of peer-reviewed, scientific studies show a definitive link between dental mercury amalgam fillings and disease/illness/health impairments.

Specifically, data has shown that an individual accumulates a constant dose (average 0.3 µg/day/amalgam filled tooth surface) of mercury throughout the lifetime of a dental mercury amalgam filling. Furthermore, research has established that once inside the mouth, mercury remains a retained heavy metal until and if the body can excrete the toxin. The impact of this on an individual’s health is variable due to a number of factors that we are just beginning to recognize and understand. Thus, practicing mercury-free and mercury-safe dentistry undoubtedly reduces the danger of chronic mercury exposure to dentists, their staff, dental students, and patients.

There are various escalating levels of protection techniques for limiting mercury exposure during mercury-related dental procedures. Depending on the technique/s chosen, different results are reached in personal and patient protection levels from exposure. The more thorough the protection, the more complex and costly the technique, and as such, financial, cultural and professional decisions are part of the process as to the level of protection ultimately used.

All dental restorative materials should be assessed for safety and biocompatibility.

DESCRIPTION OF IMPLEMENTATING SUGGESTED ACTION:

Many consumers choose composite fillings because the coloring matches the tooth better, and a 2007 poll showed that just less than half dentists are using dental mercury amalgam in the U.S.

Thus, many dentists have already stopped using dental mercury amalgam; however, others will require training in mercury-free and mercury-safe dentistry. Since Norway, Sweden, and Denmark have banned dental mercury amalgam, their dental schools and industry practices shed light upon how to make a complete transition away from dental mercury amalgam.

Yet, since all dentists still must remove dental mercury amalgam fillings, all dentists and dental students will also require training in mercury-free and mercury-safe dentistry. Applying protection techniques will minimize mercury exposure to susceptible and sensitive individuals.

The IAOMT has developed implementation strategies for dental education in mercury-free and mercury-safe practices, including information for dentists, patients, and the general public. These resources are available at www.iaomt.org.
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February 28, 2013.


attributed to dental amalgam, healthy amalgam bearers, and amalgam
levels in expired air.

Barregard L, Trachtenberg F, McKinlay S. Renal effects of dental amalgam in


Biology and medicine: dental amalgam exposure.


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Watson, Diane and 18 other members of Congress. Dear Acting Commissioner Dr. Joshua Sharfstein... Washington, D.C., Congressional letter, May 14, 2009; Copy of letter available upon request to john.donnelly@mail.house.gov. [http://amalgaminillness.com/Text_DCAct.html](http://amalgaminillness.com/Text_DCAct.html)


