

Lead Brought Home from Work in California— Identification and Prevention

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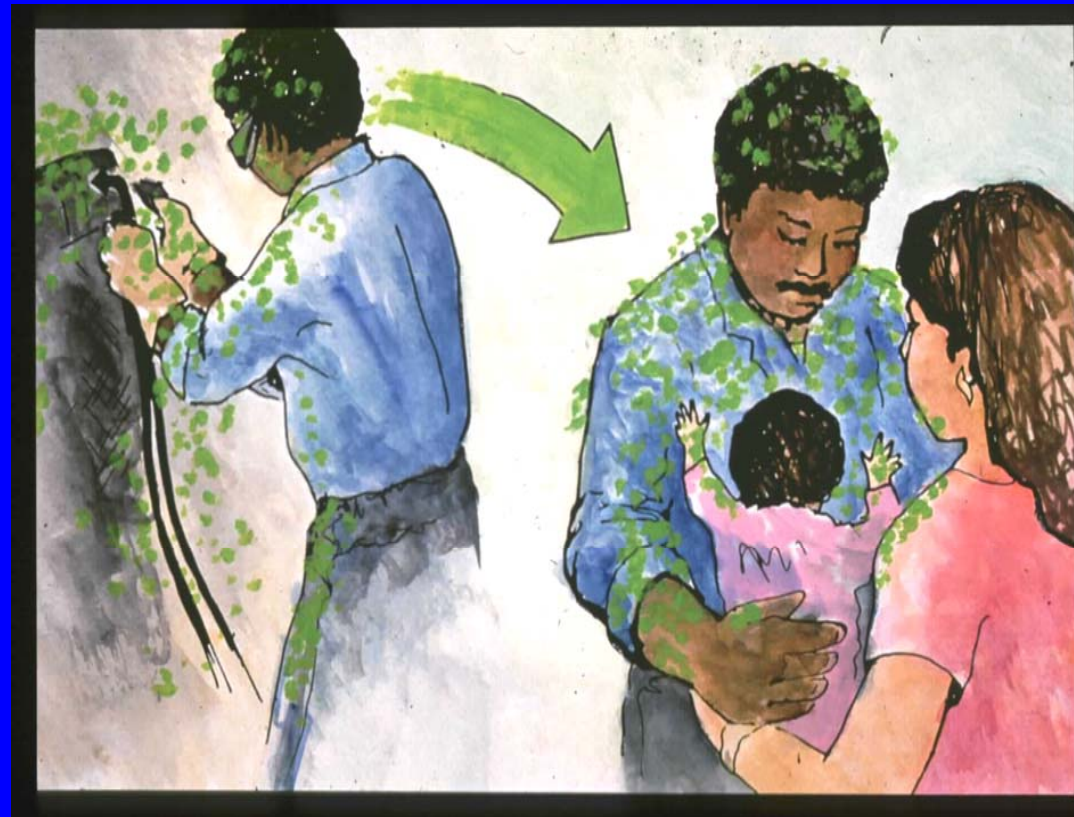
California Department of Health Services

www.dhs.ca.gov/ohb/olppp

“Take-Home” Exposure

- Toxic substance carried from work to home on worker's body, clothes, shoes
- Young children and fetus have added risk
- Documented cases of family illness include work exposures to:

lead, beryllium,
mercury, asbestos,
pesticides, others



Take-Home Lead Poisoning in California

- Since 1992, OLPPP investigates suspected take-home lead exposures in collaboration with local health departments (LHDs)
- Confirmed if household member *and* lead-exposed worker each have blood lead level $\geq 10 \mu\text{g/dL}$; *and* workplace source identified
- Intervene with employer, worker and family to correct hazard and identify others at risk
- Employers may have legal liability if family member harmed due to workplace exposure

Occupational Blood Lead Registry, California, 2005

Number of Individuals Age \geq 16 years
by Peak Blood Lead Level (BLL)

<u>BLL</u> ($\mu\text{g}/\text{dL}$)	<u>No. individuals (%)</u> *
< 10	36,804 (93)
10 - 19	1,929 (5)
20 - 39	748 (2)
40 - 49	38 (<1)
50 - 59	12 (<1)
60+	12 (<1)
Total	39, 543

* Percentages do not equal 100% due to rounding

Workplaces, workers, and household members with BLLs ≥ 10 $\mu\text{g/dL}$, California, 1992 through June 2006

<u>Type of Workplace</u>	<u>Workplaces, n(%)</u>	<u>Workers, n(%)</u>	<u>HH members, n (%)</u>
Radiator repair, mfr.	16 (30)	17 (25)	24 (25)
Battery mfr., recycling, repair	7 (13)	8 (12)	9 (9)
Painting	7 (13)	7 (10)	11 (12)
Metal casting	6 (11)	7 (10)	9 (9)
Ceramics mfr., tile painting	5 (9)	6 (9)	5 (5)
Scrap metal recycling	4 (7)	8 (12)	8 (8)
Antique furniture refinishing	2 (4)	3 (4)	7 (7)
Others	7 (13)	13 (19)	22 (23)
TOTAL	54 (100)	69 (101)	95 (98)

Peak BLLs of workers linked to household members with BLLs ≥ 10 $\mu\text{g/dL}$, California, 1992 - June 2006

Blood Lead Level ($\mu\text{g/dL}$)	Number of Workers (%)
10 to 24	21 (30)
25 to 39	20 (29)
40 to 59	18 (26)
60 to 99	8 (12)
≥ 100	2 (3)
TOTAL	69 (100)

Additional 87 co-workers newly identified with BLLs ranging from 10 to 164 $\mu\text{g/dL}$, 35% > 40 $\mu\text{g/dL}$

Household members linked to workers with BLLs ≥ 10 $\mu\text{g/dL}$, California, 1992 - June 2006

Peak BLL ($\mu\text{g/dL}$)	Age of Household Members				Total
	< 1 year	1-5 years	6-13 years	18+ years	
	Number				Number (%)
10-14	7	17	3	1	28 (29)
15-19	3	5	4	1	13 (14)
20-24	3	20	2	-	25 (26)
25-39	3	17	2	1	23 (24)
40-49	-	5	-	-	5 (5)
50+	-	1	-	-	1 (1)
Total Number(%)	16 (17)	65 (68)	11 (12)	3 (3)	95 (100)

Identification

- 47 of 54 incidents (87%) identified by testing child in primary care
- 6 incidents (12%) identified by testing worker in primary care; 1 by employer testing
- 48 incidents (89%) first identified to OLPPP by LHD-initiated reporting
- 25 of 58 counties (43%)—urban and rural

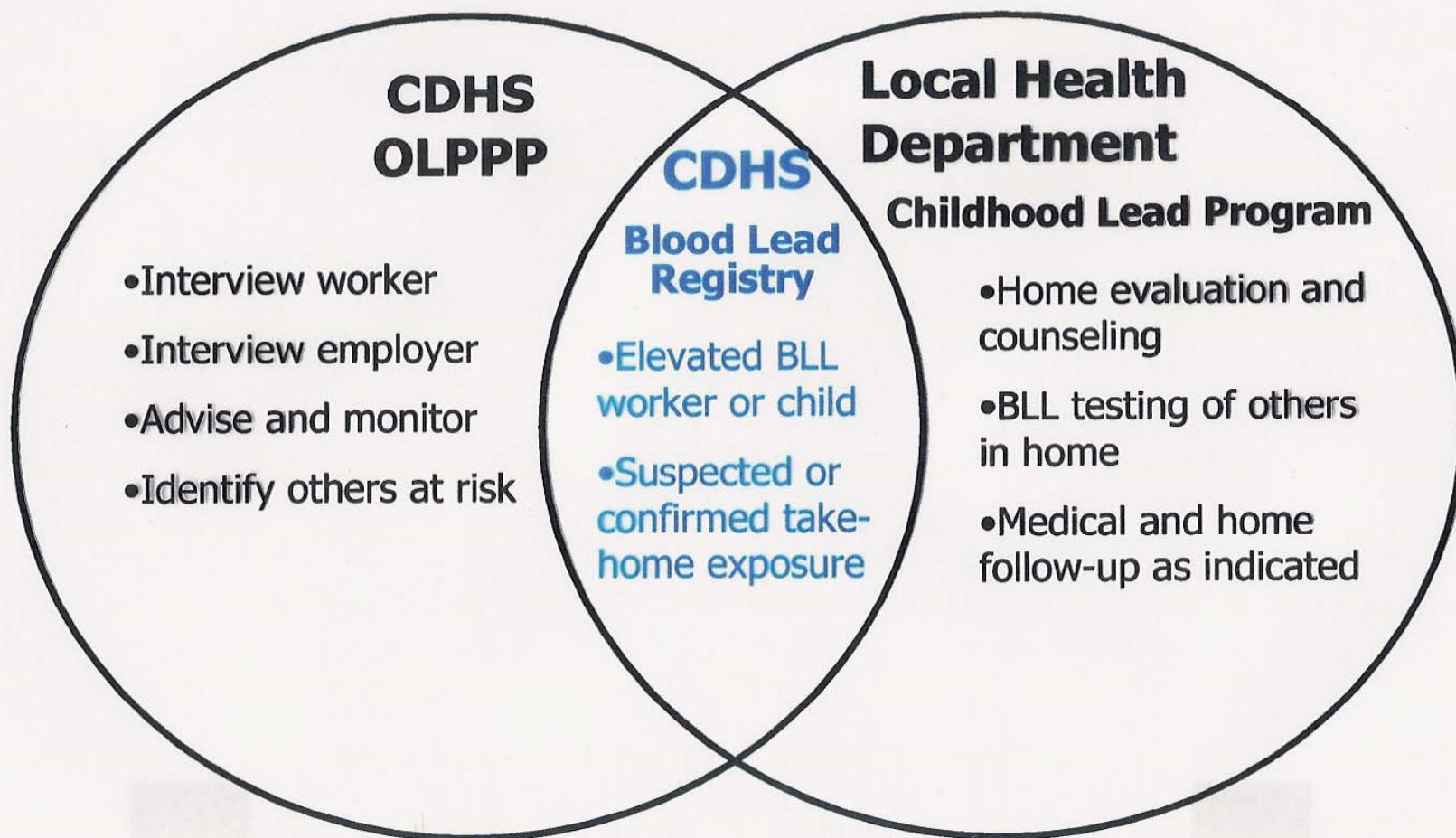
Limitations

- True number of take-home lead poisoning incidents unknown
- Take-home lead exposure may not have been recognized or reported
- Several suspected take-home lead exposure cases not confirmed due to inability to obtain worker BLL or interview
- Laboratories not required to report BLLs $< 26 \mu\text{g/dL}$ prior to 2003; important data gaps

OLPPP's Efforts to Address Take-Home Exposure

- **Integral part of tiered case management protocol**
- **Outreach and education projects/materials for workers, employers and health care providers**
- **State lab offers free one-time BLL testing for any adult in home if payment a financial hardship**
- **Ongoing education/collaboration with state CLPPB and LHD staff**

Take Home Lead Exposure Case Identification and Management



Next Steps

- Past voluntary efforts by LHDs to contact adults with BLLs 10 to 39 $\mu\text{g}/\text{dL}$ varied by resources
- Newly expanded capacity of OLPPP's Registry provides direct notification statewide for all adults with BLLs $\geq 10 \mu\text{g}/\text{dL}$
 - encourages BLL testing of their children
 - provides resource information
- Enhances support for all LHDs in identification of suspected take-home lead exposure cases

Next Steps (con't)

- Beginning 2007, OLPPP sends letters monthly to all adults with BLLs ≥ 10 $\mu\text{g/dL}$ on one-time basis—English/Spanish
- List of Common Jobs, Hobbies & Other Sources of Lead (bilingual)
<http://www.dhs.ca.gov/ohb/OLPPP/new.htm#New>
- “Don’t take lead home from your job” brochure (bilingual)
<http://www.dhs.ca.gov/ohb/OLPPP/pubsgeneral.htm>

Next Steps (con't)

- **Family Lead Poisoning Associated with Occupational Exposure, *Clinical Pediatrics*, 2004**
http://www.dhs.ca.gov/ohb/OLPPP/family_lead_poisoning.pdf
- **Recommendations for Medical Management of Adult Lead Exposure, third of five-part minimonograph series, *Environmental Health Perspectives*, in-press, December 2006.**
<http://www.ehponline.org/members/2006/9784/9784.pdf>

Conclusions

- Take-home exposures are a serious problem.
- True incidence is not known.
- Most take-home cases in California are initially identified by BLL testing in primary care.
- Collaboration with LHDs is essential .
- Take-home poisoning is preventable!