



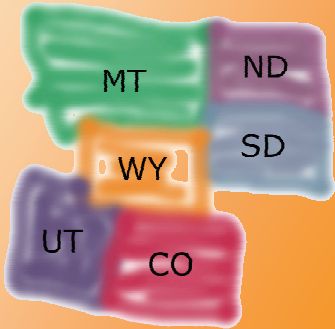
Pediatric Environmental Health Specialty Unit

A Network of Experts in Children's Environmental Health

Denver Health & Hospital/ Rocky Mountain Poison & Drug Center/ National Jewish Medical & Research Center, Denver, CO

Mercury Information & Resources

The Rocky Mountain Region Pediatric Environmental Health Specialty Unit serves Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.



What is Mercury?

Mercury is a heavy, shiny, silvery-white metal that is a liquid at room temperature. Breathing mercury vapor can be most harmful to people, but mercury can also be harmful if swallowed or when it contacts broken skin.

Concern regarding Mercury exposure is rising...

The National Academy of Sciences issued a 1999 report estimating that 60,000 children are born in the US each year with neurologic problems caused by mercury exposure in the uterus. Although most fish contain trace amounts of mercury, the benefits of most seafood outweigh the risks. But large fish that feed on other fish can accumulate enough mercury to irreversibly damage a baby's nervous system. Accordingly, the US Food and Drug Administration issued a consumer advisory for 2001: Pregnant women, nursing mothers, young children, and women who may become pregnant should avoid eating swordfish, shark, king mackerel, and tilefish. Current freshwater fish recommendations can be found on the EPA website at www.epa.gov/OST/fish/.

Environmental Sources of Mercury

Mercury is everywhere in the environment and everyone is exposed to small amounts. Mercury exists in three forms that are either inhaled or ingested: elemental (metallic), organic, and inorganic. Each type has different toxicities. Given the vulnerability of developing nervous systems, fetuses and children may be affected more than adults by exposure to mercury. As with any exposure, prevention of the exposure is of key importance.

Environmental contamination has occurred through mining efforts, as mercury is found in both coal and petroleum. Mercury is ultimately deposited into water where bacteria convert the metallic mercury to organic mercury, which then enters the food chain. Mercury is a known cause of irreversible nerve and brain damage, especially before birth and in the first 6 months of life. Mercury was responsible for the first known epidemic of cerebral palsy from a toxin when it was dumped into Minamata Bay in Japan in the 1950's by a vinyl plastic factory.

Sources of Mercury in the Environment:

- Inorganic/ elemental thermometers and barometers
- Industrial (vapor)
- Salts
- Medicines/antiseptics
- Organic
- Methylmercury
- Fish
- Phenylmercury
- Fungicides and bactericides

Mercury (thimerosal) is an ingredient in some vaccines

Mercury (thimerosal) is included in some vaccines in order to kill any live contaminants. While the dose administered with vaccination is small, concern regarding the exposure to mercury exists. The American Academy of Pediatrics (AAP) and the United States Public Health Service (PHS) has called for the elimination of mercury from all vaccines. Multi-dose vials require a preservative to prevent microbial contamination after the vial is opened, but manufacturers are encouraged to seek alternatives.

Thermometers

The American Academy of Pediatrics (AAP) issued a July 2001 report urging parents to remove mercury-containing thermometers from the home. Physicians should lead the way, by retiring mercury-containing blood pressure meters and thermometers. Motor skills and visual-spatial abilities may also be affected even with low-level exposure. Thermometers are a risk - if the glass breaks (and the mercury is ingested or the vapors are inhaled). Children should not play with metallic mercury.

Diagnosis of Mercury Exposure

The diagnosis of mercury exposure is made using the patient's history and physical exam with support of the laboratory. Blood levels may not suggest an exposure given the relatively short half-life of mercury in the blood. Inorganic mercury can be measured by determining the urinary concentration via 24-hour urine collection. Results above 10 to 20 micrograms/liter are evidence of excessive exposure and at values beyond 100 micrograms/liter, neurologic symptoms may manifest. Chronic exposures may be underestimated with this approach. Organic mercury testing requires highly specialized testing equipment.

What To Do With A Child With Mercury Exposure?

In the event of a mercury spill, a mercury spill kit may be needed. Do not use a vacuum to clean a spill. A vacuum will aerosolize the mercury, increasing absorption of mercury. With a large spill (several cubic centimeters) consultation with an environmental cleaning company is needed.

The most important aspect of treatment is to identify the source of the mercury in the child's environment and mitigate the exposure. Follow-up is of extreme importance to diagnose and treat subsequent growth and development problems that may arise.

Chelation therapy has a role in the treatment of mercury intoxication but its value is uncertain.

CALL ANYTIME FREE!
1-877-800-5554
Rocky Mountain Pediatric Environmental Health Line

