



EarthWatch Rhode Island



Topic: A Sweet Tooth for Mercury?

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Background:

For over 150 years, mercury-containing fillings (often called “silver” or “amalgam”) have been used extensively to fill dental cavities. Four metals—mercury, silver, copper and tin—primarily comprise amalgam, with mercury being approximately 50 percent by weight. While use of mercury-free fillings is becoming more prevalent, most dentists in the United States still use mercury-containing amalgam.

Current dental practices result in significant quantities of mercury being released from dental offices. Sludges generated by the treatment facilities are often incinerated, releasing significant amounts of mercury emissions into the atmosphere, which eventually pollute our waterways and fish. In 2004, the US Environmental Protection Agency estimated that dental clinics nationwide use 34 tons of mercury annually.

In response, DEM has developed a program to address concerns about the amount of mercury being released into public wastewater treatment systems and septic systems of dental offices that are not connected to sewers.

By July 1, 2008, Rhode Island dentists will be required to install amalgam separators in their facilities. The separators are installed in plumbing system and remove amalgam from new or removed fillings that would otherwise go down the drain. Amalgam separators are cost effective and filter mercury out of the wastewater before it leaves the dental office. According to industry sources, the installation of separators at dental offices could prevent 99 percent of the mercury releases that go down the drain for approximately \$50-\$100 per month.

The RIDEM dental certification program, that will soon be available to all RI dentists, will allow them to register and self-certify the installations of their separators. A simple electronic reporting form will minimize the



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reporting requirements while allowing dentists to become partners with RIDEM in helping to quantify the amounts of mercury captured in their separators. An annual update will allow RIDEM to track the reductions over time. Information about Best Management Practices and non-mercury dental options will be available on the Department website for the public and the dental community.

DEM worked with the Narragansett Bay Commission, Clean Water Action and representatives of the RI Dental Association to develop this program. DEM patterned the program after the NBC best management practices for the management of waste dental amalgam. Rhode Island dentists served by NBC are required to follow stringent, best management practices to prevent mercury pollution, including installing amalgam separators in their plumbing systems to remove excess amalgam from new or removed fillings that go down the drain. However, since more than half the dentists in the state are not part of the NBC service area, they have not yet taken similar steps.

Dangers of Mercury

Mercury makes its way into water bodies, where it is converted to methylmercury. Highly toxic methylmercury accumulates in many edible fish species, which are a major source of human mercury exposure in the U.S. Exposures to pregnant women are of particular concern because methylmercury can cross the placenta and enter the fetal brain. Children exposed to even low levels of mercury before birth can experience serious neurological and development deficits. Recent information is also evolving concerning a link between mercury exposure and an increased risk of adverse cardiovascular effects.

Mercury and Rhode Island

Most of the mercury that is deposited in RI's water and soils comes primarily from man-made air emission sources such as solid waste incinerators and coal-fired power plants outside the state and the Region. Rhode Island has initiated aggressive programs to address key sources of mercury pollution that the state can control. The programs promote the collection and recycling of mercury-containing wastes, including spent mercury switches from cars, used mercury glass fever thermometers, used fluorescent and high intensity discharge lamps, elemental mercury and mercury-added products from middle and high schools, and used mercury-added measuring and other devices.



Dr. Roger Turkel prepare to his assistant prepare to give a filling to a patient.

Reducing dental mercury is the next big step in making Rhode Island mercury free. Reducing dental mercury is also part of a regional mercury strategy. Recently revised projections to “virtually eliminate” mercury emissions in the Region were set by the Conference of New England Governors and Eastern Canadian Premiers. A goal of having 75 percent of dentists in the region install dental amalgam separators is expected

by the end of 2007. Using best management practices and an outreach and education program, RI dentists will be able to impact and significantly reduce the amount of mercury entering our air and waterways.

Interviews:

- Beverly Migliore, DEM Supervising Environmental Scientist
- Dr. Roger Turkel, Dentist and champion of amalgam separators



Channel 10 reporter Lisa Purcell (right) interviews DEM's Beverley Migliore (left) on the important safety precautions that should be used when dealing with dental amalgam.