Protecting yourself from dental office contaminants

International Academy of Oral Medicine and Toxicology

“IAOMT”

AGD July 2008
Technology helps to refine the measures we need to take to protect ourselves.

Dentist, chairside, hygienist, or front office...we all value our health.
What is the IAOMT and why are we here?

- The IAOMT is a worldwide network of 600 dental, medical and research professionals.
- We use information from the scientific research to increase the safety in the dental practice for personnel and patients.
Many IAOMT members are proud to be members of the Academy of General Dentistry.

We have been an AGD continuing education PACE provider for over 15 years.
It isn’t easy being green in a dental office!

➤ The recent “Green” movement has emphasized **the importance for you to have healthy work and home environments**

➤ **Advances in technology** have given us more information about indoor air pollution and its harmful health effects
Your occupational risk to several dental materials has long been established.

Your dental office has the usual indoor pollutants in addition to its own inventory of chemicals used to deliver dental treatment.
And while a safe working environment is important to all, the most sensitive adult population WOMEN OF CHILD BEARING AGE are the majority of the dental workforce
**What were the resources for this information?**

- The ADA personal health risk assessment program
- Government agencies as OSHA, NIOSH, and Health Canada, and the FDA, have all presented guidelines to minimize the risks.
Resources were also scientific studies from **dental and non dental disciplines**

- No “junk science” was used
What will you learn?

How to minimize your exposure to the dental material that is considered the greatest occupational hazard to dental staff...dental amalgam.

Both the US EPA and WHO have stated that no amount of exposure to mercury can be totally harmless.
You minimize your exposure by…

Using the appropriate equipment and procedures

Knowing where to find information on this topic and how to monitor your personal mercury exposure
The **Health effects** from your occupational exposure to mercury vapor and particles are well documented:

- Mercury accumulates in dental personnel to **much higher levels** than those non-occupationally exposed.
A sampling at an ADA meeting found that dentists had a significant body burden of mercury.

The group with higher levels of mercury had significantly more adverse health conditions than the group with the lower exposure.

Autopsy studies found the mercury level 7-10x higher than non dental workers in the brain, thyroid, pituitary gland, and renal cortex.
In general, **women** dental workers showed **higher levels of mercury** than male workers.

**Female** dental staff have a **greater risk for reproductive failures and menstrual cycle disorders**.

Guidelines for workplace **exposure to mercury** is much lower for **women** of childbearing age.
A recent FDA alert on potential risks to mercury fillings agrees with the research June 5, 2008 FDA on their website:

- “mercury exposure may have neurotoxic effect on fetuses and children”
Of course, you can choose to use an alternative restorative material whenever possible. No other dental material is as toxic or as difficult to control for exposure as dental amalgam. But even removal causes hazards.
You can design your office to have surfaces that do not harbor mercury.

You can dispose of waste mercury and amalgam as well as mercury contaminated materials. Never place any mercury residue in the heat sterilizer.
ADA Standards agree that these precautions are necessary

- **Direct contact** or handling of any mercury containing material **should be avoided.**
- Skin exposed to mercury should be washed thoroughly.
- **Use water and high volume evacuation** when removing or finishing new restorations.
But ... today’s technology shows that this is not enough to protect yourself
The World Health Organization tells us that our acceptable minimal risk level for a forty hour work week is

\[ 25 \, \mu g/m^3 \text{ mercury vapor} \]

(25 ppm of mercury vapor in a liter of air)

And OSHA tells us never to exceed

\[ 100 \, \mu g/m^3 \text{ even instantaneously} \]
Our **real** everyday risk routinely exceeds **100µg or 25 µg/m³**: 

- **1000 µg/m³** during removal
- **500-900 µg/m³** during polishing
- **100-460 µg/m³** w/ water cooling
- **15-40 µg/m³** w/ water/hi suction

This is in **our immediate breathing zone**, not just an area in the operatory.

**HOW CAN YOU MINIMIZE THE RISK??**
When drilling amalgam

- Use copious amounts of cold water. Vapor is continuously released.
- A high volume evacuator tip should be kept near the tooth at all times.
- “Clean-Up” tip from Sweden works even better.
This area clips to tooth to enhance vacuum efficiency

Clean Up™

This end attaches to any high speed suction
When drilling amalgam

- Section and remove in **large** pieces.
- **NEVER** polish amalgam fillings
- Remove gloves, wash, and replace after removal and before restoration
Wear a special mask when working with amalgam.

Your regular face mask does not protect you.

- Your handpiece generates amalgam particles less than 1 micron in size!
- Regular masks allow particles 3 microns and less to pass through to your lungs!
- Vapor is attracted to an area of heat (your face mask). A mask fitted with a special filter is a must!
Any of these masks will help protect you

- MSA Comfo-Classic respirator has mercury rated filter cartridges and will stop particles as small as .3 microns
- 3 M company makes a similar half-mask
- Mask with oxygen... split off from your patient’s supply line (available at your equipment dealer)
Comfo-Classic Respirator masks
Healthier air in your office is a must!

- OSHA surveys find 6-16% of U.S. dental offices exceed the OSHA standard which is 50µg/m³.

- Most dental offices far exceed the more stringent guidelines of the US ATSDR, EPA, and Health Canada which is .2µg/m³.
Have clean air with a DentAirVac™

Chairside vacuum unit with capture filters

- Captures aerosols down to .3µ
- Captures mercury vapor and particles, air abrasion dust, laser smoke, pathogens especially from drill aerosols

A combination of varied specific carbon filters capture into a unit allows safe removal
Control vapor and particles chairside with DentAirVac™

www.dentairvac.com
Have clean air with HEPA units

➢ **High quality air filters** should be placed on your heating/cooling system and changed regularly

➢ **Room air purifiers** should be used and can vary in room size cleaning capability
Room filters should not be created equal

Units can be customized to target room pollutants from dental and non-dental sources:

- Solvent vapors
- Disinfectants,
- Perfumes
- Allergens as molds, pollen, dust

A unit in the office area should differ from the unit in the patient area
A room air cleaner can be
- quiet,
- unobtrusive,
- low maintenance
- inexpensive

Investment in your health!
A Tact-Air™ can help clean your room air

- Negative ions are released into the air of the dental operatory behind the patient aided by a fan
- A positively charged plate captures mercury vapor on a plate on the opposite wall
- An alcohol wipe cleans the plate periodically

www.Nucove.com
Monitor your mercury exposure

- **NIOSH** (National Institute of Occupational Safety and Health) has recommended that employees be monitored annually.

- **ADA** guidelines suggest that periodic urinalysis of all dental personnel should be conducted and that the dental office should be monitored for mercury vapor.

- Office testing services and mercury sensor badges are available.
In the last third of your CE unit, some of the equipment discussed is available for your interaction.

Paperless documentation is available on www.iaomt.org

Remember to try your chance at winning a safe dental office product and to get your ExCE card authorized.
Thank you for your kind attention.

To view this presentation again or

To acquire more information on products and techniques including more references and resources

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www.iaomt.org
Disclosure

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Continuing education efforts largely rely on volunteer effort.

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