

Asthma and Lead Poisoning in Children

Short communication

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The United States has a large inventory of old houses and apartment buildings. Conditions in these units contribute to the presence of lead, asbestos, radon, mold, and combustion products as air pollutants, some of which are known asthma triggers. Although environmental and health officials work to raise public awareness about residential indoor air quality, pollutant abatement remains a private responsibility. Numerous studies have documented the incidence of indoor air pollution and its negative impacts on low income children, which include lead poisoning, leukemia, and allergies. Asthma, for example, is a growing concern for children. Asthma is the cause of over 10 million missed school days annually, is the third-ranking cause of hospitalization of children under 15 years of age, and entails an estimated \$3.2 billion per year in the United States in costs of treating children under 18 years of age [1].

Lead poisoning also is a hazard for children. Exposure to lead-contaminated dust and soil in and around older housing places children at risk for developmental delays and behavioral problems [2]. Sources of household lead exposure include paint dust, drinking water, solder, candle wicks, wood finishes and brass fittings, ceramics, shot and bullets, food and spices, toys and jewelry, lead as a stabilizer in vinyl and polyvinylchloride-based plastics and wiring, cosmetics, electronic equipment and electronic waste, contaminated soil, and lead batteries. Despite awareness of the dangers of lead exposure, lead in consumer products continues to be the reason for recalls, and the majority of those recalled products originate in China. Consumer education on this topic is ongoing, but should be expanded. Targeted audiences should include new parents, medical professionals, teachers, and others. Important messages should stress that any exposure to lead, especially by children, is harmful.

In 1909 France, Belgium, and Austria banned the use of white-lead paint [3]. Lead was banned in the U.S. as an ingredient in residential paint in 1978, and from gasoline in 1986, but there are an estimated

50 million homes and apartments in the U.S. with lead-based paint [4] and soil throughout the country is contaminated with lead from car exhaust emissions that occurred before the leaded gasoline ban. Beyond these issues, lead continues to be used in products that are used and consumed on a daily basis around the world. Lead exposure also occurs when processing discarded consumer goods. This includes an emerging risk of extensive lead poisoning in China, where crude methods are used to harvest metals from recycled electronic waste (e-waste), resulting in extensive soil and water contamination and elevated blood lead levels in children [5].

The U.S. Environmental Protection Agency [6] reported that residential cleaning practices can significantly reduce indoor environmental toxicants, but those practices are specific to different surfaces. This indicates that educators involved in housing education may want to include program elements that include home maintenance guidelines for prevention and eradication of indoor air pollutants of which consumers may not be aware. This could be an important component of public health education efforts.

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