A SNAPSHOT OF BIOLOGICAL DENTISTRY IN EUROPE

Raimondo Pische

RAIMONDO PISCHE

MD, DDS

Specialized in Odontostomatology

10 years in Orthodox Dentistry:
Mercury poisoned from dental
amalgam exposure

TIMELINE STORY

1996

Diagnosis of my illness:
mercurialism

15 yrs journey of “desperate”

studies and new awareness

1999 - to present

Establishment of AIOB

International Academy
of Biological Dentistry

Principles:

- Biological Respect
- Integral Metal-Free
- Biocompatibility of materials

ACCADEMIA INTERNAZIONALE DI ODONTOIATRIA BIOLOGICA

AIOB

2003

First World Congress of Biological Dentistry in Padua - Italy

jointly presided with

Professor Boyd Haley, President

2017

Master of Biological & Systemic Dentistry

in San Raffaele University, Milan - Italy

Official and Academic Acknowledgment for a new vision in Dentistry

2017

FIOCRUZ and I
IAOMT Brasil Chapter

International Academy of IAOMT Oral Medicine & Toxicology

Ministério da Saúde

FIOCRUZ
Fundação Oswaldo Cruz

New Paradigms in Medicine and Dentistry

"Not only viruses and bacteria but heavy metals and toxic chemicals"

AMALGAM EXPOSURE:

The Trojan Horse for diseases

Mercury in all forms, poisons cellular function by altering the tertiary and quaternary structure of proteins and by binding with sulfhydryl and selenohydryl groups. Consequently, mercury can potentially impair function of any organ, or any subcellular structure. The chief target organ of mercury vapor is the brain, but peripheral nerve function, renal function, immune function, endocrine and muscle function, and several types of dermatitis have been described.

Mercury is believed to interfere with DNA transcription and protein synthesis including protein synthesis in the developing brain, with destruction of endoplasmic reticulum and disappearance of ribosomes. Kidney toxicity, immune dysfunctions including hypersensitivity reactions to mercury exposure, such as asthma and dermatitis, various types of autoimmunity and suppression of natural killer cells.

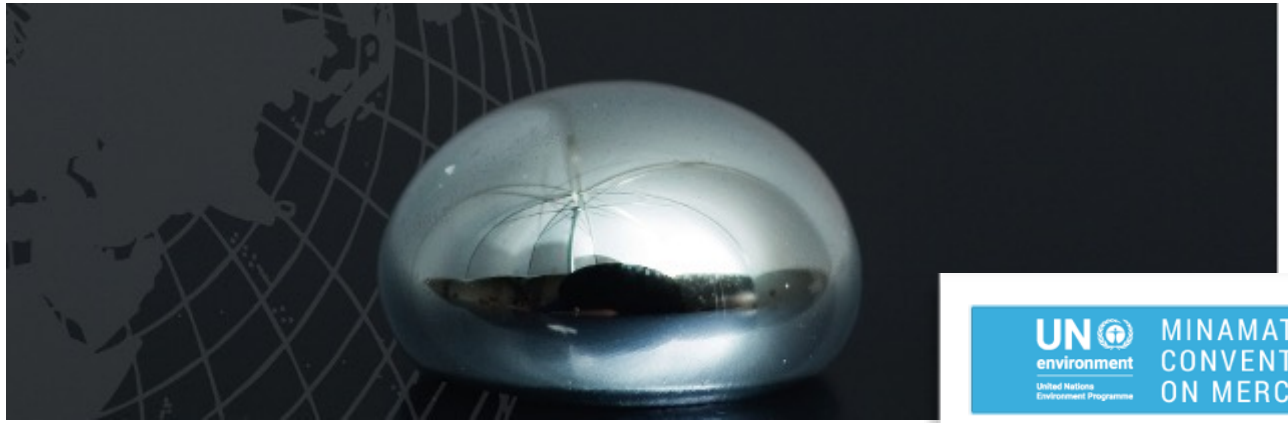
Clinical findings among dentists have been documented, including delayed reaction time, poor fine motor control, and deficits in mental concentration, vocabulary, task switching, and the One Hole test, as well as mood lability, all correlating with urinary mercury excretion.

https://www.hindawi.com/journals/jeph/2012/460508/

World Health Organization

In 1991 the WHO reported on Human exposure to mercury and concluded that the general population is primarily exposed to mercury through the diet and dental amalgam. Studies have shown that mercury is released from amalgam restorations in the mouth as vapor. The release rate of this mercury vapor is increased, for example, by chewing. Several studies have correlated the number of dental amalgam fillings or amalgam surfaces with the mercury content in tissues from human autopsy, as well as in samples of blood, urine, and plasma. Both the predicted mercury uptake from amalgam and the observed accumulation of mercury, show substantial individual variation. It is, therefore, difficult to make accurate quantitative estimations of the mercury release and uptake by the human body from dental amalgam tooth restorations. Experimental studies in sheep have examined in greater detail the distribution of mercury released from amalgam restorations.

http://www.inchem.org/documents/ehc/ehc/ehc118.htm#SectionNumber:1.7

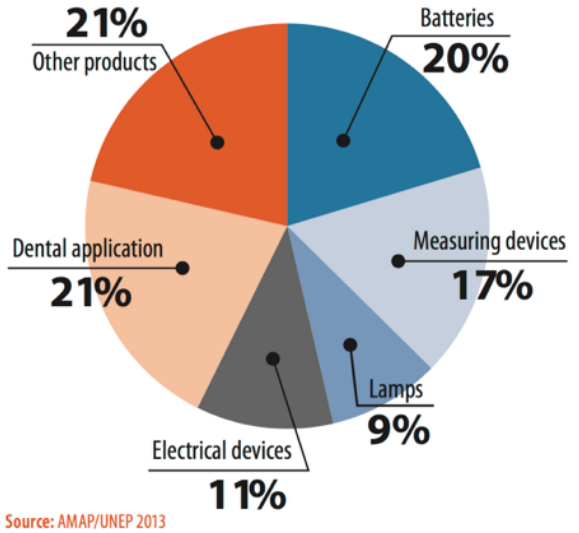


UNITED NATIONS ENVIRONMENTAL PROGRAM

MINAMATA CONVENTION ON MERCURY TREATY

Dentistry may not be the first use of mercury that comes to mind when considering this heavy metal. Nevertheless the United Nations Environment Programme (UNEP) Global Mercury Assessment 2013 revealed that mercury in dental use accounted globally for 270-341 metric tons in 2010 (AMAP/UNEP 2013). This represents some 10% of global mercury consumption overall, and over 20% of global mercury consumption in products, as Figure 1 below demonstrates.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y



PHASE DOWN OF DENTAL MERCURY

One of the key provisions of the Minamata Convention is the requirement for countries to phase down their use of dental amalgam. Based on official country responses to a UNEP survey questionnaire, this report presents a range of measures already taken by some countries in pursuit of their objectives to phase down or ***entirely eliminate the use of dental amalgam.*** It is intended that these examples may inspire and instruct other countries' efforts to implement this provision of the Minamata Convention.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

EUROPEAN UNION

Countries that have banned dental mercury amalgam

- Norway
- Sweden
- Denmark
- Finland
- Netherlands

NORWAY

Interest in reducing amalgam use in Norway emerged during the 1980s as part of a broader policy to limit all releases of mercury, and also due to health concerns raised in the media by a patient association. In 1991, Norway issued guidelines that the use of amalgam should be limited due to environmental impacts. Stronger guidelines were issued in 2003, requiring materials other than amalgam to be considered as the first choice in tooth fillings. Since 2008 Norway has had a general ban on mercury products. This included a ban on amalgam, with an exemption period – now expired – for special cases. Amalgam use has been eliminated since 2011.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

SWEDEN

In 1995 there was a voluntary agreement between the state and county councils to put an end to amalgam use in dental restorations for children and young people. However, by 1997 the voluntary measures had not achieved the objective that had been established. In 1999 the Swedish Parliament decided that patients should no longer be reimbursed for the cost of amalgam fillings under the national healthcare system. As a result, the cost to patients for amalgam became comparable to the cost for composites.

Since 2009 there has been a general ban on mercury in Sweden that includes dental amalgam. Meanwhile the cost of mercury-free restorations has continued to decline with new technologies, and with further training and experience of dental practitioners.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

DENMARK

The sale of mercury has been forbidden in Denmark since 1994, but an exemption was initially granted for mercury in dental amalgam. A subsequent "Recommendation" of the Danish health authority stipulated that from 1999 amalgam fillings should not be placed in front teeth or "milk teeth," nor should it be generally used for dental care of children. The health authority recommended that mercury-free alternatives should be the first choice for new fillings, except where: 1) it is not possible to keep the area dry; 2) it is difficult to access the cavity; 3) there is a particularly large cavity; or 4) the distance to the proximate tooth is too great. By 2013 amalgam was used in only 5% of restorations.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

FINLAND

After consultation with an expert group in 1993, Finland issued the following recommendations: the use of amalgam should be reduced for environmental reasons and amalgam should be used only when other dental filling materials cannot be used. Since 1994 Finland's national guidelines stipulated that amalgam should not be used in restorations. The use of amalgam has declined significantly, recently accounting for no more than 3% of dental restorations.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

NETHERLANDS

In the Netherlands, a major shift, away from amalgam, took place in the 1990s after consultation with the dental sector, which eventually embraced the use of mercury-free dental restorations. Consequently, the average use of amalgam in the 2000s was around 7% of all dental restorative fillings, dropping to less than 1% by 2011.

https://wedocs.unep.org/bitstream/handle/20.500.11822/11624/Dental.Amalgam.10mar2016.pages.WEB.pdf?sequence=1&isAllowed=y

In 2005, the United Nations Environment Programme (UNEP) estimated global mercury demand at 3000 to 3900 tonnes a year (t/y), about half of which was consumed in Asia and about 12% in Europe.

http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595887/EPRS_BRI(2017)595887_EN.pdf

DENTAL MERCURY AMALGAM

With current demand estimated at 75 tonnes/year, dental amalgam is expected to become the largest mercury use in the EU. A 2008 study for the EU Commission estimated that 70% of dental amalgam used in the EU in 2007 was in encapsulated form and 30% in bulk form. The use of pre-dosed capsules (instead of bulk mercury) contributes to reducing both releases during amalgam storage and preparation, and exposure of dental personnel to mercury vapours.

http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595887/EPRS_BRI(2017)595887_EN.pdf

THE EU COMMISSION

The EU Commission indicates that, according to a 2010 survey by the Council of European Dentists in 26 European countries, encapsulated dental amalgam is required by law in 12 countries and highly recommended in another two, while the use of mercury-containing amalgam is prohibited in two countries and not regulated in another nine. The EU Commission estimates that 69% of waste produced from dental amalgam is managed as hazardous waste.

http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595887/EPRS_BRI(2017)595887_EN.pdf

RESTRICTIONS

Restrictions on the use of mercury in dental amalgam are as follows:

By July 2018

- Ban the use on children under 15 years and pregnant or breastfeeding

By 1 January 2019

- Dental amalgam will only be used in encapsulated form

By July 2019

- Member states have to draft national plans to phase down the use of dental amalgam
- Requiring dental facilities to be equipped with amalgam separators able to retain and collect amalgam particles

By 2021

- Retention level will arrive at least 95% of amalgam particles

http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595887/EPRS_BRI(2017)595887_EN.pdf

NORWAYS GUIDELINES

A Norwegian guideline was developed promoting minimally invasive dentistry on the basis of health care legislation, which took several years to complete. After reviewing the research, the Norwegian health authorities came to the following conclusions:

- When a dental filling is placed, the technique should involve the least possible amount of tooth tissue removal.
- While, on the basis of available information at the time, they considered amalgam to be the longest lasting, least expensive, and most durable filling material, it requires the removal of more healthy tooth tissue than mercury- free fillings.
- Every effort should be made to reduce the exposure of patients and dental health care personnel to chemical substances during dental treatment, both when placing and removing dental fillings.

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CONFERENCE OF THE PARTIES (COP1)

The experiences with mercury-free dental restorations in surveyed countries demonstrate that amalgam use can be phased down and even eliminated. The major force now driving global momentum toward reducing mercury use in dentistry is the Minamata Convention.

We say "LET'S MAKE DENTAL MERCURY HISTORY"!!!

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THANK YOU ALL
FOR YOUR KIND ATTENTION

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