

Episode 3 - Dr. Robert Keefe: Childhood Lead Poisoning and Repeat Teen Pregnancy

[00:00:08] Welcome to LIVING PROOF A podcast series of the University at Buffalo School of Social Work at www.socialwork.buffalo.edu. Celebrating 75 years of excellence in social work education. We're glad you could join us today. The series Living Proof examines social work research and practice that makes a difference in people's lives. I'm your host Adjoa Robinson. Today's podcast features Professor Robert Keefe. Dr. Keefe research focuses on factors that inhibit the provision of access to health and mental health care for historically oppressed groups. Dr. Keefe discusses the initial findings. Research conducted in Syracuse New York on the role of structural variables leading to disparities in childhood lead poisoning and repeat teen pregnancy. Dr. Robert Keefe's presentation was recorded as part of the School of Social Work colloquium series an edited version of the PowerPoint presentation is available for download from our website. Now here's Dr. Robert Keefe. teen pregnancy rates around the country have been going down over the last good number of years actually. So what we were concerned with is not teen pregnancy but the repeat OK its the repeat teen pregnancy that we were concerned with our hypotheses were that among females childhood lead poisoning is associated with repeat teen pregnancy and among females childhood lead poisoning is associated with cigarette smoking with lead poisoning. It stays in the system once you've got it you've always got it. OK. The thinking had been however that for a female who has lead poisoning that she would not pass the lead poisoning on to her children. We've since found that during the second trimester of pregnancy lead leeches from the mother into the fetus.

[00:02:09] So a child born and we study only children born after 1978 in 1978. Those of you probably know as when the federal law laws were passed that you had to use that they took lead out of gasoline and lead out a pain. So everyone was naive as to the pernicious effects of the continued lead poisoning. So in essence then you have successive generations that are still being born with lead poisoning in our earlier work. We have looked at cigarette smoking. We looked at tobacco use and addiction rates and so forth either 95 percent. It may even be 98. It's very very high the percentage of all homes built in Buffalo Rochester and Syracuse were built before 1978. So you have all these older homes that have a good potential for a lot of lead poisoning. We found the cigarette smoking and some of the teen pregnancy stuff in the earlier research but no one's been looking at the lead stuff. So that's why we started going in that direction in our prior research we found that teens who give birth are likely to suffer from additional health problems have repeat pregnancies. OK. So once you had a pregnancy your odds of having another one. You know they're not perfect 100 percent but they're still up there live in impoverished neighborhoods i.e. houses built before 1978 live in poorly maintained housing increasing the risk of lead exposure and have limited access to health care. Now this is pretty clear. I think these studies have clearly borne that out lead poisoning in Syracuse.

[00:03:43] While Syracuse has the second highest prevalence of elevated blood lead levels in New York and there are five ZIP codes in Syracuse where 76 percent of the total number of lead poisoning cases or in these five zip code areas and those ZIP code areas account for seven point seven percent of the entire incidence of elevated lead levels in New York State. So really you get quite a quite a problem here. Highest risk to exposure is while old lead based paint dilapidated housing around windowsills in the soil around buildings and lead tainted water. I just want to talk about this a little bit. The laws in New York had been in actually Rochester the changing local laws were changed there. But when a tenant moved out all you had to do was repaint. You just painted over existing paint. You didn't have to do anything about lead abatement and Rochester they'd gotten some HUD money now to actually do that when you open and close windows your app to chip paint. What's been found is that the lead chips. Yes little infants and so forth are apt to eat them

they put everything into their mouths anyway. But what's really more concerning we're finding is that when the chips become pulverized because when they become pulverized it's the dust that gets emitted into the air and it stays there. It hovers there like a ghost that won't leave. You know it's just there also the soil around the buildings while the chips fall into the soil and so forth they seep into the water tables and end up tainting the water. Also you have old solder and copper pipes that has led the thinking had been get rid of the paint and you're OK.

[00:05:17] But they really haven't looked at it systemically. And what happens to the paint in the pulverising of the chips and so forth and how it hovers in the air and actually that tends to be more concerning the effects of lead exposure. Well decreased intelligence levels that's been borne out in the psych literature increased neuro impairments premature sexual maturation impulsive or aggressive behavior and delinquency. Now of course the premature sexual maturation was stuff we were concerned about delinquency primarily has been studied in males. Okay. No one's really looked at it in females impulsive or aggressive behavior. Again study didn't males and rat studies which did nothing to advance US of course premature sexual maturation. It's associated with it but there's also a human growth hormone in food and so forth that's been associated with premature sexual maturation. So we really all we can say is we have an association. It's sort of a temporal we can't say cause and effect on the neurotoxicity from lead poisoning affects the ability to plan learn from prior experience control impulsive behaviors and use executive functioning skills. This is something we were concerned about with respect to teen pregnancies. Looking at lead levels and birth rates by race and ethnicity in Syracuse among 15 to 19 year olds the lead levels high here for African-American. We just don't have birth rates Hispanic. We just couldn't make any meaningful use of the data per micrograms per decilitre. Now this is an important point here the federal government now tells us that you got to be below 10 micrograms per decilitre in nineteen sixties it was 60 micrograms per decilitre then they continue to have continued to go down.

[00:06:55] So now the CDC is actually saying we have studies that have confirmed that even if you're right around 10 micrograms per decilitre we're still seeing these problems. We use the Syracuse Healthy Start database including 15 to 19 year olds. We studied 1998 in 1992. Now the 15 and 19 year olds were born in the 1980s. OK. We just studied it during this period. What we found is that 75 percent of all mothers in the Syracuse Healthy Start database were less than 20 routine screening included childhood lead levels tobacco use and elevated blood lead levels were reported to the Women's physician. Now let's not get too happy with this because what we what the law state is if in 1961 when I was born. If my blood lead level was below 60 million it was right OK on the chart. You didn't have to write down the number. That was the federal law. If you were over 60 you had to write down the actual number and you sent a letter to the child's obstetrician and so forth. With that in mind if my blood lead level was fifty nine I'm clearly way above the 10 that's acceptable today. But I would be coded as being OK. That's point. So our sample while we have 536 pregnant teens right on. Two thirds were African-American. 47 percent were between 18 and 19. So actually meaning they were if 53 percent were 15 to 17. So with that in mind you're apt to have a more likelihood of having a repeat pregnancy among 15 to 17 year olds while they're still in their teen years.

[00:08:27] About 40 percent had second or higher order pregnancies and 38 percent were smokers. Now childhood lead levels in the sample. Ok most of them are 71 percent are under 20. But you still have all of these folks who are over that. Here we have any number of folks who are 40 and up who once upon a time they would be classified as being OK. So most again are under the under the 20 but we don't know how many of them are hovering between 10 and 20 who by now would be classified as having elevated blood lead levels or if they were born today. We had found that there was a relationship between elevated blood lead levels and repeat teen pregnancy repeat teen pregnancy and tobacco use the incidents. Like I said although going down around the country no one's been looking at this relationship. The baseline characteristics we found repeat pregnancy was

associated with elevated childhood lead and mother's age. Also tobacco use was significantly associated with maternal rates. Older teens are more likely to have pregnancies white smoked a lot more than African-Americans. However, this is one of the things we found in our food market studies. African-Americans more likely developed addictive problems because African-Americans are more likely to smoke mentholated cigarettes which are higher in tar and more addictive than whites and that's part of the marketing in the food markets. How Food Markets marketed their products and so forth logistic regression results while we use childhood blood lead levels as our independent variable and to outcomes. The repeat pregnancy and the tobacco use we control for race age and insurance type based just based on a prior research we decided to do that.

[00:10:17] Controlling for race and age in your mom's race a mom's age. Most mothers who have elevated blood lead levels are one point five times likely to have repeat pregnancies than moms with lower blood lead levels. So what guidelines should we introduce. I think all pregnant women should be informed about the major sources of lead environment in means of preventing exposure. Rochester is doing this much better. They've gotten some HUD money to look at lead abatement. Again the thinking used to be that just cover the paint just paint over existing paint will get rid of that problem. We know that does not work at the initial prenatal visit. Health providers should assess of woman's risk for current high dose lead exposures women found to be at high risk for current and high dose exposure should be tested for blood lead levels and counseled on how to reduce or eliminate current exposures. Women have been found to have blood lead levels of 10 micrograms per decilitre or greater should receive additional risk reduction education at postpartum visit. I think we should build into this risk assessment questions do you or others in your home have an occupation that involves lead exposure. Because again we're looking at residents were not looking at where people may work. Also do you live in an old house with ongoing renovations that generate a lot of dust. Again 90 some percent of all houses in these three western New York cities were built before 1978. Has your home been tested for lead in the water.

[00:11:43] And if so were you told that the lead level was high note a lead level over 15 parts per billion or micrograms per decilitre is considered high in the water. Do you use any traditional folk remedies or cosmetics that are not sold in a regular drugstore which may contain lead. Well we were going market to market in Syracuse that's one of the things that we noticed is that people often sell homemade makeup and so forth and some of the drug stores. And I thought that was really interesting they actually come in almost like Avon. You know they came in and they you know people would make makeup at home and they would bring it in and I wondered where did they get the tint for the coloring and so forth. All right. Do you or others in your household have any hobbies or activities that cause lead exposure pottery making at one time had higher chances of elevation of lead prevention strategies. Well primary will be prevent lead from affecting children secondary identify and treat children already poisoned. If you have a child under the age of 6. Ask the pediatrician to test the child at 1 in 2 years of age. Some states vary on this test paint and dust in the home was children's hands and toys off and they're really pushing handwashing anyway with in older homes wipe the floor and windowsills surfaces with damp cloths. Because we've seen with a pulverising of the paint chips again remove lead paint safely. Identify homes with lead paint. GIS mapping will indicate what homes were built before 78 remove lead paint before children move into the home. If children are already occupants remove HUD safely 330 million dollars in HUD money has been made available for mediation.

[00:13:16] That's not a lot but it's something use GIS mapping to map homes built before 78 map homes where children have tested with elevated blood lead levels in areas reached by intervention and identify hot spots enforce federal housing standard regs residential lead based paint Hazard Reduction Act of 92 states disclosure of known information on lead based paint in homes built before 78 needed to be disclosed lead abatement of rental property by landlord when the child has an elevated blood lead level and strict enforcement so far saved about forty five thousand dollars of

one on one project. This was in Rochester universal screening is not cost effective. Twenty seven percent of housing built before 1950 and 12 percent of the total population with elevated blood lead levels. Now this is a values issue I guess. You know the argument has been that it's not and cost effective targeted screening seems to be better risk assessment questions immigrants Medicaid eligible families public assistance eligible families and parents exposed to lead at employment sites. And again I wish we ask more about the employment sites. We did. Why does policy focus on secondary prevention. While we know this from just you know in general anyway. Social workers cost lack of consensus about how best to approach a health problem. Impact of the lead industry and lack of studies showing efficacy of primary prevention methods. Primary reason getting the funding Devilly efficacy studies Onondaga County six hundred ninety seven children were found to have elevated blood levels in 2002 two clusters in the city of Syracuse I mentioned five zip code areas they were on the north and south west and I showed this map before i 81 goes right here.

[00:14:59] OK this is all part of urban renewal and 690 goes along here. These zip code areas have the highest incidence of lead exposures. They also have the highest incidence of HIV highest incidence of drug arrests. It's just a really multi layered problem area. And again it's right with highways come through the city so it's always part of urban renewal in Onondaga County the prevention efforts. Lead has a control program for lead free housing. Syracuse regional led task force we developed. We started to get that one going was primary health professionals secondary home headquarters home improvement loan program is in Syracuse and the shock program from minor minor repairs in homes incorporate primary prevention strategies whenever possible ensure that risk assessment screening is sensitive to identified risk factors combined geographical data with incidents to create hotspots in hand hold landlords accountable for lead abatement. You've been listening to a podcast featuring Professor Robert Keith discussing his research on childhood lead poisoning and repeat teen pregnancy. Visit our website to hear more lectures and conversations about social work practice and research. Hi I'm Nancy Smyth Professor and dean at the University at Buffalo School of Social Work. Thanks for listening to our podcast. Our school is celebrating 75 years of research teaching and service to the community. More information about who we are through our programs and what we do. We invite you to visit our Web site at www.socialwork.buffalo.edu. At UB we are living proof that social work makes a difference in people's lives.