Healthy Homes, Healthy Families
Sacramento Summit

Government Resources and Policy Opportunities in Public Health

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Healthy Homes, Healthy Families

Includes Issues that Span Many Major Areas of Public Health
National Level- DHHS Healthy People 2010

Objectives include addressing:

- Substandard housing
- Safe drinking water
- Indoor allergens
- Air quality
- Lead exposure
- Other heavy metals
- Pesticides
Office of Strategy and Innovation Objectives address Healthy Homes and Communities, to promote:
Healthy, safe, accessible and available homes
Healthy and safe behaviors in homes and communities
Safe water, air, food, and waste disposal
Prevention of injuries and toxins in communities
Environments that encourage quality of life and social connectedness
State Level – California Department of Public Health

Core Activities in California Department of Public Health (CDPH) Strategic Plan include:

- Promoting healthy lifestyles for individuals and families in their communities and workplaces
- Protecting the public from unhealthy and unsafe environments
Many individual CDPH Programs support and assure healthy homes, healthy environments and health promotion for families:

Descriptions of these programs, contact information, and the resources and services they provide can be found at CDPH website

http://www.cdph.ca.gov
State Level- CDPH

Examples are CDPH Programs in the divisions of:
Drinking Water and Environmental Management
Food, Drug, and Radiation Safety
Environmental and Occupational Disease Control

Programs include:
Indoor air quality- mold assessment, radon testing, tobacco smoke;
Asthma issues - California Breathing;
Lead poisoning prevention;
Occupational exposures – including lead
Lead Poisoning Prevention Activities to Achieve Healthy Families in Healthy Homes

Childhood Lead Poisoning Prevention (CLPP) Branch

Example of Public Health Program Resources, Functions, Services
Major Sources of Environmental Lead in California

Third state in U.S. for largest number of old housing units, with potential exposure to lead in paint, soil and dust

Over 8.6 million pre-1980 units

Restrictions on lead in paint in 1978, gasoline in early 1990s

~1.3 billion pounds lead from gasoline and 200 million from paint in California 1929-1986
Why Do We Care About Lead in and Around the Home Environment and Lead Exposure to Families?
Adverse Effects of Lead on Children

Blood lead levels in micrograms per deciliter:

<table>
<thead>
<tr>
<th>Level</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-150</td>
<td>Death</td>
</tr>
<tr>
<td>50-100</td>
<td>Encephalopathy, Nephropathy, Anemia</td>
</tr>
<tr>
<td>20-50</td>
<td>Effects on nerve conduction, hemoglobin, Vitamin D</td>
</tr>
<tr>
<td>10-20</td>
<td>Developmental effects- IQ, hearing, learning (subclinical, need to test)</td>
</tr>
<tr>
<td>&lt; 10</td>
<td>Increasing awareness of problems, e.g. IQ deficit, ADHD, puberty delay</td>
</tr>
</tbody>
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(10 is defined as elevated blood lead)
Adverse Effects at Low Levels

Adverse effects of lead are being identified at levels previously thought low.

CDC Work Group: “the overall weight of available evidence supports an inverse association between blood lead levels < 10 μg/dL and the cognitive function of children.”

Preventing Lead Poisoning in Young Children, CDC, 2005
Lead Effects in Adults

Death from all Causes: NHANES III 1988-1994, those ≥ 40 years of age at baseline with blood lead value taken (n=9,757); median follow-up 8.6 years. Relative Risk of mortality 1.59 (95% CI 1.28-1.98) for blood lead ≥ 10 and 1.29 (1.05-1.48) for 5-9 vs. < 5 μg/dL. RR similarly increased for death from cancer and cardiovascular disease. Schober. Env Health Perspect 2006;114:1538-1541
Overall California Goal on Lead

Since no safe lower level of lead is known, goal is to achieve blood lead levels (BLLs) in the overall population that are as low as possible, with emphasis on: preventing exposure, reducing prevalence of children with elevated BLLs (EBLLs, \( \geq 10 \) mcg/ dL), and reducing prevalence of children with evidence of above usual exposure (CDPH strategic objective)
State Level- CDPH

CDPH Strategic Plan Objective 4:
Increase (improve) by an average of 10 % California’s performance on prioritized Healthy People Goals by 6/30/10

Decrease the percentage of children found to have elevated blood lead levels
What is Being Done to Reduce Lead Exposure?
Efforts to Reduce Lead Exposure and Effects of Lead

Prevention of exposure – increasing knowledge of families, industry, workers, healthcare and childcare providers on lead issues, find and inform on sources, promote safe products and practices

Testing for lead – to identify areas and populations at risk, identify those exposed

Services to exposed – health & environmental

Correction – remove/ reduce lead sources
Activities are Collaborations

Childhood Lead Poisoning Prevention (CLPP) Branch

45 contracted CLPP programs in local jurisdictions around California (& non-contracted)

Partnering agencies and programs
Prevention of Exposure: Paint, Dust, Soil

Public informing: materials and outreach activities on sources of lead - ~ 1,800 community events and 600 events for health care providers; reached over 1,200 child care providers and 300 hardware stores; 150 media spots/ads (first half 2008)

example: interactive, county calendar project in schools (bilingual)

new CLPP Branch website, expanded materials and materials in Spanish
Prevention of Exposure: Paint, Dust, Soil

Informing on lead hazards and safe work practices (2008): Over 6,500 individuals trained and certified through Lead Related Construction Program in various disciplines/ year, 36 % classes in Spanish; plus 20 events for professionals and ~ 1,600 reached on hazards and codes
Prevention of Exposure: Paint, Dust, Soil

New Regulations, April 2008:
On lead hazards in residential and public structures and surroundings - lowered allowed lead dust standards, and created sampling technician to increase accessibility of trained individuals.
Prevention of Exposure: Other Sources

Public and program informing (products/ behaviors):
Activities as for paint/dust/soil
Multiple state alerts on candies testing high for lead (Food and Drug & Food and Drug Laboratory Branch)
Outreach materials distributed on lead in pottery (Border Health)
Prevention of Exposure: Other Sources

Identification of sources:
Exploring new screening methods for products- XRF users workgroup (US Food and Drug, Department of Toxic Substances Control, CA Attorney General)

Local jurisdictions
Testing for Lead to Identify Area and Population Risk and Exposure

CA testing focus: young, low-income children:
Screening (testing of blood lead) required by regulation in those age 1 and 2 years, in government assisted programs, and up to age 6 years, if not tested at 1 and 2

Medi-Cal, Child Health and Disability Prevention (CHDP), Special Supplemental Nutrition Program for Women, Infants and Children (WIC)
Testing for Lead

If not in government assisted programs, tested, if live in pre-1978 deteriorated or recently renovated housing or housing age is not known.

Other children tested, if believed at risk (any age); services to age 21.

Anticipatory guidance 6-72 mos

Laboratory reporting required 2003; electronic 2005
Testing Shows Prevalence of EBLLs is Decreasing

Statewide in 2008, with >700,000 children tested, less than 0.5% had EBLLs

Number of children identified with an EBLL was 3,067

(In contrast in 2006, 0.7% or 4,396 EBLLs)
Testing Indicates Prevalence of EBLLs is Decreasing

• Sacramento, Department of Health Services study, 1988-1990 (381 measurements in children age 1-5 years in areas with low income, older housing, minority population), 14 % with elevated blood lead levels (EBLLs) Bradman Env Health Perspectives 2001;109:1079

• Santa Clara, 1991-1992 (3,630 children 6 to 72 months tested in public clinics), 6 % has EBLLs Snyder Pediatrics 1995;96:643-648
Prevalence of BLLs $\geq 5 \, \mu g/dL$

In NHANES III (1988-1994), 26% of children age 1-5 years had blood lead levels $\geq 5 \, \mu g/dL$

In 2006, California state-wide blood test values found 6% were $\geq 5 \, \mu g/dL$

Represented 38,000 children
Test Results Allowing Us to Identify Areas of Current Risk for Targeting – County and Below
Numbers of Children With Highest Levels of Lead Are Decreasing

Children with persistent lead values of 15µg/dL or reaching 20µg/dL are “cases”

Cases receive additional public health nursing services and environmental investigations

1993-1996 about 1,400-1,600 cases per year

Since 2006, < 700 cases/year
Services Provided to Cases

Public Health Nursing home visit by local CLPP program seeks information on behaviors and potential exposures; provides education and follow-up with family and health care provider.

Environmental visit includes testing of home including paint, soil, dust, water, and looking for other sources.
Services Provided to Cases

97% new cases received nursing home visit first half of 2007; 96% received an environmental investigation

Follow-up for correction of any lead hazards found
Analysis in 2005, of cases from 2000-2002 indicated that the most common sources of exposure identified in homes were lead in paint (66-85%) and lead in soil (32-70%), depending on level used to define exposure. Other potential exposures were take home from parent’s work (13%), home remedies (10%), hobbies (6%), pottery (3%), other (including candy, 9%).
Lead Exposure in Cases

Investigations of cases indicate that there are a number of potential sources of lead exposure in and around homes and in daily life of cases.

However, these investigations do not indicate how much of each potential source contributed to the blood lead level.

Need to address and reduce exposures from all potential sources.
Services to Exposed Children
Below Case Definition

Local program activities first half 2008 (as resources allow), graded management:
Blood lead levels 10 μg/dL or greater - ~ 740 children received some services
Blood lead levels less than 10 μg/dL - ~ 330 received some services
Correction of Lead Hazards

Corrective actions are key:
24 local CLPP jurisdictions carrying out additional activities to be sure identified lead hazards are corrected and to stop exposure

Collaboration with federal and state agencies and programs to remove/prevent multiple products with lead
Summary Points

Lead has developmental effects, even at levels which do not cause overt symptoms.

Blood lead levels are decreasing but there are still many children in California with increased blood lead levels.

Testing still needed to identify risk and provide services as indicated.

Prevention of exposure is essential.
Looking Forward to Increasing Collaboration on Lead Issues Through Healthy Homes and Healthy Families

Key Goal
Childhood Lead Poisoning Prevention Branch website:

http: [www.cdph.ca.gov/programs/CLPPB](http://www.cdph.ca.gov/programs/CLPPB)

Information on local CLPP Programs and contact information
Standards to Reduce Lead Exposure

Lead in paint- 600 ppm
Lead in soil in children’s play areas- 400 ppm
Lead in dust (interior floor)- 40 mcg/sq ft
Lead in non-metallic children’s jewelry- 200 ppm after 8/31/09
Lead in packaging- 100 ppm for sum of 4 heavy metals
Lead in candy- 0.1 ppm
Lead in water- 15 ppb action level
Children’s products (CPSC) paint/coatings 90 ppm 8/14/09
Accessible parts of consumer products for < 12yrs, 2/10/09
600 ppm, 8/14/09 300 ppm, 8/14/11 100 ppm
Lead Effects in Older Children

Attention Deficit Hyperactivity Disorder: Children 4-15 years association of higher blood lead levels with ADHD, as defined by medication and parent report (NHANES data 1999-2002). Braun. Env Health Perspect, September 2006, on-line

Delinquency: Higher bone lead in 12-18 year olds in Pennsylvania with delinquency convictions and blood lead associated with self-reported delinquent acts in Cincinnati Env Health Perspect Vol 110, October 2002

Puberty: Girls 8-18 years, increases in blood lead of one vs 3 μg/dL delayed puberty (n=2,186) Selevan. NEJM 2003;348:1527-1536
Adverse Effects of Lead at Low Blood Levels

IQ Effects of Low Lead:

Children (n=101) followed from 6-60 months, with lead concentration below 10 µg/ dL, had change in IQ (7.4 IQ points for lifetime average increase in lead from 1 to 10 µg/ dL vs 2.5 IQ decrease between 10-30)

Canfield NEJM 2003;348:1517-26