

# Your dental practice could be killing you and your family



**A** dentist's workplace is arguably one of the most toxic occupational areas known to mankind. Though that may seem like an exaggeration, it is true that one of the most toxic substances known to man is found here – the element mercury. A study shows that dentists carry a substantially higher level of mercury than the rest of the population. Their families are also exposed to higher levels of mercury through their clothes.

Whether “ingested, inhaled, or absorbed through the skin,” it is a deadly poison even in minuscule doses. Today, according to those involved in research, human exposure to mercury is primarily through dental amalgam.

According to estimates, as much as 9,216 grams of contact amalgam may be generated each year in Delhi. It is estimated that the amount of contact amalgam going into waste each year may range from 4,608 gram (50% of contact amalgam generated) and the same amount may be going into the drains. Findings of a study on wastage of mercury

**A study of 180 dentists by researchers at the Glasgow Royal Infirmary in Scotland found the dentists had up to four times the normal level of mercury in their urine and nails and had more kidney disorders and memory lapses than the general public**

**In the 1800's, British workers who used mercury in the hat making process developed symptoms of mental deterioration on an industry-wide basis. Hence the expression, "mad as a hatter."**



from dental clinics, applied to the Delhi context suggests that the minimum and the maximum amount of non-contact amalgam generated each year are 7.3 kgs to 7.68 kgs each year. The manner in which dentists operate their equipment dramatically affects the amount of mercury released. Levels as high as 4000 m g/M<sup>3</sup> have been measured 18 inches from the drill when used high dry. Lev-

els over 1000 m g/M<sup>3</sup> are measurable upon opening an amalgam mixing capsule.

Office spills can go undetected for years and are extremely hazardous. Dentists are more likely to suffer memory and kidney problems that could be due to long-term exposure to mercury in tooth fillings.

A study of 180 dentists by researchers at the Glasgow Royal Infirmary in Scotland found the dentists had up to four times the normal level of mercury in their urine and nails and had more kidney disorders and memory lapses than the general public. The researchers found several differences in the health and cognitive functioning between dentists and the control group. The dentists had higher levels of the metal in their bodies, reported more health problems and did worse on the tests than the volunteers.

### **There are no safe levels of mercury**

- ▲ Dental amalgam contains about 50% mercury.
- ▲ Mercury has been scientifically demonstrated to be more toxic than lead, cadmium or even arsenic.
- ▲ Mercury vapour is the main way that mercury comes out of amalgam.
- ▲ Mercury vapour is absorbed at a rate of 80% through the lungs into the arterial blood.
- ▲ There is no harmless level of mercury vapour exposure
- ▲ Mercury vapour is absorbed directly into the brain
- ▲ Mercury crosses the blood-brain barrier

### **Long-term health effects of exposure to mercury**

The harmful effects of long-term exposure to elemental mercury are generally thought to be caused by inhalation exposure. However, mercury liquid and vapour are absorbed through the skin in small amounts and this



route of exposure can contribute to the overall exposure. Mercury affects our bodies in several ways:

- ▲ Effect on the nervous system: Effects muscle coordination, mood, behaviour, memory, feeling and nerve conduction have been reported following long-term occupational exposure to mercury.
- ▲ Effect on the kidney: Many occupational studies indicate that moderate to high exposure to mercury can cause harmful effects on the kidneys.
- ▲ Skin sensitisation: Allergic skin sensitization has been reported in people with occupational exposure to mercury liquid or vapour. Once a person is sensitized to a chemical, contact with even a small amount causes outbreaks of dermatitis with symptoms such as skin redness, itching, rash and swelling.

## Mercury and reproductive health

Chronic mercury exposure can impair fertility and outcome of pregnancy. During pregnancy, mercury passes readily through the placenta; the concentration in cord blood is elevated above the level of the maternal blood. There is therefore a risk to the foetus in chronically exposed pregnant women.

In men, organic forms of mercury were found to cause hypospermia, a reduction in libido

**In a study involving 45 women dentists and 31 dental nurses, a positive association was found between elevated mercury levels and incidence of malformations and aborted pregnancies.**

## What you can do to make your clinic safer

- ▲ Make sure that your staff and assistants are educated about the hazards of mercury and are trained in mercury usage
- ▲ Do not wear the same clothes to home
- ▲ Avoid carpeting in the clinic as mercury vapour collects in them
- ▲ Do not handle mercury without wearing rubber gloves
- ▲ Do not allow a pregnant staff member to handle amalgams
- ▲ Switch to non-mercury fillings such as composite fillings as they are safer - for you and your patients
- ▲ Test yourself and your staff regularly for mercury levels



and impotence in some subjects. Evidence of minor genetic damage (aneuploidy) was also found, thought to be caused by interference of the metal with thiol groups in the spindle apparatus of dividing cells.

Many countries have recognised the dangers of mercury in dental amalgams and are turning to safer alternatives, including composites, plastic and glass ionomers. It is time you also made the switch, for the sake of your patients, your family and yourself.



## The movement away from mercury

Country	Stand on dental amalgam
Sweden	In 1994, Sweden announced a phased-in ban on the use of amalgam. Presently there is a ban on the use of amalgam in anyone under the age of 19
Denmark	Dental Amalgam is only allowed in molar teeth
New Zealand	In New Zealand, a “Practice guideline - controlling dental amalgam waste and wastewater discharges” has been adopted, describing a code of practice on the use, storage, collection and disposal of mercury in New Zealand dental surgeries.
Germany	Germany has banned a certain type of amalgam (gamma 2 phase) and issued advisories against the used of amalgam in children, pregnant women and people with kidney problems
Austria	Initiated process to phase out amalgam restorations. Restrictions or warnings on use of mercury fillings such as for children, pregnant women, women of childbearing age, people with damaged kidneys or immune systems, and in the mouth adjacent to other metals.
Norway	Use of amalgam has been limited as much as possible in consideration to the environment and possible adverse health effects since July 2003.



**Toxics Link**  
for a toxics-free world

*If you require more information, please contact*

**Ratna Singh**

**Toxics Link – Delhi**

H2 Jungpura Extension (Ground Floor)

New Delhi 110 014

T: +91-(0)11-24328006, 24320711 F: +91-(0)11-24321747

E: [tldelhi@vsnl.com](mailto:tldelhi@vsnl.com) I: [www.toxicslink.org](http://www.toxicslink.org)