

# **AIR TOXICS AND THEIR CONSEQUENCES**

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Toxic air pollutants — also referred to as “air toxics” or “hazardous air pollutants” — are substances released into the air that can cause cancer or other serious health effects. They may also damage ecosystems. These pollutants can come from natural sources, as is the case with radon gas. However, they are predominately generated by factory smokestacks, electric power plants and motor vehicles. The federal Clean Air Act lists nearly 200 hazardous air pollutants as targets for clean-up that include heavy metals like mercury and chromium, organic chemicals like benzene, and dioxins.

Mercury has been the focus of regulatory activity because of its documented carcinogenic effect, as well as its persistent prevalence in the environment. Since mercury is volatile and readily mobilized, and often travels great distances before being deposited, regulatory concern about the environmental impacts of mercury appear to be quite justified.

## ***consequences of air toxics***

Although much remains to be learned about the human health effects of mercury and other air toxics, scientists have linked these pollutants to neurological, cardiovascular, and respiratory disease. Effects on the liver, kidney and immune system have also been documented. Fetal and child development may too be harmed by mercury and air toxics. Some health effects are immediate. Such was the case in Bhopal, India in 1984 when more than 2,000 people were killed by the accidental release of methyl isocyanate. Other health impacts associated with air toxics may not manifest themselves for several months or years after exposure, as is the case with leukemia, a form of cancer typically caused by chronic exposure to benzene in the workplace.

Some air toxics pose a special health risk to sensitive human populations — such as young children or senior citizens. The EPA reports that roughly a third of the 200 air toxics can harm the development of a fetus, causing birth defects or miscarriages, and can prevent young children from growing into healthy adults.

Mercury poisoning is illustrative of the exposure pathways and health risks of all air toxics. Atmospheric concentrations of mercury at toxic levels are rare. Nonetheless, mercury washes out in rainfall and bioaccumulates in the tissue of animal and fish in an even more toxic form. Bioaccumulation means that concentrations of mercury in predators at the top of the food chain can be thousands — and even millions — of times greater than the concentrations found in the water they drink.

Human exposure to mercury typically occurs when contaminated fish are eaten as food. Over 40 states have issued health advisory warning against the consumption of certain species of fish because of this fear. In the words of the U.S. Environmental Protection Agency, “Neurotoxicity is the health effect of greatest concern with mercury exposure....Children born of women exposed to relatively high levels of methylmercury during pregnancy have exhibited a variety of developmental neurological abnormalities, including delayed onset of walking and talking, cerebral palsy, and reduced neurological test scores.” (U.S. EPA, *Mercury White Paper*)

Reproductive effects in wildlife are also of major concern. At concentrations well below those considered to be lethal, mercury has been found to impair the reproductive function of predatory birds and mammals that subsist on fish, resulting in lower egg hatching rates, lower birth weights and delayed motor development. Beavers, bears, eagles, gulls and loons have all exhibited these disturbing symptoms.

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