

## PEDIATRIC PLUMBISM: REVISED SCREENING GUIDELINES

**I**N NOVEMBER 1997, the CDC published revised guidelines<sup>1</sup> for state and local health departments to consider when developing blood lead screening programs for children. The new guidelines also contain guidance for pediatricians and others who develop and implement health-care services for children. This article contains excerpts from that document, larded with references to Oregon specific data.

### WHY Pb AND J CAN BE BAD

Childhood lead poisoning is a major and preventable environmental health problem. Blood lead levels (BLLs) as low as 10 µg/dl are associated with harmful effects on children's learning and behavior. BLLs >70 µg/dl cause devastating health consequences, including seizures, coma, and death. It is currently estimated that almost 900,000 U.S. children have elevated BLLs (≥10 µg/dl).<sup>2</sup>

Substantial progress has been made in reducing the lead content of many once-important environmental sources, notably gasoline and food. Nevertheless, children can still be exposed to lead in many ways, including exposure to industrial sites and smelters that use lead. Other potential sources include lead-contaminated dust, soil, and water; materials used in parents' occupations or hobbies; some folk remedies; ceramic-

ware—even cheap vinyl window blinds, which over time deteriorate, shedding lead dust.

### THE BIG PROBLEM: LEAD-BASED PAINT

Since the virtual elimination of lead from gasoline, lead-based paint in homes is the most important remaining source of lead exposure for U.S. children. Lead-contaminated dust and chips are generated as paint deteriorates or when it is sanded or scraped about during home renovation or preparation of surfaces for repainting.

Lead was added to paints to improve durability and opacity. The concentration of lead in residential paints began to drop after the 1930's (when it may have been 20-40% w/v) until it was essentially banned in 1978. Older paint remains the most important source of exposure for U.S. children. An estimated 83% of all homes built in the United States before 1978 still contain some lead-based paint at a concentration of 1 mg/ml or greater.<sup>3</sup> In general, the probability that a house contains lead paint (and at higher concentrations) increases with the age of the building. Although there is no sharp cutoff, lead problems are significantly more common in pre-1950 housing.\* Census data indicate that 27% of U.S. homes and 26.5% of Oregon homes were built before 1950. There is considerable variation by county, however, ranging from 10% in Washington County to 51% in Sherman County. Of course, even counties with lower average housing ages have pockets of older housing.

### SCREENING POLICIES

Screening has been recommended to identify children with elevated BLLs, who may need environmental remediation or, in some cases, medical interven-

tion. The only way to identify all children with elevated BLLs is to screen all kids with a 100% sensitive test. If testing were free and easy, that might be the best strategy. Indeed, back in 1991, when pigs could still fly, the federal government recommended universal screening of children 12-72 months of age.<sup>4</sup> The recommendations were widely ignored: a 1994 national survey indicated that only 25% of young children and 33% of poor children in the U.S. had been screened.<sup>5</sup> Screening is even less common in Oregon; we estimate that <5% of children 12-72 months of age here have been screened. Studies in Oregon and elsewhere led to a reconsideration of these original guidelines, with better data suggesting that a more targeted strategy could identify almost all at-risk kids at a fraction of the cost of universal screening. Risk factors for elevated BLLs identified from several sources<sup>†</sup> include: young age (1-2 years old), poverty, and living in pre-1950 housing.

At present, too few intoxicated children are being identified. Nationally, an estimated 4.4% of children ages 1-5 have elevated BLLs.<sup>2</sup> Even if the Oregon rate were only half of that, almost 6000 children would be affected in our state—yet only 1042 have been identified in the past five years. The table shows the prevalence of elevated BLLs identified in Oregon children to date. (NB: These are not representative samplings of Oregon kids.) The new and improved CDC guidelines have two main purposes: to increase screening and follow-up care of children who most

Prevalence of Elevated BLL in Selected Surveys (children 1-5 years old)

Risk Factors	NHANES III U.S. (1991-94)	OCLPPP Oregon (1993-97)	Private Labs Oregon (1993-97)
Year house built			
<1946	8.6%	7.4%	NA
1946-1973	4.6%	4.2%	NA
1974 onward	1.6%	4.5%	NA
Income			
Low	8.0%	NA	NA
Middle	1.9%	NA	NA
High	1.0%	NA	NA
Age			
1-2 years	5.9%	6.0%	3.6%
3-5 years	3.5%	4.2%	2.6%
1-5 combined	4.4%	5.2%	3.3%

\*and if you think the paint is bad, check out the wiring.

† The three sources of data are (drumroll please): (1)

The National Health and Nutrition Examination Survey (NHANES), a periodic, national, representative, cross-sectional survey of more than 10,000 people, (2) Oregon Childhood Lead Poisoning Prevention Program (OCLPPP), a CDC-funded program that screened children primarily in Multnomah County and (3) private laboratories voluntarily reporting all BLLs for Oregon children tested.

need them, and to help each community to design the most appropriate approaches to the prevention of childhood lead poisoning.

#### REVISED SCREENING RECOMMENDATIONS

These interim recommendations can be used until specific guidelines based on local data and planning are developed.

BLLs of children should be determined at ages 1 and 2 (or, if not previously screened, at least once between the ages of 3–6), if they meet any of the following criteria:

- they live in a “high-risk” zip code (those with  $\geq 27\%$  of housing built before 1950). You can obtain these deadly and hitherto secret codes at our web site ([www.ohd.hr.state.or/cdpe/eoi/welcome.htm](http://www.ohd.hr.state.or/cdpe/eoi/welcome.htm)) or by calling (503/731-4025) or faxing (503/731-4798) us a request.
- they live in poverty, defined as receiving some kind of public assistance (e.g., Medicaid or WIC).
- they have a parent or guardian who answers “yes” or “don’t know” to any of the three magic questions:
  - 1) Does your child live in or regularly visit (e.g., a home day-care) a house built before 1950?
  - 2) Does your child live in or regularly visit a house built before 1978 with recent (within the last 6 months) or ongoing renovations or remodeling?
  - 3) Does your child have a sibling or playmate who has had lead poisoning?

- they have a parent or guardian with a job or hobby where lead is used. In addition to apparently healthy children who meet these criteria, health-care providers should test children with unexplained symptoms or signs consistent with lead poisoning: seizures or other neurological symptoms, abdominal pain, developmental delay, attention deficit, hyperactivity or other behavior disorders, school problems, hearing loss, or anemia. Children with excessive mouthing behavior, regardless of age, should also be screened if they live in pre-1950 housing.

#### A STATEWIDE PLAN

The Health Division is developing an Oregon-specific plan for identifying target communities for childhood lead screening. This blueprint will be developed with a coalition including representatives from local health departments, private practices, managed-care organizations, Medicaid, private insurance organizations, and the general community. We invite your participation in creating a plan that identifies children at greatest risk, ensures that they are screened, and avoids unnecessary screening of children who are not at risk. If you are interested in being part of this process, contact the OHD’s Environmental, Occupational, and Injury Epidemiology section (phone 503/731-4025).

#### REFERENCES

1. CDC. Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials. Atlanta: CDC, 1997. (URL: <http://www.cdc.gov/nceh/programs/lead/guide/1997/guide97.htm>)

2. CDC. Update: blood lead levels—United States, 1991–1994. *MMWR* 1997;46:141–6.
3. Office of Pollution Prevention and Toxics (OPPT). Report on the National Survey of Lead-Based Paint in Housing: base report. Washington, DC: US Environmental Protection Agency, OPPT;1995; Report No. EPA/747-R95-003.
4. CDC. Preventing lead poisoning in young children: a statement by the Centers for Disease Control, October 1991. Atlanta: Department of Health and Human Services, 1991.
5. Binder S, Matte TD, Kresnow M, Houston B, Sacks JJ. Lead testing of children and homes: results of a national telephone survey. *Public Health Rep* 1996;111:342–6.

#### Flu Update and Teaser

AS OF DECEMBER 8, the OSPHL has received and tested 31 specimens through our annual influenza surveillance program. All to date have been negative. Elsewhere in the U.S., flu activity is increasing slowly, with scattered isolations from at least 21 states, including California. Only three states reported “regional” activity in the most recent reporting week. (Regional is more than sporadic, but less than widespread.) Ninety-five percent of U.S. isolates tested so far have been type A, and of those serotyped, H3N2 is what’s being found.

Clinicians are reminded that it is *not too late* to immunize their patients at risk. For more information, refer to our earlier flu issue (Sept 16, 1997).

In recent days, shocking reports have been coming in from Hong Kong about infections with a new type A influenza subtype (H5N1), never previously associated with human illness. Potentially ominous portents have been noted, and will be discussed in the forthcoming issue. Watch this space!!