

Clean Soil Alleviates Lead Risk for Kids

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“Within hours, at a cost of about \$100 per child, exterior play areas at childcare centers can be transformed from lead-contaminated to lead-safe with a margin of safety,” says Tulane professor Howard Mielke, who has led a study in alleviating lead issues for young children.



Tulane researcher Howard Mielke, who led numerous studies on environmental lead contamination, says adding clean soil to playgrounds will alleviate lead issues for young children who play there. (Photo by Paula Burch-Celentano)

He adds, “This is a miniscule cost when compared to the costs associated with secondary prevention and treatment of lead-poisoned children, the costs of learning and behavioral disorders, and subsequent costs to society of lifelong chronic health problems.”

Researchers have tested a simple and inexpensive way to reduce children's exposure to lead-polluted soil — covering playgrounds with a layer of clean soil.

“We're proposing a proactive strategy of primary prevention to protect children from lead poisoning and the health damage it can cause,” says [Mielke](#), leader of the

study.

He is a research professor of chemistry at the Tulane/Xavier Center for Bioenvironmental Research. Results of the [study](#), funded by the Greater New Orleans Foundation Environmental Fund, are published in the journal *Environmental Pollution*.

Since Hurricanes Katrina and Rita, more than 155 childcare centers have opened in New Orleans, Mielke says. Surveys of soil throughout New Orleans conducted by Mielke show that inner city neighborhoods have dangerously high levels of lead, with some containing concentrations several times greater than federal guidelines of 400 mg/kg for playgrounds.

Using the New Orleans lead map as a guide, Mielke enlisted 10 inner-city childcare centers and one community center in the study, then tested the effectiveness of leaving the original playground soil intact, placing a bright orange, water-permeable geo-textile material over it to prevent soil mixing, and then topping that with a six-inch-deep layer of clean soil.

Because young children playing in playgrounds have “age-specific hand-to-mouth behaviors,” their contact with lead-contaminated soil puts them at heightened risk to swallow contaminated soil and develop lead poisoning, he says.