



# Occupational and Take-Home Lead Exposure Associated with a Lead Oxide Manufacturing Plant — North Carolina, 2016

## Navigation

[Start](#)

[Committee Index](#)

[Author Index](#)

[Position Statements](#)

[Floorplans](#)

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**BACKGROUND:** Lead exposure is associated with adverse health effects among adults and developmental delays among children. In May 2016, state surveillance coordinators noted elevated blood lead levels (BLLs) among most employees of a lead oxide manufacturer (Company A) and two of their children. We investigated to identify risk factors associated with occupational and take-home lead exposures.

**METHODS:** We defined an elevated BLL as  $\geq 5$   $\mu\text{g}/\text{dL}$ . We reviewed routine BLL surveillance records for Company A employees during 2016. We visited Company A, reviewed personal hygiene, and interviewed employees about their personal hygiene, and children. We matched reported children to surveillance data.

**RESULTS:** Eighty-four of 92 (91%) persons ever employed at company A during 2012–2016 had  $\geq 1$  elevated BLL. Employees' median BLLs increased from 19 (range: 4–40)  $\mu\text{g}/\text{dL}$  in 2012 to 37 (range: 9–53)  $\mu\text{g}/\text{dL}$  in 2016. Site visits identified inadequate exposure controls, including open lead sources, no routine line maintenance, and inadequate training and monitoring of personal protective equipment (PPE) use and hygiene. Eighteen of 22 current manufacturing employees were interviewed; 17 (94%) reported always wearing an air-purifying respirator, but 13 (72%) did not consistently clean their respirator. All 18 employees changed clothes, boots and showered after each shift in plant areas considered clean; however, these areas were visibly contaminated. All employees reported bringing personal items home. Eight children (<1–8 years old) had elevated BLLs (range: 7–40  $\mu\text{g}/\text{dL}$ ).

**CONCLUSIONS:** Inadequate exposure controls and widespread lead contamination at Company A resulted in increased lead exposure to employees and their families. North Carolina Public Health is working with Company A to implement more effective engineering controls and enhanced PPE and hygiene policies.

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[<< Previous Abstract](#) | [Next Abstract >>](#)

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