



# Are We Giving Ontario's Children a *Lead Start* ?

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Presented to:

**Best Start Resource Centre  
2008 Annual Conference**

# Objectives

- Identify lead as an environmental determinant of health
- Identify the associated risk factors, symptoms.
- Spot a lead hazard.
- Introduce resource materials



# Why worry about lead?

#1 IN A SERIES

**Johnny can't read,  
sit still, or stop hitting  
the neighbor's kid.**

**Why?**



Lakes fish contaminated with PCBs showed lowered IQs and shortened attention spans. And these effects on intelligence and behavior have been shown to persist throughout childhood. A Dutch study confirmed that increased maternal levels of PCBs can impact cognition in infants. Young monkeys exposed to PCBs at low levels show learning disabilities and hyperactivity.

**What We Can Do**  
There is much that parents can do to protect their children, beginning with the elimination of many pesticides.

- In young children lead exposure can lead to:
  - lowered intelligence
  - learning disabilities
  - attention deficit
  - hyperactivity; and,
  - anti-social behavior

(AAP, 2005)

# Increased vulnerability of children

- Their intake of lead per unit body weight is higher for children than for adults;
- Young children explore by placing objects in their mouths resulting in dust and soil being ingested and in some instances an increased intake of lead;
- The physiological uptake rate of lead is higher in children than adults; and,
- Young children undergo rapid brain and nervous system development in the first years of life
- (Tong, 2000; Rodier, 1995, 1994).



Many Sources of Lead

**Paint**

**Dust**

**Soil**



# Other Sources



## Drinking water

- Lead service connectors

## Consumer Products

- Painted toys/plastics
- Ceramics
- Fishing lures
- Lead shot

Not *every* home contains lead paint

## US Findings

- 75% of **pre-1980** U.S. housing still contains some leaded paint.
- Homes built **before 1950** contain the greatest lead concentrations



Not *every* child living in a home with lead paint will become lead poisoned

- Children living in **pre-1950's** homes are **five times** more likely to have an elevated blood lead level than children living in homes constructed after 1973.
- Risk higher for **low-income** children living in pre-1946 dwellings
  - (16% versus 4%)



# The Canadian Situation

## **Health Canada Canadian House Dust Study**

- Dust samples collected from 1,040 randomly selected homes
- 13 Canadian cities
- Results not publicly available 2010



# Risk Factors for Lead Poisoning Related to Housing

- Child under the age of 6 years
- Living in an older home (built prior to 1960)
- Current or past renovation history
- Low income families (living in dilapidated housing; fewer choices where can live)



# The Problem in Ontario

- **1,368,000** dwellings built prior to 1960  
– (30%)
- **157,205** (11% in need of major repair)

Statistics Canada, 2007



# Evidence of a problem

- Ottawa dust study 2001
  - (Rasmussen et al., 2001)
- 4 yr old boy in Montreal lead poisoned from eating “lead-free” paint
  - (CMAJ, 2004)

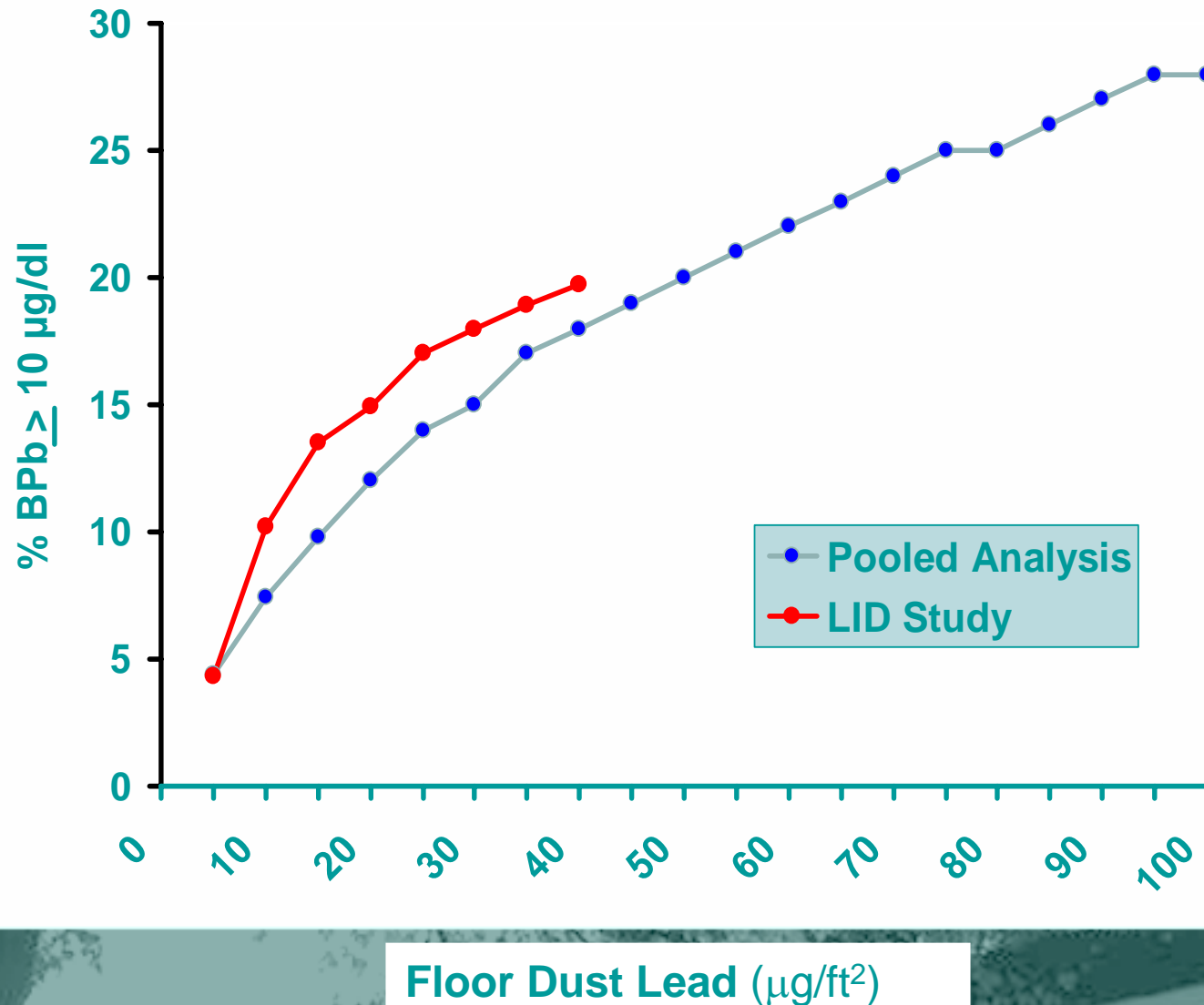


# Dust poisons children



# Contribution of Lead-Contaminated Floor Dust to Children's Blood Lead

Lanphear et al., 1998

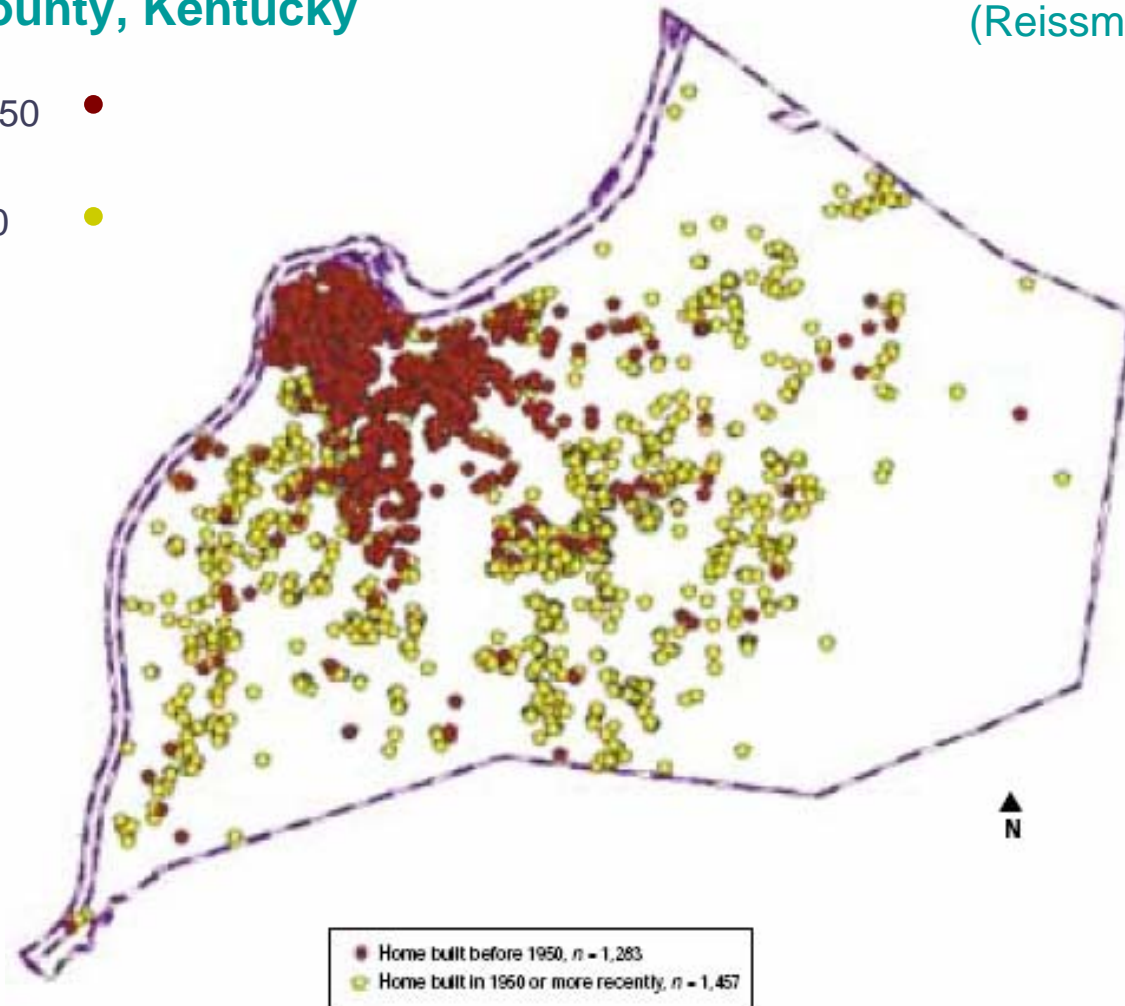


# Jefferson County, Kentucky

(Reissman et al., 2001)

Homes build before 1950 ●

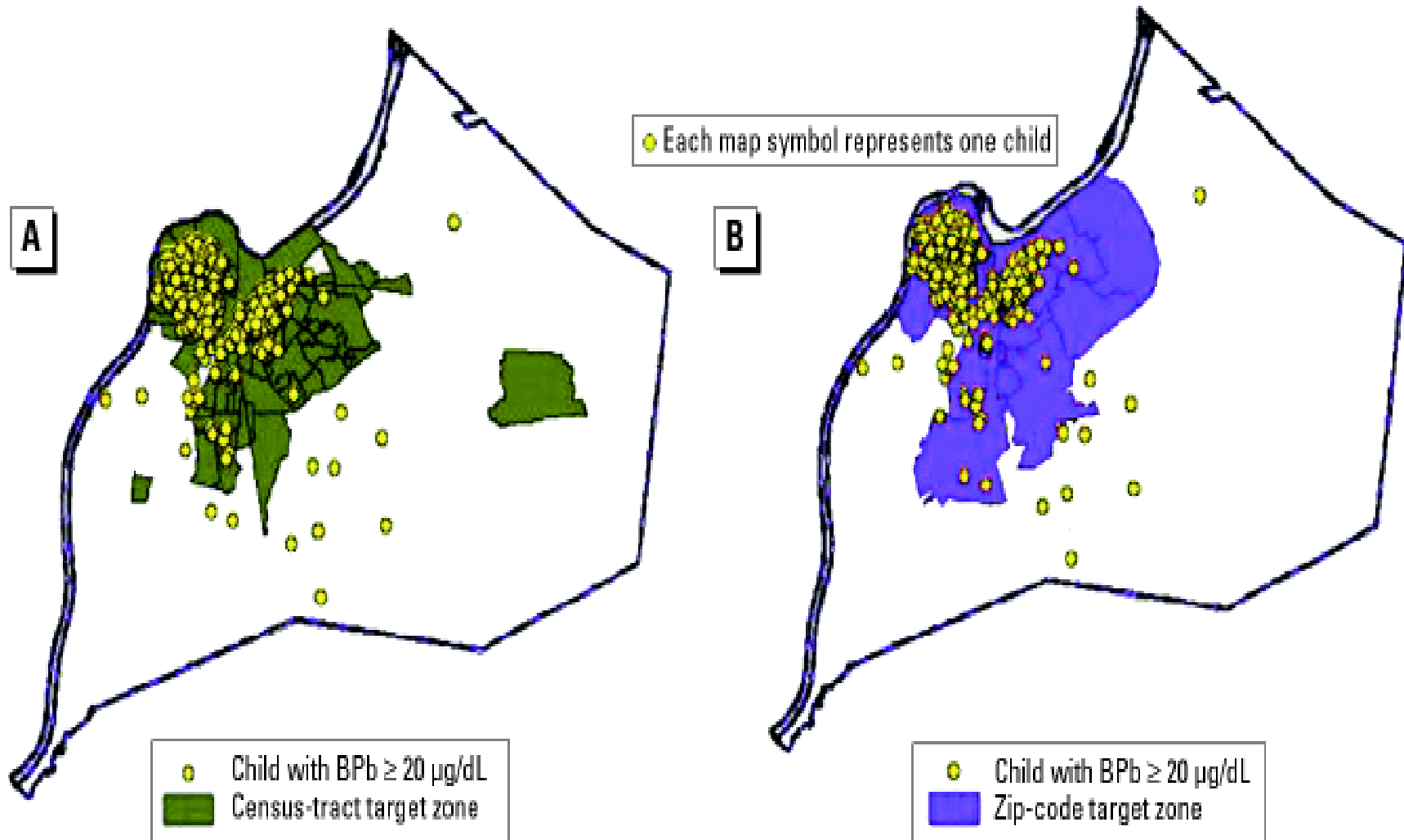
Homes build after 1960 ●



**Figure 1.** Residential location and age of home for children born in 1995 and screened in 1996–1997 for lead poisoning in Jefferson County, Kentucky. Each symbol represents one child.

# Kentucky Study

(Reissman et al., 2001)



# Test Your Home



EPA, 2000

## 140,000 Pb/ $\mu\text{g}/\text{ft}^2$

- 40  $\mu\text{g}/\text{ft}^2$  for smooth interior surfaces
- 250  $\mu\text{g}/\text{ft}^2$  for window sills
- 400  $\mu\text{g}/\text{ft}^2$  for window troughs

# Test Your Child

- Capillary or venous blood lead level greater than or equal to **10** micrograms per deciliter of blood ( $\mu\text{g}/\text{dL}$ )

- (Health Canada, 2005)



# Identifying Lead Hazards



# Peeling Paint



# Separating from the Substrate



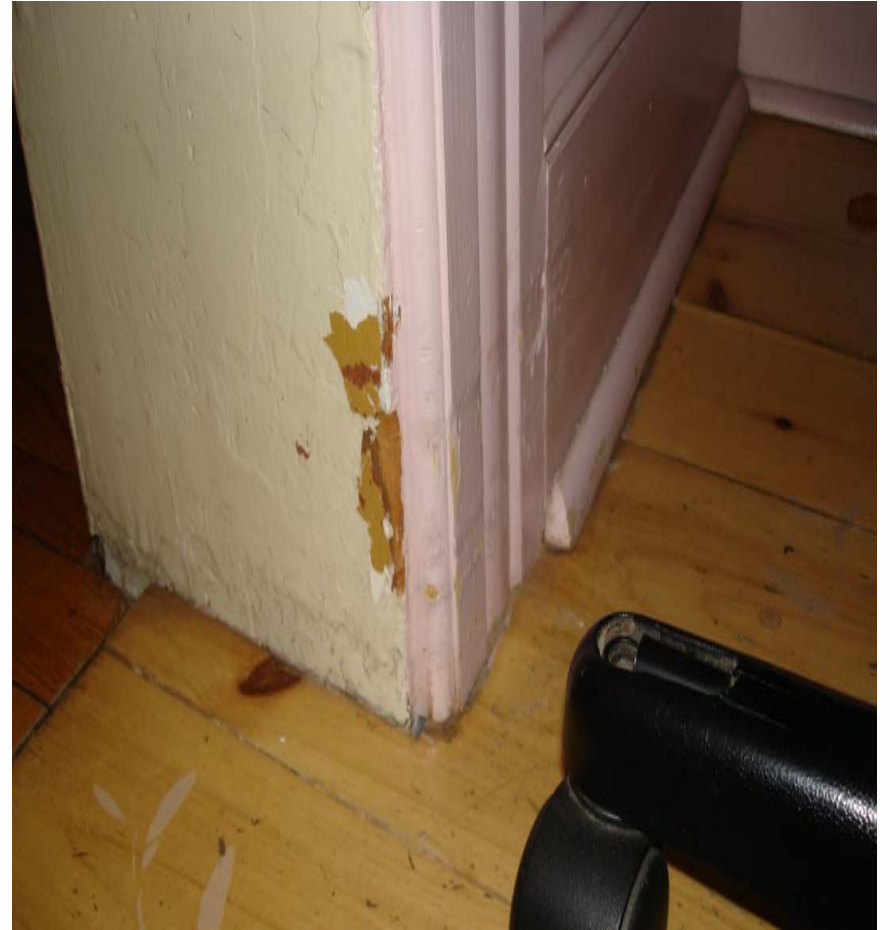
# Cracking



# Alligator Paint



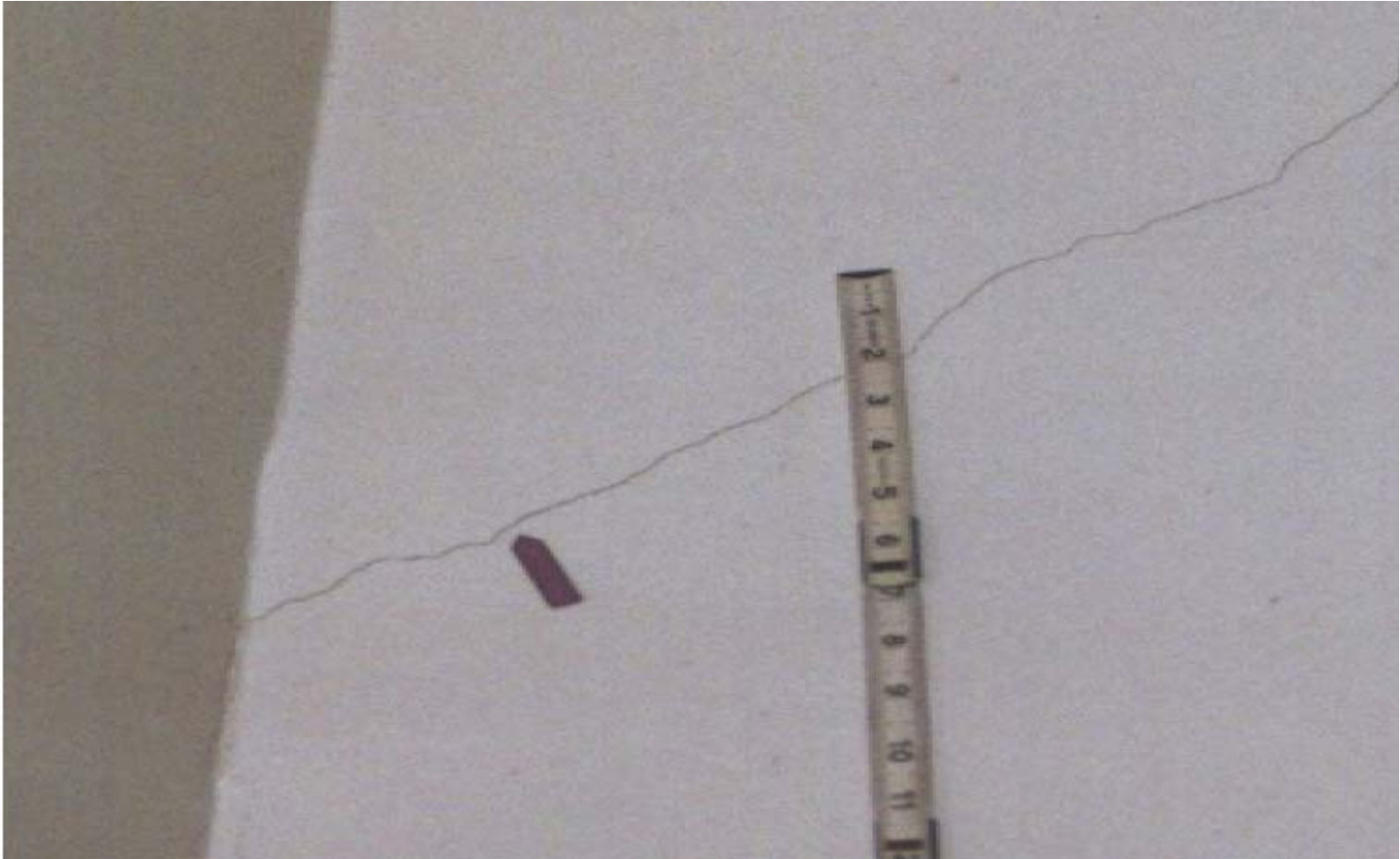
# High Friction Areas



# Friction Damage



# Cracks in Painted Surface



# Holes in the Wall



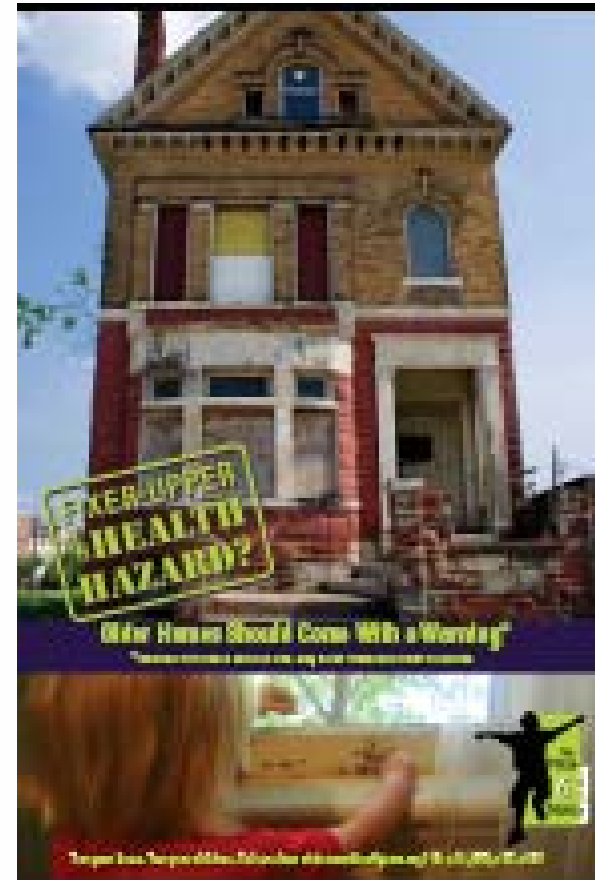
# Moisture Damage



# Illness Prevention Resources



<http://www.first6years.org>



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# Renfrew County House Lead Risk Search

Sat, 06/23/2007 - 22:22

Homes can be a source of lead. If your home was built before 1978 it may contain lead paint. Homes built before 1950 contain the highest amount. The United States considers any community that contains greater than 27% of housing stock built prior to 1950 a high risk community.

In Renfrew County, 27% of homes were constructed prior to 1950. Use this search tool to determine if your house is a "high risk" house. Type in your street number and street name and provide the municipality you live in (i.e. 229 Welland).

Sorry, this tool doesn't work for rural route addresses, military housing or reserve housing.

Street number and name

219 Welland

Municipality

PEMBROKE

Search

Search

## Our Goals

The First Six Years is a grass roots organization whose primary mandate is the promotion of optimal social, physical, and environmental conditions for the development of healthy productive children. We achieve this goal through the use of environmental monitoring and surveillance and public and professional education.

We recognize that the **first six years** of a child's life is an important period of brain and nervous system development. Children during this period of rapid growth are highly susceptible to the toxic influences of environmental threats such as lead, mercury, PCBs, pesticides and ionizing radiation.

## Contact Us

The First 6 Years  
219 Welland St.  
Pembroke, ON



Action Plan

Drinking Water and Lead

Lead Awareness: Media

About Us

### The house at the address 219 Welland was built in the year 1900

This home was built before (or during) 1950 and may contain lead based paints. While not all older homes contain lead paint, US research has found that about 75 percent do. Our Canadian situation is probably similar although there has been little research in this area. Follow our guidelines to test your home for lead.

[Back](#)

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# Links to More Resources

- **Canada Mortgage and Housing Corporation**
- [http://www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/inaiqu/inaiqu\\_007.cfm](http://www.cmhc-schl.gc.ca/en/co/maho/yohoyohe/inaiqu/inaiqu_007.cfm)
- **HUD Visual Lead Inspection Training**
  - <http://www.hud.gov/offices/lead/training/>
- **Pediatric Environmental Home Assessment**
  - [http://www.healthyhomestraining.org/Nurse/PEHA\\_Purpose.htm](http://www.healthyhomestraining.org/Nurse/PEHA_Purpose.htm)



# References

- American Academy of Pediatrics (2005). Lead exposure in children: prevention, detection, and management. *Pediatrics*, 116, 1036-1046.
- CDC (2003). Surveillance for Elevated Blood Lead Levels Among Children --- United States, 1997-2001. *Morbidity and Mortality Weekly Reports*, 52(SS10), 1-21.
- Health Canada (2005). *Update of Evidence for Low-Level Effects of Lead and Blood Lead Intervention Levels and Strategies - Final Report of the Working Group*. Ottawa: Health Canada.
- Lanphear, B. P., Matte, T. D., Rogers, J., Clickner, R. P., Dietz, B., Bornschein, R. L. et al. (1998). The contribution of lead-contaminated house dust and residential soil to children's blood lead levels. A pooled analysis of 12 epidemiologic studies. *Environmental Research*, 79, 51-68.
- Lavoie, P. M. & Bailey, B. (2004). Lead poisoning from "lead-free" paint. *Canadian Medical Association Journal*, 170, 956.
- Ontario Public Health Association & Environmental Health Workgroup (2004). Childhood lead poisoning due to residential sources: Does a problem exist in Ontario? In Environmental Workgroup (Ed.), (.
- Reissman, D. B., Staley, F., Curtis, G. B., & Kaufmann, R. B. (2001). Use of geographic information system technology to aid Health Department decision making about childhood lead poisoning prevention activities. *Environ.Health Perspect.*, 109, 89-94.
- Rodier, P. M. (1994). Vulnerable periods and processes during central nervous system development. *Environ.Health Perspect.*, 102 Suppl 2, 121-124.
- Rodier, P. M. (1995). Developing brain as a target of toxicity. *Environmental Health Perspectives*, 103, Supplement 6, 73-76.
- Tong, S. (2000). Environmental lead exposure. A public health problem of global dimension. Bulletin of the World Health Organization [On-line].
- United States Environmental Protection Agency. (2000). Lead Sampling Technician Training Course. EPA 747-B-00-002.  
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