

Key to Risk and Protective Factors in Home Inspection Exercise

The Peterson Family

- 1) **Immediately adjacent to I-95** -- lead contamination of soil likely from leaded gas exhaust before lead was banned as an anti-knock gasoline additive.
- 2) **No current industry in the area** -- lead is still used in many industries.
- 3) **Recycling center** -- any industrial use could indicate lead contamination, recycling of batteries in particular can lead to lead hazards.
- 4) **Daycare center** -- being in a good safe daycare center can protect a child from lead exposure in the home. Studies show lead poisoning is less common among children in daycare settings than those cared for at home.
- 5) **Old house** -- Housing built before 1970 almost always contains some lead paint, especially on windowsills, trim, and doors. Old housing in poor condition with peeling paint usually constitutes a lead hazard.
- 6) **Restoring the house** -- Undertaking renovation projects on areas that have lead paint can lead to increased exposure to lead. The demolition and removal process leads to lots of dust and paint chips being distributed through the home.
- 7) **Living in the house while they are finishing the construction** -- living in with known lead hazards during renovation is extremely dangerous. Pets can be the first to show signs of poisoning since they have similar habits as children but are much smaller. Fumes from burning off old paint are the most dangerous and easily absorbed from of lead.
- 8) **Old plumbing was removed** -- Old pipes can be actually made of lead (if very old) or can have been joined using lead solder. Over time lead can leach into water as it stands in the pipes making the first draw of water in the morning especially toxic.
- 9) **Very old swing set that shows some rust** -- Rusting play equipment and the accompanying peeling paint has recently been found to be a source of lead for some children. Lead paint is highly durable and was an appealing choice for the manufacturers of outdoor play equipment.
- 10) **Grassy play area** -- a play area well-covered with grass protects children from lead-containing dust which can be kicked up when kids play on bare earth in areas with high concentrations of lead in the soil.
- 11) **Garden** -- Gardening in areas not known to be lead-free can lead to exposure to lead through eating homegrown vegetables. Roots and stems tend to concentrate more lead than leaves, fruits and flowers.
- 12) **Dog that sleeps under the porch** -- dogs in particular like to sleep on bare soil. When they come in contact with children or come in the house they can carry lots of lead-bearing dirt and dust. Cats and dogs can also become ill from lead exposure when they clean themselves with their tongues. Family pets often are the first to fall ill when a home is lead-contaminated.
- 13) **Policeman** -- Another common source of lead contamination is from lead bullets. Firing ranges have recently been identified as a common source of lead contamination. When a gun is fired, a small amount of lead is vaporized lingering in the air and depositing on a person's hands and clothing. In fact, the test the police use to see if a suspect has recently fired a gun is actually a test for the presence of lead! The spent bullets themselves also become a source of lead contamination when they drop to the ground after being fired.
- 14) **Stained glass...pottery** -- Artists frequently use tools and mediums that contain lead. Stained glass is also referred to as "leaded glass" since strips of lead are used to set the pieces of cut glass together. Lead bends easily and melts easily as solder which seals

the strips together. Some glazes used for pottery contain lead, especially those made outside the US.

15) **Rarely eats home-cooked meals together ...vegetarian** -- Diet plays a role in the absorption of lead into the body. Meals with low nutritional content, especially meals low in iron, calcium can lead to lead being easily absorbed from the blood. Vegetarian meals can be deficient in iron and calcium, especially if they exclude all animal products such as milk and eggs.

16) **Regular medical care...basic health insurance** -- These are protective factors in the sense that people receiving regular medical care are less likely than those who don't to have high blood lead levels. This is partially because they are likely to be diagnosed and treated but also these are an indicator of socio-economic status. People who are poor are the most likely to become lead poisoned.

17) **Hasn't traveled outside the US** -- Occasionally, someone becomes lead-exposed while they are outside the US and shows up here for treatment. Lead exposure in the Third World is more common than in the US since it is still present in gasoline and other household products.

The Hernandez Family

- 1) **Lovely, quiet street with large Mediterranean-style houses** -- indicates a high socio-economic status. Having a high income and education is associated with fewer cases of lead poisoning, mainly because the home tends to be in good repair.
- 2) **Moved to Miami from Argentina** -- families sometimes arrive in the US having been exposed to lead elsewhere. The developing world especially has very minimal controls on lead contamination, and lead is still routinely added to gasoline because many older cars are still in use.
- 3) **Putting dirt or sticks in the mouth** -- This child may exhibit "pica" -- a tendency to eat nonfood items such as soil, paint chips, clay etc. Pica is the classic risk factor for lead poisoning.
- 4) **Rough and tumble** -- Children who play hard tend to have more contact with dirt or paint when playing, rolling on the ground, banging things on furniture etc. Aggressiveness is also suspected as being a symptom of lead exposure.
- 5) **Medicine that she brought with her from Argentina** -- several common folk remedies including greta, paylooah, and azucan contain lead. These are often given to treat stomachache. Traditional medicine is particularly common risk factor in Miami.
- 6) **House is in good repair** -- Keeping a home well maintained is important in preventing lead exposure, especially in older homes suspected of containing lead-based paints. Peeling paint should be removed following EPA recommendations to control dust spread. Covering areas that are deteriorating (with paneling) is another good low-cost measure.
- 7) **Tiles need to be resealed** -- Old floor tiles were often glazed with lead-based glaze. When this glaze gets damaged over time, it can create fine lead dust. When tiles are sealed or replaced when the glaze becomes damaged, this risk can be reduced.
- 8) **Painted bed and wardrobe** -- while furniture cannot be painted with lead-based paint in this country, antiques (even cribs) or furniture imported from elsewhere can be unsafe for close contact with children. Furniture that sustains heavy use is a particular risk as it gets bumped and doors are opened and closed over time creating paint dust.

- 9) **Glazed ceramic cookware** -- glazed pottery which is either imported or labeled "for decorative use only" can be coated with lead-based glaze. This can be especially dangerous if the glaze is cracked or if a piece is used to store acidic beverages (such as orange juice). Leaded crystal is also not recommended for this use.
- 10) **Ate well enjoying yogurt and other snacks** -- Eating frequently and eating a well-balanced diet that contains calcium, iron, and vitamin C in particular can reduce the absorption of lead from the intestinal tract.
- 11) **A meat dish** -- meats are an excellent source of iron, which interferes with the absorption of lead from the gut.
- 12) **Landscaped** -- healthy and thick groundcover (i.e. grass, low-lying shrubs, or mulch) prevents soil from being blown around or stirred up by people's feet or pets. If soil is undisturbed it cannot be a lead hazard even if it has a high lead content.
- 13) **Air conditioned and windows rarely left open** -- In Miami as the temperatures rise, people leave windows open and spend more time outside. Cool, filtered air inside the home means less house dust and less need to be outside to play.
- 14) **Old metal blinds that appear to be deteriorating from age** -- Some metal window blinds after they have been exposed to years of sun and humidity begin to degrade, exposing the interior metals under the painted finish. Lead dust (from years of auto exhaust) can also have accumulated on these blinds if not frequently cleaned.
- 15) **No pets** -- pets have similar behaviors as children: digging, lying on the floor, crawling, running outside. All these behaviors can lead to pets tracking dirt into the home. Having no pets or keeping pets either indoors or outdoors can minimize this risk.

The Pierre Family

- 1) **Located in an area known as Little Haiti** -- this is an area classified as high risk because of its high rate of poverty and old housing stock.
- 2) **Return to Haiti** -- travel to the developing world can mean increased contact with lead.
- 3) **The house is old and ...never does maintenance** -- living in old housing that is poorly maintained is a risk factor for lead because of the problem of peeling and cracked lead-based paints and/or old lead soldered piping.
- 4) **Rarely finishes or cleans up** -- repair work started but not cleaned up or finished actually increases the risk of lead exposure because dust and paint chips are generated and then left in areas where they will be in contact with residents. Sometimes lead paint if undisturbed actually poses little hazard until it is sanded or otherwise broken up.
- 5) **Repairs batteries in the backyard** -- cottage industry such as this are a very dangerous source of lead.
- 6) **The house is kept very neat...sweeps everyday.** -- Good dust control measures have been shown to reduce children's' blood lead levels. Wet mopping and wiping down windowsills and other areas that accumulate dust with TSP (trisodium phosphate) a cleaner that binds lead can significantly reduce the lead in a child's environment.
- 7) **Children do not play in the dusty backyard** -- Controlling where children play to avoid dust or bare soil can help minimize contact with lead through the soil and the air.
- 8) **Job painting cars** -- auto and marine paints still contain lead, so the father could carry paint dust home on his clothing, skin and hair. Workers who have contact with lead

and especially those who have children should follow strict dust control guidelines such as changing out of work clothing outside the house and washing work clothing separately from the family's laundry.

- 9) **Neither parent has a formal education and ...speaks little English** -- low socio-economic status is a major risk factor for lead poisoning. This is a risk factor in the statistical sense; that is, studies have shown that lead poisoning affects those of low socioeconomic status more often than it does others. Being poor or being a minority does not physically mean someone is more susceptible to lead, except in the sense that poor people may live in environments where more lead industry exists and/or housing stock is in poor condition.
- 10) **They have no health insurance** -- if seeing a doctor is a very difficult, stressful or expensive event then parents will avoid screening services that might catch lead poisoning early.
- 11) **Many fruits, vegetables, and legumes** -- a diet high in vitamins, fiber, and vitamin C is a protective factor against lead.
- 12) **Eating few meat and dairy products** -- Diets low in protein and calcium can lead to more lead absorbed into the bloodstream from the gut.
- 13) **Works on a farm** -- some pesticides and fertilizers contain lead, as well as leaded gasoline used on farm equipment.
- 14) **Paints ...toy** -- some hobby type paints contain lead.