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The link between lead poisoning and underperforming students

By Megan Cottrell
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Patricia Robinson recalls a time when she fondly watched her son, Michael, then a toddler, sit in the windowsill of her Englewood home, completely engrossed. Matchbox car in hand, he would run the toy back and forth over the brown painted surface, making little vrooms and beep-beeps as he played.

Ten years later, Robinson's warmth for that moment has long faded. That was where it started—where she believes Michael ingested the lead-filled dust that poisoned him, leaving him with lifelong learning disabilities. "There isn't a day I don't think about it," Robinson says. "It's taken over my life."

Doctors, organic food, costly tutors, special ed teachers—Robinson has tried whatever she can to help her son get ahead, despite the difficulties he's faced because of lead poisoning. But Michael's struggles to learn, to pay attention in school, and to get along with other children continue.

While there's no doubt that the number of children affected by lead poisoning has dropped precipitously since the 70s (when lead was taken out of paint and gasoline), Chicago has the distinction of being home to more cases of lead toxicity than any large city in the U.S.

A recent study out of the University of Illinois at Chicago examined the blood lead levels of third graders between 2003 and 2006—students now likely to be roaming the halls at CPS high schools. It turns out that at three-quarters of Chicago's 464 elementary schools, the students' average blood lead level was high enough to be considered poisoned, according to standards set by the Centers for Disease Control and Prevention. And although lead poisoning is rarely mentioned in the debate on how to improve schools, the UIC research shows just how much it may be damaging kids' ability to succeed. According to the study, lead-poisoned students in Chicago Public Schools are more likely to fail the third grade and score notably lower on their yearly standardized tests.

Lead paint, which was banned in 1978, is still present in thousands of older homes and apartment buildings across Chicago, particularly on the south and west sides, where the housing stock is older. And though lead hazards are clearly identifiable and inexpensive to eradicate, the city's budget for lead-poisoning prevention has plummeted in recent years.

"Lead poisoning is one of the few causes of social and learning problems that we know how to solve," said Anita Weinberg, director of Lead Safe Housing Initiatives at Civitas ChildLaw Center at Loyola University. "We can resolve this problem within a generation, but it's not a priority for the city."

As money has dried up, the burden to get the word out has fallen on parents like Robinson. She tells parents about the dangers of lead poisoning every day as she helps Englewood residents obtain health care access and child care through her work at Children's Home and Aid.

"I try to warn them," says Robinson, who figured out what happened to her son through bloodwork and environmental tests of their home. "I want to let them know so they won't have to go through what I have gone through."

How do kids become lead poisoned? It's not usually from eating paint chips. Instead, lead is typically ingested as dust—dust that's created when old windows and doors are opened and closed, scattering a fine layer of the invisible stuff on a home's floors and walls. As is presumed to be the case with Michael, children get this dust on their hands, then put their hands in their mouths. It doesn't take much: a sugar packet's worth of lead dust scattered over an area the size of a football field is enough to poison a child.

Once lead is in the body, it crosses the blood-brain barrier and can settle in the bones. It disrupts normal brain function, making a child more likely to suffer from learning disabilities, antisocial tendencies, and even violent behavior.

It's a problem Anne Evens first became aware of when she was working on improving housing on Chicago's west side in the 80s.

"I was sort of struck by the fact that so many low-income families and building owners were stuck with this situation of having so much lead in the environment—this huge burden that caused children to get sick and building owners to be stuck with the cost of removing the lead," Evens says.

The problem bothered her so much that she joined the Chicago Department of Public Health and started working as an epidemiologist in the department's lead-poisoning-prevention program. A few years later, she became the program's director. In her ten years with the department, she revolutionized the city's efforts to combat lead, turning the program from a slow-going effort that only helped children after they had already been poisoned to a proactive movement that aimed to prevent poisoning in the first place. Evens helped file a class action lawsuit in 2002 against the paint industry—an effort that later failed—to get more money to remove lead from Chicago's homes.

Evens felt that to attract the money and attention necessary to rid Chicago of lead hazards, someone needed to quantify how much damage was being done. So she left the health department and got her PhD in environmental health. Her dissertation project? The largest study ever done on how lead poisoning affects schoolchildren.

Evens was able to get the health department and the Chicago Public Schools to share data, and she analyzed the records of thousands of students who were in elementary school between 2003 and 2006, looking at their lead-poisoning test results and comparing those with their standardized test scores. With the wealth of data from the two departments, she could control for outside

factors that might affect a child's learning ability, including poverty, the mother's education level, and birth weight.

In addition to finding that a child with even low levels of lead in his or her body was more likely to fail the third grade, she also determined that lead-poisoned children scored an average of six points lower on standardized tests—enough to make a difference between passing and failing.

"When you think about how many kids in the CPS school system are just barely passing with regards to meeting the standards, absolutely it makes a big difference," Evens says. "It impacts a huge number of kids."

Economist Richard Rothstein has described lead poisoning as the "low-hanging fruit" of education reform, saying it is one of many factors that contribute to the achievement gap between white and minority students. He says the public perception is that lead is no longer a problem, but that's not the case when it comes to poor, minority neighborhoods.

"Throughout the country, low-income children have more lead exposure than middle-class children," Rothstein says. "All children are less exposed to lead than they used to be, but the biggest declines have been for middle-class children."

A further analysis of Evens's data looked at the average blood lead level for each school in the Chicago Public Schools system. The most widely recognized standard for lead poisoning is ten micrograms per deciliter in a child's blood. Recently the CDC lowered that standard to five micrograms per deciliter—what the agency refers to as the "level of concern."

Taking an average of the third-graders' blood lead levels for each school, the data showed that nearly 75 percent of schools have an average blood lead level over five. In the worst schools, average levels top ten, going as high as 16. Using this new CDC guideline, the number of children considered lead poisoned in Chicago jumped considerably—from one in 80 children to one in ten, according to data from the Illinois Department of Public Health.

Emile Jorgensen, an epidemiologist with the Chicago Department of Public Health, says that number likely overestimates the amount of children with lead levels above five because of limited accuracy in lab results. He estimates that the number of children with lead rates five and above is more like one in 12.

"When you think about all the challenges that our kids have in terms of performing in school—poverty, gang violence, the list goes on and on—lead is something you can actually do something about and have an impact," Evens says. "It just seems crazy, as a community that cares about school performance, not to invest in preventing it."

In addition to being the largest study of its kind, Evens's research points out that even very low levels of lead can have a negative impact on a child's ability to learn.

Evens now works at CNT Energy, managing a program that replaces old windows to combat lead poisoning and increase energy efficiency. Since she left the health department in 2006, funding has fallen and inspectors have been laid off.

Says Evens: "As a city that has historically had so many lead-poisoned kids, to be substantially reducing efforts to fight it—that's very worrisome."

The corner of 69th street and Emerald in Englewood is occupied by two vacant lots, a small corner store, and a storefront office with boarded-up windows and a banner on the door that reads, "Imagine Englewood If . . ." As children file in for an after-school tutoring session, Joanna Brown locks the door after them. On the back of the door hangs a sign that reads, in scripted red marker, "Attention Children, do not open this door for anyone."

If Chicago is the nation's capital of lead poisoning, Englewood is its center square. In the 90s, the neighborhood had the highest lead-poisoning rates in the entire country.

"In poor neighborhoods, the lead just does not get cleaned up," Brown says. "It's in the soil, the windows, the floors, and the babies just walk through it."

Brown sits at a long table, surrounded by the brightly decorated room, cubicles on one side and classroom-style setup on the other. She squints at her laptop, sending out e-mails about a meeting at the local school, Miles Davis Magnet Academy. Through a small grant from the Woods Foundation, Imagine Englewood If has been working to increase lead-poisoning awareness, talking to parents at local schools and encouraging local landlords to deal with lead hazards in their apartments.

"To me, it changes the whole conversation about why Johnny can't read," Brown says. "It's no longer that he's less able or less intelligent."

Imagine Englewood If used to be able to administer lead tests to schoolchildren in the area, but the funding's dried up. The group wants to petition Springfield for more funding and is hoping to develop legislation that would provide extra resources to communities like theirs.

Imagine Englewood If has gotten help from Loyola University's child law program, which has also awarded a handful of small grants to aid efforts throughout the city to educate families about the dangers of lead. It's not enough, says Loyola's Weinberg. While making families aware of the lead is a start, the problem is too large to be taken on by the individual.

Weinberg points to potential legislation being drafted by the Metropolitan Tenants Organization, an advocacy group for renters' rights, that would require every apartment in the city to be inspected every few years, not just when a child is found to be lead poisoned.

"Right now, it doesn't come to the city's attention unless the child has already been poisoned," Weinberg says. "We want to prevent the child from becoming sick."

John Bartlett, director of the Metropolitan Tenants Organization, says they're working on the ordinance. So far they've met with several aldermen, but none has signed on as a sponsor.

Chicago doesn't directly spend a dime on lead-poisoning prevention. The lead-poisoning-prevention department is funded through grants from outside organizations: the Department of Housing and Urban Development, the Illinois Department of Public Health, Cook County, and until recently, the CDC. From 2008 to 2011, the CDC gave the department nearly \$5 million, but that ended in 2012, when the CDC's national budget for lead-poisoning prevention was cut from \$30 million to \$2 million.

Dr. Cortland Lohff, director of Chicago's lead-poisoning-prevention program, says the department was forced to eliminate some inspector positions and use those funds to support other nursing and administrative positions. He says a new, smaller grant from the Cook County Department of Public Health will help rehab 300 homes over the next three years and remove lead hazards.

So what does the city spend the rest of the grant money on? It's not entirely clear. Although the 2012 city budget details what the department intends to spend in specific categories—inspectors, testing, epidemiologists, even office supplies—CDPH was unable to provide detailed numbers for previous years. Efrat Stein, a former department spokesperson, said those records were "not readily available," and was unaware if the program spent every dollar collected on lead abatement. Quenjana Adams, the department's current spokesperson, did not provide further information.

Lohff points to the department's successes, saying the number of children found to have suffered lead poisoning has vastly decreased over the last decade. But the city mainly focuses on children with higher levels of lead: ten and above.

"The numbers of kids who have been lead poisoned have certainly come down, but when we start recognizing the dangers to kids at lower levels, those numbers are way up there still," says Weinberg.

By law, a building owner has to safely get rid of a lead hazard once it's identified, but Weinberg says this doesn't always happen. When a hazard isn't taken care of, the city pursues the property owner, filing a case with administrative hearings and escalating it to housing court if the hazard isn't taken care of. The entire process takes months, sometimes years. This year alone, the city has filed 114 cases in housing court over lead hazards that still haven't been abated.

In many households with toxic lead levels, families are often struggling to keep the lights on or put food on the table, says Judy Frydland, a city attorney who supervises lead cases in housing court. Frydland says her attorneys make sure lead hazards are cleaned up. She also says that, compared to the homeowners' other struggles, the threat of lead can seem distant and vague.

"I remember handling cases saying to people, 'You are hurting your own child,'" Frydland says. "But the population you're dealing with has so many other problems."

Nicholson Elementary kindergarten teacher Dorethea Lane first became aware of lead poisoning when a five-year-old boy named Michael ended up in her class. She had 32 kids in her classroom that year and the extra attention and help Michael needed was daunting. Lead poisoning had delayed his speech, he couldn't focus, and he didn't work well with the other children.

"All of my kids are different, but he was so different," Lane says. "The other kids were affected by his behavior. It took a lot of one-on-one time."

She could see that Michael was bright, but he couldn't communicate or finish a task. When she noticed that he could calm down if he had something to do with his hands, she brought in Legos for him to build with. He loved learning about the solar system and astronauts, so she would find books, pictures, and computer games about space to help him.

Lane says no one—not teachers, principals, social workers, nor counselors—considers lead poisoning when trying to figure out what's preventing a "low-performing" child from learning. She says lead poisoning has never been a part of her teacher training or professional development with the Chicago Public Schools.

"We as educators should know more about it," she says

Michael's progress has pushed Lane to learn more about how lead could be affecting her students. Ten years later, Michael has a larger vocabulary and no longer needs speech therapy. He still struggles with reading comprehension, but he excels in math. His attention span is getting better.

Lane says that if teachers knew more about what lead does to the brain and how it was affecting kids in their classrooms, more could be done to help them. But there's currently no coordinated effort between the Chicago Public Schools and the Chicago Department of Public Health to inform teachers or parents about the dangers of lead poisoning.

CPS spokesperson Robyn Ziegler says the school system tries to encourage students to get tested for lead poisoning, as required by law, before they start school, and works to connect students who have lead poisoning to medical help and special education.

But according to city data, less than half of Chicago's kids have been tested for lead. In some neighborhoods, the testing rate is as low as 13 percent.

Ziegler says CPS works with supporting organizations to address the issue of lead poisoning, but did not give names of any specific organizations or programs the district is involved in.

Officials at CPS received Evens's study, but had no official response. Ziegler notes that the district's leadership has changed since the study was released.

Patricia Robinson, Michael's mother, believes that officials don't care because the kids who are affected live in neighborhoods like Englewood, not where their own children live and go to school.

"If it's not in your family, if it's not in your area, why should you care about it?" she says. "It's not a concern for you."

She blames herself, too, for what she wishes she'd noticed a decade ago, when her little boy sat playing in the windowsill.

"Why didn't I know?" she says. "I should have known—but word don't get out, so you don't know."