

**HOLISTIC DENTISTS  
SUNRISE REVIEW**

**FINAL REPORT  
1995**

**COMMITTEE OF REFERENCE  
REPORT ON THE SUNRISE HEARING FOR THE  
REGULATION OF HOLISTIC DENTISTS**

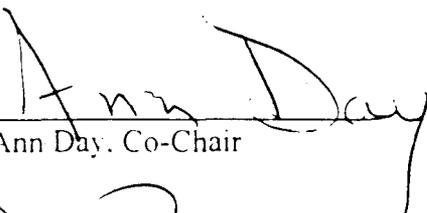
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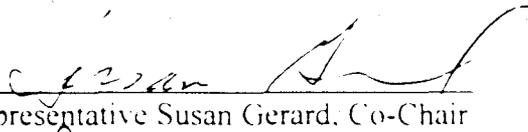
TO: THE JOINT LEGISLATIVE AUDIT COMMITTEE  
Senator Patti Noland, Chair  
Representative Sue Grace, Chair

Pursuant to Title 32, Chapter 31, Arizona Revised Statutes, the Committee of Reference, after performing a sunrise review and conducting a public hearing, recommend the following:

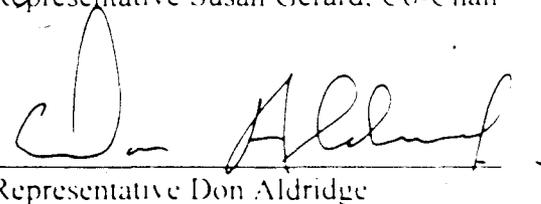
A separate regulatory board for the holistic dentists not be created.

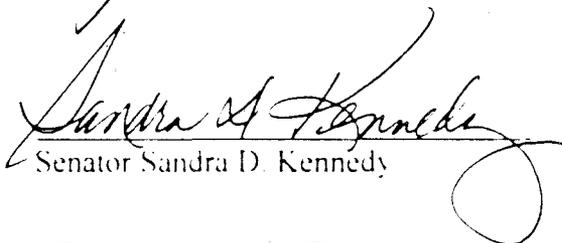
COMMITTEE OF REFERENCE

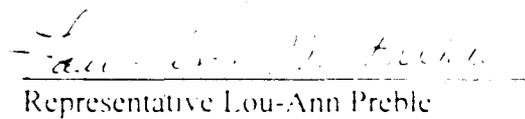
  
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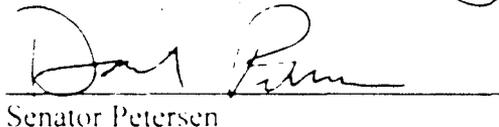
  
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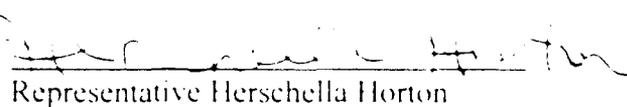
  
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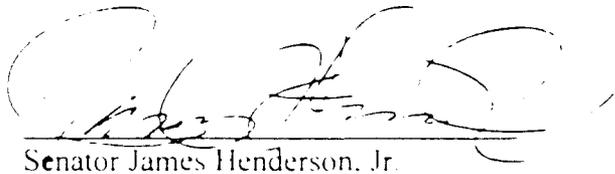
  
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Representative Don Aldridge

  
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Representative Lou-Ann Preble

  
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Senator Petersen

  
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Representative Herschella Horton

  
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Senator James Henderson, Jr.

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Representative Kathi Foster

**COMMITTEE OF REFERENCE  
REPORT ON THE SUNRISE HEARING FOR THE  
REGULATION OF HOLISTIC DENTISTS**

I. BACKGROUND

Pursuant to section 31-3104, Arizona Revised Statutes, the Joint Legislative Audit Committee (JLAC) assigned the sunrise review of the regulation of holistic dentists to the Senate and House Health Committee of Reference. Attached is a copy of the application for regulation submitted to the Committee of Reference by the Arizona Holistic Dental Association and The Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona. (Attachment A.)

II. COMMITTEE SUNRISE REVIEW PROCEDURE

On November 15, 1995, the Committee of Reference held a public hearing to receive testimony on the proposed regulation of holistic dentists. Those testifying included members of the medical profession, the Arizona Holistic Dental Association, The Coalition for Concerned Citizens for Freedom of Choice for Dental Care in Arizona, the Arizona Dental Board and members of the public.

The proposal was to permit holistic dentists, who are currently regulated under the Arizona Dental Board, to have its own regulatory board. The Arizona Holistic Dental Association and The Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona submitted a written report to the committee which addressed the following factors:

- A. A definition of the problem and why a separate regulatory board for holistic dentists was necessary, including the extent to which consumer needs will benefit from a separate board.
- B. An explanation of the nature of potential harm to the public if the profession was not regulated separately.
- C. An explanation of a need to establish a maintenance of ethical and educational standards within the profession.

III. COMMITTEE RECOMMENDATIONS

- I. The Committee recommended that a separate regulatory board for holistic dentists not be created stating that sufficient evidence was not produced indicating that the public safety or freedom of choice in dental care was in jeopardy.

IV. ATTACHMENTS

- A. Application for Regulation
- B. Minutes of the Committee of Reference Meeting

**ATTACHMENT A**

August 23, 1995

Joint Legislative Audit Committee  
c/o Representative Sue Grace  
Capitol Complex  
1700 W. Washington  
Phoenix, AZ 85007-2890

Joint Legislative Audit Committee:

The Arizona Holistic Dental Association has been formed to promote Holistic Dentistry in Arizona. Holistic/Biological Dentistry stresses the use of nontoxic restoration materials for dental work, and focuses on the unrecognized impact that dental toxins and hidden dental infections can have on overall health. Holistic/Biological Dentistry treats the teeth, jaw, and related structures with specific regard to how treatment will affect the entire body. (Refer to attachment # 1)

The Arizona State Dental Board of Examiners has little or no knowledge of, and as a consequence, little regard for holistic principles and modalities. The Board openly denies that it is prejudiced toward this type of dentistry. However, on August 11, 1995 Dr. Terry J. Lee, who practices holistic/biological dentistry, went before the Arizona State Dental Board of Examiners with his legal counsel. The principle argument put forth was that Dr. Lee should not be singled out on the basis of his holistic dental philosophies for prejudicial treatment by the Board, but that he should be investigated and disciplined in the same manner as any other dentist who comes before the Board. While this argument found favor with two Board members, it was summarily rejected by the other members of the Board. As a result of an 8:2 vote, the Board recommended the complaint against Dr. Lee be advanced to a formal hearing. Under Arizona statute, the only means available to the Board to revoke or suspend a license is through a formal hearing. It is the opinion of Dr. Lee's legal counsel the Board may be laying the groundwork to revoke or suspend Dr. Lee's license to practice dentistry. As a member of the Board pointed out at the August 11, 1995, Board meeting, the allegations against Dr. Lee are no more severe than allegations routinely levied against other dentists, and whose complaints do not proceed to a formal hearing. (Refer to attachment #2)

Currently other licensed dentist in Arizona who give information to patients regarding alternative dental techniques and procedures are also subject to intimidation, censure, and financial depletion. An example of the Board's aggressive treatment against holistic and alternative dentists is evident in Complaint No. 93057 filed against Dr. Cecil Barton, a "mercury free" dentist in Scottsdale, Arizona. Dr. Barton had placed an advertisement in a local health related publication which stated:

Choose a healthy alternative. Cleanse and detoxify your body. Remove potential toxic silver (mercury) fillings.

Additionally, Dr. Barton had printed literature available in his office addressing the potentially toxic nature of mercury fillings.

A complaint was filed against Dr. Barton, not by a patient, but directly by the Dental Board. The Board alleged false and misleading advertising. The Panel who investigated the complaint recommended dismissal of all allegations against Dr. Barton. However, when the matter went before the Dental Board, the Board without producing any evidence to support its position, ordered disciplinary sanctions against Dr. Barton. These sanctions included:

1. Censure
2. 6 hours of CE in ethics
3. 12 months probation
4. Administrative penalty in the amount of \$1,000.00

Believing the Board's action was not supported by the record or scientific fact, Dr. Barton was forced to appeal the Board's decision to Superior Court. The appeal was filed as Case Number CV94-17269 on October 31, 1994. As of August 30, 1995, the Board has still not filed the administrative record in order to allow for a judicial review of its decision in this complaint.

Another example of the Board's seemingly selective handling of a complaint against an "alternative dentist" is Complaint No. 95114 filed against Dr. Delbert Nichols. Dr. Nichols is a holistic dentist from Snowflake, Arizona. Pursuant to formal notice sent by the Board, Dr. Nichols prepared for and drove to Phoenix to attend an Investigative Interview on June 23, 1995. Dr. Nichols was accompanied by his legal counsel. The Complainant did not attend the Investigative Interview even though the Board's file indicated she had received notice of the proceeding. At the conclusion of the Interview, the Investigative Panel determined there were no valid grounds for imposing disciplinary sanctions and recommended dismissing the complaint. However, unlike other complaints heard on the same day as Complaint No. 95114, Dr. Nichols' complaint did not appear on the agenda for the August 11, 1995, Board meeting. When Dr. Nichols' legal counsel contacted the Board's administrative staff, he was advised that Dr. Nichols' complaint was being sent back for another Investigative Interview sometime in October. Dr. Nichols, through legal counsel, has requested a written explanation as to why Dr. Nichols will be forced to take additional time out of his practice, return to Phoenix, and pay for legal counsel, to attend another Interview. To date, Dr. Nichols is still awaiting a formal response from the Board. Is this yet another example of the Board's "special" treatment of alternative dentists?

In response to the Arizona State Board of Dental Examiners' treatment toward Dr. Lee and other Holistic Dentists in Arizona, a coalition of citizens of Arizona have formed, "The Coalition of Concerned Citizen for Freedom of Choice for Dental Care in Arizona." Their mission statement is:

*Freedom of Choice and Speech are being denied to the Citizens of Arizona by the State through its appointed representatives on the State Board of Dental Examiners.*

*These freedoms which are being threatened are:*

- 1. Patient access to alternative dental care that has been proven to be beneficial to their health.*
- 2. Patient access to information of documented scientific dental research which would assist them in making informed choices in their dental care.*
- 3. Patient access to dental practitioners to whom patients are being referred by other licensed health care professionals.*

*Currently, any licensed dentist in Arizona who gives information to patients regarding alternative dental techniques and procedures is subject to intimidation, censure, financial depletion, and suspension of license.*

*This adverse and unfair treatment is prompted solely by the passion and prejudice of members of the Arizona State Dental Board.*

*By eliminating the alternative dentist through harassment, and emotional and financial duress inflicted by the Arizona State Board of Dental Examiners, the State is eliminating the basic right of choice and speech for dental patients in Arizona.*

*We, as dental patients and citizens of Arizona issue a plea that the State of Arizona create a new and independent Board of Holistic Dental Examiners that will guarantee the citizens of Arizona the right to have Freedom of Choice to receive the type of dental care which they desire: a Freedom which is now in serious jeopardy.*

In the state of Arizona we have licensed Homeopathic, Naturopathic, and Chiropractic Boards. Legislation has been enacted for these types of medical practices because of the needs and desires of the citizens of Arizona. Presently, alternative medicine is becoming a household word and very well known throughout the United States and the world. Recently the state of Oregon passed a "Health Freedom Act" as well as the states of New York, North Carolina, Washington, Iowa, Alaska, Nevada, and Connecticut. Presently, before the United States Congress is a national "Health Freedom Act" and if passed will guarantee "Health Freedom" to all of the states!

In addition the University of Arizona School of Medicine has its own Alternative Medical Department as well as several other medical schools in the United States including Harvard. In January 1995 St. Joseph Hospital in Phoenix along with the Mercy Care Clinic and Cigna have combined to have an alternative health care division. Also it has been announced recently that the well known Mayo Clinics will have an Alternative Health division in Scottsdale. Showing the further need and desire of the citizens of Arizona for this type of health care.

Because of the symbiotic relationship that exists between homeopathic physicians, holistic physicians, and holistic dentists, these physicians are dependent upon the availability of holistic dentists to achieve their ultimate medical goals and cannot afford to lose access to Arizona licensed D.D.S.'s and D.M.D.'s. Arizona citizens should not have to leave the state, or worse yet, leave the country to receive the treatments being recommended by their alternative physicians.

In the past much effort has been expended by the International Academy of Oral Medicine and Toxicology and other organizations to try to inform state dental boards throughout the country including the Arizona State Board of Dental Examiners about the hazards of amalgam fillings. As recent as August 10, 1995 each Arizona State Dental Board Member received by certified mail a letter from the IAOMT. (Refer to attachment # 3)

**Therefore: The Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona and the Arizona Holistic Dental Association request the Joint Legislative Audit Committee to meet and consider our proposal to form a new and independent Board of Holistic Dental Examiners so that the citizens of Arizona can maintain their Freedom of Choice for Holistic Dental Care.**

An alternative to forming a new and separate Holistic Dental Board of Examiners would be to have the Holistic Dentists of Arizona come under the regulation of the Arizona Homeopathic Medical Board of Examiners. The reason why this would be a logical choice is because their principles and modalities are based on the same philosophies. At this time the Homeopathic Medical Board may be hesitant to accept this proposal because they are in the process of having their Sunset Review and do not want to jeopardize their position.

Arizona Holistic Dental Association  
4210 N 32nd Street  
Phoenix, Arizona 85018

The Coalition of Concerned Citizens for  
Freedom of Choice for Dental Care in  
Arizona

350 Leading Edge Physicians  
explain their treatments.

# Alternative Medicine

The Definitive Guide

Everything you must know about  
effective therapies and  
affordable self-help cures  
for you and your family

Compiled by The Burton Goldberg Group

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# Biological Dentistry

*Biological dentistry stresses the use of nontoxic restoration materials for dental work, and focuses on the unrecognized impact that dental toxins and hidden dental infections can have on overall health.*

**T**here is a growing recognition among alternative dentists and physicians that dental health has a tremendous impact on the overall health of the body. European researchers estimate that perhaps as much as half of all chronic degenerative illness can be linked either directly or indirectly to dental problems and the traditional techniques of modern dentistry used to treat them. The well-publicized dangers associated with the use of silver/mercury fillings (amalgams) are only the tip of the iceberg as far as the negative impact that dentistry can have on a person's health.

“One of the big problems in the United States,” says Gary Verigan, D.D.S., of Escalon, California, “is that dentists are trained to practice with only the most meager of diagnostic equipment. These instruments, consisting primarily of x-rays, are incapable of detecting enough about the tooth and its surrounding environment, giving the dentist only a superficial understanding of the problem and the impact it may be having on the patient's overall health. People often go through many doctors and therapies in search of answers for their problems, never realizing that their chronic conditions may be traceable to dental complications.”

“Dental problems such as cavities, infections, toxic or allergy-producing filling materials, root canals, and misalignment of the teeth or jaw can have far-reaching effects throughout the body.”

—Hal Huggins, D.D.S.

In contrast, biological dentistry treats the teeth, jaw, and related structures with specific regard to how treatment will affect the entire body. According to Hal Huggins, D.D.S., of Colorado Springs, Colorado, a pioneer in this field, “Dental problems such as cavities, infections, toxic or allergy-producing filling materials, root canals, and misalignment of the teeth or jaw can have far-reaching effects throughout the body.”

## How Dental Problems Contribute to Illness

"Dental infections and dental disturbances can cause pain and dysfunction throughout the body," states Edward Arana, D.D.S., President of the American Academy of Biological Dentistry, "including limited motion and loose tendons, ligaments, and muscles. Structural and physiological dysfunction can also occur, impairing organs and glands."

Dr. Arana cites several major types of dental problems that can cause illness and dysfunction in the body:

- Infections under and around teeth
- Problems with specific teeth related to the acupuncture meridians and the autonomic nervous system
- Root canals
- Toxicity from dental restoration materials
- Bio-incompatibility to dental restoration materials
- Electrogalvanism and ion migration
- Temporomandibular joint syndrome (TMJ), a painful condition of the jaw, usually caused by stress or injury

Some of the more common causes of these dental problems are unerupted teeth (teeth that have not broken through the gum), wisdom teeth (both impacted and unimpacted), amalgam-filled cavities and root canals, cysts, bone cavities, and areas of bone condensation due to inflammation in the bone. These conditions can be diagnosed using testing methods such as blood tests, applied kinesiology, electro-acupuncture biofeedback, and, in some cases, x-rays. A thorough review of the patient's medical and dental histories is also essential.

## Infections Under the Teeth

Pockets of infection can exist under the teeth and be undetectable on x-rays. This is particularly true for teeth that have had root canals, as it is very difficult to eliminate all the bacteria and toxins from the roots during this procedure. These infections may persist for years without the patient's knowledge.

When infections are present, toxins can leak out and depress the function of the immune system, leading to chronic degenerative diseases throughout the body. Once the infection is cleared up, many of the symptoms of disease will disappear.

Infections near the root of the tooth can also travel into the bone and destroy it, according to Harold Ravins, D.D.S., of Los Angeles. "One way to detect this is to stick a needle into the bone. If it is too soft, there is infection," he says. "Another way is with neural therapy. Neural therapy involves the injection of anesthetic around a suspected tooth. If this relieves the problems in other parts of the body, it means there is a disturbance under the tooth," says Dr. Ravins.

Some dentists use applied kinesiology testing to identify these hidden infections. Applied kinesiology employs a simple strength resistance test on a specific indicator muscle that is related to the organ or part of the body that is being tested. If the muscle tests strong, maintaining its resistance, it indicates health. If it tests weak, it can mean infection or dysfunction.



*See Acupuncture,  
Applied  
Kinesiology,  
Energy Medicine.*

## **ELECTROACUPUNCTURE BIOFEEDBACK**

*Developed by Reinhold Voll, M.D., of Germany in the 1940s, electroacupuncture biofeedback makes use of the acupuncture meridian system to screen for infections and dysfunctions in the body. Today it is employed as a screening tool by alternative health practitioners worldwide, including biological dentists. As employed in biological dentistry, it involves placing an electrode on an individual tooth, then applying a small electrical current and recording the response. Any deviation from the normal reading indicates that there is an infection or disturbance in the vicinity of that particular tooth.<sup>2</sup> This deviation can also indicate a similar unhealthy state in the organ that shares the same meridian as the tooth. Any determinations using electroacupuncture biofeedback should always be confirmed by a physician.*



*Although electroacupuncture biofeedback is used worldwide today, especially in Europe, it is approved in the United States only as an experimental device. More studies need to be undertaken to verify its importance in the field of biological dentistry and as a general diagnostic tool for all health practitioners.*

Acupuncture points can also be used to diagnose infection. Dr. Ravins noticed that one of his patients showed sensitivity on his liver acupuncture point. This led him to an infection under the corresponding upper bicuspid.

Electroacupuncture biofeedback is another method used to screen for hidden dental infections. Philip Jenkins, D.D.S., of Los Gatos, California, uses electroacupuncture biofeedback testing to find infections, identify them, and then determine the appropriate homeopathic remedies with which to treat them.

### **Relationship between Specific Teeth and Illness**

In the 1950s, Reinhold Voll, M.D., of Germany, discovered that each tooth in the mouth relates to a specific acupuncture meridian. Using his electroacupuncture

biofeedback technique, he found that if a tooth became infected or diseased, the organ on the same meridian could also become unhealthy. He found that the opposite held true as well, that dysfunction in a specific organ could lead to a problem in the corresponding tooth.

For example, Dr. Ravins has observed that people who hit their front teeth too hard often have kidney disturbances, as there is a specific relationship between the kidneys and the front teeth.

Ernesto Adler, M.D., D.D.S., of Spain, reports that many diseases can also be caused by the wisdom teeth, which have a relationship to almost all organs of the body. When wisdom teeth are impacted, Dr. Adler points out, they press upon the nerves of the mandible (the large bone that makes up the lower jaw), which can result in disturbances in other areas of the body, including stammering, epilepsy, pain in the joints, depression, headaches, and heart problems. He adds that the upper wisdom teeth can cause calcium deficiency, resulting in muscle cramps.

### **Root Canals as a Cause of Illness**

The late Weston Price, D.D.S., M.S., F.A.C.D., former Director of Research for the American Dental Association, made the astonishing claim that if teeth that have had root canals are removed from patients suffering from kidney and heart disease, these diseases will resolve in most cases. Moreover, implanting these teeth in animals results in the animals developing the same kind of disease found in the person from whom the tooth was taken. Dr. Price found that toxins seeping out of root canals can cause systemic diseases of the heart, kidney, uterus, and nervous and endocrine systems.<sup>1</sup>

Michael Ziff, D.D.S., of Orlando, Florida, points out that research has demonstrated that 100 percent of all root canals result in residual

infection. This may be due to the imperfect seal that allows bacteria to penetrate. The oxygen-lacking environment of a root canal can cause the bacteria to undergo changes, adds Dr. Huggins, producing potent toxins that can then leak out into the body. Nutrient materials are also able to seep into the root canal through the porous channels in the tooth, allowing this bacteria growth to flourish. Susceptibility to these types of reactions is usually genetic, but stresses to the system (abuse of alcohol, drugs, caffeine) can induce them in normal individuals. Pregnancy and influenza also increase susceptibility to leakage of toxins from root canals, according to Dr. Huggins.

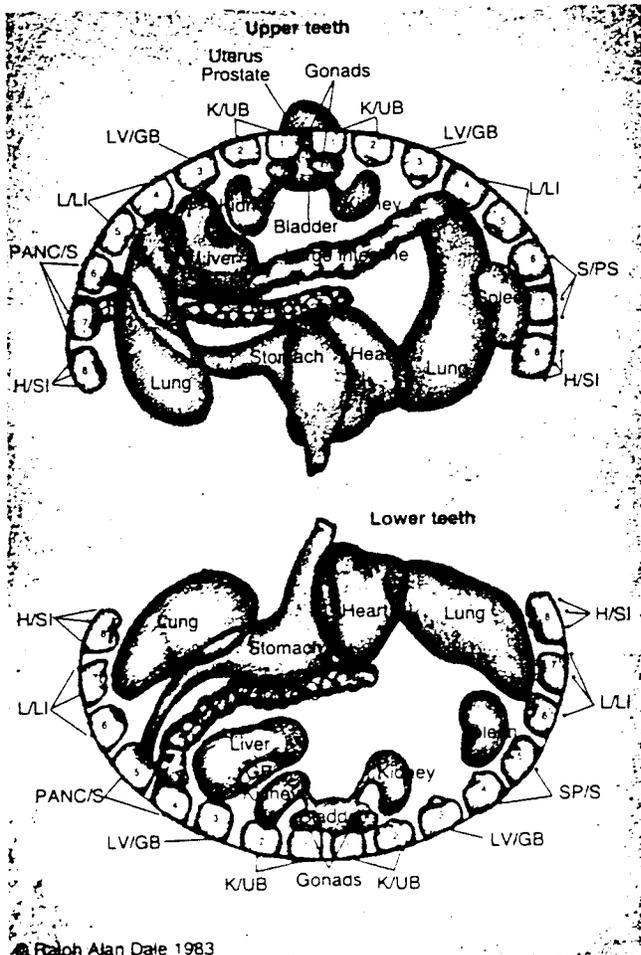
He adds that when a tooth with a root canal is removed, the periodontal ligament that attaches the tooth to the underlying bone should also be removed, otherwise a pocket of infection can remain. Full removal of the tooth and ligament stimulates the old bone to produce new bone for healing.

According to Dr. Ziff, however, there are cases where root canal teeth should not be pulled. It can be difficult to chew without certain teeth intact, and problems can arise if the teeth surrounding the extracted one become misaligned. "The best approach is a conservative one," says Dr. Ziff. "Try other measures first and only remove the tooth as a last resort."

### Toxicity from Dental Restoration Materials

"Dental amalgam fillings can release mercury, tin, copper, silver, and sometimes zinc into the body," says Dr. Arana. All of these metals have various degrees of toxicity and when placed as fillings in the teeth can corrode or disassociate into metallic ions (charged atoms). These metallic ions can then migrate from the tooth into the root of the tooth, the mouth, the bone, the connective tissues of the jaw, and finally on into the nerves. From there they can travel into the central nervous system, where the ions will reside, permanently disrupting the body's normal functioning if nothing is done to remove them.

Other types of metal-based dental restorations can similarly release toxic metals into the body. According to David E. Eggleston, D.D.S., of the Department of Restorative Dentistry at the University of Southern California in Los Angeles, a patient undergoing dental work developed kidney disease due to nickel toxicity from the dental crowns that were



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Correspondence of teeth acupuncture points

“Research has demonstrated that 100 percent of all root canals result in residual infection due to the imperfect seal that allows bacteria to penetrate.”

being placed in the patient's mouth. As each successive crown was placed, the disease intensified, verified by blood and urine tests, and physical examination. Once the nickel crowns were removed, the patient gradually became symptom free.<sup>3</sup>

Theron Randolph, M.D., of Batavia, Illinois, founder of the field of environmental medicine, believes that both the medical and dental professions have become too lax in dealing with the scope and potential danger of toxic metals. "Although it is not clear whether dental amalgams and other metals used in dental work are the primary or secondary cause of many health problems," he says, "both doctors and dentists have to be

concerned with evaluating the clinical implications of using toxic metals in the human body." Dr. Randolph believes part of the problem stems from American dental schools ignoring the mounting evidence on toxicity from dental restorations, especially amalgams, despite clear documentation shown in European studies.

In September, 1992, California governor Pete Wilson requested that the State Board of Dental Examiners develop a fact sheet on dental materials to be distributed to dentists. California is the first state to pass such legislation, notes Joyal Taylor, D.D.S., of Rancho Santa Fe, California, President of the Environmental Dental Association. He hopes this will pave the way for a total ban on the use of mercury in dental restorations, adding that two to three thousand dentists across the country are now calling for such a ban on mercury dental amalgams.

**Mercury Dental Amalgams:** While all metals used for dental restoration can be toxic, the most harmful are the mercury dental amalgams (silver/mercury) used for fillings. According to Dr. Taylor, "These so-called 'silver fillings' actually contain 50 percent mercury and only 25 percent silver."

Mercury has been recognized as a poison since the 1500s, and yet mercury amalgams

have been used in dentistry since the 1820s. They are still being used today even though the Environmental Protection Agency (EPA) declared scrap dental amalgam a hazardous waste in 1988. Even the American Dental Association, which has so far refused to ban amalgams, now instructs dentists to "know the potential hazards and symptoms of mercury exposure such as the development of sensitivity and neuropathy," to use a no-touch technique for handling the amalgam, and to store it under liquid, preferably glycerin or radiographic fixer solution, in unbreakable, tightly sealed containers.<sup>4</sup>

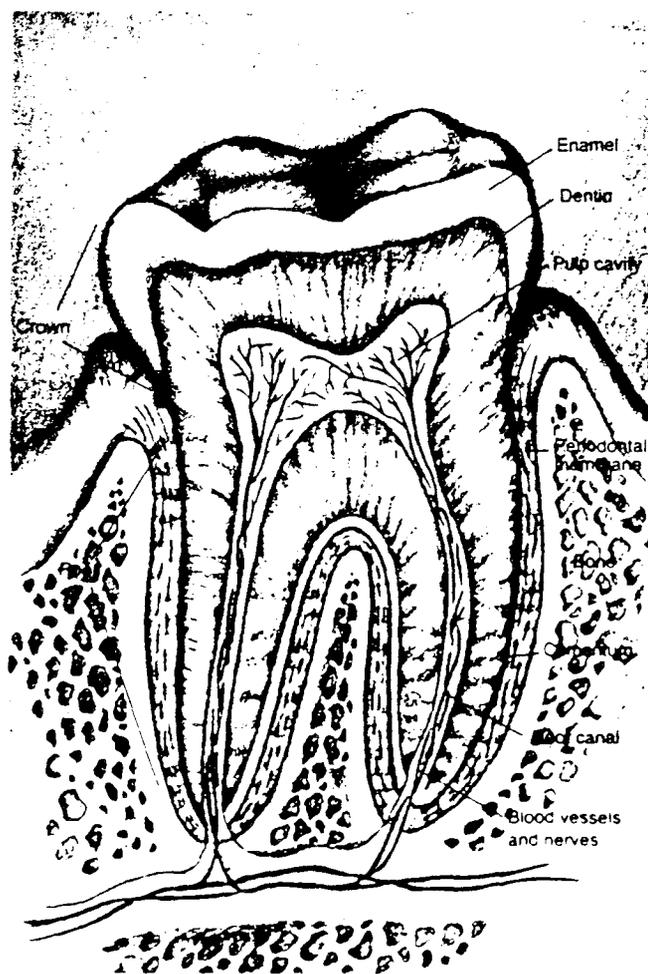


Diagram of a healthy tooth.

For some dentists, such as Richard D. Fischer, D.D.S., of Annandale, Virginia, these measures are not enough. Since becoming aware of the health risk amalgams pose, he has refused to work with them and has had his own silver fillings removed. "I don't feel comfortable using a substance designated by the EPA to be a waste disposal hazard," he says. "I can't throw it in the trash, bury it in the ground, or put it in a landfill, but they say it's okay to put it in people's mouths. That doesn't make sense."

According to the German Ministry of Health, "Amalgam is considered a health risk from a medical viewpoint due to the release of mercury vapor."<sup>5</sup> Everyday activities such as chewing and brushing the teeth have been shown to release mercury vapors from amalgams.<sup>6</sup> Amalgams can also erode and corrode with time (ideally they should be replaced after seven to ten years), adding to their toxic output.

Studies by the World Health Organization show that a single amalgam can release three to seventeen micrograms of mercury per day,<sup>7</sup> making dental amalgam a major source of mercury exposure.<sup>8</sup> A Danish study of a random sample of one hundred men and one hundred women showed that increased blood mercury levels were related to the presence of more than four amalgam fillings in the teeth.<sup>9</sup> American, Swedish, and German scientists examining cadavers have also found a clear relationship between the number of fillings and the mercury count in the brain and kidneys.<sup>10</sup>

In Germany the sale and manufacture of amalgams has been prohibited since March 1992,<sup>11</sup> and in Sweden, after a special commission determined that amalgam was a toxic material, that country's Social Welfare and Health Administration issued an advisory against its use in the dental treatments of pregnant women. Furthermore, Sweden has promised to ban amalgams entirely as soon as a suitable replacement is found.<sup>12</sup> Until then the government pays 50 percent of the cost for removal of amalgams. In the United States, however, little is being done to deal with the effects of mercury amalgams because most dentists still maintain that they are safe. They continue to place mercury in their patients' mouths even though the metal is more toxic than arsenic.<sup>13</sup>

The problem is so widespread that Dr. Taylor now devotes his entire practice to the removal of amalgams. "There have been no studies [in the United States] on the safety of mercury in dental work, but when it leaks from the teeth it can cause both physical and mental problems," he states.<sup>14</sup> Dr. Arana adds that "numbness and tingling, paralysis, tremors, and pain are just some of the symptoms of chronic metal intoxication associated with the use of mercury dental amalgams."

Though the ideal replacement for mercury amalgams has not yet been found, there are some less toxic alternatives that biological dentists are working with. The best one so far is the so-called "composite amalgam," which is a combination of metals that are less toxic than mercury and slower to break down.

Dr. Huggins recommends that people who choose to have their amalgams removed ask their dentists to use a rubber dam, a thin sheet of

*“I don't feel comfortable using a substance designated by the Environmental Protection Agency to be a waste disposal hazard. I can't throw it in the trash, bury it in the ground, or put it in a landfill, but they say it's okay to put it in people's mouths. That doesn't make sense.”*

—Richard D. Fischer, D.D.S.

rubber that slips over the teeth. "Dams prevent over 95 percent of the mixture of mercury and water produced by the drilling out of old fillings from going down your throat," he says. "They also reduce the amount of mercury that you might absorb from your cheeks and under your tongue." Dr. Huggins also suggests that people consider early morning appointments for amalgam removal, rather than later in the day, because the mercury vapor from other patients' sessions can linger in the air for hours and be absorbed by breathing. Some dentists use mercury vapor filter systems, he points out, but those who do are rare.

Charles Gableman, M.D., of Encinitas, California, a leader in the field of environmental medicine, always advises the removal of his patients' amalgam fillings. According to Dr. Gableman, patients with chronic fatigue syndrome, or with a lack of resistance to infections, allergies, and thyroid dysfunction, all improve after their fillings are properly removed. He believes it is possible that these patients have suffered from basic allergies their entire lives, and that the mercury toxicity from the fillings simply adds to the body's toxic load and "pushes them over the edge," resulting in chronic medical problems.

*“ Although it is not clear whether dental amalgams and other metals used in dental work are the primary or secondary cause of many health problems, both doctors and dentists have to be concerned with evaluating the clinical implications of using toxic metals in the human body. ”*

—Theron Randolph, M.D

Extensive clinical evidence based on patient case histories attests to the effects of mercury amalgam toxicity. Dr. Taylor cites an example of a woman who came to him suffering from rheumatoid arthritis. After having her amalgam fillings removed, she not only had relief from her arthritis, but her allergies abated to a large extent.

Another patient of Dr. Taylor was suffering from numerous symptoms of environmental illness. She exhibited multiple sclerosis-type symptoms, could only tolerate four or five foods, and developed sensitivities to chemicals, noise, light, and electromagnetic radiation. She also had jaundice and had been diagnosed with candida overgrowth. After having her amalgam fillings removed, she found that she was able to eat many different foods again, enabling her to put back on the sixty pounds she lost. Her sensitivities to noise, light, and electromagnetic radiation also diminished and her candida and jaundice cleared up.

A woman in Palm Beach, Florida, for years endured fatigue, mononucleosis (for which she was hospitalized at age sixteen), bladder infections, and, eventually, Epstein-Barr virus, candida, food allergies, and muscle spasms. Finally, her own investigation led her to consider the possibility of mercury poisoning and consult with Dr. Huggins. He found a tooth with a root canal that had been filled with dental amalgam. Once the amalgam was removed, her symptoms abated.

### **Bio-incompatibility to Dental Restoration Materials**

In the same way that some people have adverse reactions to prescription drugs, some people also react negatively to specific dental materials. A person can already have been sensitized to dental restoration materials through previous exposure from the environment and foods.

### Selected Health Symptom Analysis of 1,569 Patients Who Eliminated Mercury-Containing Dental Fillings<sup>15</sup>

The following represents a summary of 1,569 patients in six different studies evaluating the health effects of replacing mercury-containing dental fillings with non-mercury fillings. The data was derived from the following sources: 762 Patient Adverse Reaction Reports submitted to the FDA by patients; and 807 patients reports from Sweden, Denmark, Canada, and the United States.

% of Total Reporting	Symptom	Number Reporting	Number Improved or Cured	% of Cure or Improvement
14	Allergy	221	196	89
5	Anxiety	86	80	93
5	Bad temper	81	68	84
6	Bloating	88	70	80
6	Blood pressure problems	99	53	54
5	Chest pains	79	69	87
22	Depression	347	315	91
22	Dizziness	343	301	88
45	Fatigue	705	603	86
15	Intestinal problems	231	192	83
8	Gum problems	129	121	94
34	Headaches	531	460	87
12	Insomnia	187	146	78
10	Irregular heartbeat	159	139	87
8	Irritability	132	119	90
17	Lack of concentration	270	216	80
6	Lack of energy	91	88	97
17	Memory loss	265	193	73
17	Metallic taste	260	247	95
7	Multiple sclerosis	113	86	76
8	Muscle tremor	126	104	82

This bio-incompatibility, or incompatibility of the body, to the dental material can lead to severe allergic reactions including food allergies, and can contribute to chronic fatigue syndrome, chronic sinusitis and headaches, and can cause intractable pain syndrome. However, dentists often don't test for sensitivity to dental restoration materials before placing them in their patients' mouths.

The most common reactions are found to be produced by the mercury amalgams used for fillings, and by the various metal components that make them up, including mercury, copper, tin, zinc, and silver.<sup>16</sup> According to Dr. Arana, some of the symptoms caused specifically by amalgam fillings are:

- Chronic fatigue syndrome and lack of energy
- Tendency to chronic inflammatory changes (including rheumatoid arthritis, phlebitis, and fibromyalgia)
- Chronic neurological illnesses, especially when numbness is one of the leading symptoms
- Lowering of the pain threshold
- Disturbances of the immune system

Patients can be screened for sensitivity by a simple blood test, known as the Clifford Materials Reactivity Testing, after its developer, Walter

Jess Clifford, M.S., R.M., of Colorado Springs, Colorado. In this test, the patient's serum is exposed to the various components and by-products of dental materials to see if they provoke an immune reaction (antibody production). This makes it possible to determine

which materials the body will be sensitive to.

This information is then matched through a computer database to various dental products, enabling the dentist or physician to select which products are safe for each patient. "By using this form of testing," Clifford says, "it is possible to check the patient for an enormous number of dental product suitabilities without having to examine the finished dental product. One only needs to know what the dental restorative material contains and what it will give off when it breaks down." Bio-incompatible and toxic materials already in the mouth can then be replaced with those materials that have proven to be nonreactive. Applied kinesiology can also be used to test all materials and anesthetics before using them on patients.

After any dental material is removed, Dr. Huggins always recommends a thorough detoxification. According to Dr. Huggins, simply removing the fillings is not enough to rid the body of the toxic materials that may have built up over time, and may continue to cause allergic reactions. He places his patients on a detoxification regimen which can include nutritional support, acupressure, and massage treatments. Chelating agents, such as EDTA (ethylenediaminetetraacetic acid) and vitamin C, can be used intravenously or in tablet form as well. He cautions that any detoxification therapy should only be administered under the supervision of a qualified health professional.

### **Electrogalvanism**

Due to its mineral content, the saliva in the mouth is electrically conductive. As a result, when saliva in a person's mouth interacts with a dental restoration containing metal, a battery is created, causing an effect known as electrogalvanism. "Electrogalvanism is literally the electricity generated by a person's fillings," says Dr. Arana. "The saliva acts as a conductant and the dissimilar metal fillings then try

### **MERCURY POISONING**

*Because mercury is a cumulative poison, building up in the body with repeated exposure,<sup>17</sup> its effects can be devastating. It can prevent nutrients from entering the cells, and wastes from leaving. Mercury can bind to the DNA (deoxyribonucleic acid) of cells, as well as to the cell membranes, distorting them and interfering with normal cell functions.<sup>18</sup> When this happens, the immune system no longer recognizes the cell as part of the body and will attack it. This can be the basis of many autoimmune diseases such as multiple sclerosis and arthritis.*

*Mercury poisoning can also lead to symptoms such as anxiety, depression, confusion, irritability, insecurity, and the inability to concentrate. It can cause kidney disease and cardiac and respiratory disorders. Multiple sclerosis patients have been found to have eight times higher levels of mercury in their cerebrospinal fluid (the fluid that surrounds the brain and spinal cord) as compared to neurologically healthy patients.<sup>19</sup>*

*Mercury poisoning often goes undetected for years because the symptoms presented do not necessarily suggest the mercury as the initiating cause. For example, it is capable of producing symptoms indistinguishable from those of multiple sclerosis,<sup>20</sup> and can mimic the symptoms of Lou Gehrig's disease (a syndrome marked by muscular weakness and atrophy due to degeneration of motor neurons of the spinal cord, medulla, and cortex).*

*Mercury can also produce allergic reactions with symptoms such as urticaria (an itchy rash), eczema, headaches, asthma, and digestive problems. The Environmental Protection Agency states that women chronically exposed to mercury vapor experience increased frequencies of menstrual disturbances and spontaneous abortions. A high mortality rate has also been observed among infants born to women who displayed symptoms of mercury poisoning.<sup>21</sup>*

to neutralize each other to balance out the electrical charge. This has the effect of causing toxic material from the fillings to erode, like the terminals of a battery, and leak out into the body." Dr. Arana points out that even two similar-looking amalgam fillings, if they were not placed on the same day, are likely to be of different compositions and therefore generate an electrical current between them. Even gold fillings or crowns are usually put over old fillings of a different metal, so electrogalvanism can even occur within a single tooth.

Since the teeth, the mouth, and the bone root all contain fluid, there are a variety of combinations that can determine where this electrical current flows. "It can go from a tooth to a muscle, tooth to a joint, tooth to an organ, and even a tooth to part of the brain, to the point where it can change the permeability of the blood-brain barrier," Dr. Arana states.

"Electrogalvanism is frequently the cause of lack of concentration and memory, insomnia, psychological problems, tinnitus, vertigo, epilepsy, hearing loss, and eye problems, to name but a few," says Dr. Arana. "Since high dental currents lead to erosion of the restoration materials, this problem rarely exists without coexisting problems of heavy metal toxicity, which can act synergistically with multiple chemical sensitivities to cause environmental illness."

Electrogalvanism can be identified by an instrument known as an electrogalvanometer, which measures the electrical current and voltage generated by the dental amalgam in a tooth. Applied kinesiology can also be used to test for electrogalvanism between the upper and lower teeth. If the indicator muscle becomes weak when the patient gently touches the upper teeth to the lower teeth, then metal fillings from the top are forming a circuit with metal fillings on the bottom. Since high dental currents create neurological stress on the organism, the muscle becomes weak as soon as one metal touches another. Likewise, when the teeth are apart, and the circuit is broken, the indicator muscle will become strong again.

"We suspect that the reason why many dental splints, even bad ones, often improve a patient's TMJ dysfunction problem is that these splints are made out of plastic and work like a circuit-breaker whenever they are in place," notes Dr. Arana. "The TMJ dysfunction problems that improve are really not TMJ dysfunction problems, but problems created by the high dental currents."

## Temporomandibular Joint Syndrome (TMJ)

TMJ dysfunction is caused by the malalignment of the teeth, jaws, and muscles. The symptoms of TMJ dysfunction vary, and include pain, clicking, or grating sounds when the mouth opens, and difficulty opening the mouth very wide.

TMJ dysfunction can occur for three reasons. First, the patient loses teeth through decay or trauma, or loses height of some teeth through bruxism (grinding) or age. Second, there are iatrogenic (treatment-

“*Electrogalvanism is frequently the cause of lack of concentration and memory, insomnia, psychological problems, tinnitus, vertigo, epilepsy, hearing loss, and eye problems, to name but a few.*”

—Edward Arana, D.D.S., President of the American Academy of Biological Dentistry



See Chiropractic,  
Craniosacral Therapy,  
Osteopathy.

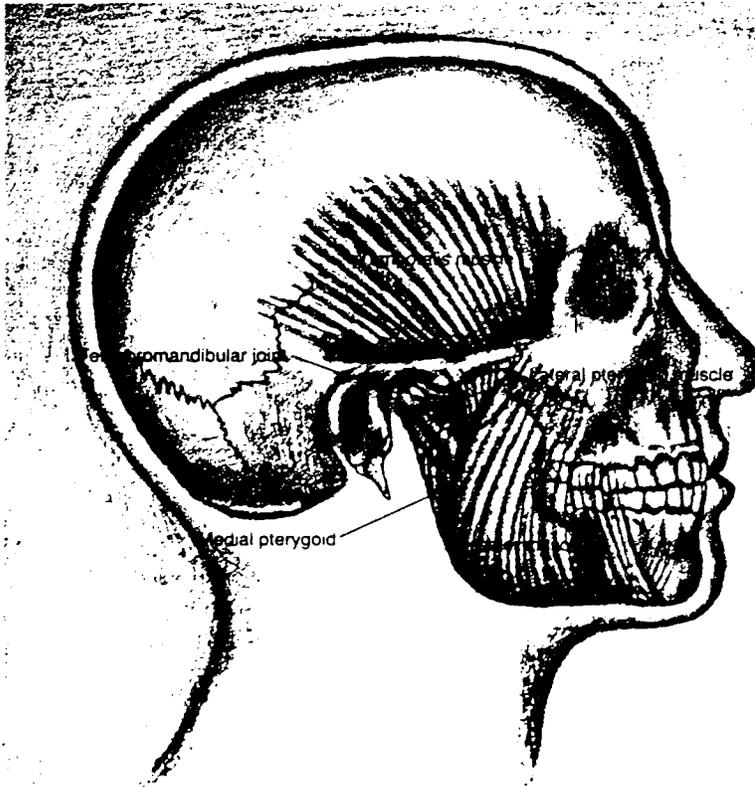
induced) problems such as dental restorations that make the teeth either too high or too low. The third cause can be developmental problems. "In the last two hundred years, developmental abnormalities of the upper and/or lower jaw have become very common. This has been shown to be directly linked to the intake of processed foods, especially sugar and flour," says Dr. Price.<sup>22</sup>

Because chewing is the primary mechanism necessary for supplying nutrients to the body, if the jaws or teeth are out of alignment, the entire cranium will distort in order to chew properly. The structural compensations necessary for this readjustment can be responsible for such varied symptoms as depression, loss of concentration, insomnia, headaches, neck pain, and low back pain—all caused by TMJ dysfunction.

TMJ dysfunction is diagnosed by observation of symmetry of facial features, midline shift of teeth, asymmetric wear of dental surfaces, asymmetry of jaw movement, tenderness over joints, and tenderness in associated muscles. It can also be diagnosed by x-rays, arthrograms (joint x-rays), MRI (magnetic resonance imaging), computerized motion studies, applied kinesiology testing, and electroacupuncture biofeedback.

Dr. Ravins believes balancing the jaw is essential to relieving TMJ dysfunction. Using computerized technology he can

measure movements of the jaw and determine where irregularities lie. By using orthopedic appliances (similar to braces) worn in the mouth at night, he can realign the jaw and relieve the symptoms. Other dentists also use craniosacral therapy or cold laser therapy to help correct TMJ syndrome.



The  
temporomandibular  
joint.

## Biological Treatment of Dental Problems

Biological dentists treat dental problems in a variety of ways. They emphasize the conservation of all healthy tooth material and employ the latest techniques of bioenergetic medicine, including neural therapy, oral acupuncture, cold laser therapy, complex homeopathy, mouth balancing, and nutrition.

### Neural Therapy

According to neural therapy, the body is charged with electricity or biological energy. This energy flows throughout the body, with every cell

possessing its own specified frequency range. As long as this energy flow is unimpeded and stays within its normal range, the body will remain healthy. However, if this balance breaks down, disruptions in the the normal function of cells can occur, eventually leading to chronic disorders.

When injury, inflammation, or infection is present in the mouth, there is usually a corresponding blockage in the body's normal energy flow. "Neural therapy allows the dentist to confirm if the problem in the tooth is causing illness elsewhere in the body," says Dr. Arana. The problem may lie in the tooth itself, or in a distant organ on the same energy meridian as the tooth.

Injection of a local anesthetic such as procaine around the tooth to remove the energy blockage will often resolve the problem. Dr. Adler cites the example of a sports instructor suffering from "tennis elbow." When Dr. Adler injected the man's two upper right premolars with procaine, the instructor received immediate relief from his pain.

Dr. Arana conservatively estimates that one hundred dentists in the United States currently practice neural therapy. However, he adds, there are over four thousand dentists worldwide practicing neural therapy, including two to three thousand in Germany where it was developed.



*See Neural Therapy.*

## Oral Acupuncture

Oral acupuncture, according to Jochen Gleditsch, M.D., D.D.S., of Munich, Germany, has been taught to dentists since 1976, and its use is expanding rapidly. It involves the injection of either saline water, weak local anesthetics, or sterile complex homeopathics into specific acupuncture points of the oral mucous membrane. It can also be combined with neural therapy.

Both Dr. Arana and Dr. Ravins use oral acupuncture to relieve pain during dental procedures with great success. Some dentists also use it to relax patients before any dental procedure. Toothache, tooth sensitivities, jaw pain, gingivitis, and other local problems often respond to oral acupuncture.

Dr. Gleditsch discovered that there are specific oral acupuncture points related to each tooth. "The total of these oral acupuncture points forms a complete microsystem," he explains, "with a clear reference to the system of acupuncture meridians." When a particular acupuncture meridian is under stress, the corresponding oral acupuncture point(s) become very sensitive to localized pressure. This phenomenon can be used for both diagnostic and treatment purposes, according to Dr. Gleditsch. He commonly uses acupoints in the mouth to treat neuralgia, sinusitis, pain in distant parts of the body, acute, chronic, and allergic conditions, and digestive disorders. The oral acupuncture points in the retromolar area (the area behind the last molar in the upper and bottom jaw) are most valuable in treating shoulder and elbow complaints, pain and restricted movement of the neck, low back pain, and TMJ. Since needle acupuncture is impractical within the oral cavity due to the danger of choking, Dr. Gleditsch uses injections of saline or local anesthetic into the points. Laser stimulation can also be used.



See Light Therapy.

### Cold Laser Therapy

Cold laser therapy is an alternative form of acupuncture that is especially useful for treating patients who object to the use of needles. The "cold laser" gets its name from the fact that its power output and the light spectrum it uses are incapable of causing any thermal damage to the body's tissues. This therapy kills bacteria, aids in wound healing, reduces inflammation, and helps to rebalance the flow of energy in the body's meridian system. It has also been used to treat TMJ dysfunction<sup>23</sup> and to promote healing and reduce muscle spasm after removal of impacted wisdom teeth, according to Dr. Ravins.

### Homeopathy in Biological Dentistry

According to Dr. Fischer, "Homeopathic first aid remedies can help alleviate the pain or discomfort of dental emergencies, at least temporarily, until proper dental care can be received. They are not intended to replace regular dental care, but rather to serve as a safe and effective complement."

Abscesses can be treated with homeopathic dilutions of *Belladonna*, *Hepar sulph.*, *Silicea*, *Myristica*, and *Calendula*. *Gelsemium*, *Aconite*, *Coffea cruda*, and *Chamomilla* can be used to allay the apprehension of a visit to the dentist. Postsurgical bleeding is treated with *Phosphorous*, and if accompanied by bruising and soreness, with *Arnica*. *Chamomilla* is good for a dry socket after an extraction. A toothache can be treated with *Belladonna*, *Magnesium phos.*, *Coffea cruda*, or *Chamomilla*.

### Mouth Balancing

Dr. Ravins specializes in "balancing" the mouth to improve a wide range of health problems, including TMJ dysfunction. He believes that structural deformities of the skull influence the entire body. "With the new computerized technology, I can diagnose muscle dysfunction and pick up vibrations from the jaw and movement of the mandible," he says. Often the misalignment has been caused by a prior accident. By analyzing this data and making special orthopedic braces to be worn in the mouth, Dr. Ravins can realign the jaw and remove pain and other symptoms such as headaches, shoulder pain, and back problems.

Many patients who come to Dr. Ravins complain of eye problems such as blurred vision (often occurring after eating), and pressure and pain behind the eyes. Since the bones around the eyes are close to those of the jaw, a misaligned jaw can easily put pressure on them, resulting in pressure on the eyes themselves. Stress in the mouth can also affect the nerves and blood supply to the eyes, and infections in the mouth can cause muscle spasms which will affect the eyes. According to Dr. Ravins, once any misalignments in the mouth are corrected with orthopedic braces, the eye problems usually dissipate. The problems often return though, when the appliances are removed. While eye problems should always be checked by an eye doctor first, if the problem is not uncovered by an eye examination, a biological dentist may be able to help.

## Nutrition

Dr. Huggins, like many other biological dentists, makes nutritional supplementation part of his overall protocol for dealing with dental conditions, especially for the patient recovering from mercury amalgam toxicity. "There is a standard regimen we use to help correct basic chemistry problems," he says. "From there, we might use additional supplementation based on what the patient's chemistry dictates." According to Dr. Huggins, the basic supplementation program aids in the excretion of mercury from the cells, prevents the exacerbation of further symptoms, and provides the patient with a nutrient base for rebuilding damaged tissues.

Among the nutrients Dr. Huggins uses are magnesium, selenium, vitamin C, vitamin E, and folic acid, along with digestive enzymes. He cautions, however, that the nutrients need to be used in specific ratios, and that supplementation done without proper consultation can actually create further imbalances in the patient's system.

A proper diet is also important for patients suffering from mercury toxicity. Dr. Huggins recommends the avoidance of cigarettes, sugar, alcohol, caffeine, chocolate, soft drinks, refined carbohydrates, milk, cheese, margarine, fish, and excess liquids with meals.

## The Future of Biological Dentistry

Mercury and other dental materials contribute to much of the degenerative diseases for which patients seek medical help today. Traditional dentistry and medicine have not yet recognized this growing danger, but biological dentistry is confronting it head-on. Using all the knowledge and skills of conventional dental medicine along with the disciplines of alternative, holistic health therapies, biological dentists are striving to provide individuals with biocompatible, aesthetic, comfortable, functional, and enduring dental and prosthetic replacements. While much research has already been done on mercury toxicity from dental amalgams, and on the creation of safe, nontoxic dental restoration material alternatives, much more still needs to be done, especially in the United States. Dr. Randolph believes that medicine and dentistry must

## THE POLITICS OF DENTISTRY

Although many new techniques of biological dentistry are available, only two to three thousand dentists across the United States are using them in practice. This is due to a deliberate effort by the American Dental Association (ADA) to suppress such practices, even to the point of rescinding the licenses of practitioners using them. Electroacupuncture biofeedback testing by dentists is not allowed in some states, and dentists may lose their license for using it, despite its proven effectiveness for screening hidden infections under teeth. For this reason most dentists are forced to use other methods for detecting hidden infections and other dental problems. Dental acupuncture is also banned in some states.

In 1987, the ADA wrote a provision into their code to declare the removal of clinically serviceable mercury amalgams from patients' teeth to be unethical, according to Michael Ziff, D.D.S., of Orlando, Florida. Any dentist doing so is in violation of the code, and the ADA is assisting state boards in prosecuting these dentists, despite all the evidence of the toxicity of mercury.

The financial and legal implications of an admission by the ADA that mercury is toxic and harmful to health may be a possible motive behind this move. If the ADA was to admit that mercury amalgams are toxic health hazards, insurance companies or the government would possibly have to foot the bill for the removal of mercury amalgams from practically the entire population of the United States.

Despite this ominous situation, the growing number of research studies on biological dental techniques, the information coming out of Europe and Canada on mercury toxicity,<sup>24</sup> and increasing public awareness of some of the dangers of traditional dental practice are combining to build support for the small band of dentists risking their livelihood to practice safe dentistry in the United States.

## **FLUORIDATION**

Fluoride is commonplace today in toothpastes, mouthwashes, and drinking water. In the United States alone, over 121 million people are now drinking artificially fluoridated water. Many experts would argue that it poses a serious health risk. Fluoride is a known poison and has been classified as very toxic to extremely toxic by the National Library of Medicine's computerized data service on toxic substances. Numerous studies have demonstrated that fluorides are largely retained in the body and build up poisonous concentrations there.<sup>25</sup>

Drs. R. N. Mukherjee and F. H. Sobels of the University of Leiden in Holland found that fluoride increases the frequency of genetic damage in sperm cells of laboratory animals exposed to x-rays and inhibits the repair of DNA.<sup>26</sup>

Fluoride was first introduced into the public water systems in the United States in 1945 through an experiment, which grew out of research done by H. Trendley Dean, D.D.S. (the "father of fluoridation") for the Public Health Services. Dr. Dean was trying to determine the reason some people had higher than normal levels of staining of their teeth. His finding cited fluoride as the cause of the staining, but also credited fluoride as the reason these same people had fewer cavities.<sup>27</sup>

In 1950, the Public Health System recommended using artificial fluoridation in the public water systems to fight tooth

decay. Since the time fluoride entered the water system in the United States, there have been many health-related problems while at the same time, no statistically significant reduction in tooth decay. Dr. Dean himself has twice been forced to admit in court that his original statistics favoring fluoridation were invalid.<sup>28</sup>

Christa Danielson, M.D., found an increased risk of hip fracture in men and women over age sixty-five who had been exposed to fluoride in their drinking water for about twenty years. At least 10 percent of fluoride in adults is deposited in bones, and studies have shown a positive correlation between higher fluoride intake and decreased bone mass and strength.<sup>29</sup>

In 1975, John Yiamouyiannis, M.D., and Dean Burk, M.D., compared ten large U.S. cities that fluoridated their water with ten cities that did not. They discovered a link between fluoride and a 10 percent increase in cancer deaths over a thirteen to seventeen-year period. As a result of these studies, tests were ordered by Congress that confirmed fluoride added to water causes cancer in laboratory animals.<sup>30</sup>

In spite of all the research and finding, fluoride is still commonplace in the United States today. It has, however, been banned in Austria, Denmark, France, Greece, Italy, Luxembourg, the Netherlands, Norway, and Spain.

come together to solve the mercury problem and make dentistry a health-enhancing endeavor that eliminates, instead of promotes, disease. "In the future," says Dr. Ziff, "I foresee bonding materials becoming much more biocompatible, along with new techniques being developed that will address the problems of modern dentistry."

"The emphasis must be more in the way of prevention," says Dr. Arana. "So when people in the anti-amalgam movement say we're going to have to retrain the dentists, they're right, but it can be done. I think the materials being used now are very close to being able to fix the teeth so they're white and beautiful without any danger of toxicity problems."

Toxic-free, biological dental treatment has the possibility of an overall stress reduction so great that patients could lose all or many of their distressing chronic disease symptoms. "The next great advancement in medicine will come from the dentists," says Dr. Arana. "Biological dentistry will, out of necessity, become the dental medicine of the twenty-first century."



## Where to Find Help

Many organizations and dentists are involved in promoting the practice of biological dentistry. Contact an organization below for more information.

### **American Academy of Biological Dentistry**

**P.O. Box 856  
Carmel Valley, California 93924  
(408) 659-5385  
(408) 659-2417 (Fax)**

*The purpose of the AABD is to promote biological dental medicine, which uses nontoxic diagnostic and therapeutic approaches in the field of clinical dentistry. They publish a quarterly journal, Focus, and hold regular seminars on biological diagnosis and therapy.*

### **International Academy of Oral Medicine and Toxicology**

**P.O. Box 608531  
Orlando, Florida 32860-8531**

*A professional organization of dentists, physicians, and research scientists dedicated to scientifically investigating the bio-compatibility of materials used in dentistry. Members are worldwide.*

### **Foundation for Toxic Free Dentistry**

**P.O. Box 608010  
Orlando, Florida 32860-8010**

*A nonprofit group whose main goal is to educate and refer the general public to biological dentists all over the world. Send a self-addressed, stamped envelope for fifty-two cents and they will send you information and referrals.*

### **Environmental Dental Association**

**9974 Scripps Ranch Boulevard  
Suite 36  
San Diego, California 92131  
(800) 388-8124/(619) 586-1208**

*The EDA is an organization of alternative dentists who are concerned about the potential toxic effects of various dental procedures and materials. Member dentists believe that the most important environment of all is the human body and that some dentistry can cause harmful side effects. The EDA provides a referral service for patients seeking alternative dentists in their area. It also offers books and products on alternative dentistry for the public. For a free packet of information call the EDA's toll-free number.*

### **The Safe Water Coalition West 5615 Lyons Court Spokane, Washington 99208 (509) 328-6704**

*The purpose of this organization is to educate legislators and the public to the hazards of fluoridation.*

### **DAMS 725-9 Tramway Lane Northeast Albuquerque, New Mexico 87122 (505) 291-8239 (505) 0294-3339 (Fax)**

*DAMS (Dental Amalgam Syndrome) is a support and educational organization, designed to help those suffering from mercury amalgam toxicity, to raise public awareness of the problem, and to provide documentation of the condition for the FDA.*



## Recommended Reading

***The Complete Guide to Mercury Toxicity from Dental Fillings.***

Taylor, Joyal. San Diego, CA: Scripps Publishing Co., 1988.

*A step-by-step guide to help people evaluate themselves for mercury poisoning. Also included are anecdotes and nutritional information as well as alternatives to mercury fillings.*

***Dental Mercury Detox.*** Ziff, Sam and Michael. Orlando, FL: Bio-Probe Inc., 1993.

*A book to help reduce mercury toxicity in your body.*

***Dentistry without Mercury.*** Ziff, Sam and Michael. Orlando, FL: Bio-Probe Inc., 1993.

*An eighty-page book of the most recent scientific research and information on mercury toxicity.*

***Fluoride, The Aging Factor.***

Yiamouyiannis, John, Ph.D. Delaware, OH: Health Action Press, 1986.

*A well-documented book that investigates the degenerative qualities of fluoride. It discusses the scientific, industrial, political, and moral aspects of fluoride exposure.*

***Infertility and Birth Defects—Is Mercury from Silver Dental Fillings a Hidden Cause?***

Ziff, Sam and Michael. Orlando, FL: Bio-Probe Inc., 1987.

*A very accessible book that explains and documents the facts about mercury and lead and why mercury fillings may increase the risks of infertility and birth defects.*

***It's All in Your Head.*** Huggins, Hal, D.D.S. Colorado Springs, CO: Life Science Press, 1986.

*Dr. Huggins analyzes the diseases and symptoms associated with mercury poisoning, as well as providing diagnostics and a nutritional guide to recovery.*

***Mercury Poisoning from Dental Amalgam—A Hazard to Human Brain.*** Stortebecker, Patrick, M.D., Ph.D. Orlando, FL: Bio-Probe Inc., 1986.

*Dr. Stortebecker describes his principle of the shortest pathway with scientific evidence that mercury vapor released from fillings can travel directly to the brain.*

***The Missing Link.*** Ziff, Sam and Michael. Orlando, FL: Bio-Probe Inc., 1992.

*A fully referenced book that scientifically explores the relationship of mercury with heart disease.*

***Silver Dental Fillings—The Toxic Time Bomb.*** Ziff, Sam. Santa Fe, NM: Aurora Press, 1986.

*This book covers the history of the mercury controversy from 1819 to the present.*

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August 30, 1995

Dr. Terry Lee, D.D.S.  
4210 North 32nd Street  
Phoenix, AZ 85018

Dear Dr. Lee:

You have our permission to reproduce the chapter "Biological Dentistry" from our book *Alternative Medicine: The Definitive Guide* (Future Medicine Publishing, 1994) to use in your legislative and legal efforts to deal with the harassment of the medical authorities.

Good luck. Please talk to our publisher, Burton Goldberg: 415-435-7770.

Sincerely,

Richard Lewiton, Editor

**ATTACHMENT # 2**

**ORAL ARGUMENT**  
**TERRY LEE, D.D.S./COMPLAINT NO. 95135**

This complaint involves a holistic dentist, Dr. Terry Lee. A holistic dentist is a professional who treats disease of the oral cavity, like any other dentist, but in doing so, he relies upon and utilizes diagnostic techniques and treatment modalities based on holistic and homeopathic principles not utilized by his allopathic colleagues.

This complaint involves a knowledgeable patient who specifically sought out Dr. Terry Lee because of the fact that Dr. Lee was a holistic dentist. As a result, a doctor/patient relationship arose and during the course of this relationship, Dr. Lee employed some of the holistic diagnostic techniques and homeopathic treatment modalities upon which his dental practice is built and his professional reputation is based. A dispute arose between the patient and Dr. Lee and, as is common in this state, a complaint was filed with the Dental Board.

An Informal Interview was held and the Panel, 2 of whom are Board members, issued their findings of fact and recommendations. This full Board is now faced with deciding how to proceed against Dr. Terry Lee. If this Board concludes that Dr. Lee's actions during his treatment of Mr. Cain were inappropriate, whether that be by erring in his diagnosis, or by failing to adequately obtain the patient's consent, then a unified plea is being made to discipline Dr. Lee on that basis alone and in the same manner and to the same degree as this Board would any of the 50 or so dentists who come before this Board at any given meeting. Terry Lee should not be singled out for more severe treatment than his allopathic colleagues, solely on the basis of his holistic philosophies.

Members of this Board have gone on record as being openly critical of many of the philosophies relied upon by holistic dentists. As individuals you have that right. However, this Board must realize that the philosophies and practices utilized by Dr. Terry Lee are relied upon and utilized by a substantial minority of practitioners, not only in this state or in this country, but throughout the world. As members of this Board you have the responsibility of protecting the health, welfare and safety of the public. However, you do not have the right to censor those who hold alternate views from yours under the guise of protecting public health.

Some of the findings of fact arrived at by the Panel would appear to support an argument that Dr. Lee is being treated in a prejudicial manner.

#8: Dr. Lee recommended literature to Mr. Cain which states root canal teeth can be toxic or poisonous or cause numerous medical problems.

A dentist, like any health care professional, is required ethically and legally to provide a patient with treatment alternatives and sufficient information to make an informed decision as to how that patient wishes to proceed with the treatment of her/his body.

Believing a valid controversy exists concerning the risks and benefits associated with conventional root canal therapy, Dr. Terry Lee discussed this issue with the patient, but before taking any action, recommended that the patient purchase a published book, so that he could come to his own decision as to how he wished to proceed. The Panel inferred Dr. Lee should not be allowed to recommend literature on certain topics. This is tantamount to saying that access to such information should be curtailed by this state agency. Have we forgotten about the fundamental right guaranteed to every individual by the First Amendment to the U.S. Constitution.

The Panel also concluded in findings #6, #7, #9 and #10 that Dr. Lee utilizes techniques having no scientific justification, validity or reliability. Okay, let's talk about scientific basis.

There is no scientific basis behind the systematic extraction of asymptomatic third molars by conventional dental practitioners. In fact, recent scientific studies and applied statistical analysis have concluded that removal of asymptomatic third molars is clearly inappropriate. Yet, the Board is not attempting to build a case against every oral surgeon in this state for providing unnecessary treatment. So why is Dr. Lee being treated differently?

It's been scientifically proven and accepted by the World Health Organization that the principle source of mercury found in most human bodies comes, not from fish or the environment, but from dental amalgams. Despite this finding, and despite the scientific fact that mercury is one of the most toxic substances known to humans, members of the dental profession continue to implant tons of mercury fillings into patient's teeth, relying on the "scientific argument" that critics can't conclusively prove that mercury fillings are harmful. This is the same argument promoted by the tobacco companies concerning cigarette smoke. Even more alarming is the fact that most dentists don't even discuss the controversy surrounding mercury fillings before placing this substance in their patient's mouths. Some lay people might consider it important that an entire country banned the use of mercury fillings because, on the basis of scientific evidence, they no longer believe dental amalgams to be an appropriate tooth filling material. But the Dental Board is not filing allegations against these dentists for failing to adequately inform or failing to base their treatment on scientific evidence.

So why is Terry Lee being treated differently? You will now be left to consider that question.

ARIZONA STATE BOARD OF DENTAL EXAMINERS

5060 N. 19TH AVENUE, SUITE 410

PHOENIX, ARIZONA 85015

AUGUST 11, 1995

TRANSCRIPT OF PROCEEDINGS CONCERNING:

AGENDA ITEM NO. 59, COMPLAINT NO. 95135

BOARD BOARDS AND STAFF ARE PRESENT

ALSO PRESENT:

DR. ART DALPIAZ

DR. TERRY LEE

GARY SMITH, ESQ., ATTORNEY FOR DR. LEE

\* \* \* \* \*

(THIS TRANSCRIPTION WAS PREPARED FROM A TAPE RECORDING)

AFTER 5:00 OFFICE SUPPORT

1 in a, in a proper arena.

2 MADAM PRESIDENT: Dr. Dalpiaz?

3 DR. DALPIAZ: Madam Chairman I was one of the hearing  
4 board members and, uh, not the presiding officer, but a  
5 member. And it would be my recommendation, and I will so  
6 move at this time, this complaint be forwarded and remanded  
7 to formal hearing wherein a contested arena these concerns  
8 can be resolved. And I so move.

9 MADAM PRESIDENT: Any second?

10 BOARD: (Inaudible).

11 MADAM PRESIDENT: Okay. Yes, Mr. Standard?

12 MR. STANDARD: I'm going to vote against that. I  
13 think, gentlemen, and ladies, we should look at what this  
14 issue involves. What we're talking about here is this Board  
15 taking a position about concerning one theory of medicine  
16 versus another theory of medicine. One theory of dentistry  
17 versus another theory of dentistry. I don't think this  
18 Board should be deciding which theory is right and which  
19 theory is wrong. I don't think we should get into the  
20 posture of making those types of decisions. If a particular  
21 situation ~~is~~<sup>is</sup> drew points out involves a particular patient  
22 and its unprofessional conduct, that's what we address. But  
23 if we send this matter to a formal hearing, you're setting  
24 ~~is~~<sup>is</sup> a scenario where this Board is going to be taking on one  
25 theory of dentistry versus another theory of dentistry. And  
26 I don't think that's a function of this Board.

27 BOARD: I, if I may. I disagree. I think its a much

AFTER 5:00 OFFICE SUPPORT

1 MR. STANDARD: The Board shouldn't make the decision of  
2 what's the proper way, philosophically, to practice  
3 medicine. The . . .

4 BOARD: Well, I think . . .

5 MR. STANDARD: The Board makes decisions, makes  
6 decisions based on whether a particular dentist did an  
7 improper action involving patient "x" or patient "y" .  
8 That's what we're involved in. But we're not getting  
9 involved in a philosophical decision about which is proper  
10 and which is not. This thing is going to get blown up . . .

11 BOARD: Well . . .

12 MR. STANDARD: Its going to get picked up in the papers  
13 and its going to be the Arizona Board of Dental Examiners is  
14 taking a position, or is taking an investigation into which  
15 is the proper and which is the improper way. I don't think  
16 we should touch it. That's why I'm going to vote against  
17 it.

18 BOARD: What would be the alternative?

19 MR. STANDARD: Drop that issue.

20 BOARD: We can't.

21 BOARD: Drop it?

22 BOARD: Deal with this as it . . .

23 MR. STANDARD: Well . . .

24 BOARD: Could you educate me on the criteria for  
25 submitting something to a formal hearing?

26 LEGAL COUNSEL: What the criteria is? If the evidence  
27 that the Board has in front of it, based on that if you

AFTER 5:00 OFFICE SUPPORT

1 think it warrants a suspension or revocation of a license  
2 then you should send it to formal hearing. That's the way  
3 your statute reads.

4 BOARD: That's what it says.

5 BOARD: Exactly.

6 BOARD: So that's, that is what we're looking at  
7 here. Is this, is this a serious enough allegation,  
8 allegations, to warrant those two possibilities?

9 BOARD: That doesn't presuppose the outcome.

10 LEGAL COUNSEL: Huh uh.

11 BOARD: No.

12 LEGAL COUNSEL: If you think the facts presented to you  
13 are of an egregious nature. That your other (inaudible)  
14 sanctions . . .

15 BOARD: You know . . .

16 BOARD: But aren't we, aren't we talking about taking  
17 this to a formal hearing and if we find that, that, uh,  
18 these practices were used, therefore he should lose his  
19 license?

20 LEGAL COUNSEL: No it doesn't mean that . . .

21 BOARD: Those practices threaten the public health,  
22 safety, and welfare . . .

23 BOARD: Okay.

24 BOARD: . . . which we are charged with . . .

25 BOARD: That's right.

26 BOARD: . . . yes we should.

27 BOARD: Alright, then . . .

AFTER 5:00 OFFICE SUPPORT

1 BOARD: That's why the committee has recommended . . .

2 BOARD: Alright, are we going to proceed to formal  
3 hearing?

4 BOARD: Alright. Are we going to be asked then . . .  
5 to make a determination that the holistic practice of  
6 dentistry is a threat to public health and welfare in the  
7 state of Arizona?

8 BOARD: No sir.

9 BOARD: No.

10 BOARD: No sir. I don't think that's at issue here.  
11 And that's why we should keep above that. We should keep  
12 above it and stay on course that we are investigating the  
13 patient's complaint and finding the facts of that complaint.  
14 That irreversible surgical procedures have been done to  
15 endanger. Not holistic medicine.

16 LEGAL COUNSEL: And that they were done without proper  
17 diagnosis and . . .

18 BOARD: I think that that's a worthwhile objective.  
19 But I don't think that's what these people have in mind.

20 BOARD: Well . . .

21 BOARD: And I think that that's what's going to  
22 happen.

23 BOARD: . . . we can't let them guide us though. I  
24 mean, we must act appropriately.

25 BOARD: But I don't. But that's what's going to  
26 happen. That's what they're going to make of it.

27 BOARD: As we . . .

AFTER 5:00 OFFICE SUPPORT

1 BOARD: I don't think we should be getting into that  
2 issue.

3 BOARD: As we look at the cases that we see at this  
4 level, and if we find through no preference to treatment  
5 modality that this is what happened, is it severe enough to  
6 revoke his license?

7 BOARD: Or suspend it?

8 BOARD: Or suspend it. From everything we've seen on  
9 this Board for as long . . . I question that.

10 GARY SMITH, ESQ.: Thank you, Dr. Doerr.

11 MADAM PRESIDENT: I think that question would have to  
12 be answered at that, at that time. When we have heard . . .

13 BOARD: Well that's, that's totally up to the Board.  
14 I mean that's why . . .

15 BOARD: But, but you have to look at the worst case  
16 scenario. Look at the worst case scenario on this thing,  
17 that he did everything that we said he did, should we revoke  
18 his license for that?

19 BOARD: Or suspend.

20 BOARD: Or suspend.

21 MADAM PRESIDENT: Okay. We have a motion before us  
22 to send this to formal hearing. Do I have a second? And I  
23 have a second. Let's vote on that issue. All those in  
24 favor for sending this forward to formal hearing, say "Aye".

25 BOARD: Aye.

26 MADAM PRESIDENT: All those opposed?

27 BOARD: Opposed.

AFTER 5:00 OFFICE SUPPORT

1 MADAM PRESIDENT: Two opposed. Okay we'll send this  
2 to formal hearing. Thank you very much.

3 GARY SMITH, ESQ.: Thank you Board. For purpose of  
4 the record I would like it to reflect that this was the  
5 first time that the time element was invoked today in any  
6 respondent and/or complainant.

7 BOARD: Well, I'll go on the record and tell you that  
8 it's not accurate.

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AFTER 5:00 OFFICE SUPPORT

1 MADAM PRESIDENT: Number 59 is the next one. Dr.  
2 Terry Lee. And do we have a representative of the patient,  
3 um, here, Mr. King?

4 MR. KING: No.

5 MADAM PRESIDENT: No? Okay. Alright. Would you  
6 like to address the Board on this?

7 GARY SMITH, ESQ.: Thanks, yes I would. Thank you  
8 Madam President. My name is Dr. Gary Smith. I am an  
9 attorney representing Dr. Terry Lee. This complaint  
10 involves a holistic dentist, Dr. Terry Lee. A holistic  
11 dentist is a professional who treats disease of the oral  
12 cavity like any other dentist. But in so doing, he relies  
13 upon and utilizes diagnostic techniques and treatment  
14 modalities based on holistic and homeopathic principals not  
15 utilized by allopathic colleagues.

16 This complaint involves a patient, a knowledgeable  
17 patient, who specifically sought out Dr. Terry Lee because  
18 of the fact that he has a holistic dentist. As a result, a  
19 doctor-patient relationship arose. And during the course of  
20 this relationship, Dr. Lee employed some of the holistic  
21 diagnostic techniques and homeopathic treatment modalities  
22 upon which his dental practice is built and his professional  
23 reputation is based. A dispute arose between Mr. Cain and  
24 Dr. Lee. And as is common in this state, a complaint was  
25 filed with the Board of Dental Examiners. An informal  
26 interview was held and the panel, two of whom are board  
27 members, issued their findings of fact and recommendations.  
28 This full Board is now faced with the decision of how to

1 proceed against Dr. Terry Lee. If this Board concludes that  
2 Dr. Terry Lee's actions, during his treatment of Mr. Cain,  
3 were inappropriate, whether that be by erring in his  
4 diagnosis or by failing to adequately obtain the patient's  
5 consent, then a unified plea is being made to discipline Dr.  
6 Lee on that basis alone. And in the same manner and to the  
7 same degree as you would any of the 50 or so dentists who  
8 come before this Board at any given meeting. Terry Lee  
9 should not be singled out for more severe than his  
10 allopathic colleagues solely on the basis of his holistic  
11 philosophies. Members of this Board have gone on record as  
12 being openly critical of many of the philosophies relied  
13 upon by holistic dentists. As individuals you have that  
14 right. However, this Board must realize that the  
15 philosophies and practices utilized by Dr. Terry Lee are  
16 relied upon and utilized by a substantial minority of  
17 practitioners not only in this state or in this country, but  
18 throughout the world. As members of this Board, you have  
19 the responsibility of protecting the health, welfare, and  
20 safety of the public. However, you do not have the right to  
21 censor those who hold alternative views under the guise of  
22 protecting public health. Some of the findings of fact  
23 arrived at by the panel would appear to support an argument  
24 that Dr. Lee is being treated in a prejudicial manner.  
25 Specifically, finding number 8. Dr. Lee recommended  
26 literature to Mr. Cain which states root canal teeth can be  
27 toxic or poisonous or cause numerous medical problems. A

AFTER 5:00 OFFICE SUPPORT

1 dentist like any other health care professional is required  
2 ethically and legally to provide a patient with treatment  
3 alternatives and sufficient information to make an informed  
4 decision as to how that patient wishes to proceed with their  
5 treatment. Believing a valid controversy exists within the  
6 dental professional concerning the risk and benefits  
7 associated with conventional root canal therapy, Dr. Lee  
8 discussed this issue with Mr. Cain, but before ever taking  
9 any action, recommended that Mr. Cain purchase a published  
10 text book, strike that, a published book so that he could  
11 come to his own decision as to how he wished to proceed in  
12 regards to this issue.

13 The panel is saying Dr. Lee should not be allowed to  
14 recommend literature on certain topics to patients. This is  
15 tantamount to saying that access to such information should  
16 be curtailed by this state agency. Have we forgotten about  
17 the fundamental right guaranteed to every individual through  
18 the First Amendment of the United States Constitution.

19 MADAM PRESIDENT: Okay if you could summarize for us  
20 I would appreciate that.

21 GARY SMITH, ESQ.: Yes ma'am.

22 DR. CLARK: What, one quick minute, would you just  
23 state that again what you said, that panel recommended that  
24 he could not dispense literature. Is that what you just  
25 said?

26 GARY SMITH, ESQ.: No. The panel said that he could  
27 not recommend that the patient go and buy literature at a

1 bookstore relating to the issues of which were being  
2 addressed in this complaint.

3 DR. CLARK: I don't see that. Show me where that  
4 is.

5 GARY SMITH, ESQ.: Finding of fact number 8.

6 MR. CLARK: Which, um, that's out of context.

7 GARY SMITH, ESQ.: Dr. Lee recommended literature to  
8 Mr. Cain . . . .

9 MR. CLARK: Which states that root canal teeth can  
10 be toxic or poisonous and cause numeral . . . it didn't say  
11 that you can't buy literature concerning that. You see what  
12 I'm saying?

13 GARY SMITH, ESQ.: The panel said that Dr. Lee was  
14 inappropriate in making a recommendation to a patient that  
15 he go purchase a text book to read on his own as to that  
16 issue.

17 MR. CLARK: That's not, that's not what they did  
18 say.

19 GARY SMITH, ESQ.: What did they say, Dr. Clark?

20 MR. CLARK: They said that, they have just stated  
21 that, a fact, they said Dr. Lee recommended literature to  
22 Mr. Cain which states that root canaled teeth can be toxic  
23 or poisonous and they've made a fact. That's a fact. They  
24 don't say that he can't do that. They just state that as a  
25 finding of fact.

26 GARY SMITH, ESQ.: Point well taken, sir. They then  
27 went on to recommend that this matter go to a formal hearing

1 because of that finding of fact.

2 MR. CLARK: Not . . . no, no that's not true either.

3 GARY SMITH, ESQ.: Okay. Okay.

4 MR. CLARK: These are the facts that they bring out.

5 BOARD: That's counsel's (inaudible)

6 MR. CLARK: I mean there are not 23 reasons why if  
7 that happens.

8 GARY SMITH, ESQ.: Alright. Then lets jump down to  
9 the next one, alright? Uh, the panel . . .

10 MADAM PRESIDENT: I would rather . . .

11 MR. CLARK: Go ahead, ya, I was just . . .

12 MADAM PRESIDENT: . . . not take it detail by detail  
13 until . . .

14 GARY SMITH, ESQ.: I am not, Madam President, you  
15 allowed me at least a minute to summarize if I may.

16 MADAM PRESIDENT: Yes.

17 GARY SMITH, ESQ.: The panel also concludes in  
18 findings 6, 7, 9 and 10 that Dr. Lee utilizes techniques  
19 having no scientific justification, validity, or  
20 reliability. Okay, let's talk scientific basis. There is  
21 no scientific basis behind the systematic extraction of  
22 asymptomatic third molars by conventional dental  
23 practitioners. In fact, recent scientific studies and  
24 applied statistical analysis have concluded the removal of  
25 asymptomatic thirds is clearly inappropriate. Yet, this  
26 Board is not attempting to build a case against every oral  
27 surgeon in this state for providing unnecessary treatment.

AFTER 5:00 OFFICE SUPPORT

1 Similarly, its been scientifically proven and accepted by  
2 the World Health Organization that the principal source of  
3 mercury found in most human bodies comes not from fish or  
4 the environment but from dental amalgams. Despite this  
5 finding and despite the scientific fact that mercury is one  
6 of the most toxic substances known to humans, members of the  
7 dental profession continue to implant this material in their  
8 patient's mouths.

9 MADAM PRESIDENT: Okay. I think we've come to a  
10 place where we need to give the Board an opportunity to ask  
11 questions and then proceed from there. Dr. Langley?

12 DR. <sup>Langley</sup> ~~LEE~~: If I might just make a statement.  
13 Especially, uh, publicly for the record. Uh, I think  
14 there's been some allegations made that the Board is working  
15 under a guise of protecting the public to, uh, for some  
16 point and we take patient complaints and we're obligated by  
17 statute to investigate them and find the facts. And that is  
18 all we are to do. And we have no vendetta against any  
19 group. And we have no underlying issues about naturopathic  
20 people or holistic people in, in these complaints we are  
21 investigating what the patients are alleging. So I don't  
22 think we need to get too much off track. And, and I just  
23 want to ask the Board if this is going to formal hearing, I  
24 don't think this is a probably a very good place for  
25 discourse. It probably should just be moved to go to formal  
26 hearing and let it go a contested hearing where expert  
27 witnesses can be produced on both sides. And we can do this

AFTER 5:00 OFFICE SUPPORT

JIM BUSTER  
DISTRICT 5  
STATE SENATOR  
FORTY-SECOND LEGISLATURE  
CAPITOL COMPLEX  
PHOENIX, ARIZONA 85007-2890  
PHONE: 602-542-4139  
TOLL FREE: 1-800-352-6404  
FAX: 602-542-3429



COMMITTEES  
NATURAL RESOURCES  
AGRICULTURE AND  
ENVIRONMENT CHAIRMAN  
FINANCE  
GOVERNMENT  
HEALTH

JOINT LEGISLATIVE COMMITTEE  
ON CHILDREN AND FAMILY  
SERVICES CO-CHAIRMAN

## Arizona State Senate

Phoenix, Arizona

August 24, 1995

Roger and Annie Greenwald  
549 E. McKellips #76  
Mesa, AZ 85203

Dear Mr. and Mrs. Greenwald:

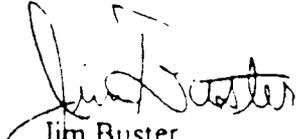
I have no problem with the practice of "holistic dentistry" and the executive director of the Board of Dental Examiners, Dr. Drew Langley, also emphasized that the board is not looking to prevent this practice.

Without divulging the details Dr. Langley stated that the investigation of Dr. Terry Lee has to do with other complaints that have nothing to do with this practice. Pursuant to statute, the board must investigate formal complaints and a determination has yet to be rendered.

I am watching this issue with great interest. Dr. Lee should be judged on the merits of his practice and not through the eyes of institutional prejudice. If his dental technique is flawed then he should be reprimanded. If on the other hand Dr. Lee is simply being harassed for his alternative dentistry, then these complaints would be unwarranted. Again, Dr. Langley has assured my office that this not the case. If sanctions are given the information will be public record

Thank you for alerting me to this situation

Sincerely,

  
Jim Buster  
State Senator

nlw

**ATTACHMENT # 3**

**INTERNATIONAL ACADEMY OF ORAL MEDICINE AND TOXICOLOGY**

**P.O. Box 608531, Orlando, FL 32860-8531 - T/F: (407) 298-2450**

10 August 1995

TO: Members of the State Boards of Dentistry.

FROM: The International Academy of Oral Medicine and Toxicology.

Dear Board of Dentistry member:

Recently, in a Court of Law, the American Dental Association (ADA) declared that it "owes no legal duty of care to protect the public from allegedly dangerous products used by dentists" (Exhibit A). The Court agreed with the ADA's argument. Clearly, the "legal duty of care to protect the public from allegedly dangerous products used by dentists" rests with the members of the State Boards of Dentistry, a duty that is vested by Law.

A growing difference of position on the safety of mercury exposure from dental amalgam has developed between medical scientists and the dental profession. A recent review paper published in the very prestigious FASEB Journal emphasizes that difference of opinion (Exhibit B). To be sure, a number of committees have issued consensus opinions that mercury exposure from dental amalgam presents no health risk to patients. However, it is becoming increasingly clear that no number of opinions, whether derived from committees or published in dental journals, will change the findings of medical scientists.

As portrayed by the recent letter from the Canadian Dental Association to its membership, even government agencies are recognizing a potential health threat from dental amalgam (Exhibit C). In the United States, the Public Health Service has established a new Minimal Risk Level (MRL) for chronic exposure to mercury vapor and noted that level to be well below the lowest acknowledged intakes of mercury vapor from dental amalgam (Exhibit D).

The issue is further complicated by the fact that mixed dental amalgam has never been accepted and classified by the Food and Drug Administration (Exhibit E), nor has it been certified by the ADA (Exhibit F). Both organizations have formally declared that, as a "reaction product", the individual dentist bears responsibility for its use (Exhibits F and G).

As the Board of Dentistry bears the ultimate responsibility for the public health, and the security of the dental profession, the IAOMT urges you to communicate the enclosed information accordingly.

Sincerely,

*Michael F. Ziff, D.D.S.*

Michael F. Ziff, D.D.S.

Executive Director

EXHIBIT A

1 ROBERT S. LUFT, ESQ.  
2 ROPERS, MAJESKI, KOHN,  
3 BENTLEY, WAGNER & KANE  
4 80 North First Street  
5 San Jose, California 95113  
6 (408) 287-6262

7 Attorneys for Defendant THE AMERICAN DENTAL ASSOCIATION

8 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA  
9 IN AND FOR THE COUNTY OF SANTA CLARA

10 \*\*\*\*\*

11 WILLIAM H. TOLHURST,  
12 Plaintiff,

13 vs.

14 JOHNSON & JOHNSON CONSUMER  
15 PRODUCTS, INC.; ENGELHARD  
16 CORP.; ABE DENTAL, INC.; THE  
17 AMERICAN DENTAL ASSOCIATION, et  
18 al.  
19 Defendants.

) Case No. 718228

) DATE: October 22, 1992

) TIME: 9:00 a.m.

) DEPT: 2

) HONORABLE READ AMBLER

) MEMORANDUM OF POINTS AND  
) AUTHORITIES IN SUPPORT OF  
) DEMURRER OF DEFENDANT, THE  
) AMERICAN DENTAL ASSOCIATION  
) TO PLAINTIFF'S SECOND AMENDED  
) COMPLAINT FOR DAMAGES

18 I.

19 INTRODUCTION

20 This is the second demurrer filed by the AMERICAN DENTAL  
21 ASSOCIATION ("ADA"). The first demurrer was sustained pursuant to  
22 the plaintiff's stipulation with 10 days leave to amend. The  
23 plaintiff timely filed a second amended complaint on August 14,  
24 1992. The plaintiff alleges personal injuries resulting from  
25 mercury toxicity through exposure to his mercury amalgam fillings.  
26 His first cause of action is for strict products liability against  
27 his dentist, Thomas Fitzgerald, and various manufacturers and

1 The second and third causes of action are against the same  
2 defendants for breach of warranty and negligence, respectively.  
3 Plaintiff's fifth cause of action is for negligence against  
4 defendant Fitzgerald only.

5 The plaintiff's fourth cause of action is the only claim  
6 alleged against the ADA. The complaint alleges that the ADA was  
7 negligent in informing or failing to inform the public about the  
8 alleged dangers of mercury-containing amalgams. We have found no  
9 authority in any jurisdiction that a professional service  
10 association, like the ADA, is liable for injuries to the public  
11 caused by products used by its members. The plaintiff attempts  
12 here to create a new legal duty where none exists. He asks this  
13 Court to formulate a new law which could impose liability on the  
14 ADA for every dental related injury suffered by any person in the  
15 United States.

16 The ADA owes no legal duty of care to protect the public from  
17 allegedly dangerous products used by dentists. The ADA did not  
18 manufacture, design, supply or install the mercury-containing  
19 amalgams. The ADA does not control those who do. The ADA's only  
20 alleged involvement in the product was to provide information  
21 regarding its use. Dissemination of information relating to the  
22 practice of dentistry does not create a duty of care to protect  
23 the public from potential injury. Therefore, for the reasons  
24 expressed above, the demurrer must be sustained without leave to  
25 amend as no duty to the plaintiff has or can be alleged.

26 Moreover, the demurrer must be sustained because the  
27 plaintiff's cause of action is uncertain. The fourth cause of  
28 action is captioned as one for "negligence". However, it appears

## Mercury exposure from "silver" tooth fillings: emerging evidence questions a traditional dental paradigm

FRITZ L. LORSCHIEDER,\*<sup>1</sup> MURRAY J. VIMY,† and ANNE O. SUMMERS‡

\*Department of Medical Physiology and †Department of Medicine, Faculty of Medicine, University of Calgary, Alberta, T2N 4N1, Canada; and ‡Department of Microbiology, University of Georgia, Athens, Georgia, 30602.

**Abstract:** For more than 160 years dentistry has used silver amalgam, which contains approximately 50% Hg metal, as the preferred tooth filling material. During the past decade medical research has demonstrated that this Hg is continuously released as vapor into mouth air; then it is inhaled, absorbed into body tissues, oxidized to ionic Hg, and finally covalently bound to cell proteins. Animal and human experiments demonstrate that the uptake, tissue distribution, and excretion of amalgam Hg is significant, and that dental amalgam is the major contributing source to Hg body burden in humans. Current research on the pathophysiological effects of amalgam Hg has focused upon the immune system, renal system, oral and intestinal bacteria, reproductive system, and the central nervous system. Research evidence does not support the notion of amalgam safety.—Lorscheider, F. L., Vimy, M. J., Summers, A. O. Mercury exposure from "silver" tooth fillings: emerging evidence questions a traditional dental paradigm. *FASEB J.* 9, 504–508 (1995)

**Key Words:** mercury toxicity • dental amalgam

### HISTORICAL OVERVIEW OF MERCURY USE IN DENTISTRY

As early as the 7th century, the Chinese used a "silver paste" containing mercury (Hg) to fill decayed teeth. Throughout the Middle Ages, alchemists in China and Europe observed that this mysterious silvery liquid, extracted from cinnabar ore, was volatile and would quickly disappear as a vapor when mildly heated. Alchemists were fascinated that at room temperature Hg appeared to "dissolve" powders of other metals such as silver, tin, and copper. By the early 1800s, the use of a Hg/silver paste as a tooth filling material was being popularized in England and France and it was eventually introduced into North America in the 1830s. Some early dental practitioners expressed concerns that the Hg/silver mixture (amalgam) expanded after setting, frequently fracturing the tooth or protruding above the cavity preparation, and thereby prevented proper jaw closure. Other dentists were concerned about mercurial poisoning, because it was already widely recognized that Hg exposure resulted in many overt side effects, including dementia and loss of motor coordination. By 1845, as a reflection of these concerns, the American Society of Dental Surgeons and several affiliated regional dental societies adopted a resolution that members sign a pledge not to use amalgam. Consequently, during the next decade some members of the society were suspended for the malpractice of using amalgam. But the advocates of amalgam eventually prevailed and membership in the American Society of Dental Surgeons declined, forcing it to disband in 1856. In its place arose the American Dental Association, founded in

1859, based on the advocacy of amalgam as a safe and desirable tooth filling material. Shortly thereafter, tin was added to the Hg/silver paste to counteract the expansion properties of the previous amalgam formula (1–3).

There were compelling economic reasons for promoting dental amalgam as a replacement for the other common filling materials of the day such as cement, lead, gold, and tin foil. Amalgam's introduction meant that dental care would now be within the financial means of a much wider sector of the population, and because amalgam was simple and easy to use, dentists could readily be trained to treat the anticipated large number of new patients. By 1895, the dental amalgam mixture of metals had been modified further to control for expansion and contraction, and the basic formula has remained essentially unchanged since then (2, 3). Scientific concerns about amalgam safety initially surfaced in Germany during the 1920s, but eventually subsided without a clear resolution. At the present time, based on 1992 dental manufacturer specifications, amalgam (at mixing) typically contains approximately 50% metallic Hg, 35% silver, 9% tin, 6% copper, and a trace of zinc. Estimates of annual Hg usage by U.S. dentists range from approximately 100,000 kg in the 1970s to 70,000 kg today. Hg fillings continue to remain the material preferred by 92% of U.S. dentists for restoring posterior teeth (4,5). More than 100 million Hg fillings are placed each year in the U.S. Presently, organized dentistry has countered the controversy surrounding the use of Hg fillings by claiming that Hg reacts with the other amalgam metals to form a "biologically inactive substance" and by observing that dentists have not reported any adverse side effects in patients. Long-term use and popularity also continue to be offered as evidence of amalgam safety (6).

In light of the medical research evidence that has accumulated primarily over the past decade, the purpose of this review is to examine the traditional dental paradigm that maintains that amalgam is a biologically safe and appropriate tooth restorative material.

### MERCURY EXPOSURE FROM AMALGAM FILLINGS

During the early 1980s several laboratories established that Hg vapor ( $Hg^0$ ) is continuously released from amalgam tooth fillings, and that the rate of release into human mouth air is increased immediately after chewing (7–9) or tooth brushing (10). Mouth air levels of  $Hg^0$  correlate significantly with the number of occlusal (biting) amalgam surfaces in molar teeth. Continuous chewing for 10–30 min results in a sustained elevation of the mouth  $Hg^0$  level, which eventually declines to a baseline level 90 min

<sup>1</sup>To whom correspondence should be addressed, at Department of Medical Physiology, Faculty of Medicine, University of Calgary, 3330 Hospital Dr. NW, Calgary, Alberta, Canada T2N 4N1.070

after chewing cessation (11). Blood Hg levels also display a positive correlation with the number and total surface area of amalgam fillings (12).

A single amalgam filling with an average surface area of only 0.4 cm<sup>2</sup> is estimated to release as much as 15 µg Hg/day primarily through mechanical wear and evaporation, but also through dissolution into saliva (13). Recent electron microscopy images and electrochemistry data show direct evidence of amalgam Hg corrosion and leakage into saliva as free ions (14). Thus, for an average individual with eight occlusal amalgam fillings (11), a total of 120 µg Hg could be released daily into the mouth and a portion of this amount would be inhaled or swallowed. These estimations are consistent with a recent report showing that human subjects with an average number of amalgam fillings excrete approximately 60 µg Hg/day in feces (15), a portion of which is microparticles of amalgam. Various laboratories have estimated that the average daily body absorption of amalgam Hg in humans ranges between 1.2 and 27 µg (16), with levels for some individual subjects being as high as 100 µg/day. At the present time the consensus average estimate is 10 µg of amalgam Hg (range 3-17 µg) absorbed per day (17), an uptake amount corroborated by a more recent daily estimate of 12 µg (15). By way of contrast, estimates of the daily absorption of all forms of Hg from fish and seafood is 2.3 µg, and from other foods, air, and water is 0.3 µg (17). Thus, it is now proposed that dental amalgam tooth fillings are the major source of Hg exposure for the general population (17, 18). This position has been clearly validated by a recent demonstration that at least 65% of excretable Hg in human urine is derived solely from dental amalgams, and that amounts of Hg excreted also correlate with total amalgam surface area (19).

#### BODY TISSUE UPTAKE OF AMALGAM MERCURY

The degree to which body tissues can sequester amalgam Hg after exposure has been demonstrated in a variety of human and animal experiments. Human autopsy studies reveal significantly higher Hg concentrations in brain and kidney of subjects with aged amalgam fillings than in subjects who had no amalgam tooth restorations (20). When amalgam fillings containing a radioactive Hg tracer were placed in sheep molar teeth, a whole-body image scan performed 4 wk later demonstrated several possible uptake sites for Hg including oral tissues, jaw bone, lung, and gastrointestinal tract, with major localization of Hg in the kidney and liver (21). A similar whole-body image study repeated in a monkey (whose teeth, diet, feeding regimen, and chewing pattern more closely resemble those of humans) clearly demonstrates high levels of amalgam Hg in kidney, intestinal tract, and other tissues. The brain/CSF Hg ratio had increased threefold by 4 wk after amalgam fillings had been installed (22). The primate kidney will continue to accumulate amalgam Hg for at least 1 year after installation of such fillings (23).

Repeated observations in adult sheep (21, 24) demonstrate that after placement of amalgam fillings the blood Hg levels remain relatively low even though the surrounding body tissue concentrations of Hg become many fold higher than blood. This suggests that tissues rapidly sequester amalgam Hg at a rate equivalent to its initial appearance in the circulation. Such a phenomenon may explain why monitoring blood levels of Hg in humans is a poor indicator of the actual tissue body burden directly attributable to continuous low-dose Hg exposure from amalgam.

In pregnant sheep, which received amalgam fillings containing a radioactive Hg tracer, it was demonstrated that both maternal and fetal tissues began to accumulate amalgam Hg within several days after such fillings were installed. Maternal-fetal transfer of amalgam Hg was progressive with advancing gestation, and amalgam Hg also transferred to breast milk postpartum (24). More recently, human fetal/neonatal studies have likewise demonstrated that Hg concentrations in fetal kidney and liver, and cerebral cortex of infants, correlate significantly with the number of amalgam filled teeth of their mothers (25). This latter finding is consistent with previous animal studies that show greater Hg concentration in rat fetal tissues (and less placental retention) when the source of exposure was Hg<sup>0</sup> rather than mercuric salts (26).

#### CELL METABOLISM OF MERCURY

##### Major metabolic pathways

Figure 1 illustrates the major metabolic pathways for the three species of Hg. The principal source of Hg<sup>0</sup> is vapor from dental amalgam tooth fillings, whereas organic Hg (Hg<sup>+</sup>) is derived principally from fish and seafood, and inorganic Hg (Hg<sup>2+</sup>) originates from other foods, water, and air. Approximately 80% of inhaled Hg<sup>0</sup> is absorbed across the lung and converted to Hg<sup>2+</sup> intracellularly by catalase oxidation. In contrast to other Hg species, the high lipid solubility of Hg<sup>0</sup> permits it to cross cell membranes readily, including the blood-brain barrier, and easily enter the brain. However, the kidney eventually becomes the major site of Hg accumulation during compartmental redistribution after exposure to Hg<sup>0</sup>. Some Hg<sup>0</sup> is also dissolved in saliva and swallowed, converted to Hg<sup>2+</sup> by peroxidase oxidation, and the majority is eliminated by fecal excretion. Other Hg<sup>2+</sup> that is ingested in the diet is poorly absorbed across the intestinal tract and most is excreted in the feces. Although the majority of Hg<sup>+</sup> from the diet is also eliminated in the feces, a substantial portion is absorbed intracellularly as methyl-Hg<sup>+</sup>. Both intracellular Hg<sup>2+</sup> and Hg<sup>+</sup> are ultimately bound covalently to glutathione (GSH) and protein cysteine groups. Hg<sup>2+</sup> is the toxic product responsible for the adverse effects of inhaled Hg<sup>0</sup>. Body tissues have various retention half-lives for Hg<sup>0</sup> and Hg<sup>2+</sup> ranging from days to years (15, 17, 26-28). After Hg is released from tissues, fecal excretion becomes the predominant route for elimination of Hg from the body. Human fecal excretion of

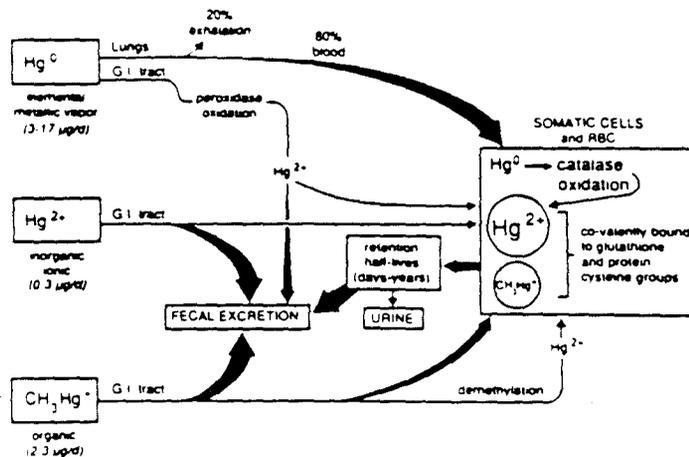


Figure 1. Metabolism of mercury species.

Hg correlates significantly with the number of amalgam fillings, and the excretion rate for Hg in feces is 20 times higher than its corresponding excretion rate in urine. Even though fecal excretion of amalgam Hg predominates, this principal excretory route in humans shows a high correlation with urinary excretion of Hg. Fecal excretion rates for Hg in human subjects with amalgam tooth fillings can be as much as 100-fold higher than in subjects without such fillings (15).

### Significance of glutathione and other sulfhydryl compounds

The major low molecular weight sulfhydryl compound in mammals is GSH, present at approximately 5 mM in cells, serum, and bile (29). Other low molecular weight sulfhydryls present at lower concentrations in cells include cysteine, biotin, lipoic acid, and coenzyme A. The major targets in proteins for binding of transition metals, including Hg, are the sulfhydryl group of cysteine and the imino nitrogen of histidine. The aromatic ring nitrogens of the nucleotide bases also form Hg complexes, with thymine and uracil being more reactive than cytosine, guanine, and adenine (30).

Whereas  $Hg^0$  from amalgam is lipid soluble and freely passes through cell membranes, methyl and ionic Hg from food and other sources are both charged and therefore must be complexed with counter-ions or low molecular weight sulfur compounds in order to pass freely through the cell membrane.

The major cellular reaction potentiating the toxicity of  $Hg^0$  is its oxidation by catalase, an enzyme found in all normal mammalian cells (31). This oxidation process can take place in any of the "barrier tissues" of the body as well as in the blood. Once generated within the cell by catalase, highly reactive  $Hg^{2+}$  will interact with a variety of nucleophilic ligands, the most abundant single nucleophile reactant being GSH. The sulfhydryl groups of proteins are next in abundance and avidity for  $Hg^{2+}$ , with the imino nitrogens of histidine and the nucleobases being substantially less reactive.

Despite the large molar excess of GSH, many proteins compete very effectively for binding of transition metals such as Zn, Ni, and Cu. The precise chemical basis for the high affinity of such metalloproteins is not understood; many of the currently well-defined members of this group, including important regulatory proteins, use cysteines and histidines as ligands to their respective metal cofactors (32). Thus, these proteins may exchange metals, including Hg, bound to GSH.

Once bound to GSH, Hg can leave the cell to circulate in serum or lymph and be deposited in other organs or tissues. GS-Hg-SG is eventually eliminated via either the kidney or downloaded via bile into the intestinal lumen and excreted in feces. After Hg leaves cells, its major route of elimination in any form (inorganic or organic) is via feces, with less than 10% of Hg normally exiting the body in urine (26). Experiments in sheep (21, 24) and monkey (22) indicate that 99% of amalgam Hg is excreted in feces, and in humans with 30 amalgam surfaces the average 24 h excretion rate for Hg in feces is 60  $\mu$ g (95% of total daily excretable Hg) in contrast to 3  $\mu$ g/24 h in urine (15). In mammals, half-lives from acute single doses of  $Hg^{2+}$  or methyl- $Hg^+$  range from months to years. Half-lives may differ with chronic Hg exposure as a result of compromised cellular function (e.g. kidney Hg turnover decreases with age and duration of exposure) (17, 26).

### EFFECTS OF AMALGAM MERCURY ON CELL AND ORGAN SYSTEM FUNCTION

The overt clinical effects resulting from toxic exposure to the three species of Hg have been described (26, 28). Various animal and human experiments over the past several years have addressed the possibility of more subtle pathophysiological effects of amalgam Hg upon the function of several organ systems or cell types, including the immune system, renal system, oral and intestinal bacteria, reproductive system, and central nervous system.

#### Immune system

Ionic Hg has been shown to be antigenic and capable of inducing autoimmunity in rats (33, 34). In a very recent report, gelatin-encapsulated dental amalgam pieces were implanted intraperitoneally in an inbred strain of mice known to be genetically susceptible to Hg-induced immune pathology. Within 10 wk to 6 months the animals displayed hyperimmunoglobulinemia, serum autoantibodies that targeted nucleolar proteins, and systemic immune complex deposits. Similar changes were observed when only dental alloy (not containing Hg) was implanted, and these immune aberrations were attributed to the silver component of the alloy. This study concluded that both Hg and silver dissolution from dental amalgam can chronically stimulate the mouse immune system with subsequent induction of systemic autoimmunity (35). In humans, fecal excretion of silver is also correlated with the number of amalgam fillings (15). This would suggest that further investigation of the potential molecular effects of amalgam metals on the human immune system is warranted.

#### Renal system

Because human (20), monkey (22, 23), and sheep (21) kidney display significantly increased Hg concentrations after exposure to dental amalgam, some investigations have focused on what these concentrations may imply for renal function. Sheep with amalgam tooth filling implants show a reduced filtration rate of inulin, increased urinary excretion of sodium, and a decrease in urinary albumin (36). An increased sodium excretion has also been observed in monkeys similarly treated with amalgam fillings (unpublished data). Because  $Hg^{2+}$  accumulates primarily in the proximal tubule of rat (37) and rabbit (38) kidney and amalgam Hg in the proximal tubule of monkey kidney (23), where the majority of sodium is normally reabsorbed, increased excretion of sodium after placement of amalgam fillings in sheep (36) may reflect a reduced tubular capacity to conserve sodium selectively. Urinary albumin levels increased 1 year after removal of amalgam fillings in humans (12), whereas urine albumin levels fell in sheep after amalgam placement (36). It is uncertain whether these differences in albumin excretion patterns may reflect a Hg-induced reduction in renal blood flow due to the presence of amalgam fillings.

#### Oral and intestinal bacteria

It is well established that some human intestinal bacteria carry plasmids encoding resistance to both Hg and antibiotics (39). In a population subgroup of 356 persons who had no recent antibiotic exposure, those individuals with a high prevalence of Hg resistant bacteria in their intestinal flora were significantly more likely to display multiple antibiotic resistance in these same bacteria. A parallel investigation in monkeys demonstrated a marked in-

crease in the proportion of Hg-resistant bacteria in the floras of the intestine and oral cavity soon after installation of dental amalgam tooth fillings, an increase that persisted until the amalgam fillings were removed. The majority of these primate Hg resistant bacteria were also resistant to one or more commonly used antibiotics. Results show that Hg released from dental amalgam can enhance the prevalence of resistance to multiple antibiotics in the bacteria of the primate normal flora (40).

### Reproductive system

The relationship of occupational exposure to Hg<sup>0</sup> and fertility of female dental assistants has recently been examined, because it is well established that long-term exposure to Hg<sup>2+</sup> will alter reproductive cyclicity in rodents. Epidemiological screening by questionnaire of 7000 dental assistants showed that within an eligible subgroup of 418 women who were subsequently interviewed, fertility was reduced to only 63% that of control women not occupationally exposed to Hg<sup>0</sup>. The study, while open to the criticism of all data that rely upon subject observation and opinion, concluded that dental assistants who prepared 30 or more amalgam fillings per week, and who also had poor Hg hygiene habits, were at risk of lowered fecundity (41).

### Central nervous system

Initially suggestions occurred within medicine that neurodegenerative diseases could perhaps be linked to Hg from dental amalgam, but no experimental evidence was available at that time (42). However, it is now established that uptake and accumulation of amalgam Hg occur in monkey and human brain tissues (22, 27). Studies have demonstrated that Hg is selectively concentrated in human brain regions (medial basal nucleus, amygdala, and hippocampus) involved with memory function, and have suggested that Hg may be implicated (by mechanisms as yet unexplained) in the etiology of Alzheimer's disease (AD) (43, 44). Abnormal microtubule formation in AD brains has been associated with a defect in the tubulin polymerization cycle (45), which may increase the density of neurofibrillary tangles. A similar tubulin defect can be induced in the brain of HgCl<sub>2</sub>-treated rats (46, 47), suggesting a connection between exposure to inorganic Hg and AD. HgCl<sub>2</sub> also markedly inhibits *in vivo* ADP-ribosylation of two rat brain cytoskeletal proteins, tubulin and actin, and thus alters a specific neurochemical reaction involved in maintaining brain neuron structure (48).

It is well established that Hg<sup>+</sup> will interact with tubulin resulting in disassembly of microtubules, and that microtubules function to maintain neurite structure (49). In a current investigation, recently reported, rats were exposed to Hg<sup>0</sup> 4 h/day for as long as 14 consecutive days. Vapor exposure was maintained at 300 µg Hg/m<sup>3</sup> air, a level detectable in mouths of some human subjects with large numbers of amalgam fillings. Average brain Hg concentrations increased significantly with duration of Hg<sup>0</sup> exposure. Photoaffinity labeling of the β-subunit of the tubulin dimer with [α<sup>32</sup>P]8N<sub>3</sub>GTP in brain homogenates was diminished by 75% after 14 days of Hg<sup>0</sup> exposure. An identical neurochemical lesion of similar magnitude was seen in human AD brain homogenates, but no direct evidence exists to prove that this lesion is the result of human exposure specifically to amalgam Hg. Because the rate of tubulin polymerization is dependent on binding of tubulin dimers to GTP, it was concluded that chronic inhalation of low-level Hg<sup>0</sup> in rats can inhibit the polym-

erization of tubulin essential for formation of microtubules (50).

Another recent report demonstrates subclinical neuropsychological and motor control effects from an occupational exposure to Hg<sup>0</sup> over 1 year in a subpopulation of dentists with high urinary Hg levels (51). A more extensive report, evaluating dental technicians and dentists who received occupational exposure to Hg<sup>0</sup> and non-dental personnel controls, demonstrated that after a chelation drug (DMPS) challenge test urinary Hg levels were 16-fold higher in technicians and 6-fold higher in dentists compared to control subjects. Baseline urinary porphyrin levels measured before DMPS treatment were associated with urinary Hg levels obtained after the DMPS challenge. Urinary Hg was also adversely associated with several neurobehavioral changes in Hg-exposed subjects including impairment of attention tasks and motor perceptual tasks. The utility of a DMPS challenge to assess renal Hg burden was established (52).

### CONCLUSIONS

The collective results of numerous research investigations over the past decade clearly demonstrate that the continuous release of Hg<sup>0</sup> from dental amalgam tooth fillings provides the major contribution to Hg body burden. The experimental evidence indicates that amalgam Hg has the potential to induce cell or organ pathophysiology. At the very least, the traditional dental paradigm, that amalgam is a chemically stable tooth restorative material and that the release of Hg from this material is insignificant, is without foundation. One dental authority states that materials are presently available that are suitable alternatives to Hg fillings (4). Based on recent immunology investigations (35), electrochemical corrosion experiments (14), and human metabolic studies (15) it appears that the use of silver in amalgam may be almost as questionable as is Hg, and this evidence suggests that it may be inappropriate to alternatively use recently developed Hg-free silver-containing dental metals (53) to fill teeth. It would seem that now is the time for dentistry to use composite (polymeric and ceramic) alternatives (4) and discard the metal alchemy bestowed on its profession from a less enlightened era. Although human experimental evidence is incomplete at the present time, the recent medical research findings presented herein strongly contradict the unsubstantiated opinions pronounced by various dental associations and related trade organizations, who offer assurances of amalgam safety to dental personnel and their patients without providing hard scientific data, including animal, cellular and molecular evidence, to support their claims (54). [F]

The authors thank the Wallace Genetic Foundation, the International Academy of Oral Medicine and Toxicology, the University of Georgia Research Foundation, and the National Institutes of Health, whose support of research contained in a number of the citations herein made this review possible.

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DENTAL  
ASSOCIATION  
L'ASSOCIATION  
DENTAIRE  
CANADIENNE

OFFICE  
PRESIDENT  
CABINET  
DU  
PRÉSIDENT

EXHIBIT C

June 21, 1995

Dear Colleague,

The Canadian Dental Association has learned that more questions may soon be raised by the news media about the safety of dental amalgam. This may come in the wake of release of news, confirmed by the German Dental Association, that Germany is placing further limitations on the use of amalgam, including banning its use for pregnant women as of July 1, 1995. Closer to home, amalgam safety may again be questioned following the release of a Health Canada report scheduled to be made public in July.

As you know, the CDA is not a body with regulatory responsibility for public safety issues. This is the role of the federal government, specifically Health Canada. The department's Health Protection Branch is responsible for ruling on the safety of dental amalgam. Currently, this product is approved by the Health Protection Branch for unrestricted sale and use in Canada.

While CDA does not rule on the safety of dental materials, it does advise members on their use. The CDA's Committee on Dental Materials and Devices has continued to monitor the literature, and the Committee's advice has been the backbone of CDA's position on the utilization of dental amalgam. The Association has advised and informed members, and will continue to do so, through such positions, statements, and guidelines that help dentists deal with the various aspects of the utilization of dental amalgam, with correspondence to the membership offering direction on the utilization of amalgam, through on-going coverage of the issue in the Association's publications, including the publication of scientific reviews in the *Journal of the Canadian Dental Association*, and with the latest scientific literature available from the CDA library.

Through its on-going contact with Health Protection Branch, CDA's most repeated and consistent advice to government has been to support further definitive research into dental amalgam. This advice has not been heeded. Instead, Health Canada has only recently launched a review of the literature. The researcher reviewing this issue is attempting to establish a recommended total daily intake for mercury. With this, his report may recommend placing a limitation on the number of amalgam fillings an individual should receive.

...2

To help members deal with these latest developments in the amalgam issue, CDA Executive Council has endorsed a public communications approach, which includes a wrap-around addendum to CDA's current position on dental amalgam which was approved by the Board of Governors in 1986. The resulting public statement with Questions and Answers has been sent to Governors for ratification. A copy of the information package is attached for your use in responding to patient concerns. This material is an updated version of the package sent to you in October of last year, and similar material distributed to news media at that time.

Further information assistance is contained in an article by CDA's Director of Professional Services, Brian Henderson, in the May 1995 CDA Journal (copy attached). It leaves the reader with a very worthy recommendation, specifically, *"an increased emphasis on informed consent is good advice for the dental profession to follow, whether the procedure involves dental amalgam or any other restorative material."*

The CDA library has a package of articles on informed consent, as well as a package on amalgam alternatives. You can reach the library by calling CDA at 1-800-267-6354.

You are encouraged to continue to serve as agents of information and common sense, and to intensify and broaden communication with patients on this issue. As dental professionals, we must strive to prevent public panic based on sensational reporting by any sector of the media.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Bryun Sigfstead". The signature is fluid and cursive, with a large, stylized initial "B" and "S".

Bryun Sigfstead, DDS  
President

EXHIBIT D

**TOXICOLOGICAL PROFILE FOR  
MERCURY**

Prepared by:

Clement International Corporation  
Under Contract No. 205-88-0608

Prepared for:

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**  
**Public Health Service**  
**Agency for Toxic Substances and Disease Registry**

May 1994

be an essential component of the identification of susceptible populations and risk assessment for hazardous waste sites.

A report from the Committee to Coordinate Environmental Health and Related Programs (CCEHRP) of the Department of Health and Human Services determined that "measurement of mercury in blood among subjects with and without amalgam restorations...and subjects before and after amalgams were removed...provide the best estimates of daily intake from amalgam dental restorations. These values are in the range of 1-5  $\mu\text{g}/\text{day}$ ." (DHHS 1993, page III-29). The chronic inhalation MRL is 0.014  $\mu\text{g}/\text{m}^3$ . At a ventilation rate of 20  $\text{m}^3/\text{day}$  for an average adult, and assuming complete absorption, exposure at the level of the chronic MRL would result in a dose of 0.28  $\mu\text{g}/\text{day}$ . The proposed acute MRL is 0.02  $\mu\text{g}/\text{m}^3$  which corresponds to 0.4  $\mu\text{g}/\text{day}$  at a 20  $\text{m}^3/\text{day}$  ventilation rate. Thus, both MRLs are below estimated exposure levels from dental amalgam.

Similarly, the acute/intermediate oral MRL for methylmercury is close to estimated average daily intake level for methylmercury from diet. The FDA has estimated that on average the intake rate for total mercury (both inorganic and organic) is between 50-100 nanograms per kilogram per day( $\text{ng}/\text{kg}/\text{day}$ ). This is based on the FDA total diet study of 1982-1984 (Gunderson 1988). Approximately 80-90% of the mercury in the FDA estimate would be in the form of methylmercury. The acute/intermediate oral MRL for methylmercury is 120  $\text{ng}/\text{kg}/\text{day}$ . A separate estimate of the average intake of methylmercury alone, based on a survey of fisheaters and average levels of methylmercury in fish, places the average intake of methylmercury at 36  $\text{ng}/\text{kg}/\text{day}$ , with a 99% upper bound at 243  $\text{ng}/\text{kg}/\text{day}$  (Clarkson 1990). As stated for metallic mercury vapor above, these estimates of methylmercury intake indicate that assessment of methylmercury intake and body burden may be an essential component of the identification of susceptible populations and risk assessment for hazardous waste sites.

#### Minimal Risk Levels for Mercury

##### *Inhalation MRLs*

- An MRL of  $2 \times 10^{-5} \text{ mg}/\text{m}^3$  has been derived for acute inhalation exposure to metallic mercury vapor. The MRL is based on changes in locomotor activity at 4 months of age, and increased time to complete a radial arm maze at 6 months of age in rats that had been exposed to 0.05  $\text{mg}/\text{M}^3$  metallic mercury for 1 hour a day on post-partum days 11-17 (Fredriksson et al. 1992). The exposure level used in the study was duration-adjusted for a 24 hour/day exposure and divided by an uncertainty factor of 100 (10 for use of a LOAEL and 10 for extrapolation from animals to humans). Although this experiment is the only inhalation exposure study showing developmental neurotoxicity, considerable evidence from reports in which humans and animals were orally exposed to organic mercury show that the developing nervous

EXHIBIT E

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# DENTAL AMALGAM:

A Scientific Review and Recommended  
Public Health Service Strategy for  
Research, Education and Regulation

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FINAL REPORT OF THE  
SUBCOMMITTEE ON RISK MANAGEMENT  
OF THE  
COMMITTEE TO COORDINATE ENVIRONMENTAL  
HEALTH AND RELATED PROGRAMS  
PUBLIC HEALTH SERVICE



JANUARY 1993

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
PUBLIC HEALTH SERVICE

# Regulation

Federal regulation of dental amalgam and elemental mercury as an amalgam component resides with the Food and Drug Administration. Both products are regulated under the mandate of the Medical Device Amendments of 1976 and the Safe Medical Devices Amendments of 1990. The basic framework of these device laws is a three-tiered regulatory scheme, which classifies devices on the basis of health risk and sets corresponding levels of regulatory controls.

Historically, FDA has regulated dental mercury and amalgam alloys separately, with mercury treated as a class I device and the alloy as a class II device. (Medical devices are assigned to class I, II, or III, depending on the degree of regulatory control needed to assure the safety and effectiveness of the device, with class I requiring the least degree of regulatory control and class III the greatest. Mercury was placed in class I because, as an element, it could be regulated by establishing a standard of purity. The alloy was assigned to class II because of the potential safety and effectiveness risk that could result from variations in chemical formulation in terms of percent composition and types of materials.)

The FDA Dental Products Panel, convened in March 1991, unanimously agreed that sufficient scientific data do not presently exist to establish dental amalgam as a human health hazard. The Panel also noted that although the evidence was anecdotal and inconclusive in establishing that persons with amalgam restorations develop any toxic reactions, this potential had not been

adequately studied and warranted further investigation. This conclusion is consistent with the PHS evaluation of amalgam risks attached to this report.

For this reason, a Regulatory Work Group (operating under the auspices of the Subcommittee on Risk Management) believes FDA should administratively combine dental mercury and amalgam alloys into a single product for regulatory purposes. This would enable dental amalgam, with the mercury component, to be regulated at the higher, class II level. Based on the absence of scientific data establishing a causal link between amalgam restorations and any health problems, class II provides satisfactory regulatory control of dental amalgam at this time.

There are two other steps the FDA should consider to assist dental practitioners to better manage their patients and to induce providers of dental care to report adverse reactions to both dental amalgam and other restorative materials.

- First, FDA should require restorative material manufacturers to identify the ingredients used in their products. Industry disclosure of product ingredients would provide dentists with useful information with which to diagnose the cause of sensitivity reactions, and would facilitate their selection of a substitute material. It should be noted that the U.S. Occupational Safety and Health Administration requires dentists, by regulation, to inform their employees of the hazards involved with exposure to

# Appendix VI

## Regulatory Work Group Report

Prepared by the  
Regulatory Work Group of the Subcommittee on Risk Management  
Committee to Coordinate Environmental Health  
and Related Programs

September 11, 1992

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### Regulatory Work Group Leader:

Carolyn A. Tylenda, D.M.D., Ph.D. -  
Food and Drug Administration

### Regulatory Work Group Members:

Betty W. Collins -  
Food and Drug Administration

W. Don Galloway, Ph.D. -  
Food and Drug Administration

Carol M. Lee -  
Food and Drug Administration

Charles Somerville -  
Food and Drug Administration

### RECOMMENDATIONS OF THE REGULATORY WORK GROUP

The Regulatory Work Group has considered its assigned discussion topics and has developed the following recommendations:

*Determine whether the absence of definitive risk information for dental amalgams should alter the product's regulatory status as a medical device.*

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Classification of dental devices was published in December 1987. Dental amalgam was considered to consist of two devices: dental mercury and amalgam alloy. Dental mercury, a class I device, is defined in 21CFR 872.3700 as "a device composed of mercury intended for use as a component of amalgam alloy in the restoration of a dental cavity or a broken tooth." Class I devices are those for which "General Controls" are sufficient to assure safety and effectiveness. General Control requirements include registration of each manufacturing location, listing of the device(s), possession of a cleared Premarket Notification [510(k)], and Good Manufacturing Practices (GMPs). General Controls are minimal requirements that apply to class I, II and III devices. Amalgam alloy, a class II device, is defined in 21CFR 872.3050 as

"a device that consists of a metallic substance intended to be mixed with mercury to form filling material for treatment of dental caries." A class II device is one for which reasonable assurance of safety and effectiveness can be achieved through the application of "Special Controls".

Special Controls include postmarket surveillance, performance standards, patient registries, development and dissemination of guidelines, recommendations and other appropriate actions. A class III device is one for which insufficient information exists to assure that general and special controls provide reasonable assurance of safety and effectiveness. Generally, class III devices are those that sustain or support life, are of substantial importance in preventing impairment of human health or present potential unreasonable risk of illness or injury.

In recent months, data purported to establish risks associated with dental amalgam have undergone extensive scrutiny by several panels of experts. In March 1991, FDA held a meeting of the Dental Products Panel to assess the scientific evidence regarding the toxicity of dental amalgam. The Dental Products Panel consists of experts selected from across the country to help FDA evaluate the safety and effectiveness of devices and to make recommendations to FDA on device related issues. The Panel unanimously agreed that sufficient valid scientific data do not presently exist that establish dental amalgam to be a health hazard in humans. However, the Panel agreed that the information presented at the panel meeting raises questions that warrant further research. In November, 1991 the CCEHRP Subcommittee on Risk Assessment completed its report on the evaluation of risk from exposure to mercury vapor from dental amalgam, and reached a similar conclusion. While it is clear that mercury vapor is continually released from dental amalgam, it is not clear that this exposure leads to toxicity. However, the potential for toxic effects

due to low levels of exposure to mercury vapor from dental amalgam restorations must not be disregarded. The FDA Dental Products Panel, the CCEHRP Risk Assessment Subcommittee, and the CCEHRP Benefits Subcommittee on Amalgam, as well, have proposed that well designed scientific studies be conducted to precisely define those potential toxic effects, if any.

The Regulatory Work Group recommends that the Food and Drug Administration view dental amalgam as a kit, in that both mercury and alloy must be used together to create dental amalgam restorative material. FDA considers the class of the kit to be that of the component of the kit assigned the highest classification. In this case the kit would be viewed as a Class II device because that is the classification of amalgam alloy. No reclassification action would be required. Because the great majority of dentists use pre-encapsulated amalgam, this consolidation would simplify and clarify FDA's handling of dental amalgam submissions.

The Regulatory Work Group feels that reclassification of dental amalgam to Class III should not be readdressed until a body of substantial scientific evidence establishes that dental amalgam restorations are a health hazard. The Research Work Group is charged with developing a list of research objectives and priorities for determining the toxicity and toxic potential of mercury vapor released by dental amalgam. In view of this activity, the Regulatory Work Group believes it is prudent to delay consideration of reclassification of dental amalgam to class III for a reasonable period of time to allow these studies to be carried out. From a practical viewpoint, it would be difficult for amalgam manufacturers to carry out the studies required for premarket approval applications that would unequivocally establish the safety of dental amalgam restorations. The variety of approach and complexity in design

211 East Chicago Avenue  
Chicago, Illinois 60611  
(312) 440-2500

May 22, 1986

Dr.

Dear Doctor :

Your letter of May 14, 1986 has been received.

There appears to be confusion regarding both the role of the Council and the scope of ANSI/ADA Specification No. 1 for Alloy for Dental Amalgam. The Specification is not for dental amalgam. It is only for the alloy for dental amalgam. The amalgam does not form until the dentist mixes the alloy with mercury. Therefore, dental amalgam per se cannot be certified. We cannot certify a reaction product made by the dentist.

The requirement for review of American National Standards developed under the Accredited Standards Committee procedures of the American National Standards Institute requires that a standard or specification be reviewed once every five years. The committee responsible, in this case, ASC MD156, is required to review the document and recommend revision, reaffirmation or withdrawal. The Committee is responsible for this action, not the Council on Dental Materials, Instruments and Equipment of the Association. ASC MD156 is an independent committee and is not a Committee of the Council. The Council acts only as the administrative sponsor and provides secretarial assistance to the Committee. The Committee has representatives of 34 organizations including the Academy of General Dentistry and when ANSI/ADA Specification No. 1 was last reviewed in 1984, no member organization presented any documentation to request revision. The Committee voted unanimously to reaffirm the specification, and on February 15, 1985 the American National Standards Institute approved the reaffirmation. The specification will again be reviewed in 1990 for any revisions.

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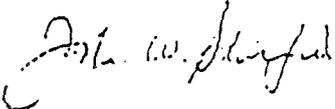
May 22 1966

Dr.

Page 2.

I do not know the address for Prospect Associates, who you carboned, so am enclosing a copy for Ms. Cowan of the organization for you to forward to her.

Sincerely yours,



John W. Stanford, Ph.D.  
Secretary  
Council on Dental Materials,  
Instruments and Equipment

JWS:ph

- cc: Dr. E. Neidle
- Ms. L. Stovall
- Dr. Michael Ziff
- Dr. H. Huggins
- Ms. S. Stanford

APR 2 1991

Dear Dr.

Your letters of February 11, 1991, to Secretary Louis Sullivan and FDA Commissioner David Kessler have been referred to me for response. I apologize for the delay but, as you know, we have been preparing for the March 15 meeting of the Dental Products Panel. The delay is advantageous, however, in that the meeting has now taken place and I can provide you with specific information about the conduct of the meeting and the resolution of some of your concerns.

As you have observed, the Dental Products Panel described in your January 24, 1991, enclosure consists primarily of dental practitioners and academicians, who may not be as conversant with the medical aspects of mercury toxicity as some researchers. However, you should recognize that this advisory panel is a standing committee, constituted to review a wide array of dental drugs and devices, of which dental amalgam is just one example.

To gain the specialized knowledge necessary to render recommendations on any given device, the panel relies on scientific input from outside consultants, invited speakers and FDA staff, and from others who ask to address the panel during the open public hearing at the meeting. Further, under a recently revised charter, we can supplement the membership of any panel with members from other medical device advisory panels. For the March 15 panel meeting, we supplemented the membership with members from four other medical device panels. We also attempted to provide a broad spectrum of speakers to cover all aspects and perspectives of the issue. Attached is a listing of the panel membership and invited speakers for the March 15 meeting.

The November ADA News story regarding Dr. Singleton's remarks about the Calgary research was an exaggeration of his actual statements. There were, in fact, flaws in the study, but the study was still worthwhile in many respects, as was stated by Dr. Singleton in that same interview. The fact that Dr. Singleton identified flaws should not be construed as evidence of a prejudicial attitude on the safety of amalgam.

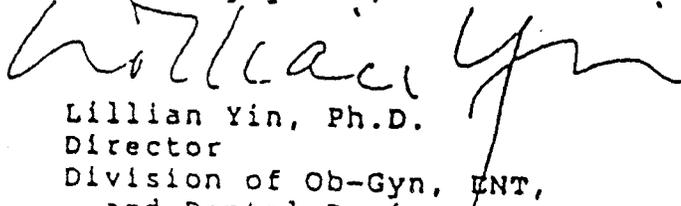
p.2 - Dr.

Your concern that Dr. John Stanford is the chairman of the FDA Classification Panel on Dental Devices is unwarranted. The panel you identified as the FDA Classification Panel is the same panel identified in the January 24, 1991, enclosure to your letter as the Dental Products Panel. Dr. Stanford has not been the chairman in many years. The membership rotates and the current acting chairman is Dr. Duncanson. Dr. Stanford has been retained as a consultant to the panel.

Lastly, I want to address an apparent concern of yours, as discussed in the Bio-Probe Newsletter (September 1989), which you enclosed. You find fault in FDA's practice of not certifying mixed dental amalgam. Aside from the semantics issue (FDA does not certify any product), I must remind you that FDA regulates manufacturers of medical devices. No manufacturer produces mixed dental amalgams. The mixed dental amalgam is prepared by dental clinicians. FDA does regulate manufacturers of dental mercury and amalgam alloys, but the only control FDA has over the ultimate, mixed amalgam is through the labeling for dental mercury and amalgam alloys. The Federal Food, Drug, and Cosmetic Act does not empower FDA to regulate the manner in which dental clinicians mix dental mercury and amalgam alloys to make dental amalgams.

As I mentioned, the panel meeting has now taken place. I've enclosed for your information copies of some of the materials available at the meeting. I've also enclosed a copy of an FDA talk paper issued after the meeting. If you have any further concerns, please let me know. I may be reached at (301)427-1100 or you may write to me at the above address.

Sincerely yours,

  
Lillian Yin, Ph.D.  
Director  
Division of Ob-Gyn, ENT,  
and Dental Devices  
Office of Device Evaluation

Enclosures

**ATTACHMENT B**

ARIZONA STATE LEGISLATURE  
Forty-second Legislature - First Regular Session

**JOINT HEALTH COMMITTEE OF REFERENCE  
HEARING ON PHARMACIST PRACTITIONERS  
AND SUNRISE REVIEWS OF HOLISTIC DENTISTS AND SURGICAL ASSISTANTS**

Minutes of Meeting  
Wednesday, November 15, 1995  
Senate Hearing Room 1 - 1.30 p.m.

(Tape 1, Side A)

Cochair Day called the meeting to order at 1.38 p.m. and attendance was noted by the secretary.

Members Present

Senator Henderson  
Senator Kennedy  
Senator Peterson  
Senator Day, Cochair

Representative Aldridge  
Representative Horton  
Representative Preble  
Representative Gerard, Cochair

Members Absent

Senator Brewer  
Representative Foster

Speakers Present

Kim Roberson, Executive Director, Arizona Pharmacy Association (APA)  
Terry J. Lee, President, Arizona Holistic Dental Association  
Barbara Maurice, Co-director, Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona, Clarkdale resident  
Paul B. Mills, Teacher of Math and Physics, Apache Junction High School, Teacher of Algebra through Calculus, Central Arizona College  
Karla Kirkland, Co-director, Coalition of Concerned Citizens for Dental Care in Arizona  
Caroline Dundulis, Camp Verde resident, representing herself  
Kathleen Cookie Hecht, Peoria resident  
Delbert Lee Nichols, D.D.S., speaking on behalf of patient Loretta Shumway, Snowflake resident  
Larry Kroll, Co-director, Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona, Scientist Employee, Arizona Department of Environmental Quality (ADEQ)  
Gary J. Smith, D.D.S., J.D., speaking as a concerned Arizona citizen knowledgeable in dental practices, law and dental science  
Glena Gil, Mesa resident

David Farnsworth, State Legislator, District 4  
Drew Langley, Director, Dental Board  
Greg McFarland, Executive Director, Arizona Dental Association  
Wesley Smith, Certified Surgical Assistant, Tucson resident  
Caryn Lee, Certified Surgical Assistant  
David Landrith, Vice President of Policy, Arizona Medical Association  
Carolyn Machold, Operating Room Registered Nurse, Tucson resident

Guest List (Attachment 1)

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### PHARMACIST PRACTITIONERS

Cochair Day explained that the portion of the meeting dealing with pharmacist practitioners will not be an actual sunrise review because certain legislation which was to be introduced in 1996 has been withdrawn

Kim Roberson, Executive Director, Arizona Pharmacy Association (APA), said that the APA board of directors decided to formally withdraw the application for expansion of the scope of practice. She said that the pharmacist is the most available yet underutilized health care individual and that the intent of the draft legislation was not to create an adversarial relationship with physicians, but to offer pharmacist services in providing safe medicinal management

Ms. Roberson emphasized that minimizing medication misuse is the APA's foremost job

### SUNRISE REVIEW OF HOLISTIC DENTISTS

Terry J. Lee, President, Arizona Holistic Dental Association, said he received his degree from the University of Southern California and has practiced dentistry for twenty-five years. He explained that fifteen years earlier, he attended a dental course on mercury toxicity and learned that some individuals are highly sensitive to silver mercury fillings. He claimed that many such mercury-sensitive patients experience improved health once their traditional fillings are replaced with compatible materials

Dr. Lee said that holistic dentistry is practiced in many parts of the world and emphasized that courses are not given by voodoo doctors in back-street alleys. He reviewed the associations with which he is involved and mentioned that twenty holistic dentists currently practice in Arizona. He described himself not as a vigilante or frustrated physician, but instead as a dentist who has hundreds of hours in training and techniques which the Dental Board, in its limited knowledge, does not recognize as valid

Dr. Lee remarked that the battle to allow holistic dentistry revolves around jealousy and philosophy, and is similar to battles waged in the past between traditional and alternative medical providers

In response to Mrs. Preble, Dr. Lee explained that "compatible material" is a substance to which the patient is not sensitive, and is usually comprised of a quartz acrylic composite. He said that blood compatibility tests are used to determine what materials a patient is or is not reactive to.

Cochair Day questioned how such a small group of professionals will be able to fund a board and investigate complaints. Dr. Lee replied that holistic dentists will probably follow the homeopathic model for licensure. In addition, he speculated that such a small group of dentists will generate very few complaints.

Cochair Day asked if Dr. Lee is in good standing with the Dental Board. Dr. Lee replied in the negative and explained that part of the problem is the Dental Board's philosophy.

In response to Senator Henderson, Dr. Lee explained that most traditional dentists use fillings comprised of silver and mercury, the latter of which can be harmful to gums, surrounding bone, various organs and the overall health of the patient.

Ms. Horton inquired as to the funding mechanism for a board which represents only twenty holistic dentists. Dr. Lee answered that plans are to finance the board through license fees. He added that although holistic dentists practice throughout the country, there is no state which licenses them.

Cochair Day asked if there is a college or institution which offers courses in holistic dentistry. Dr. Lee replied that courses are currently given by different organizations. He noted that the University of Arizona, as well as Harvard and the University of Columbia, have departments for alternative medicine, and he predicted expansion in this field at some point in the future.

Cochair Day questioned whether the University of Arizona has a division for holistic dentistry. Dr. Lee replied in the negative but shared his belief that there is an organization which operates in the Great Lakes region.

In response to Senator Petersen, Dr. Lee indicated that he is currently before the Dental Board's formal hearing process but that action has not yet been taken. He explained that the Dental Board prohibits dentists from removing silver mercury fillings, informing patients that fillings contain mercury, and distributing information regarding alternative dentistry.

Senator Petersen asked how many of the other holistic dentists in Arizona are under investigation by the Dental Board. Dr. Lee replied that one other dentist is under investigation and that two others have been investigated in the past. He added that his fellow holistic dentists maintain a low profile and do not wish their identity known for fear of reprisal from the Dental Board.

In response to Cochair Gerard, Dr. Lee indicated that the four complaints filed against him dealt primarily with financial matters. He explained that because the patients were unable to meet their payments, their dental work was suspended which in turn prompted the filing of complaints.

Cochair Gerard stated that traditional dentists are reprimanded based on the merits of a case whereas holistic dentists are automatically judged based on philosophy.

In response to Senator Petersen, Dr. Lee explained that ill patients who have their silver mercury fillings replaced tend to experience a noticeable recovery while healthy patients who have them replaced for prevention purposes generally see no benefit and are more likely to be dissatisfied.

Barbara Maurice, Co-director, Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona, Clarkdale resident, related that prior to the onset of ill health due to improper dental care, she was employed by a major computer manufacturer for thirty years. She said that after searching twelve years for an answer to her continuing health problems, she found a holistic dentist who discovered that the primary cause of her infectious disease process was an improperly completed root canal which drained toxic substances into her jaw bone and body.

In summary, Ms. Maurice claimed that holistic dentistry is responsible for starting her recovery from a variety of serious ailments (e.g., osteoporosis, chronic fatigue, fibromialgia, tuberculosis-like scarring in the lungs and constant pain) (For a hard copy of Ms. Maurice's prepared testimony, see Attachment 2.)

Paul B. Mills, Teacher of Math and Physics, Apache Junction High School, Teacher of Algebra through Calculus, Central Arizona College, related his professional credentials. He explained that he began to develop neurological problems in 1982 and that his treatment included psychological counseling and 300 milligrams of Dilantin per day to help control seizures. Mr. Mills explained that in August of 1987, he suffered a seizure while at his dentist's office, and that Dr. Lee, who happened to share the same office, suggested that silver mercury fillings may have contributed to some of the health problems.

Mr. Mills reported that the silver mercury fillings were removed in October of 1987 and that by January of 1988, even without the daily treatment of Dilantin, the seizures and other health symptoms were gone. (For a hard copy of Mr. Mill's prepared testimony, see Attachment 3.)

Karla Kirkland, Co-director, Coalition of Concerned Citizens for Dental Care in Arizona, said that for ten years she suffered from Epstein-Barr Syndrome, depression and borderline lupus and was diagnosed by a homeopathic physician as having severe systemic candida, severe toxic infection of the jaw, and a heart condition. At the advice of the homeopathic physician, she said she saw a holistic dentist and noticed that her health improved after each dental visit. She reported that she even developed a tail-blown strep infection of the heart which was traced to a wisdom tooth extraction performed in 1988 in which the dentist failed to remove the periodontal membrane.

Caroline Dundulis, Camp Verde resident, representing herself, stated that she was dying two years earlier when a doctor told her of a holistic dentist. She reported that her health has been improving since the holistic dentist removed all of her silver mercury fillings. (For a hard copy of Ms. Dundulis's prepared testimony, see Attachment 4.)

Kathleen Cookie Hecht, Peoria Resident, said that she was diagnosed twenty years earlier with multiple sclerosis and was wheelchair bound by 1985. She mentioned that by ingesting Chinese herbs, she was able to eliminate the numbness in her left arm but was still unable to use that arm.

Ms. Hecht explained that in 1994 she required dental work and noticed that some of her multiple sclerosis symptoms returned. After a dental procedure was completed by Dr. Lee, she said that she was able to type with the left hand that had been useless for twelve years.

Ms. Hecht beseeched the Committee not to eliminate holistic dentistry as a choice for those looking for options.

Delbert Lee Nichols, D.D.S., speaking on behalf of patient Loretta Shumway, Snowflake resident, who was not in attendance, reported that Mrs. Shumway sought his services ten years earlier for two broken fillings. He said that Mrs. Shumway subsequently decided to have all her silver mercury fillings replaced and has since experienced an increased energy level.

Larry Krcil, Co-director, Coalition of Concerned Citizens for Freedom of Choice for Dental Care in Arizona, Scientist/Employee, Arizona Department of Environmental Quality (ADEQ), reported that he began to experience health problems which advanced over the years to the point that he was forced to take medical leave and disability in 1994. He said that a medical doctor reviewing his health history noticed that the onset of physical illness coincided with a root canal performed in 1983 and referred him to Dr. Terry Lee, a holistic dentist. He said that although possessed of a skeptical and scientific mind, he submitted to holistic dentistry and received a second chance at life.

Mr. Krcil asked that his freedom of choice as an informed dental consumer be protected, and he requested support for the establishment of a separate board for holistic/alternative working solutions. (For a hard copy of Mr. Krcil's prepared testimony, see Attachment 5.)

Gary J. Smith, D.D.S., J.D., speaking as a concerned Arizona citizen knowledgeable in dental practices, law and dental science, related that he and his wife made an informed decision to have their silver mercury fillings removed. He said it is troubling that government feels entitled to claim *lack of sufficient scientific evidence* and intrude upon the health care decisions of private citizens.

Dr. Smith provided the Committee with unofficial transcripts of the two most recent meetings of the Dental Board (Attachments 6 and 7 - filed with original minutes in the Office of the Chief Clerk) and drew attention to an exchange from the October 20th meeting (Attachment 7, page 12, lines 9 through 21) which addresses the different dental philosophies.

In summary, Dr. Smith requested that citizens not be denied access to information and holistic dental care.

Gilena Gil, Mesa resident, said that she visited two dentists who refused her request to extract all her teeth. She said that choosing such an option is her right.

David Farnsworth, State Legislator, District 4, opined that the holistic dentist debate infringes on freedom of choice. He claimed that when boards or organizations are granted powers, they tend to abuse those powers.

Drew Langley, Director, Dental Board, said that although choice is good, the Dental Board is bound to comply with statutory regulations. He pointed out that Dr. Lee has four complaints in the formal hearing process -- three of which were filed by patients with the remaining complaint being filed by the Dental Board

Dr. Langley asserted that the Dental Board does not prevent the distribution of information as long as that information is valid. Further, he pointed out that the Board was unable to find an accredited holistic dental school in the state or anywhere else in the world, and that holistic dentistry is not a recognized specialty by the American Dental Association.

(Tape 1, Side B)

Dr. Langley stated that the Board is against dentists broadly stating that everyone should have their silver mercury fillings removed.

Dr. Langley stated that protection of the public would not be improved by the addition of a separate holistic dentistry regulating board.

Cochair Gerard repeated Dr. Lee's comment that holistic dentists cannot even discuss silver mercury fillings with patients. Dr. Langley said that the Dental Board restricts against making false statements. For instance, he explained that a patient may request that a cracked filling be replaced with a composite material, but specified that a dentist may not make a blanket statement that patients should have silver mercury fillings removed.

In response to Cochair Gerard, Dr. Langley indicated that it is unethical by American Dental Association standards to remove silver mercury fillings without a patient diagnosis.

Mr. Aldridge pointed out that the Dental Board itself has a less than sparkling record. Given that holistic dentists, as a base, must obtain a degree from a certified school and pass the state board, he questioned why the Dental Board chooses not to accept their different philosophy. Dr. Langley replied that the Dental Board reacts to patient complaints and is very proud of its single-digit case backlog.

Mr. Aldridge questioned the reason for the conflict between traditional and holistic dentists. He repeated that holistic dentists are board certified and stated that any dental practitioner should have the option of entering into holistic dentistry. Mr. Aldridge questioned the financial feasibility of establishing a separate board for twenty dentists and therefore suggested that a holistic dentist serve on the Dental Board. Dr. Langley commented that Dental Board members are appointed by the Governor. He stated no personal objection to the suggestion but pointed out that his charge is to follow the law as currently written.

In response to Mr. Aldridge, Dr. Langley shared his opinion that holistic dentistry helps some people. However, he pointed out that until more scientific evidence is available, humans cannot be used as guinea pigs.

Mr. Aldridge said it is surprising to see how many developments which were ignored several years ago have since proven to be on the cutting edge of treatment. As an example, he commented that the legislature has heard no complaints about the Homeopathic Medical Board while the Board of Medical Examiners (BOMEX) continues to be burdened with a heavy backlog of cases. Dr. Langley indicated that as standards of care are developed over the years through scientific evidence, holistic dentistry may become the path of the future.

Cochair Day stated that the market is demanding greater integration between the scopes of practice and discipline, and said that the market must resolve its conflicts without further regulation.

In response to Ms. Horton, Dr. Langley stated that the Dental Board is collecting facts against Dr. Lee and said that this process is being misrepresented to the legislature.

In response to Ms. Horton, Dr. Langley said that until new scientific data results in modified standards from respected agencies such as the American Dental Association and the National Institute of Health, the Dental Board must accept what is taught in dental schools.

Ms. Horton asked if the Dental Board is attempting to shut down the practice of holistic dentistry. Dr. Langley replied in the negative.

Ms. Horton stated that twenty dentists should not be prohibited from offering alternative dentistry simply because they have a different philosophy, and she questioned why the traditional and holistic dentists do not try harder to get along. Dr. Langley repeated that the Dental Board is obligated to review individual patient complaints to determine whether harm was done to the patient so that appropriate action can be taken.

Cochair Gerard pointed out that it is unfair to compare BOMEX to the Homeopathic Medical Board because BOMEX licenses 10,000 physicians while the Homeopathic Medical Board licenses 66, less than 50 of which practice within Arizona. To Dr. Langley she stated that the entire conflict between traditional and holistic dentists is extremely premature because people who desire holistic dentistry are not prevented access to it.

Greg McFarland, Executive Director, Arizona Dental Association, concurred with Dr. Langley's comments about scientific data and schools, and pointed out that the Committee is entertaining a proposal from an anonymous group of people who do not possess special accreditation from a school.

Dr. McFarland said that freedom of choice in dentistry already exists. He explained that less than one percent of the population may experience an allergic reaction to mercury, and said that such cases should be referred to appropriate medical practitioners. He emphasized that absolutely nothing prevents a dentist in Arizona from removing fillings for allergic or aesthetic reasons, and claimed that disciplinary action will not be taken in cases where the rendering of services is deemed necessary.

Senator Petersen suggested that patients could sign a letter stating that there is no proof that removing silver mercury fillings will improve health. Dr. McFarland replied that an "informed consent" is a document signed by a patient which identifies things that may or may not occur.

Mr. Aldridge mentioned that more than a hundred traditional dentists have phoned his office and he asked if the concern over the twenty holistic dentists is the result of a turf war. Dr. McFarland claimed that there is no vendetta against holistic dentists.

**Mr. Aldridge moved that the Committee recommend that the legislature have a holistic dentist serve on the Dental Board. Ms. Horton seconded the motion.**

Cochair Day remarked that a motion regarding Dental Board membership would be more appropriately made during Dental Board hearings.

**Mr. Aldridge withdrew his motion with approval of the second.**

**Cochair Gerard moved that based on information presented in Committee, the Committee recommend that no action be taken for licensure of a separate holistic dental board. Mrs. Preble seconded the motion.**

Cochair Gerard said there is no evidence that holistic dentists are being put out of business. However, she shared her opinion that the Committee should recommend that the Dental Board work with holistic dentists to resolve any concerns.

Cochair Day mentioned that establishment of a separate board is highly unlikely given the small number of holistic dentists.

**The motion carried by a majority voice vote.**

#### SUNRISE REVIEW OF SURGICAL ASSISTANTS

Wesley Smith, Certified Surgical Assistant, Tucson resident, explained that there are twenty-six certified surgical assistants in Arizona. He said that his practice in Tucson performs about 1,000 surgical cases per year and assists eighty surgeons in the Tucson area. He requested licensure for the following reasons:

- A regulating board will offer better discipline for certified surgical assistants
- Because certified surgical assistants are not licensed, the Arizona Health Care Cost Containment System (AHCCCS) has revoked its provider number
- The education level of certified surgical assistants is at question

Mr. Smith explained that an individual must complete sixty hours of prerequisite coursework, complete a surgical technology program and spend at least five years in an operating room as a surgical technologist before applying for the surgical assistant program. He added that the aspiring surgical assistant must then complete more than 750 hours in surgery each year for three years before applying for certification.

In response to Cochair Gerard, Mr. Smith said that none of the states presently license certified surgical assistants. He advised that certification is obtained through the National Surgical Assisting Association, and that coursework varies per school.

In response to Cochair Gerard, Mr. Smith indicated that he functions primarily as a cardio-thoracic surgery assistant. He explained that in all hospitals in the Tucson area except one, he is allowed to remove vein from a patient's leg for bypass surgery. He reviewed the other surgeries in which he is qualified to assist.

Mr. Smith said that aside from his privileges to perform a particular minor surgery, he is responsible for assisting the surgeon by draping patients, retracting tissue and exposing the operating field area, clamping and drying vessels, and keeping the operative site dry.

Cochair Gerard questioned how certified surgical assistants differ from surgical nurses. Mr. Smith explained that his training is utilized only in the operating room and does not include any nursing services. He mentioned that some highly trained registered nurses and physicians assistants have expanded their scope of practice to include surgical assisting.

Mr. Smith stated that he has hundreds of signatures of support from surgeons, nurses, operating room directors and administrators. Cochair Day mentioned that all the associations which signed up to testify on the matter are not in support of certification for surgical assistants.

In response to Cochair Day, Mr. Smith explained that AHCCCS stripped surgical assistants of their provider number simply because they were not licensed.

In response to Cochair Day, Mr. Smith indicated that a new specialty will not be created because surgical assistants have always been utilized in the operating room. He said that AHCCCS, a major contract, no longer reimburses surgical assistants but that most insurance companies do reimburse because they recognize that the field of non-fixed surgical assistants will grow in the future.

Mr. Smith expressed fear that loss of AHCCCS and FHP reimbursement might establish a pattern that insurance companies will follow. He stated that surgical assistants do not refuse any surgery but do make an effort to avoid procedures handled by Medicare.

Cochair Day suggested that the issue could be defined as a contractor agreement problem between surgical assistants and the hospitals surgery centers. Mr. Smith replied in the negative and explained that surgical assistants do not work for the hospitals but merely have privileges to perform services at hospitals in accordance with hospital regulations.

Referring to the handout entitled West Coast Surgical Specialists (Attachment 8 - filed with original minutes in the Office of the Chief Clerk), Mrs. Preble asked if Dean Dalen at the University of Arizona consented to serve as Chairman of the Board. Mr. Smith replied in the negative and said that any physician could serve as Chairman.

Cochair Day asked whether BOMEX, the Arizona Hospital Association or any nursing associations were consulted prior to drafting of the proposal for certification (Attachment 8). Mr. Smith replied that meetings were held with the National Surgical Association.

Caryn Lee, Certified Surgical Assistant, said that for many years, a second physician fulfilled the role of surgical assistant. She said that the certified surgical assistant profession is increasing tremendously because many physicians can no longer spend four hours each day assisting in surgery.

Ms. Lee explained that because of the increased demand for qualified certified surgical assistants, there has been an increase in *unqualified* certified surgical assistants.

(Tape 2, Side A)

Ms. Lee noted that AHCCCS granted a provider status number in 1994 but revoked it six months later because certified surgical assistants were not licensed. She said that the majority of trauma calls she responds to are AHCCCS cases and that she often works all night on these cases only to learn later that she cannot be reimbursed.

Ms. Lee mentioned that each hospital facility has different regulations and she emphasized that every patient deserves quality care.

In response to Mrs. Preble, Ms. Lee indicated that she attended the Arizona College of Medical Careers in Phoenix which has been closed for seven years. She gave a history of her work experience and training.

David Landrith, Vice President of Policy, Arizona Medical Association, spoke against the sunrise proposal for surgical assistants and confessed to an overwhelming ignorance of the profession. He expressed concern that the sunrise proposal consists of a two-page letter, which does not seem to comply with sunrise provisions, and offers draft legislation which was developed simply by taking current statute applying to physicians assistants and substituting "surgical assistant" for "physician assistant." He mentioned that this is the reason why Dean Dalen's name appears in the proposal.

Mr. Landrith mentioned that he only saw the proposal the previous day and said that on further checking, he found that BOMEX, the Arizona Hospital and Healthcare Association, the Osteopathic Association, the Nurses Association and other associations in the health care field were not consulted. He said that based on the proposal (Attachment 8), there is no way to determine if there is indeed a problem.

In addition, Mr. Landrith pointed out that the proposed licensing board funding scheme is unworkable and will only generate \$2,500 to \$3,000 a year -- one-third of the cost of a clerical position. He emphasized that physicians, who were not consulted about the proposal, will be expected to subsidize this regulatory scheme.

Mr. Landrith said that in reality, unqualified people may not be running amok through hospitals performing surgery because hospitals establish their own criteria. Further, he said it is a revealing

message that AHCCCS discontinued the provider number and he encouraged the Committee to consult AHCCCS and request the basis for this decision.

In summary, Mr. Landrith stated that not enough information is available to determine the merit of the idea, public safety or sufficiency of standards. On basis of lack of knowledge, he opposed the proposal for licensure of certified surgical assistants.

Carolyn Machold, Operating Room Registered Nurse, Tucson resident, said that although opposed to the issue before the Committee, she is not necessarily opposed to regulation of unlicensed assisted personnel in the operating room. She said she shudders to think what could happen to her own license every time she is responsible for an unlicensed person in the operating room. She pointed out that although she and Mr. Smith basically perform the same job in the operating room, she holds a bachelor's degree and master's degree.

Ms. Machold remarked that based on previous testimony, the issue of primary importance for certified surgical assistants seems to be reimbursement as opposed to the provision of health care. She noted that standards, regulation and scope of practice are the primary issues of concern for providers.

In closing, Ms. Machold said that although she supports the concept of regulation for surgical assistants, the proposal before the Committee does not adequately address the issues required for sunrise.

**Cochair Gerard recommended against licensure for the time being and suggested that certified surgical assistants spend time in 1995 working with nursing associations, BOMEX, doctors of osteopathy and hospital associations, and then come before the legislature with an agreement. Cochair Day seconded the motion. The motion carried by a majority voice vote.**

Mr. Smith apologized and said he was not aware that so many other associations had to be involved in the development of the proposal.

Without objection, the meeting was adjourned at 4:05 p.m.



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Teresa Alvarez, Secretary

(Original minutes, attachments and tapes on file in the Office of the Chief Clerk.)