

Lead Poisoning Incidents Related to Lead Battery Production and Recycling

Lead has been used for thousands of years in products including paints, gasoline, cosmetics, and even children's toys, but lead battery production is by far the largest consumer of lead. Although chronic exposures to lead affect both children and adults, there have also been many reports of localized mass acute lead poisonings. Below we outline some of the largest lead poisoning incidents related to the manufacturing and recycling of lead batteries.

Kingston, Jamaica 1987

In August of 1987, Jamaican public health officials noticed that the large majority (86%) of lead poisoning cases in the city of Kingston were children who lived near backyard car-battery repair shops. Nine of these children had acute encephalopathy and seizures, and four were repeatedly treated for lead toxicity over a 15-month period. At that time there were 50 small lead car battery repair shops in Jamaica. Each shop typically employs one to two workers and shares space with a residence. A subsequent study found potentially hazardous levels of lead in the soil and in household dust in these residences.

Tunapuna, Trinidad 1991

After two siblings fell ill and were admitted to a hospital with seizures and paralysis, an extreme case of lead poisoning was discovered among an extended family of 20 children. The youngest, a boy of two years, died before his doctors made the link to lead exposure; his blood lead level (BLL) was 218 ug/dL (the WHO acceptable level is under 10 ug/dL). His sister, age six, was saved by the use of chelation therapy but suffered severe and permanent neurological damage; her blood lead level was 235 ug/dL. An investigation revealed that the family lived at the site of a former metal salvaging operation that recycled lead batteries. Remains of the batteries had been mixed with the topsoil and used as landfill. This resulted in soil with excessive levels of lead as well as scattered battery casing fragments easily accessible to children. Five houses were built on this site and the other 18 children who had grown up there were tested. All of these children were found to have excessive BLLs.

Managua, Nicaragua 1996

One of the largest car battery factories in Nicaragua, FANABASA, had operated for 15 years in Barrio Pablo Ubeda, in southeast Managua. In 1996, parents of children living near the plant began to complain about pollution from the plant. In response, a study of the lead levels in the local children was conducted. A group of 30 children in Villa Venezuela located further east in the city and similar in makeup was used for comparison. The children of Barrio Pablo Ubeda who were between 6 and 13 years of age had an average BLL of 17 ug/dL and 80% were above 10 ug/dL. The 30 children in Villa Venezuela control area had average BLLs of 7 ug/dL. FANABASA was closed shortly thereafter in response to the community outcry.

Haina, Dominican Republic 1997

A lead battery recycling plant in Haina closed in March 1997. At that time a study was performed to determine the impact of the lead pollution from the plant on local children. A survey of 116 children showed that they had an average BLL of 71 ug/dL. Although the recycling of lead batteries was discontinued, a great deal of lead waste in the form of lead dust remained. A subsequent survey conducted 5 months later was performed on 146 local children. The average BLL decreased to 32 ug/dL. While this was still three times the acceptable WHO limit, the closure of the battery recycling plant resulted in significantly lowering the local children's lead exposures.

Torreón, Mexico 1998

In 1998, there were reports of lead poisoning among children living in Torreón near the Met-Mex Penoles metal processing plant --the largest in Latin America. In 2001, the U.S. Center for Disease Control (CDC) tested 367 children in the area surrounding the plant. The agency found that 20% of the children had BLLs greater than 10 ug/dL, and 5% of the children had blood lead levels greater than 20 ug/dL. In the areas closest to the lead smelting site, 33% of the children had BLLs greater than 10 ug/dL and 12% had greater than 20 ug/dL. The CDC recommended the site continue to be monitored and that educational interventions on hazardous material hygiene for parents of at-risk children be continued.

Guangzhou Nanfang, China 2005

In 2005 many of the workers at the Guangzhou Nanfang Guangyuan Super Energy Battery Ltd, a major producer of car batteries in China, began to complain of nausea and stomach pains. After 400 of the company's workers underwent a physical exam, 140 workers were subsequently diagnosed with lead poisoning and treated by nearby hospitals. Immediately following the chelation treatment the workers were forced to return to work in the same factory with no significant changes in working conditions. The company denied all claims of wrongdoing by saying they had warned the workers about lead poisoning when recruiting and had established safety rules to protect them.

Meishan Town, Zhejiang Province, China, 2005

Meishan is the site of the Tianneng Lead Battery Factory. In May of 2005, 700 out of 1,300 local children tested for lead poisoning at a nearby hospital were found to have lead exposures over 10 ug/dL. In August, town residents staged a protest by locking the employees in the factory. They demanded the government close or relocate the plant because it was poisoning their children. The prior factory inspection in October 2004 showed the facility was in compliance with waste discharge standards according to the director of the State Environmental Protection Bureau. The protest ended when the local government agreed to take steps on the community's behalf.

Mafang Village, Henan Province, China, 2005

In June 2003, the Oriental Golden Lead Co Ltd constructed a new lead smelter near the village of Mafang. The company neglected to do an environmental impact assessment prior to building on the new site. Almost immediately production resulted in excessive emissions of sulphur dioxide and lead dust. In 2005, 259 village children were tested for lead in their blood. Eighty percent of the children were found to have BLLs in excess of the 10 ug/dL acceptable limit including eight children with over 30 ug/dL. Villagers reported to local media that the majority of the village children had left their homes for schools further away because of the danger to their health.

Xinsi and Moba Villages, Gansu Province, China, 2006

In Gansu Province concerned residents traveled hundreds of kilometers to access medical facilities to determine if a local lead smelting plant was poisoning them and their children. Local hospitals refused to test residents for lead poisoning, so they traveled 300 km to Xijing Hospital where 954 children were found to have blood lead levels greater than 10 ug/dL. Ten children were hospitalized, at least four with severe poisoning. In addition, 43 adults in the area were found to have blood lead levels of over 40 ug/dL. Chinese press reported that the Huixian County Non-Ferrous Metal Smelting Co Ltd chose this rural location because it would be more likely to escape scrutiny of the government. Before the facility was shut down it produced 5,000 lead ingots per year and dumped waste into open slag piles.

Dong Mai, Vietnam 2006

Dong Mai village, 40 km from Hanoi, was the site of several smelters that processed over 40 tonnes of scrap lead batteries each day. Airborne lead levels have been reported to be 4,600 times the national standard and lead in water 15 times higher. Over 500 local residents have chronic illnesses due to lead poisoning and 35 people have become disabled, including 25 children with severe neurological disorders. The Vietnamese government has since closed the smelters in this village, but some small lead battery recycling operations continue.

Dakar, Senegal 2008

The World Health Organization reports that at least 18 children died from lead poisoning over a three-month period in 2008 in the Dakar suburb of Thiaroye sur Mer. The residents of this area made their livelihood from melting down used car batteries to sell the salvaged metal. After the deaths were reported, an investigation revealed that at least 950 people living in this district were significantly exposed and dozens of additional children were found to have potentially lethal levels of lead in their blood. Some of the critically ill children had more than eight times the acceptable threshold of lead. While WHO and the Senegal Ministry of Health are treating children found to be severely poisoned, many still face long-term neurological damage.

Changqing, Shaanxi Province, China 2009

At least 851 children living near the Dongling metal smelter, China's fourth largest lead and zinc smelter, tested positive for lead poisoning. Some of these children are confirmed to have BLLs over ten times China's current level of concern of 10 ug/dL. Violent protests by angry parents and village residents caused authorities to temporarily close the smelter until it meets environmental standards. This closure comes several weeks after the plant initially ignored recommendations from local environmental authorities to suspend operations until certain environmental criteria were met. The local government promised as early as 2006 to relocate people living in the primarily industrial area near the Dongling smelter, but has yet to provide alternate housing.

Wenping, Hunan Province, China 2009

In southeastern China's Wenping village, elevated BLLs were found in over 1,300 children living near a newly opened and unlicensed manganese smelter. Seventy percent of children tested were found to have BLLs in excess of 10 ug/dL. At least 17 of these children were treated in nearby hospitals for severe lead poisoning. Officials have ordered the smelter closed until it meets environmental standards and have detained two of the plants owners for operating without the appropriate licenses. According to reports by Xinhua news agency, a kindergarten and a primary and middle school are located less than 1,700 feet of the smelter.

Kunming, Yunnan Province, China 2009

In an industrial area outside of Kunming, over 200 children tested positive for lead poisoning. The local environmental bureau has denied the correlation between the poisonings and industrial pollution. No closures have been made to any of the area's industry. According to Kunming's Center for Lead Poisoning Prevention, an average of 50-60% of children under 14 in Yunnan's mining intensive regions suffer from lead poisoning.

Tangxia, Jiaoyang, and Chongtuo, Fujian Province, China 2009

A battery manufacturing facility is confirmed to have poisoned at least 121 children in three villages of Fujian. The Huaqing Battery Factory in Shanghang County, in operation since 2006, was temporarily closed by government officials following protests by affected residents of the surrounding areas. Reports indicate that most children with elevated test results were in the range of 10 to 20 ug/dL with at least one case exceeding 21 ug/dL.

Qingyuan, Guangzhou Province, China 2009

Aokelai Power Co. Ltd, a battery factory in the Qingyuan industrial area, is confirmed to have poisoned over 40 children. The factory is situated less than 50 meters from a residential area that houses workers of a nearby aluminum factory and their families. The factory was ordered closed until it complies with environmental standards.

Dafeng, Yancheng, Jiangsu Province, China 2010

Blood lead testing of 110 children in the industrial district of Dafeng indicated that approximately half who lived in the area of a lead battery plant have blood lead levels in excess of 10 ug/dL. The Shengxiang Battery Company, the suspected source of the poisonings, is located less than 100 meters from the village. The factory was closed and ordered to relocate.