

به نام خدا



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# Lead Awareness

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# Objectives

- **Provide Lead Awareness**
  - Sources of lead
  - Health effects
  - Certifications
  - Precautions

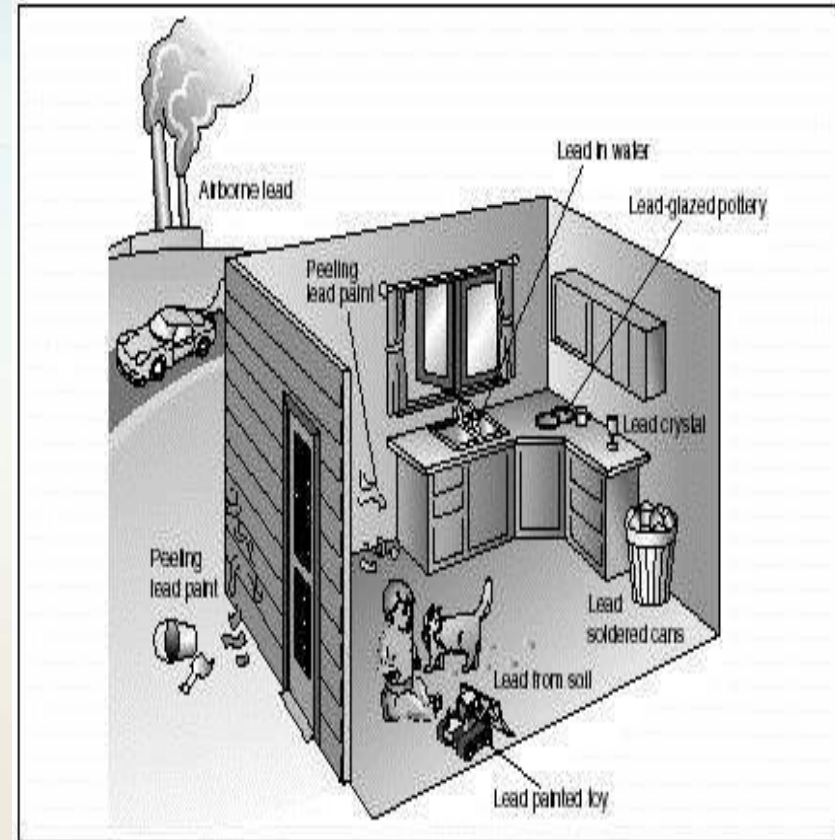
# Lead Awareness

- Lead is a naturally occurring metallic element found in the earth's crust.
- Lead can be found in many parts of the environment including water/soil Lead
- Is highly resistant to corrosion thus was used widely in the past.
- Properties - durable, heavy, ductile, soft, and toxic.



# Lead: Sources of Exposure

- Paints (paint chips)
- Leaded Gasoline
- Drinking water
- Ammunition (lead shot)
- Jigs and sinkers (leaded)
- Cheap Jewelry
- Plumbing and solder
- Older pottery
- Lead acid batteries
- Iron and steel production
- Lead contaminated dusts
- Lead smelters (release into air)
- Foods stored in lead crystal
- Folk remedies that contain lead (for upset stomach)



# Regulations on Lead Exposure

- **Consumer Product and Safety Commission (CPSC)**
  - banned the use of lead-based paint in 1978
- **Clean Air Act**
  - Banned use in gasoline in 1990
- **Safe Water Act**
  - Instituted the use of lead-free pipes, solder, flux in plumbing operations in 1974
- **Community requirements**
  - Air cannot exceed 0.15 micrograms ( $\mu\text{g}$ )/ $\text{m}^3$  (as of 10/15/2008)
  - Drinking water < 15  $\mu\text{g}$  per L.
- **OSHA 29 CFR 1910.1025**
  - Permissible Exposure Limit is 50  $\mu\text{g}/\text{m}^3$  for an 8-hour period.

# Health Effects Chronic Exposure<sup>1</sup>

- **10-20  $\mu\text{g}/\text{dl}$**  Initial biochemical changes • Decreased vitamin D metabolism.
- **20-30  $\mu\text{g}/\text{dl}$**  Hearing impairment • Central nervous system damage
- **40-50  $\mu\text{g}/\text{dl}$**  Slowing of red blood cell production • Lower sperm production
- **50-100  $\mu\text{g}/\text{dl}$**  Anemia, colic, seizure • Brain damage • Decreased longevity
- **Over 100  $\mu\text{g}/\text{dl}$**  Convulsions • Permanent brain damage • Death

# New Lead Requirements

Beginning April 2010, federal law will require contractors hired to perform renovation, repair, and painting projects in homes, child care facilities, and schools built before 1978 that disturb lead-based paint to be certified and follow specific work practices to prevent lead contamination.



# New Lead Requirements

Even before contractors are required to be certified and follow specific work practices, the contractor should follow these three:

- 1. Contain the work area**
- 2. Minimize dust**
- 3. Clean up thoroughly**

# New Lead Requirements

When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area should be re-cleaned.

# New Lead Certifications

- Assessor** - Can Inspect, sample and provide recommendations (16hr plus 24 hr courses, EPA exam - Refresher 8hr/3yr)
- Inspector** - Can inspect - NO recommendations (24hr course, EPA exam - Refresher 8hr/3yr)
- Supervisor** - Can supervise workers - NO inspection or recommendations (32hr, EPA exam - Refresher 8hr/3yrs)
- Worker** - Lead abatement (16hr - Refresher 8hr/3yrs)

# Health Effects

- **Routes of Exposure**
  - Inhalation, Ingestion, absorption
- **Mechanism of effect**
  - The exact mechanism of absorption is unknown
  - Transported to other systems in body by the red blood cells (RBC)
  - Lead interferes with development of hemoglobin in RBCs
- **Some lead such as in dust, water, and food cannot be seen.**
- **Children absorb lead more easily than adults.**
- **Children experiences more serious health effects related to exposure to lead than adults.**

# Precautions

- If you rent, notify your landlord of peeling or chipping paint.
- Clean up paint chips immediately
- Clean floors, window frames, window sills, and other surfaces weekly. (soap & water)
- Wash children's hands often, especially before they eat and before nap time and bed time.
- Keep play areas clean. Wash bottles, pacifiers, toys, and stuffed animals regularly.

# Precautions

- Clean or remove shoes before entering your home to avoid tracking in lead from soil.
- Make sure children eat healthy and nutritious meals as recommended by the National Dietary Guidelines. Children with good diets absorb less lead.

# Lead

- **Helpful Resource**

- EPA: <http://www.epa.gov/lead>

- CPSC:

- <http://www.cpsc.gov/>



# Questions?

Thank You