

# Lead Poisoning in Clark County

## INFORMATION FOR PHYSICIANS

### Introduction

The Clark County Health District (CCHD) is providing this information to health care providers in order to raise awareness regarding lead poisoning in Clark County. This document is part of a larger education and outreach campaign targeting the general public, and more specifically, the Hispanic community. Recent sources of lead exposure have been linked to candies and products from Mexico. The majority of recent cases reported to the health district have occurred in persons of Hispanic descent. We hope you find this information useful and encourage all health care providers to join in our efforts to educate the public on this issue.

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Chief Health Officer

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In the United States today, lead poisoning is one of the most common diseases of environmental origin among children. Exposure to lead may have significant health effects on children, affecting the renal, neurologic, gastrointestinal, and hematopoietic systems.<sup>1</sup> Even at low levels, chronic exposure to lead may result in cognitive and behavioral changes and learning disabilities.<sup>2,3,4</sup> Generally, lead poisoning occurs slowly, resulting from the gradual accumulation of lead in bone and tissue after repeated exposure. Young children absorb lead far more easily and rapidly than adults. Fetal development can be adversely affected by high blood lead levels in pregnant women<sup>5</sup>.

Major potential sources of lead exposure have been reduced in recent decades. Most notably, lead-based paint and leaded gasoline have been removed from the market. Despite these efforts, many children still suffer from lead poisoning. Recently identified sources of lead include imported Mexican candies<sup>6</sup>, imported chili powder, small toys, jewelry, imported "folk" remedies, imported cosmetics, pottery glazes, lead solder, lead foil caps on wine bottles and natural plant fertilizers such as dolomite and bone meal. Lead can also be found in breast milk if a nursing mother has high blood lead levels.<sup>5</sup>

### Lead Sources in Clark County

Since lead-based paint was removed from the market in 1977 and most buildings in Clark County were built after 1977, there are relatively few buildings here that are painted with lead-based paint. Hundreds of homes built prior to 1977 have been tested by local Housing and Urban Development (HUD) staff, and very few have been found to have lead contamination. Consequently, lead-based paint is not considered to be a major source of lead poisoning in this county.

Although lead poisoning is not on the Nevada list of reportable conditions, there is a federal statute requiring reporting of blood lead levels of pediatric Medicaid patients. Because of the federal statute, two major commercial laboratories routinely report blood lead levels to either the Nevada State Health Division or the Clark County Health District. In recent years, the health district has only received two to three reports of elevated blood lead levels (>10 µg/dL) per year. However, from April through July of 2004, there were nine cases of elevated blood lead levels in children of Clark County, six of which were reported in July. There were an additional three reports of lead levels between 5 and 9 µg/dL. This increase in numbers is cause for concern, and the cases are currently under investigation in an effort to determine the source of the lead and to

subsequently eliminate or minimize sources and/or exposure to sources.

Recently in California, a very large number of lead poisoning cases were attributed to candies made with chili-pepper powder. The Orange County Register published a special investigation article titled *Toxic Treats*.<sup>6</sup> This article cited 112 different candies, confirmed by California regulators, to occasionally contain unsafe levels of lead. These same candies are being sold in Clark County. In July of this year, the CCHD Environmental Health staff obtained 54 pieces of candy from various retail outlets for testing. Only two had any trace of lead. The levels of lead were below the FDA threshold requiring removal from sale. California regulators had noted that not all batches of the candies that they had tested were positive for lead, so these candies still remain suspect.

Home remedies such as *azarcon* or *greta* from Mexico; *pay-loo-ah*; *ghasard*; *bali goli*; *kandu* from Asia; and *farouk* and *bint al zahab* from the middle east may contain high amounts of lead. *Kohl* and *Surma*, imported cosmetics have also been a documented source of lead poisonin.

### Role of the Primary-Care Provider<sup>7</sup>

Lead intoxication can affect a child's neuro-developmental processing. Most lead-poisoned children do not have any obvious symptoms; however, numerous studies indicate that elevated blood lead levels are associated with adverse outcomes on measures of intellectual functioning and social-behavior.

Early childhood lead exposure has been linked to a drop in IQ scores, short attention span, and the increasing presence of certain types of behavioral problems pertinent to the diagnosis of attention deficit disorder. Therefore, "elevated blood lead levels should be viewed as a risk factor for neuro-developmental problems, not a diagnosis."

The following table shows a comparison of lead poisoning symptoms that may be experience by children and adults.

### Common Symptoms of Lead Poisoning<sup>8, 9</sup>

CHILDREN	ADULTS
Anemia	Anemia
Constipation	Abdominal pain
Decreased appetite	Depression
Diarrhea	Fatigue
Learning problems	Gout
Lowered I.Q.	Heart failure
Sleeplessness	High blood pressure
Stomach ache	Kidney failure
Tiredness	Reproductive problems
Vomiting	Wrist or foot weakness

It is federally required that primary care providers use a blood lead test to screen all children on Medicaid at ages 12 and 24 months, and to screen children between 24-72 months who were not previously tested or who missed the 24 month test.<sup>10, 11, 12</sup> Children who may or may not be recipients of publicly funded health services should not be excluded if they have not been tested for lead in the past or have been recently exposed. If a physician suspects that a child may be exhibiting symptoms of lead poisoning or may have been exposed to lead and the child is not Medicaid eligible and is not otherwise covered by health insurance, CCHD will perform blood lead testing at a cost of \$23. Refer the child's parent to the Office of Epidemiology at (702) 759-1300 to make an appointment for the blood draw. Quest Diagnostics is the Medicaid-designated provider in Clark County for blood lead testing. Currently only Quest Diagnostics and LabCorp are reporting lead levels in this State, so if any other laboratories are utilized for blood lead level testing, CCHD is requesting that the provider report elevated results directly to the Office of Epidemiology.

### Choice of Sample Collection Method

Providers may choose to have blood samples collected by the venous method or the capillary method. A venous blood draw is considered the method of choice for many providers because of the high level of reliability and accuracy and a smaller chance for specimen contamination. The capillary draw is an alternate method of blood lead screening if a missed opportunity to screen a child exists, but must be performed according to the CDC Fingerstick protocol. (<http://www.cdc.gov/nceh/lead/guide/1997/pdf/c2.pdf>)

## Guidelines for Medical Management of Children with Elevated Blood Lead Levels<sup>13,14</sup>

The following guidelines are offered to assist health care providers in caring for children with elevated blood lead levels.

BLOOD LEAD LEVELS (BLL)	ACTIONS
< 10 µg/dL	<p><b>Below the federal guidelines for intervention.</b> Retest the child at physician's discretion or as parental concerns arise. Inform parents of the potential lead hazards in the child's environment.</p>
10 - 14 µg/dL	<p><b>Retest within 3 months.</b> These children are in a border zone. Adverse health effects will be subtle, if any, and are highly unlikely to be clinically apparent or measurable. Although it may not be possible to identify a specific source of lead, parents should be provided with family lead education. <b>Continue retesting at 3 month intervals until the child's BLL has dropped below 10 µg/dL.</b></p>
15 - 19 µg/dL	<p><b>Retest within 2 months.</b> Despite a lack of clinical symptoms, these children may have an increased risk of small decreases in IQ and are more likely to have had exposure to a single, identifiable source of lead. Provide family lead education. Conduct a home interview and environmental investigation in conjunction with the CCHD. These children should be tested for iron deficiency and nutrition information should be provided. Provider should emphasize need for retesting to make sure BLL is decreasing. <b>Continue retesting at 2-3 month intervals until the child's BLL drops below 10 µg/dL.</b></p>
20 - 44 µg/dL	<p><b>Retest within 1 week to 1 month (the higher the BLL, the more urgent the need to retest).</b> While clinical symptoms still may not be apparent, in the majority of children in this range, the potential for adverse health effects has been more clearly documented in health studies and there will usually be an identifiable source of lead in the child's environment. Perform a clinical evaluation - medical history, environmental and behavioral history, nutritional status, and physical examination. Perform a confirmatory lead test and iron deficiency test. A home interview and environmental investigation should be carried out in conjunction with the local health department. Other family members may also need to be tested. <b>Continue retesting at regular intervals until the child's BLL drops below 10 µg/dL.</b></p>
45 - 59 µg/dL	<p><b>Retest within 48 hours.</b> Conduct a confirmatory venous test and full medical evaluation. Treat promptly with appropriate chelating agents and remove the child from the source of lead exposure. Provide the family with lead education. Conduct a home interview and environmental investigation in conjunction with the CCHD.</p>
60 - 69 µg/dL	<p><b>Retest within 24 hours using a venous blood draw.</b> Conduct a confirmatory venous test and full medical evaluation. Treat promptly with appropriate chelating agents and remove the child from the source of lead exposure. Provide the family with lead education. Conduct a home interview and environmental investigation in conjunction with the CCHD.</p>
>70 µg/dL	<p><b>MEDICAL EMERGENCY. Retest immediately as an emergency lab test.</b> Hospitalize the child and begin medical treatment immediately. Serious mental or nervous system damage can result. Begin coordination of care (case management), clinical management, environmental investigation, and lead-hazard control immediately.</p>

## Resources for Health Care Providers

### CLARK COUNTY HEALTH DISTRICT (CCHD)

Office of Epidemiology

625 Shadow Lane

Las Vegas, NV 89106

(702) 759-1300 • Fax (702) 383-4936

Environmental Health

625 Shadow Lane

Las Vegas, NV 89106

(702) 383-1261 • Fax (702) 383-1445

Nursing Division

625 Shadow Lane

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(702) 383-1301 • Fax (702) 383-1446

### CCHD Lead Poisoning FAQ Sheet

[http://www.cchd.org/fact\\_sheets.htm](http://www.cchd.org/fact_sheets.htm)

### Orange County Register: *Toxic Treats*

<http://www.ocregister.com/investigations/2004/lead/index.shtml>

### Riverside, California: Childhood Lead Poisoning Prevention Program

<http://www.rivcoph.org/cms/lead.htm#ed>

### Environmental Protection Agency: Education and Outreach

<http://www.epa.gov/opptintr/lead/leadpbed.htm#brochures>

### California Childhood Lead Poisoning: *Lead in Tableware*

<http://www.dhs.ca.gov/childlead/tableware/twtalk.html>

### U.S. Army Center for Health Promotion and Preventive Medicine Fact Sheet for Health Care Professionals: *Home and Traditional Remedies and Lead Poisoning*

<http://chppm-www.apgea.army.mil/documents/FACT/55-009-0404.pdf>

## References

1. Kemper, A.R., & Lane, W.G. (2001). American College of Preventive Medicine Practice Policy Statement: Screening for Elevated Blood Lead Levels in Children. *American Journal of Preventative Medicine*, 20(1):78-82

2. Baghurst P., Pocock S.J., Smith M. (1994) Environmental lead and children's intelligence: a systematic review of the epidemiological evidence. *British Medical Journal* 309:1189-1197
3. Baghurst P.A., Burns J.M., McMichael A.J., Sawyer M.G., Tong S. (1999) Lifetime low-level exposure to environmental lead and children's emotional and behavioral development at ages 11-13 years: the Port Pirie Cohort Study. *American Journal of Epidemiology*, 149:740-749
4. Dreyer B.P., Mendelsohn A.L., Fierman A.H., et al. (1998) Low-level lead exposure and behavior in early childhood. *Pediatrics*, 101:e10.
5. Childhood Lead Poisoning Prevention & Control Handbook. (2004). Wisconsin Department of Health & Family Services. Chapter 13; .2,.3,.4,.5.
6. Orange County Register. (2004). *Special Investigation: Toxic Treats*. Retrieved August 2, 2004, from <http://www.ocregister.com/investigations/2004/lead/index.shtml>
7. What Every Health Care Provider Should Know. (2004). *The Public's Health*. County of Los Angeles, Department of Health Services. Volume 4 Number 5, pg. 3-4.
8. U.S. DHHS, Public Health Service, CDC. (1991). Preventing Lead Poisoning in Young Children. Retrieved August 2, 2004 at <http://wonder.cdc.gov/wonder/prevguid/p0000029/p0000029.asp#head008002000000000>.
9. Roth V.S., Staudinger K.C. (1998). Occupational Lead Poisoning. *American Family Physician*. Retrieved on August 2, 2004 at <http://www.aafp.org/afp/980215ap/stauding.html>.
10. 42 USC 63 (Subchapter V, Sec. 4846, State laws superseded and null and void.)
11. NRS 422.273: Establishment, development and implementation of Medicaid managed care program.
12. Centers for Medicare and Medicaid Services: State Medicaid Manual Part 05 (Sections 5110 and 5123.2)—Early and Periodic Screening, Diagnostic Testing (EPSDT) Services, August 28, 2002.
13. US DHHS: Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials, 1997.
14. US DHHS: Preventing Lead Poisoning in Young Children: A Statement by the Centers for Disease Control and Prevention, 1991.

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