Environmental Health Grants Focus on Lead in Toys, Lead-Safe Remodeling

CINCINNATI—University of Cincinnati (UC) environmental health researchers have received more than $700,000 in new grants from the U.S. Department of Housing and Urban Development (HUD) for separate studies aimed at protecting people from the ill health effects of lead.

The first study, led by Scott Clark, PhD, will investigate whether field portable X-ray fluorescence analyzers can accurately identify painted wood toys that fail to meet the Consumer Product Safety Commission’s new limit for lead content in new paint: 90 parts per million, effective in August 2009. The current limit is 600 parts per million.

Portable X-ray fluorescence analyzers are a standard tool used by home inspectors to test interior and exterior painted surfaces for lead. The device measures the amount of lead on the surface of a material—known as “lead loading.” Clark’s team will use the same technology to estimate the lead content of painted toys in parts per million.

“Recent recalls of hundreds of thousands of toys imported from China have greatly increased public concern about lead-based paint exposure from environmental sources other than the home,” explains Clark, a professor of environmental health at UC. “Parents are rightly worried about whether the toys their children play with are safe and need guidance on how to detect potential problems.”

For this study, Clark and his team will test wooden toys made overseas in countries that do not have effective restrictions on lead-based paint. He says these are the most likely products to slip into the United States undetected by current import screening guidelines.

The goal, says Clark, is to develop a more accurate method for directly testing—within a couple of minutes and without having to test the toys in a laboratory—whether toys made outside the United States contain unacceptable levels of lead-based paint. Clark says there is currently no scientifically proven method for such a “direct and virtually instantaneous” determination of the lead content of paint on toys.

The correlation of lead concentration and lead loading for a single layer of paint is only possible if the thickness of the paint is uniform. Clark and his colleagues have obtained over three hundred single layer samples of paint, many containing very high lead levels. The samples came from nearly a dozen countries on three continents.

“We believe by measuring the exact thickness of the paint on these samples, and on painted wood toys, we can use X-ray fluorescence to draw a more direct correlation between lead loading and lead concentration,” explains Clark. “Having this information will allow us to more accurately and rapidly determine if the toys meet U.S. guidelines for lead content.”

Research has shown that early-childhood exposure to lead from environmental sources such as consumer paint causes serious cognitive and physical delays.

“Health risks from toys will most likely be lower than that from lead-based paint hazards in housing, but the risk is still real. Lead poisoning prevention programs still need to address the public’s concerns over contaminated toys,” Clark says. “The methods currently available for examining toys have not been adequately evaluated and could very well be inadequate.”

The second study, led by Judy Jarrell, EdD, will include a comprehensive review of the Ohio Department of Health’s interactive training techniques and online tools for lead-safe work practices in an effort to synergize existing training opportunities and improve effectiveness.

“In the past, there has been limited oversight on lead-safe renovation training practices, so it has been up to the contracting company or independent contractor to ensure that their workers complete the proper training,” explains Jarrell, a professor of environmental health and director of the NIOSH (National Institute of Occupational Safety and Health) Education and Research Center continuing education program and the Great Lakes Regional OSHA (Occupational Safety and Health Administration) Training Institute Education Center.

“We want to offer as many training formats as appropriate to allow more people to learn and retain their knowledge about lead-safe renovation practices,” she adds. “In the end, good training protects both the workers and homeowners who employ them.”

To develop appropriate recommendations for a comprehensive training curriculum, Jarrell’s team will partner with other approved training
centers in Ohio to observe, compare and evaluate the effectiveness of various training formats, including group seminars, interactive training and online learning modules.

Jarrell says all contractors who work on homes built prior to 1978 are required by the State of Ohio to complete lead-safe renovator training. According to the Environmental Protection Agency (EPA), common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children. Starting in March 2008, the organization began the phasing in of required certification in lead-safe remodeling.

Environmental health researchers will seek to create a standard training curriculum that meets both the EPA and HUD’s training and certification requirements.

“We want to synergize the state and national lead training requirements into a single training opportunity so that it will be more convenient for contractors to complete and homeowners are safer,” adds Jarrell.

The UC occupational health research team developed the EPA model lead abatement contractor and project designer training courses currently used by the EPA.

Bill Menrath, senior research associate in environmental health, is a key investigator on each of these studies. For more information on UC’s environmental health department, visit www.eh.uc.edu.