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Low-cost lead test flawed

UR says kit's high error rate may give false sense of security

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If the swab comes back pink or red, it's positive: Lead dust levels in your home exceed the U.S. Environmental Protection Agency's standard. At least, that's how the home lead-detection test kits

were expected to work.

But a University of Rochester study has found that those quick, inexpensive tests used by homeowners nationwide are prone to high error rates when it comes to testing for lead in dust, potentially leading some consumers to falsely

assume that their homes are free of unhealthy levels of lead-laced dust.

Researchers found that 64 percent of the locations that LeadCheck Swabs had indicated were safe actually harbored hazardous concentrations of lead in dust.

"We tested them side-by-side with the 'gold standard' — dust wipe tests — and found that many times the swab showed no lead, there really was a presence of lead," said Katrina Korf-macher, an expert on lead poisoning at the UR's Medical Center and co-au-

thor of the study.

A spokesman for the company that produces the swab tests, HybriVet Systems Inc., questioned the study's findings, saying the product was never intended to test dust.

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What's at stake

The health and safety of children, who are most at risk of lead poisoning. A University of Rochester study has found that a popular home lead test kit is inaccurate the majority of the time, which might lead some homeowners to falsely assume their homes are safe.

Lead

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"We never developed the tests for dust," said Don Robart, a sales and advertising manager for the company. "To my knowledge, we never told anyone to test for dust."



Korfmacher

HybriVet's Web site, though, includes instructions on "testing surfaces for lead containing dust." And Korfmacher said instructions included with the test used in her research two years ago referenced testing for lead containing dust, as well.

The research was conducted in the summer of 2004 as part of the "Get The Lead Out" (GLO) project, a collaborative effort among UR, Action for a Better Community Inc. and several other community groups.

Childhood lead poisoning has been connected to serious behavioral and intellectual problems in children, so having an easy, affordable, effective means of testing for lead is important, experts say. County health departments across the nation recommend LeadCheck Swabs, for example, to mothers bringing home newborns from the hospital.

They are popular among community groups, landlords and other consumers. Unlike dust wipes, which require laboratory fees, waiting time and labor costs, swab tests are instantaneous, can be conducted at home and cost about \$1.30 each when purchased in bulk.

But their accuracy hadn't been tested in the field, Korfmacher said.

She and co-author Sherry Dixon, of the National Center for Healthy Housing in Columbia, Md., report in the June edition of the journal, *Environmental Research*, that they tested the LeadCheck Swabs in typical field conditions in high-risk Rochester neighborhoods, using the manufacturer's instructions.

Researchers compared the swabs to standard dust wipes, which are approved by the U.S. Environmental Protection Agency, used by trained risk assessors and analyzed at certified laboratories.

How they work

The swabs work much like a home-pregnancy test: A person rubs the swab onto a small surface to collect a dust sample and, if lead is present, the yellow tip turns pink or red. The instructions from tests used in the study say the swabs will instantly detect lead in dust at levels that exceed the EPA standard of 40 micrograms per square foot for floors, according to Korfmacher.

"The problem is, sometimes they're kind of brown," Korfmacher said, "and they don't say what to do if they're brown. Even if you assume brown (results) are positive, they'd still miss a lot of hazardous situations."

The brown tip might result from dirt hiding a red chemical reaction. Another explanation is that household dirt could interfere with the reaction between the dye in the swabs and reactive lead in the dust, researchers noted. Indeed, Robart said the tests don't work properly if the area being tested hasn't been sufficiently cleaned.

He also said the instructions included with tests used in the study have since been removed, and any reference to testing for dust referred to a different kind than what Korfmacher was testing, anyway.

"I think about the dust that ac-

cumulates on your floor, under your bed — that's the kind of dust she's talking about. I'm talking about the sawdust, dust from paint," he said.

Korfmacher said some of those tests may be still be "out there on the market," and even if the company didn't intend them for testing for dust in lead, "people are still using them for this purpose."

Even when results were interpreted conservatively, and every swab that did not stay purely yellow was counted as a positive lead result, the LeadCheck Swabs' probability of correctly identifying dust lead levels above the federal standard for floors was only 72 percent, the study concluded.

LeadCheck Swabs for lead-based paint testing have been produced by HybriVet since 1991. The brand was chosen, researchers said, "because of its widespread availability and use by community groups."

In an e-mailed statement, Robart said: "In many studies done over the past 15 years, LeadCheck Swabs have been shown to give reliable results in the detection of lead on a variety of surfaces. For best results, test surfaces must be free of oil, dirt and debris that may interfere with the ability to see color development on the swab. If the ability to see color is masked, the result is not necessarily negative, it is inconclusive. This distinction was not made in the study."

Products that rely on the same technique as lead dust wipes are available for home use, though they require laboratory analysis, and their results can be skewed by operator error.

Grant available

State Sen. Jim Alesi, R-Perinton, recently secured a \$25,000 grant for those tests for Group 14621, which represents the northeast Rochester neighborhood where elevated blood lead levels in children have been high.

The money would be used to purchase about 1,000 "lead smart test kits," which would be available primarily to homeowners.

The group's executive director, Joan Roby-Davison, said she hopes to fill in some of the gaps created by the city's lead prevention ordinance. The ordinance allows tenants to request free, on-demand dust wipe tests, but not owner occupants.

"It really leaves low-income working families in that gap. They can't quite afford to get testing done, but because homeowners are not eligible for (certain lead remediation programs), ways to fill that gap affordably would be really good," Roby-Davison said. □

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