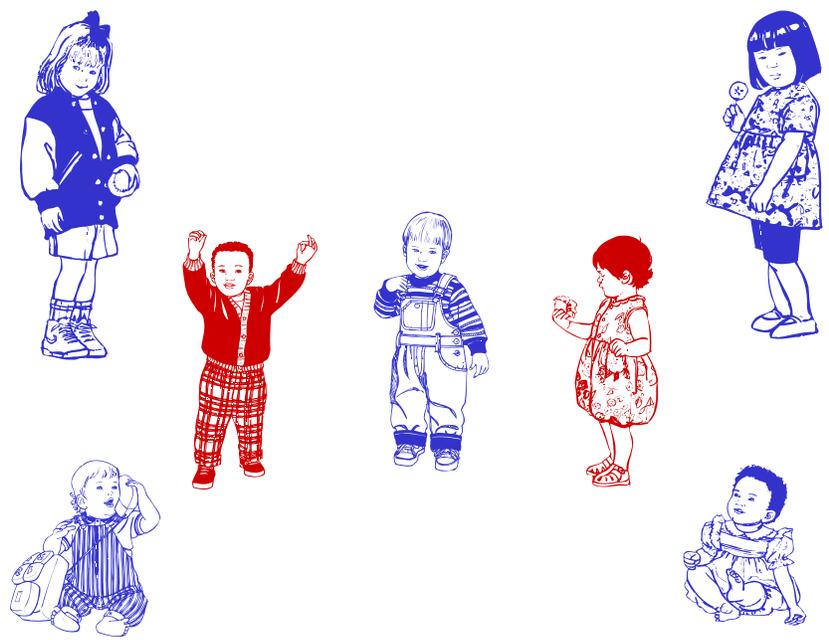


# STATE OF IOWA



## STATEWIDE PLAN FOR CHILDHOOD BLOOD LEAD TESTING AND CASE MANAGEMENT OF LEAD-POISONED CHILDREN NOVEMBER 2009

# CHILDHOOD LEAD POISONING IN IOWA

## BACKGROUND INFORMATION

### EFFECTS OF CHILDHOOD LEAD POISONING ON INDIVIDUAL AND COMMUNITY HEALTH

Lead has adverse effects on nearly all organ systems in the body. It is especially harmful to the developing brains and nervous systems of children under the age of 6 years. At very high blood lead levels, children can have severe brain damage or even die. At blood lead levels as low as 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ), children's intelligence, hearing, and growth are affected. This damage can be stopped if a child's lead exposure is reduced. However, the damage cannot be reversed. A child is considered to be lead-poisoned at a blood lead level of  $10 \mu\text{g}/\text{dL}$ . The Centers for Disease Control and Prevention (CDC) chose this level because it is the level at which health effects can start to become significant. In addition, at this level, CDC recommends that action be taken to keep the blood lead level from increasing.



A number of studies have estimated that a child's IQ will drop by one to three points for every increase of  $10 \mu\text{g}/\text{dL}$  in the child's blood lead level. In a community, the presence of lead-poisoned children can be associated with an increase in the number of children with developmental deficits and learning disorders. This places an unnecessary and expensive burden on the educational system. The presence of lead-poisoned children also requires substantial community public health resources for medical and environmental case management services.

In 2002, researchers estimated that the average decrease in lifetime earnings of a child with a blood lead level of  $10 \mu\text{g}/\text{dL}$  would be at least \$40,000 and that the average decrease for a child with a blood lead level of  $20 \mu\text{g}/\text{dL}$  would be at least \$80,000. (Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities. PJ Landrigan, DB Schechter, JM Lipton, MC Fahs, and J Schwartz. Environmental Health Perspectives, Volume 110, Number 7: 721-728.)

### IDPH ESTIMATES

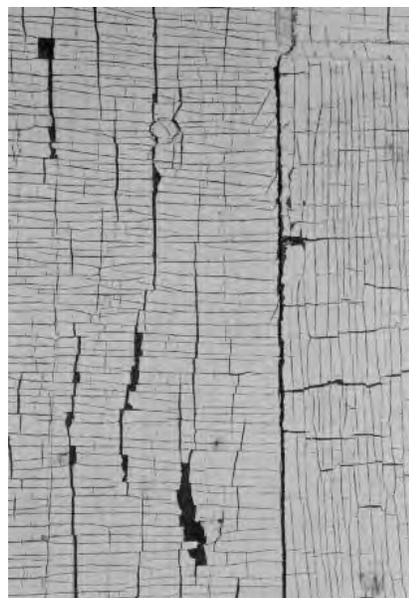
### DEMOGRAPHIC FACTORS AFFECTING CHILDHOOD LEAD POISONING

Analysis of data regarding childhood lead poisoning in Iowa have shown that the three major demographic factors affecting childhood lead poisoning in a given area are:

- The percentage of pre-1950 housing.
- The percentage of children living in poverty.
- The combined percentage of minority and Hispanic population.

Iowa's children are most commonly poisoned by lead-based paint found in homes built before 1950. Lead-based paint in a home becomes a lead hazard as it deteriorates and lead-based paint chips end up on the floors and in window wells throughout the home as well as in the soil around the exterior of a home. The paint chips also crumble and become part of the dust on the floors and window troughs. These homes are considered to have lead-based paint throughout.

Young children who live in these homes become lead-poisoned when they put paint chips or exterior soil in their mouths or when they get house dust and soil on their hands and put their hands in their mouths.



Data from inspections done by the IDPH and local childhood lead poisoning prevention programs (CLPPPs) show that virtually all pre-1950 homes in Iowa contain lead hazards. Housing data from the 2000 census show that 39.3 percent of Iowa's housing (488,375 units) was built before 1950. This is substantially greater than the national average of 22.3 percent. When compared to the nation, Iowa ranks sixth in the percentage of housing built before 1950. The map on page 4 shows the percentage of pre-1950 housing in each county.

In areas where the rate of children living in poverty is high, pre-1950 housing is usually in poorer condition and contains more lead-based paint hazards than such housing in areas where the child poverty rate is lower. Seventeen percent of Iowa's children under the age of 6 years live in poverty. The map on page 5 shows the percentage of children under the age of 6 years living in poverty in each county. The map on page 6 shows the combined percentage of minority and Hispanic population in each county. In Iowa, the rate of childhood lead poisoning among children correlates highly with the percentage of pre-1950 housing, the percentage of children living in poverty, and the combined percentage of minority and Hispanic population..

In recent years, Iowa children have also been poisoned by other sources of lead:

- Azarcon and greta, which are ethnic remedies that contain lead.
- Prenatal exposure due to the mother's use of ayurvedic remedies and ingestion of clay.
- Ingestion of lead shot from a broken shell.
- Chewing on jewelry that contained lead.

While there have been many reports that imported toys contain lead, no cases of lead poisoning in Iowa have been linked to these toys.

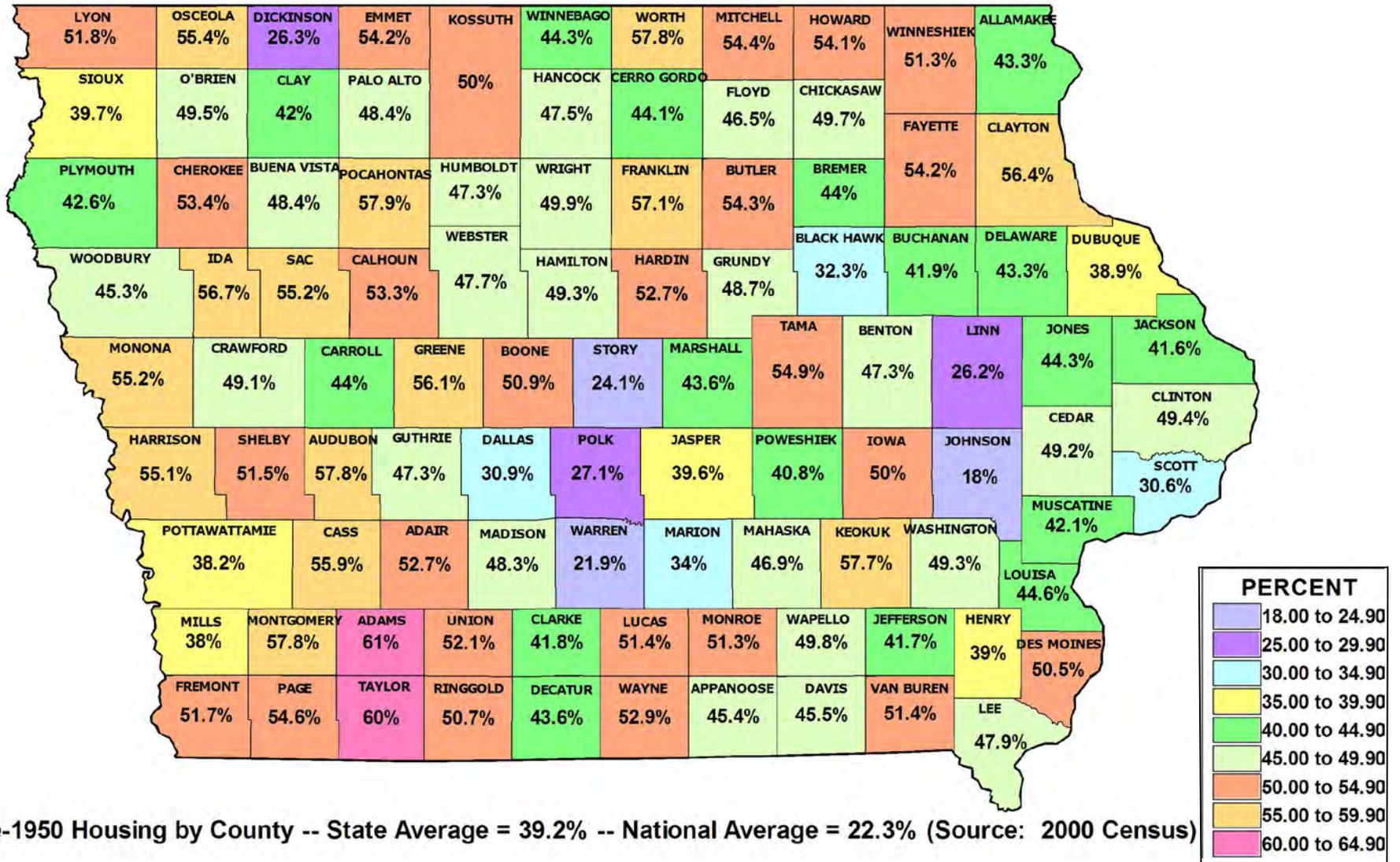
### **PREVALENCE OF CHILDHOOD LEAD POISONING IN IOWA**

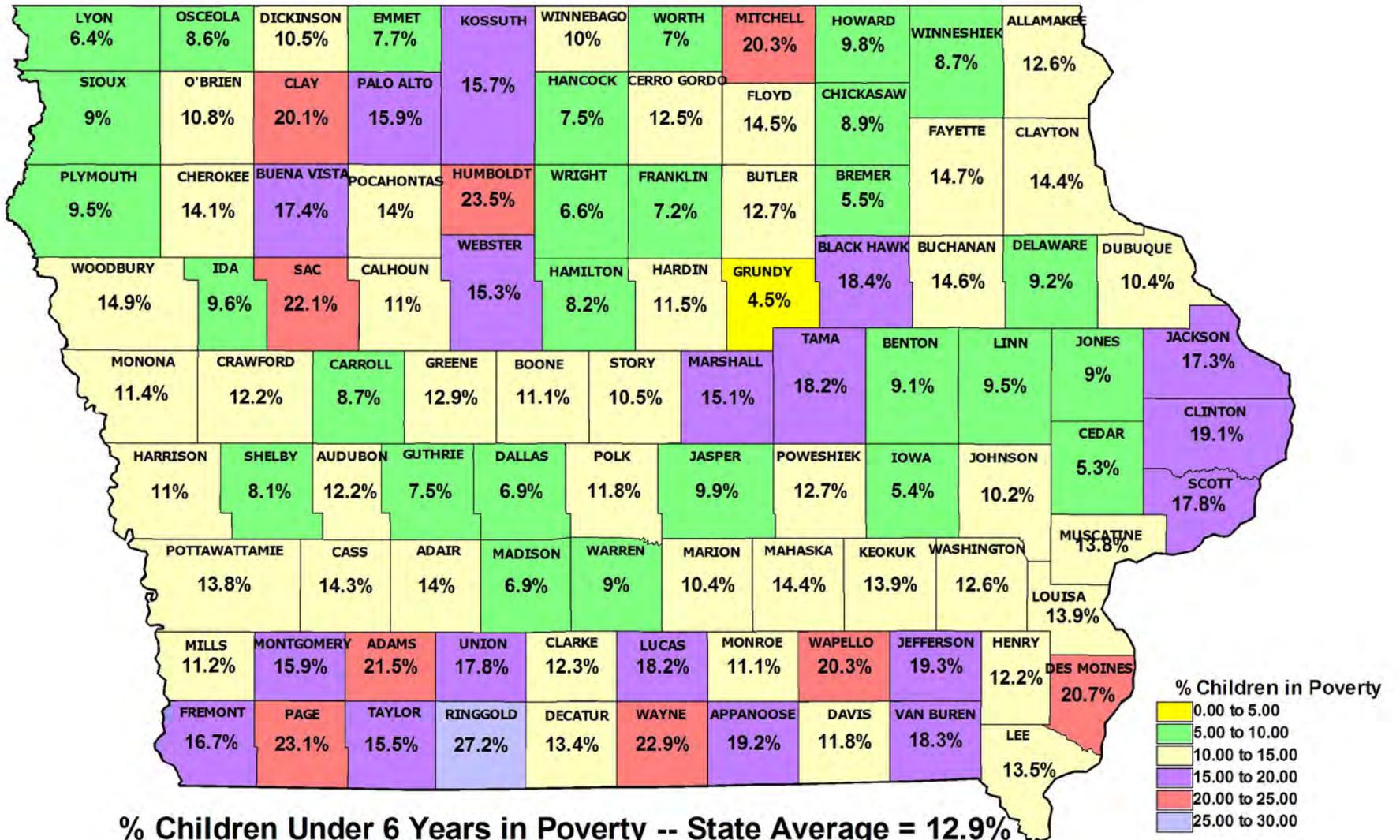
Children are identified as lead-poisoned through a blood test. Since 1992, the IDPH has recommended that all children under the age of six years be tested for lead poisoning. In addition, state and federal laws require that all children covered by Medicaid be tested for lead poisoning. Finally, since 2007, Iowa law has required that all children have proof of at least one blood lead test before starting kindergarten.

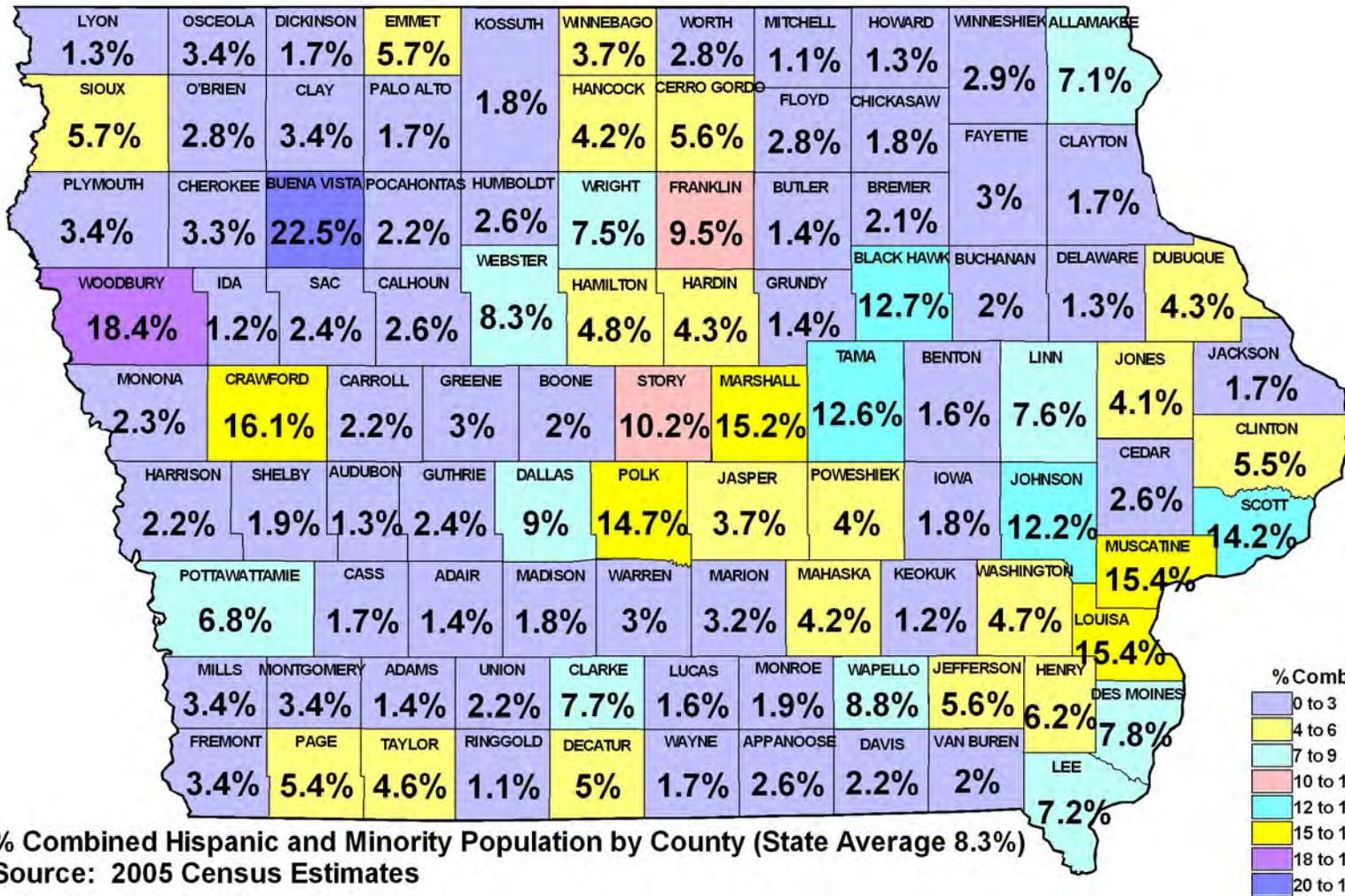


The Iowa Department of Public Health reports the rate of blood lead testing among children and the prevalence of lead poisoning by birth cohort. A birth cohort is a group of children born during a given time period. **Because of the new requirement that children have at least one blood lead testing before starting kindergarten, the percentage of children tested before the age of six years has increased from 70 percent for children born in 2001 to 90 percent for children born in 2003.**

Among the group of children born from January 1, 2000 through December 31, 2002, 72.7 percent had at least one blood lead test before the age of 6 years. Statewide, the prevalence of elevated blood lead levels among this group of children was 5.9 percent. This is nearly four times the national average of 1.6 percent. The map on page 7 shows county data for the percentage of children born in 2000 through 2000 who received at least one blood lead test before the age of 6 years. The map on page 8 shows county data for the percentage of these children who were identified as lead-poisoned. **The map on page 9 shows that 89.8 percent of children born in 2003 have been tested for lead poisoning. This shows how the percentage has increased since the Iowa legislature enacted a law requiring all children to have at least one blood lead test before the age of six years.**

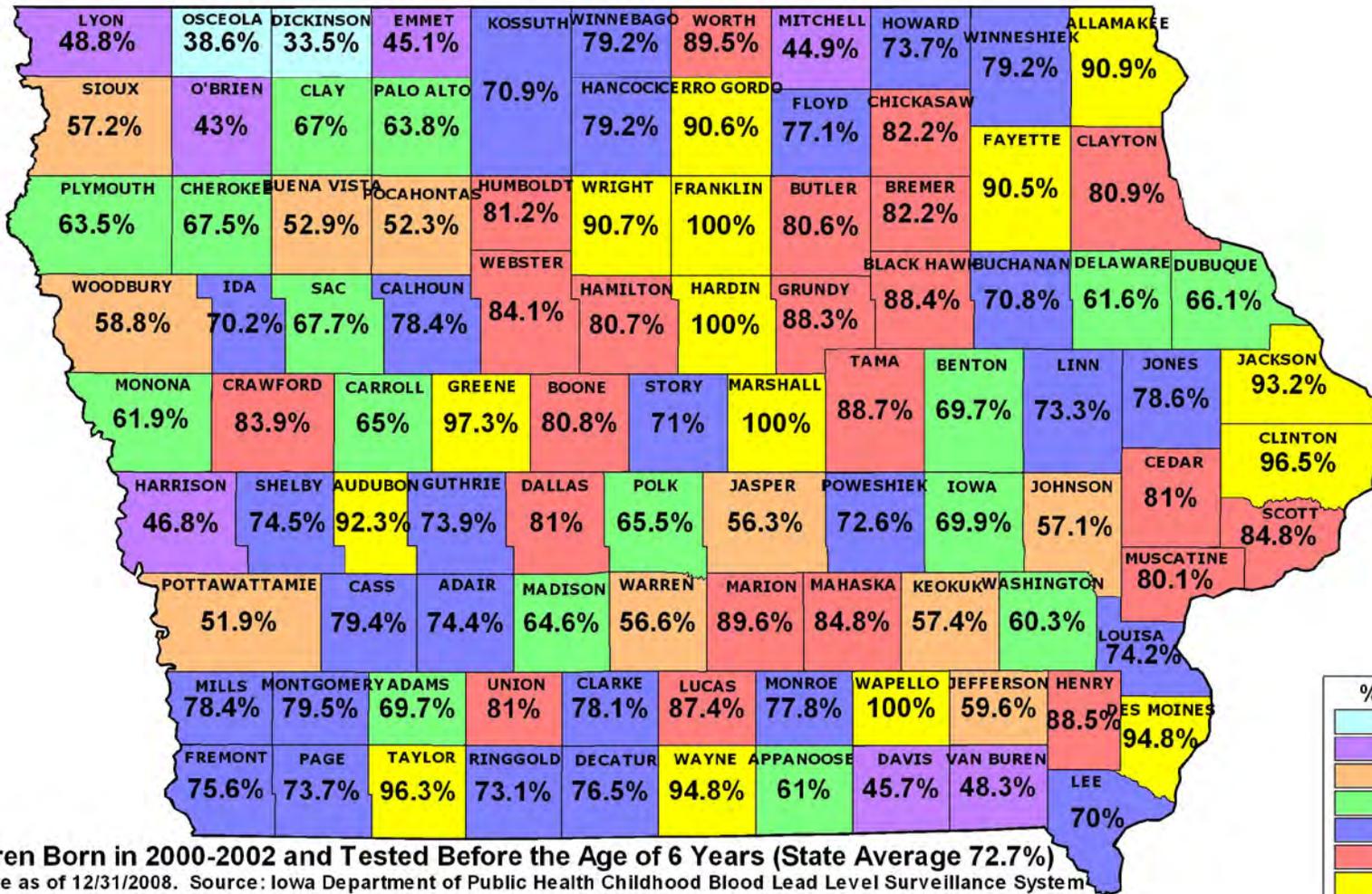


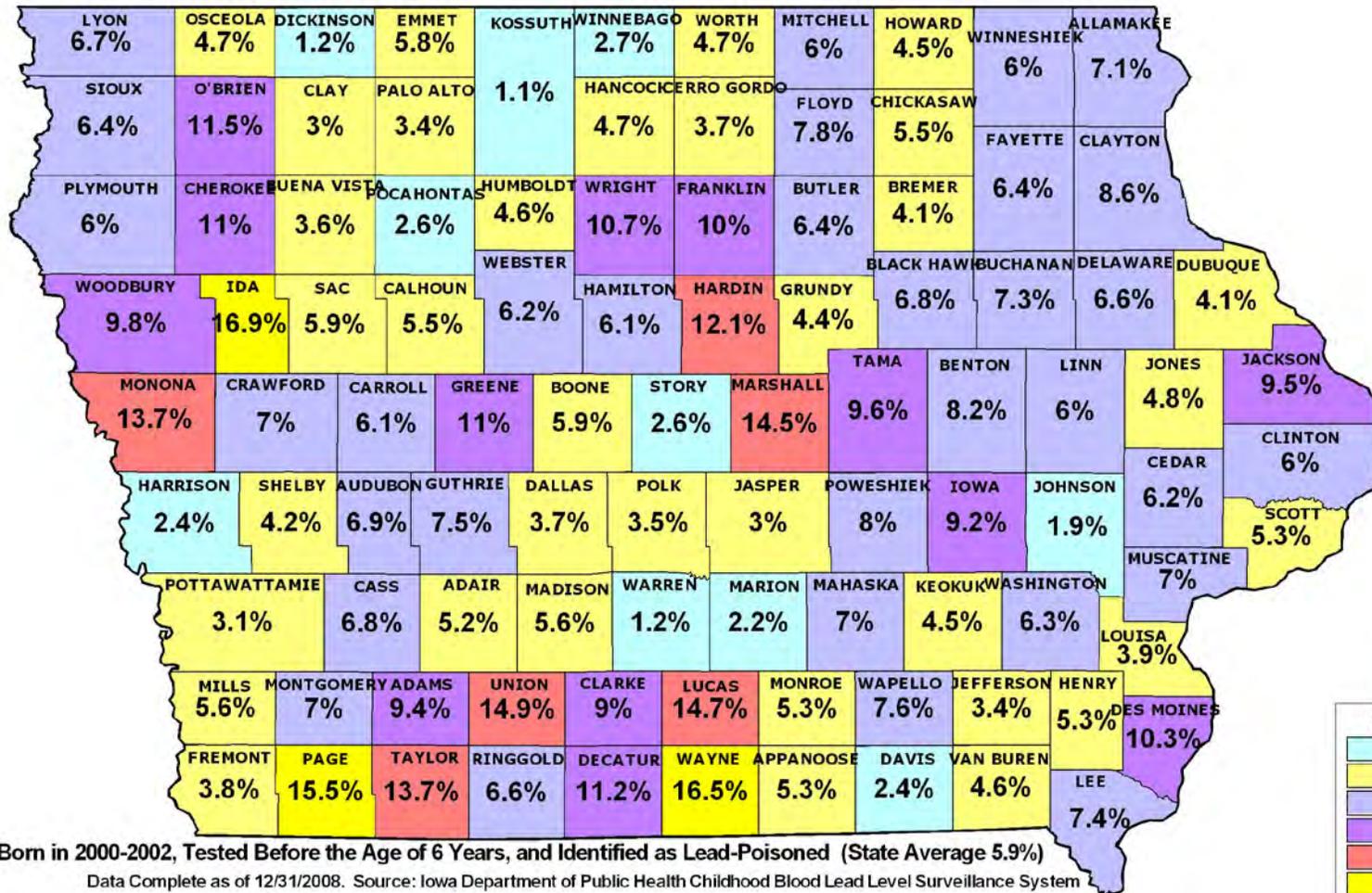


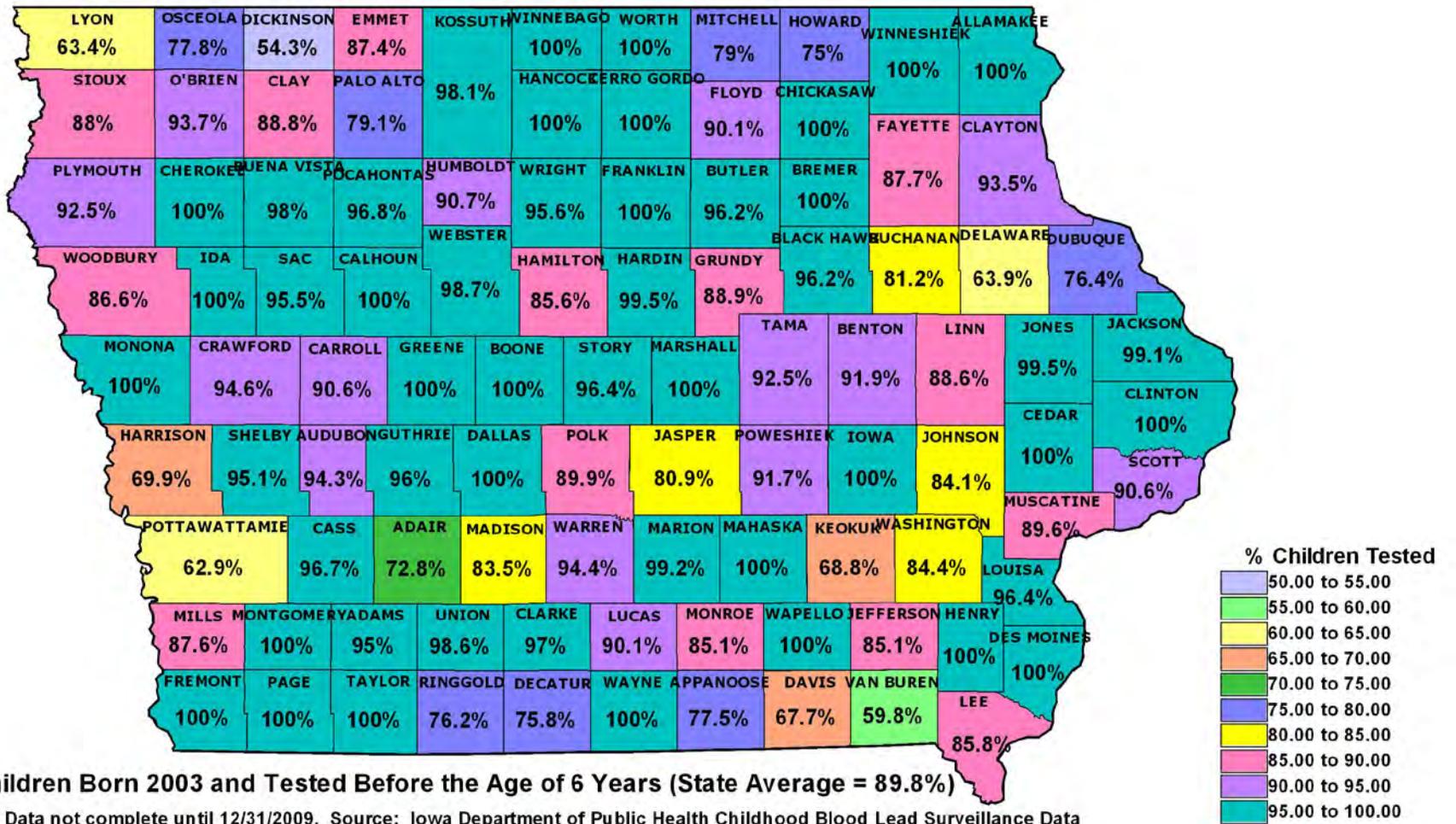


**% Combined Hispanic and Minority Population by County (State Average 8.3%)**  
 Source: 2005 Census Estimates









## **IOWA DEPARTMENT OF PUBLIC HEALTH'S ROLE IN CHILDHOOD LEAD POISONING PREVENTION**

Although lead poisoning can cause serious health problems -- including death -- most lead-poisoned children demonstrate no visible symptoms. This makes it much more important to have an effective program to prevent childhood lead poisoning. The CDC says that public health agencies should develop a comprehensive approach to preventing childhood lead poisoning that is based on assessment, policy development, and assurance. (*Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*, November 1997)

### **Assessment**

Assessment should focus on assessing children's exposure to lead. The previous section demonstrates the IDPH's assessment of lead exposure for Iowa children based on housing, poverty, minority and Hispanic population, and blood lead data.

### **Policy Development**

Public health agencies should develop policies to address both primary and secondary prevention of lead poisoning. In addition, public health agencies should develop policies for monitoring or surveillance to collect information to assist the agency in planning and evaluating lead poisoning prevention policies and program activities. In addition, this data can be used to develop public support for a state's childhood lead poisoning prevention program.

### **Primary Prevention**

Primary prevention activities are intended to prevent children from being exposed to lead. IDPH conducts the following primary prevention activities:

1. Training and certification of lead inspectors and lead abatement contractors. The IDPH modified the federal curricula for lead inspectors and lead abatement contractors to include additional information about the health effects of lead on children and how children are exposed to lead. In addition, the IDPH includes information about Iowa's system of local lead poisoning prevention programs and data showing the prevalence of childhood lead poisoning in Iowa. People who take this training in Iowa complete a hands-on exercise to assess the potential for lead exposure in their community compared to similar communities across the state.
2. Active support of new U.S. Department of Housing and Urban Development (HUD) regulations that require lead-based paint hazards to be addressed in HUD-assisted housing. Since June 2000, the IDPH has trained and certified at least one person from each housing inspection and housing rehabilitation agency in Iowa. In addition, the IDPH added Iowa-specific information to a HUD-approved 8-hour curriculum to teach lead-safe work practices to landlords and contractors working in HUD-assisted housing. Fifteen local housing agencies and health departments are now providing this training in their communities.
3. Statewide and local activities to educate communities about childhood lead poisoning. The IDPH provides brochures, videotapes, posters, and slide presentations for communities to use in their educational campaigns. The IDPH developed a state

brochure to use in place of the federal brochure for real estate disclosure and pre-renovation notification. When this brochure is approved by the U.S. Environmental Protection Agency (EPA), everyone who leases or buys pre-1978 housing will receive information about the childhood lead poisoning problem in Iowa, including Iowa's blood lead testing recommendation.

4. Pre-renovation notification. The IDPH has adopted the federal regulations for pre-renovation notification and is enforcing them in Iowa.
5. Certification of renovators. The IDPH is adopting the federal regulations for certification of renovators, including safe work practices that must be followed, and will be enforcing these regulations in Iowa.

### Secondary Prevention

Secondary prevention activities are intended to prevent additional lead exposure for children who are already lead-poisoned. This includes testing children for lead poisoning and providing environmental and medical case management for children who have been identified as lead-poisoned. Since 1992, the IDPH has invested significant resources to increase the number of counties with local childhood lead poisoning prevention programs from four counties in 1992 to the current 70 counties. In 70 of Iowa's 99 counties, local agencies conduct these secondary prevention activities. In the other 29 counties, these activities are conducted by IDPH staff. The map on page 12 shows the Iowa counties that have local childhood lead poisoning prevention programs. In addition to testing children and providing case management services for lead-poisoned children, the CDC says that the state should develop a statewide plan for childhood blood lead testing as part of a secondary prevention strategy. This plan should be developed according to the guidance in the CDC publication, *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*.

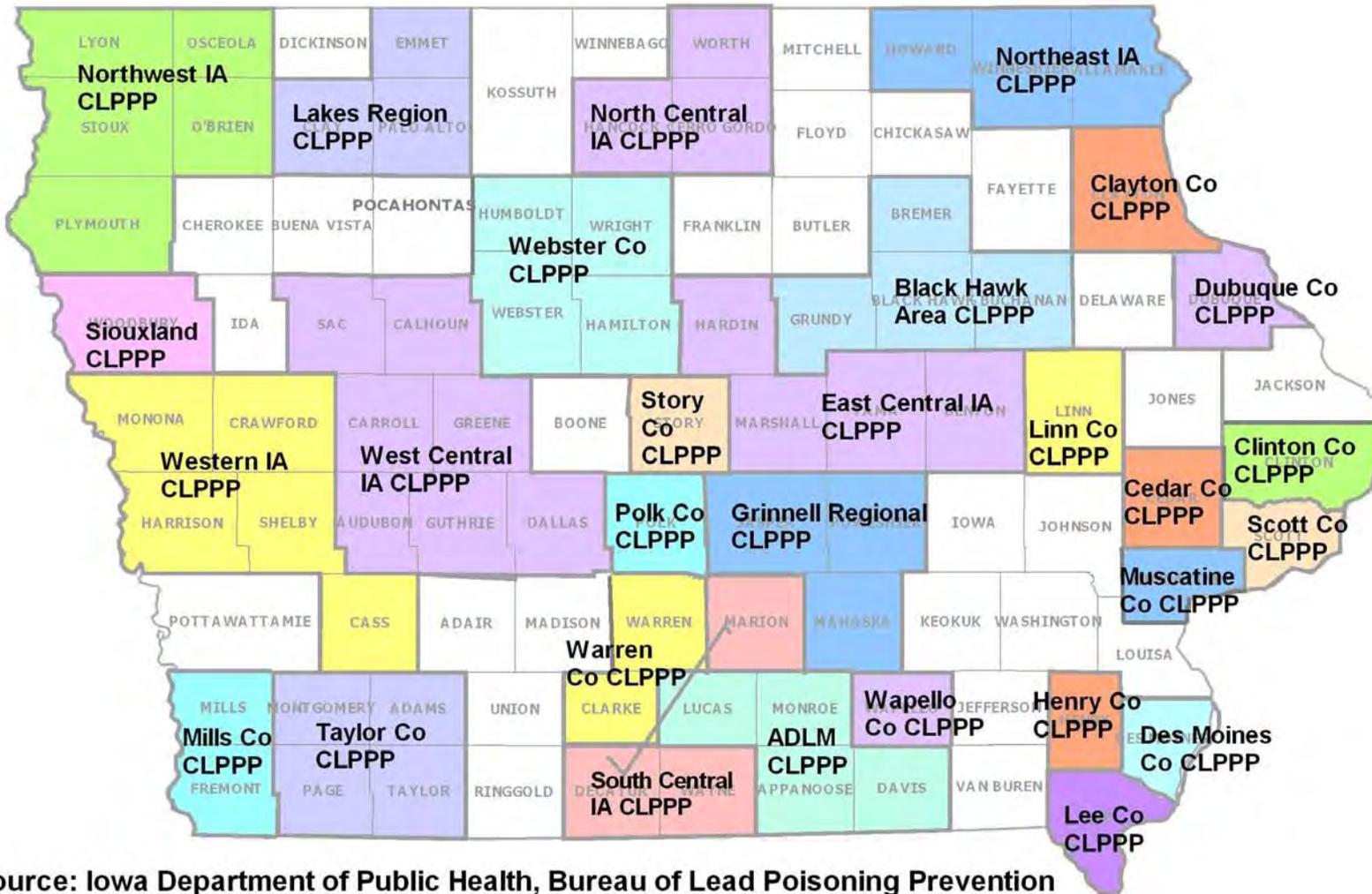
### Monitoring (Surveillance)

Monitoring or surveillance activities include developing systems to collect blood lead data and information regarding the sources of exposure for lead-poisoned children. Since 1992, the IDPH has required laboratories and physicians to report the results of all blood lead testing. The IDPH and local agencies also enter information regarding case management activities and sources of lead exposure in the STELLAR (Strategic Tracking of Elevated Lead Levels and Remediation) database. IDPH will start to use the web-based data system HHPSS (Healthy Housing and Lead Poisoning Surveillance) in February 2010. This will allow improved surveillance of blood lead levels and case management of lead-poisoned children.

### Assurance

Assurance activities are intended to assure that planned activities are performed as planned. This includes providing services such as blood lead testing when no other providers are available and developing a system to evaluate the effectiveness of program activities. In Iowa, local agencies provide blood lead testing and case management activities. In addition, the IDPH uses data from STELLAR to evaluate the effectiveness of prevention activities.

# Local Childhood Lead Poisoning Prevention Programs (CLPPPs) State of Iowa Department of Public Health 2009-2010



Source: Iowa Department of Public Health, Bureau of Lead Poisoning Prevention

# STATE OF IOWA STATEWIDE PLAN FOR CHILDHOOD BLOOD LEAD TESTING

The CDC publication, *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*, lists six steps that state public health agencies should follow in the policy development activity of developing and implementing the statewide blood lead testing plan. These six steps are:

1. Form an advisory committee.
2. Assess lead exposure and blood lead testing capacity.
3. Determine the boundaries of the recommendation areas.
4. Decide on appropriate blood lead testing.
5. Write the blood lead testing recommendations.
6. Implement the statewide plan.



This section describes the process that the IDPH used to develop Iowa's statewide blood lead testing plan and the IDPH plans for implementation of the statewide plan.

## **FORM AN ADVISORY COMMITTEE**

The CDC publication, *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials*, says the following:

“State health officials should form an advisory committee to develop the statewide plan. The committee should include child health-care providers as well as representatives from local health departments, managed-care organizations, Medicaid, private insurance organizations, and the community.”

The 2000 Iowa General Assembly directed IDPH to convene an ad hoc committee comprised of public health officials, health care providers, consumer groups, educators, early childhood development specialists, housing officials, property owners, real estate interests, representatives from the environmental health chapter team of *Healthy Iowans 2010*, and other members deemed appropriate by the director. The committee was directed to conduct a study regarding prevention of lead poisoning among children in Iowa, including, but not limited to, the following issues:

- a. An assessment of the incidence and prevalence of lead poisoning in the state, including the determination of any geographic, social, or economic patterns or other common characteristics which identify vulnerable populations in the state who are at-risk of lead poisoning.
- b. A new evaluation of the effectiveness of current childhood lead screening efforts and voluntary options and alternatives to increase lead screening, including incorporating lead screening information and efforts into ongoing immunization programs and activities. The study shall also identify opportunities to increase and enhance efforts that focus on preventing lead poisoning in children.

c. A review of current federal, state, and local laws, rules and regulatory programs, including standards and other requirements associated with federal, state, and local housing programs. The review shall include an evaluation of options and alternatives to encourage the adoption of more uniform standards across the state.

d. An effort to identify additional federal funding sources and opportunities to enhance medical assistance match dollars to address lead poisoning prevention, screening, medical case management, and environmental remediation.

e. An evaluation of the availability and effectiveness of current resources, programs, and efforts to address lead poisoning in children.

f. Consideration of the findings and recommendations of *Healthy Iowans 2010* relating to lead poisoned children.

The IDPH responded to this legislative mandate by convening a committee consisting of medical experts, health care providers, insurance companies, early childhood educators, housing officials, property owners, real estate interests, local CLPPP representatives, laboratory representatives, housing finance agencies, and consumers. Since the membership of this committee included the organizations suggested by the CDC to develop the blood lead testing recommendation, the IDPH decided to use the committee for this purpose. The members of the committee are listed on page 15.

**IOWA DEPARTMENT OF PUBLIC HEALTH  
LEAD STUDY COMMITTEE MEMBERS**

Ben Bishop	City of Des Moines Housing
Vicki Evans	Wellmark Blue Cross and Blue Shield (insurance company)
Dr. Lar Fuortes	University of Iowa (Healthy Iowans 2010 Environmental Team)
Joan Gilson	Iowa Health Solutions (Medicaid managed care)
John Heisner	Iowa Landlords Association
Jeanne Hough	Upper Des Moines Opportunity, Inc. (child development expert)
Scott Johnson	Iowa Finance Authority (housing finance expert)
Teresa Jones	Mother (Good Samaritan Urban Ministries)
Kathy Lamb	City of Dubuque Housing Services
Kyle Lundberg	Linn County Health Department Laboratory
Paul McLaughlin	Iowa Association of Realtors
Bill Milani	ADLM Environmental Health
Mabel Moore	Mother and grandmother (Iowa Farm Bureau Women)
Sally Nadolsky	Iowa Department of Human Services Medicaid Program
Susan Pohl	Iowa Department of Public Health WIC Program
Mike Prideaux	Black Hawk County Health Department
Dr. Robert Schultes	Iowa Academy of Family Practice
Don Simmons	University Hygienic Laboratory
Kelly Stoller	Visiting Nursing Association of Clinton County
Kathleen Van Zandt	Iowa Department of Public Health Child Health Program
Jody Verbraken	Verbraken and Sons Painting and Decorating
Terry Vestal	Iowa Department of Economic Development
Dr. Doug Weisman	University of Iowa
Kim Young-Kent	Tri-County Head Start

The committee met on October 10, November 8, and December 6 of 2000. Dr. Ed Schor, Associate Medical Director for IDPH and Medical Director of the Division of Family and Community Health, served as the committee's facilitator. The committee developed the blood lead testing recommendation at its first meeting.

On January 24, 2004, the IDPH Child Health Team met to review, and if necessary, revise the blood lead testing recommendation. The members of the Child Health Team present at the meeting are listed below.

Erin Barkema	EPSDT (Medicaid)
Janet Beaman	EPSDT (Medicaid)
Sally Clausen	Healthy Child Care Iowa
Lucia Dhooge	EPSDT (Medicaid)
Martha Gelhaus	SSDI
Joanne Hinrichs	HOPES/Healthy Families
Marcus Johnson	Covering Kids and Families
Beth Jones	Covering Kids and Families
Erin Kongshaug	Iowa Review of Family Assets
Heather Miller	Oral Health
Angie Doyle Scar	Covering Kids and Families
Kim Tichy	Healthy Child Care Iowa

On January 23, 2006, the IDPH Child Health Team met to review, and if necessary, revise the blood lead testing recommendation. The members of the Child Health Team present at the meeting are listed below.

Janet Beaman	EPSDT (Medicaid)
Amber Blomgren	Healthy Child Care Iowa
Sally Clausen	Healthy Child Care Iowa
Melissa Ellis	EPSDT (Medicaid)
Carrie Fitzgerald	Early Access
Rita Gergely	Bureau of Lead Poisoning Prevention
Gretchen Hageman	Community Empowerment
Bridget Konz	Immunization
Susan Pohl	WIC
Tracy Rodgers	Oral Health
Kelly Schulte	Child Health
Jan Steffen	WIC
Jane Stockton	HOPES/Healthy Families
Kim Tichy	Healthy Child Care Iowa

The advisory committee has not met again since the Iowa General Assembly enacted legislation that requires all Iowa children to have proof of at least one blood lead test before starting kindergarten.

#### **ASSESS LEAD EXPOSURE AND BLOOD LEAD TESTING CAPACITY**

The CDC recommends that the advisory committee use blood lead data, housing data, demographic data on children, and data on the presence of other sources of lead to assess lead exposure in the state. The CDC recommends that the advisory committee also assess the capacity of local public health agencies to oversee and provide blood lead testing.

### **Blood Lead Data**

The CDC says that the following criteria should be used to evaluate blood lead data:

1. Laboratory data are available for children who have been tested. Iowa data meet this criterion.
2. Laboratory data are of good quality. In general, Iowa data meet this criterion.
3. Laboratory data are available for individual children. Iowa data meet this criterion.
4. Demographic, socioeconomic, and geographic data are available for individual children. The date of birth and address of the child are available for each blood lead test. The Medicaid status is known for children covered by Medicaid in 1996 or later. Race and ethnicity have not been required reporting elements. However, as of November 12, 2009, race and ethnicity are required reporting elements.
5. Testing data are representative of the pediatric population of the jurisdiction. Iowa data partially meet this criterion. Based on address and Medicaid status, it appears that both very high risk and very low risk children are being tested across the state of Iowa. In counties where testing numbers are low, the risk of lead exposure can be estimated by reviewing data in counties that have similar proportions of pre-1950 housing and rates of children in poverty and have larger testing numbers.
6. Testing data are available for a sample that is large enough to allow for a valid estimate of prevalence to be made. Iowa data partially meet this criterion. In counties where testing numbers are low, the risk of lead exposure can be estimated by reviewing data in counties that have similar proportions of pre-1950 housing and rates of children in poverty and have larger testing numbers.
7. Labs reporting data should be successful participants in an approved proficiency testing program. Iowa data meet this criterion.
8. Blood lead level tests should be maintained in a way that allows identification of duplicate and sequential tests on a single child. It must be possible to distinguish between the number of children tested and the number of tests performed. Iowa data meet this criterion.
9. The results of all tests, regardless of blood lead levels, should be available, so that calculation of rates of elevated blood lead levels among tested children can take place. Iowa data meet this criterion.
10. The data should be representative, i.e., the demographic, socioeconomic, and geographic distribution of children screened should be similar to that of all children in the jurisdiction. Iowa data appear to meet this criterion.

It appears that Iowa's blood lead data meet enough of these criteria to be useful in assessing the lead exposure of Iowa children.

Table 1 on pages 19 to 21 shows the results of blood lead testing in children who were born from January 1, 2002, through December 31, 2005, and who were tested at least once between the ages of 9 to 35 months. By analyzing the data by birth cohort, I DPH can calculate the

percentage of children who were tested as well as the percentage of these children who were identified as lead-poisoned. The map on page 22 shows the percentage of children who were tested. The map on page 23 shows the percentage of children who were tested and identified as lead-poisoned. Table 2 on pages 24 to 27 shows the results of blood lead testing in children who were covered by Medicaid versus children who were not covered by Medicaid. The map on page 28 shows the percentage of Medicaid children who were tested. The map on page 29 shows the percentage of Medicaid children who were tested and identified as lead-poisoned. ( These data have been updated to reflect more recent data than was available when the committee originally met in 2000.)

**TABLE 1**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**

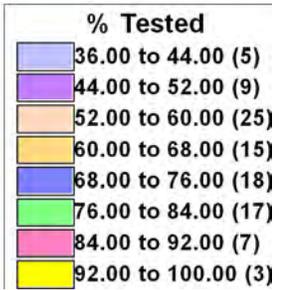
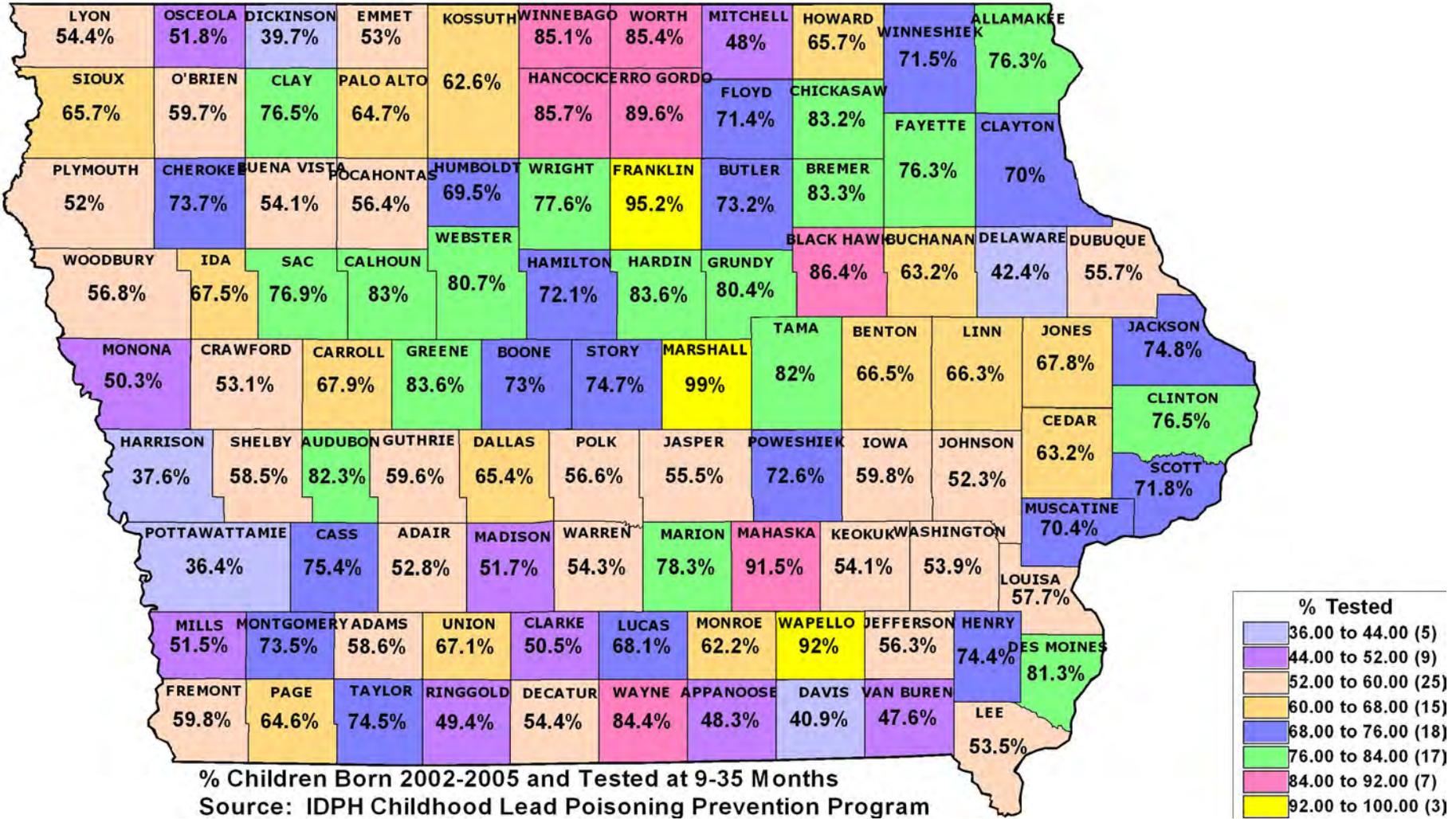
<b>COUNTY</b>	<b>2002-2005 BIRTHS</b>	<b>Children Tested</b>	<b>% Children Tested</b>	<b>Number &gt;= 10 µg/dL</b>	<b>%&gt;= 10 µg/dL</b>	<b>% Pre-1950 Housing</b>	<b>% Children in Poverty</b>	<b>% Minority and Hispanic Population</b>
Adair	301	159	52.8	5	3.1	52.7	14	1.4
Adams	169	99	58.6	4	4	61.0	21.5	1.4
Allamakee	767	585	76.3	32	5.5	43.3	12.6	7.1
Appanoose	665	321	48.3	15	4.7	45.4	19.2	2.6
Audubon	237	195	82.3	17	8.7	57.8	12.2	1.3
Benton	1242	826	66.5	48	5.8	47.3	9.1	1.6
Black Hawk	6547	5654	86.4	284	5	32.3	18.4	12.7
Boone	1207	881	73	53	6	50.9	11.1	2
Bremer	1002	835	83.3	14	1.7	44.0	5.5	2.1
Buchanan	1190	752	63.2	33	4.4	41.9	14.6	2
Buena Vista	1066	577	54.1	25	4.3	48.4	17.4	22.5
Butler	667	488	73.2	16	3.3	54.3	12.7	1.4
Calhoun	400	332	83	13	3.9	53.3	11	2.6
Carroll	1035	703	67.9	38	5.4	44.0	8.7	2.2
Cass	619	467	75.4	21	4.5	55.9	14.3	1.7
Cedar	787	497	63.2	22	4.4	49.2	5.3	2.6
Cerro Gordo	1967	1762	89.6	73	4.1	44.1	12.5	5.6
Cherokee	456	336	73.7	28	8.3	53.4	14.1	3.3
Chickasaw	594	494	83.2	25	5.1	49.7	8.9	1.8
Clarke	501	253	50.5	15	5.9	41.8	12.3	7.7
Clay	821	628	76.5	16	2.5	42.0	20.1	3.4
Clayton	787	551	70	26	4.7	56.4	14.4	1.7
Clinton	2344	1794	76.5	72	4	49.4	19.1	5.5
Crawford	913	485	53.1	30	6.2	49.1	12.2	16.1
Dallas	2649	1732	65.4	55	3.2	30.9	6.9	9
Davis	499	204	40.9	4	2	45.5	11.8	2.2
Decatur	384	209	54.4	18	8.6	43.6	13.4	5
Delaware	827	351	42.4	15	4.3	43.3	9.2	1.3
Des Moines	2016	1638	81.3	119	7.3	50.5	20.7	7.8
Dickinson	665	264	39.7	2	0.8	26.3	10.5	1.7
Dubuque	4710	2622	55.7	95	3.6	38.9	10.4	4.3
Emmet	568	301	53	15	5	54.2	7.7	5.7
Fayette	903	689	76.3	37	5.4	54.2	14.7	3
<b>STATE TOTAL</b>	<b>153326</b>	<b>99888</b>	<b>65.1</b>	<b>4238</b>	<b>4.2</b>	<b>39.3</b>	<b>12.9</b>	<b>8.3</b>
<b>NATIONAL AVERAGE</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2.1</b>	<b>22.3</b>	<b>NA</b>	<b>NA</b>

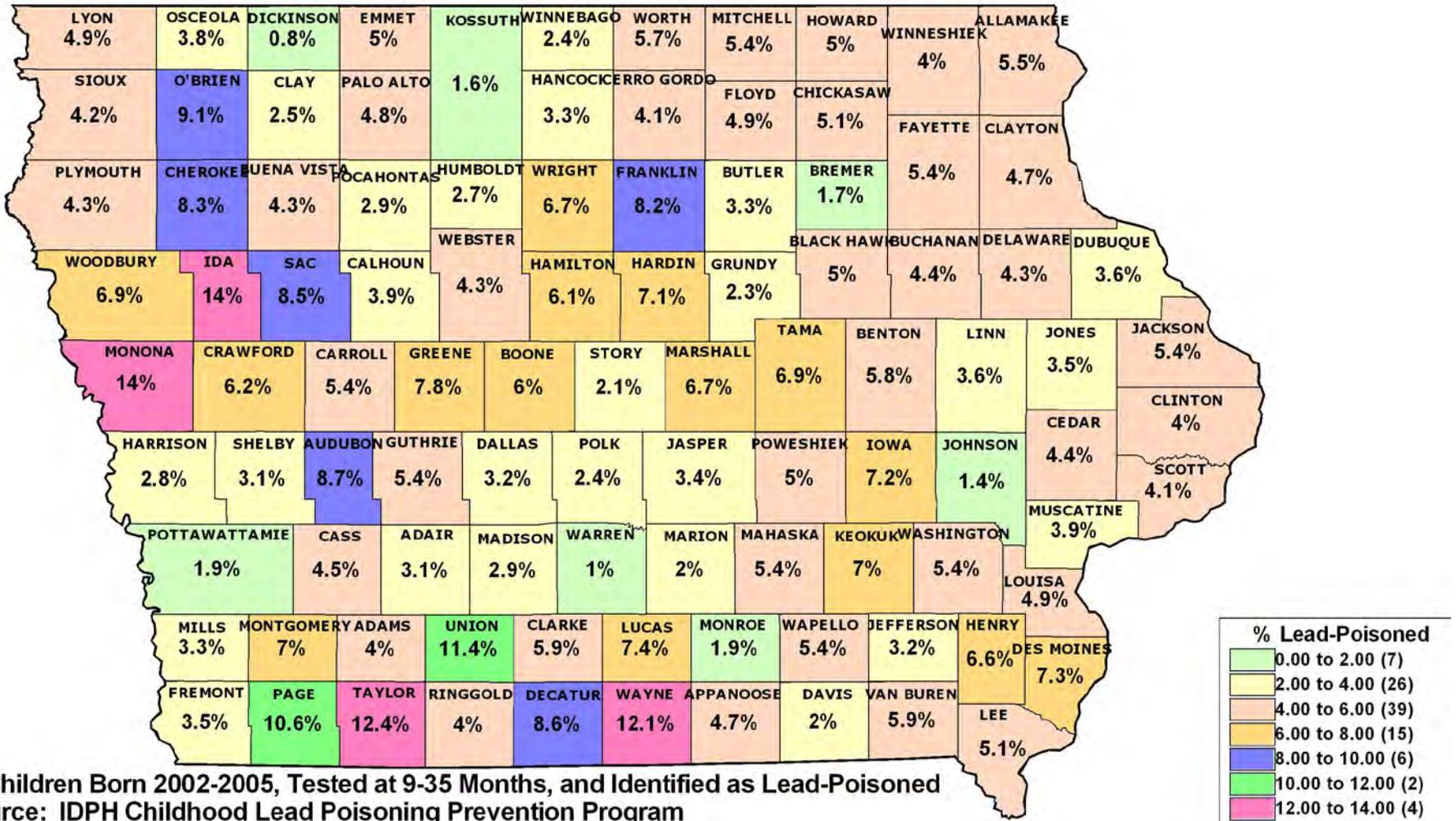
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Floyd	772	551	71.4	27	4.9	46.5	14.5	2.8
Franklin	502	478	95.2	39	8.2	57.1	7.2	9.5
Fremont	331	198	59.8	7	3.5	51.7	16.7	3.4
Greene	397	332	83.6	26	7.8	56.1	12.9	3
Grundy	479	385	80.4	9	2.3	48.7	4.5	1.4
Guthrie	532	317	59.6	17	5.4	47.3	7.5	2.4
Hamilton	746	538	72.1	33	6.1	49.3	8.2	4.8
Hancock	490	420	85.7	14	3.3	47.5	7.5	4.2
Hardin	810	677	83.6	48	7.1	52.7	11.5	4.3
Harrison	660	248	37.6	7	2.8	55.1	11	2.2
Henry	935	696	74.4	46	6.6	39.0	12.2	6.2
Howard	461	303	65.7	15	5	54.1	9.8	1.3
Humboldt	479	333	69.5	9	2.7	47.3	23.5	2.6
Ida	329	222	67.5	31	14	56.7	9.6	1.2
Iowa	766	458	59.8	33	7.2	50.0	5.4	1.8
Jackson	823	616	74.8	33	5.4	41.6	17.3	1.7
Jasper	1792	994	55.5	34	3.4	39.6	9.9	3.7
Jefferson	618	348	56.3	11	3.2	41.7	19.3	5.6
Johnson	5972	3121	52.3	44	1.4	18.0	10.2	12.2
Jones	875	593	67.8	21	3.5	44.3	9	4.1
Keokuk	529	286	54.1	20	7	57.7	13.9	1.2
Kossuth	685	429	62.6	7	1.6	50.0	15.7	1.8
Lee	1589	850	53.5	43	5.1	47.9	13.5	7.2
Linn	11048	7323	66.3	263	3.6	26.2	9.5	7.6
Louisa	633	365	57.7	18	4.9	44.6	13.9	15.4
Lucas	417	284	68.1	21	7.4	51.4	18.2	1.6
Lyon	634	345	54.4	17	4.9	51.8	6.4	1.3
Madison	787	407	51.7	12	2.9	48.3	6.9	1.8
Mahaska	1105	1011	91.5	55	5.4	46.9	14.4	4.2
Marion	1637	1281	78.3	25	2	34.0	10.4	3.2
Marshall	2365	2342	99	157	6.7	43.6	15.1	15.2
Mills	712	367	51.5	12	3.3	38.0	11.2	3.4
Mitchell	504	242	48	13	5.4	54.4	20.3	1.1
<b>STATE TOTAL</b>	<b>153326</b>	<b>99888</b>	<b>65.1</b>	<b>4238</b>	<b>4.2</b>	<b>39.3</b>	<b>12.9</b>	<b>8.3</b>
<b>NATIONAL AVERAGE</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2.1</b>	<b>22.3</b>	<b>NA</b>	<b>NA</b>

**TABLE 1**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**

<b>COUNTY</b>	<b>2002-2005 BIRTHS</b>	<b>Children Tested</b>	<b>% Children Tested</b>	<b>Number &gt;= 10 µg/dL</b>	<b>%&gt;= 10 µg/dL</b>	<b>% Pre-1950 Housing</b>	<b>% Children in Poverty</b>	<b>% Minority and Hispanic Population</b>
Monona	398	200	50.3	28	14	55.2	11.4	2.3
Monroe	333	207	62.2	4	1.9	51.3	11.1	1.9
Montgomery	521	383	73.5	27	7	57.8	15.9	3.4
Muscatine	2418	1702	70.4	66	3.9	42.1	13.8	15.4
O'brien	682	407	59.7	37	9.1	49.5	10.8	2.8
Osceola	307	159	51.8	6	3.8	55.4	8.6	3.4
Page	672	434	64.6	46	10.6	54.6	23.1	5.4
Palo Alto	451	292	64.7	14	4.8	48.4	15.9	1.7
Plymouth	1245	648	52	28	4.3	42.6	9.5	3.4
Pocahontas	305	172	56.4	5	2.9	57.9	14	2.2
Polk	25398	14383	56.6	339	2.4	27.1	11.8	14.7
Pottawattamie	4885	1779	36.4	33	1.9	38.2	13.8	6.8
Poweshiek	764	555	72.6	28	5	40.8	12.7	4
Ringgold	253	125	49.4	5	4	50.7	27.2	1.1
Sac	445	342	76.9	29	8.5	55.2	22.1	2.4
Scott	9117	6548	71.8	266	4.1	30.6	17.8	14.2
Shelby	496	290	58.5	9	3.1	51.5	8.1	1.9
Sioux	1864	1224	65.7	51	4.2	39.7	9	5.7
Story	3681	2751	74.7	57	2.1	24.1	10.5	10.2
Tama	952	781	82	54	6.9	54.9	18.2	12.6
Taylor	282	210	74.5	26	12.4	60.0	15.5	4.6
Union	577	387	67.1	44	11.4	52.1	17.8	2.2
Van Buren	355	169	47.6	10	5.9	51.4	18.3	2
Wapello	1916	1762	92	96	5.4	49.8	20.3	8.8
Warren	2041	1109	54.3	11	1	21.9	9	3
Washington	1178	635	53.9	34	5.4	49.3	12.6	4.7
Wayne	314	265	84.4	32	12.1	52.9	22.9	1.7
Webster	1913	1544	80.7	67	4.3	47.7	15.3	8.3
Winnebago	443	377	85.1	9	2.4	44.3	10	3.7
Winneshiek	772	552	71.5	22	4	51.3	8.7	2.9
Woodbury	6428	3651	56.8	252	6.9	45.3	14.9	18.4
Worth	308	263	85.4	15	5.7	57.8	7	2.8
Wright	693	538	77.6	36	6.7	49.9	6.6	7.5
<b>STATE TOTAL</b>	<b>153326</b>	<b>99888</b>	<b>65.1</b>	<b>4238</b>	<b>4.2</b>	<b>39.3</b>	<b>12.9</b>	<b>8.3</b>
<b>NATIONAL AVERAGE</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2.1</b>	<b>22.3</b>	<b>NA</b>	<b>NA</b>





% Children Born 2002-2005, Tested at 9-35 Months, and Identified as Lead-Poisoned  
 Source: IDPH Childhood Lead Poisoning Prevention Program

**TABLE 2**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**  
**MEDICAID ENROLLED VERSUS NON-MEDICAID ENROLLED**

COUNTY	NUMBER MEDICAID ENROLLED	MEDICAID ENROLLED TESTED	%MEDICAID TESTED	NUMBER MEDICAID EBL*	MEDICAID %EBL*	NUMBER NON- MEDICAID CHILDREN	NUMBER NON- MEDICAID TESTED	% NON- MEDICAID TESTED	NUMBER NON- MEDICAID EBL*	NON- MEDICAID %EBL*
Adair	131	58	44.3	2	3.4	170	101	59.4	3	3
Adams	109	64	58.7	4	6.3	60	35	58.3	0	0
Allamakee	509	363	71.3	24	6.6	258	222	86	8	3.6
Appanoose	442	206	46.6	12	5.8	223	115	51.6	3	2.6
Audubon	131	116	88.5	16	13.8	106	78	73.6	1	1.3
Benton	475	351	73.9	35	10	767	475	61.9	13	2.7
Black Hawk	4147	3511	84.7	253	7.2	2400	2143	89.3	31	1.4
Boone	502	401	79.9	40	10	705	480	68.1	13	2.7
Bremer	401	300	74.8	11	3.7	601	535	89	3	0.6
Buchanan	484	366	75.6	28	7.7	706	386	54.7	5	1.3
Buena Vista	884	459	51.9	21	4.6	182	118	64.8	4	3.4
Butler	321	224	69.8	10	4.5	346	264	76.3	6	2.3
Calhoun	218	170	78	11	6.5	182	162	89	2	1.2
Carroll	404	333	82.4	28	8.4	631	370	58.6	10	2.7
Cass	417	267	64	13	4.9	202	200	99	8	4
Cedar	325	214	65.8	17	7.9	462	283	61.3	5	1.8
Cerro Gordo	1201	1021	85	60	5.9	766	741	96.7	13	1.8
Cherokee	277	232	83.8	25	10.8	179	104	58.1	3	2.9
Chickasaw	293	241	82.3	18	7.5	301	253	84.1	7	2.8
Clarke	318	124	39	9	7.3	183	129	70.5	6	4.7
Clay	501	371	74.1	15	4	320	257	80.3	1	0.4
Clayton	371	289	77.9	18	6.2	416	262	63	8	3.1
Clinton	1586	1078	68	58	5.4	758	716	94.5	14	2
Crawford	742	354	47.7	19	5.4	171	131	76.6	11	8.4
Dallas	1121	766	68.3	40	5.2	1528	966	63.2	15	1.6
Davis	174	98	56.3	2	2	325	106	32.6	2	1.9
<b>STATE TOTAL</b>	<b>83018</b>	<b>52845</b>	<b>63.7</b>	<b>3310</b>	<b>6.3</b>	<b>70308</b>	<b>47048</b>	<b>66.9</b>	<b>928</b>	<b>2</b>

\*EBL means elevated blood lead (greater than or equal to 10 micrograms per deciliter).

**TABLE 2**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**  
**MEDICAID ENROLLED VERSUS NON-MEDICAID ENROLLED**

COUNTY	NUMBER MEDICAID ENROLLED	MEDICAID ENROLLED TESTED	%MEDICAID TESTED	NUMBER MEDICAID EBL*	MEDICAID %EBL*	NUMBER NON- MEDICAID CHILDREN	NUMBER NON- MEDICAID TESTED	% NON- MEDICAID TESTED	NUMBER NON- MEDICAID EBL*	NON- MEDICAID %EBL*
Decatur	266	134	50.4	18	13.4	118	75	63.6	0	0
Delaware	344	169	49.1	14	8.3	483	182	37.7	2	1.1
Des Moines	1528	1150	75.3	95	8.3	488	488	100	24	4.9
Dickinson	321	137	42.7	1	0.7	344	127	36.9	1	0.8
Dubuque	2255	1129	50.1	80	7.1	2455	1493	60.8	15	1
Emmet	329	156	47.4	11	7.1	239	145	60.7	4	2.8
Fayette	562	461	82	31	6.7	341	228	66.9	5	2.2
Floyd	444	342	77	23	6.7	328	209	63.7	4	1.9
Franklin	350	326	93.1	34	10.4	152	152	100	5	3.3
Fremont	199	107	53.8	6	5.6	132	91	68.9	1	1.1
Greene	251	214	85.3	22	10.3	146	118	80.8	4	3.4
Grundy	192	145	75.5	6	4.1	287	240	83.6	3	1.3
Guthrie	243	172	70.8	10	5.8	289	145	50.2	7	4.8
Hamilton	437	320	73.2	24	7.5	309	218	70.6	9	4.1
Hancock	236	193	81.8	9	4.7	254	227	89.4	5	2.2
Hardin	470	361	76.8	36	10	340	316	92.9	12	3.8
Harrison	360	92	25.6	2	2.2	300	156	52	5	3.2
Henry	590	391	66.3	30	7.7	345	305	88.4	16	5.2
Howard	225	168	74.7	9	5.4	236	135	57.2	6	4.4
Humboldt	274	217	79.2	8	3.7	205	116	56.6	1	0.9
Ida	185	166	89.7	29	17.5	144	56	38.9	2	3.6
Iowa	323	232	71.8	26	11.2	443	226	51	7	3.1
Jackson	444	353	79.5	30	8.5	379	263	69.4	3	1.1
Jasper	817	341	41.7	21	6.2	975	653	67	13	2
Jefferson	410	205	50	10	4.9	208	143	68.8	1	0.7
Johnson	2280	1110	48.7	26	2.3	3692	2011	54.5	18	0.9
Jones	412	260	63.1	17	6.5	463	333	71.9	4	1.2
<b>STATE TOTAL</b>	<b>83018</b>	<b>52845</b>	<b>63.7</b>	<b>3310</b>	<b>6.3</b>	<b>70308</b>	<b>47048</b>	<b>66.9</b>	<b>928</b>	<b>2</b>

\*EBL means elevated blood lead (greater than or equal to 10 micrograms per deciliter).

**TABLE 2**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**  
**MEDICAID ENROLLED VERSUS NON-MEDICAID ENROLLED**

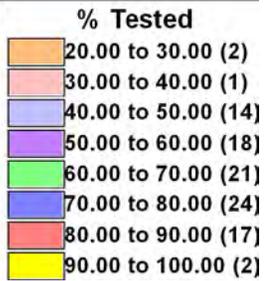
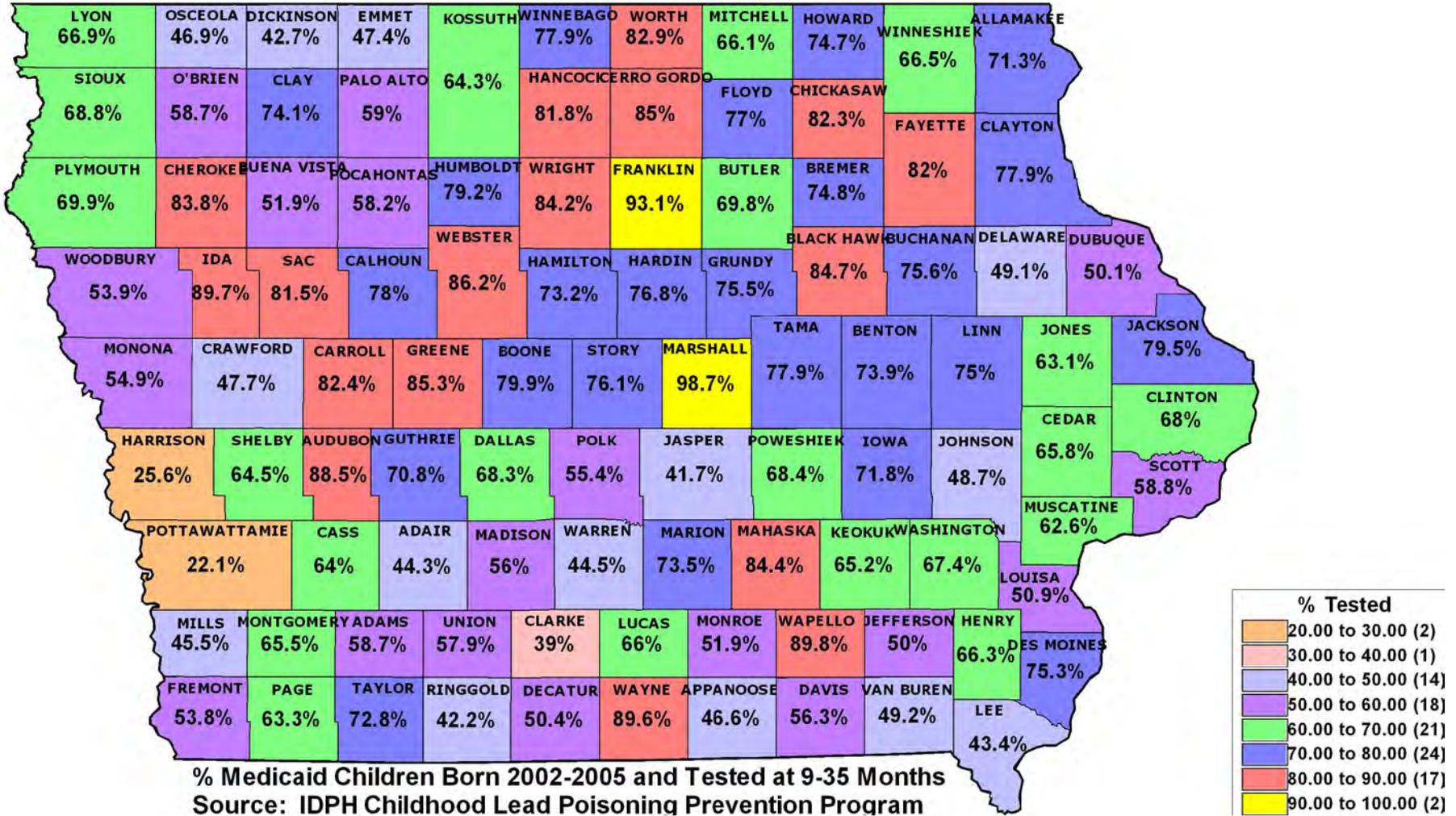
COUNTY	NUMBER MEDICAID ENROLLED	MEDICAID ENROLLED TESTED	%MEDICAID TESTED	NUMBER MEDICAID EBL*	MEDICAID %EBL*	NUMBER NON- MEDICAID CHILDREN	NUMBER NON- MEDICAID TESTED	% NON- MEDICAID TESTED	NUMBER NON- MEDICAID EBL*	NON- MEDICAID %EBL*
Keokuk	247	161	65.2	17	10.6	282	125	44.3	3	2.4
Kossuth	364	234	64.3	5	2.1	321	195	60.7	2	1
Lee	1180	512	43.4	31	6.1	409	338	82.6	12	3.6
Linn	4929	3697	75	205	5.5	6119	3626	59.3	58	1.6
Louisa	407	207	50.9	10	4.8	226	158	69.9	8	5.1
Lucas	256	169	66	17	10.1	161	115	71.4	4	3.5
Lyon	254	170	66.9	9	5.3	380	175	46.1	8	4.6
Madison	257	144	56	8	5.6	530	263	49.6	4	1.5
Mahaska	652	550	84.4	44	8	453	461	101.8	11	2.4
Marion	656	482	73.5	17	3.5	981	799	81.4	8	1
Marshall	1790	1767	98.7	140	7.9	575	575	100	17	3
Mills	358	163	45.5	8	4.9	354	204	57.6	4	2
Mitchell	186	123	66.1	11	8.9	318	119	37.4	2	1.7
Monona	264	145	54.9	26	17.9	134	55	41	2	3.6
Monroe	212	110	51.9	3	2.7	121	97	80.2	1	1
Montgomery	371	243	65.5	20	8.2	150	140	93.3	7	5
Muscatine	1669	1044	62.6	51	4.9	749	658	87.9	15	2.3
O'Brien	356	209	58.7	20	9.6	326	198	60.7	17	8.6
Osceola	145	68	46.9	2	2.9	162	91	56.2	4	4.4
Page	436	276	63.3	37	13.4	236	158	66.9	9	5.7
Palo Alto	249	147	59	11	7.5	202	145	71.8	3	2.1
Plymouth	521	364	69.9	24	6.6	724	284	39.2	4	1.4
Pocahontas	182	106	58.2	4	3.8	123	66	53.7	1	1.5
Polk	11669	6470	55.4	227	3.5	13729	7913	57.6	112	1.4
Pottawattamie	3553	784	22.1	19	2.4	1332	995	74.7	14	1.4
Poweshiek	383	262	68.4	24	9.2	381	293	76.9	4	1.4
Ringgold	135	57	42.2	4	7	118	68	57.6	1	1.5
<b>STATE TOTAL</b>	<b>83018</b>	<b>52845</b>	<b>63.7</b>	<b>3310</b>	<b>6.3</b>	<b>70308</b>	<b>47048</b>	<b>66.9</b>	<b>928</b>	<b>2</b>

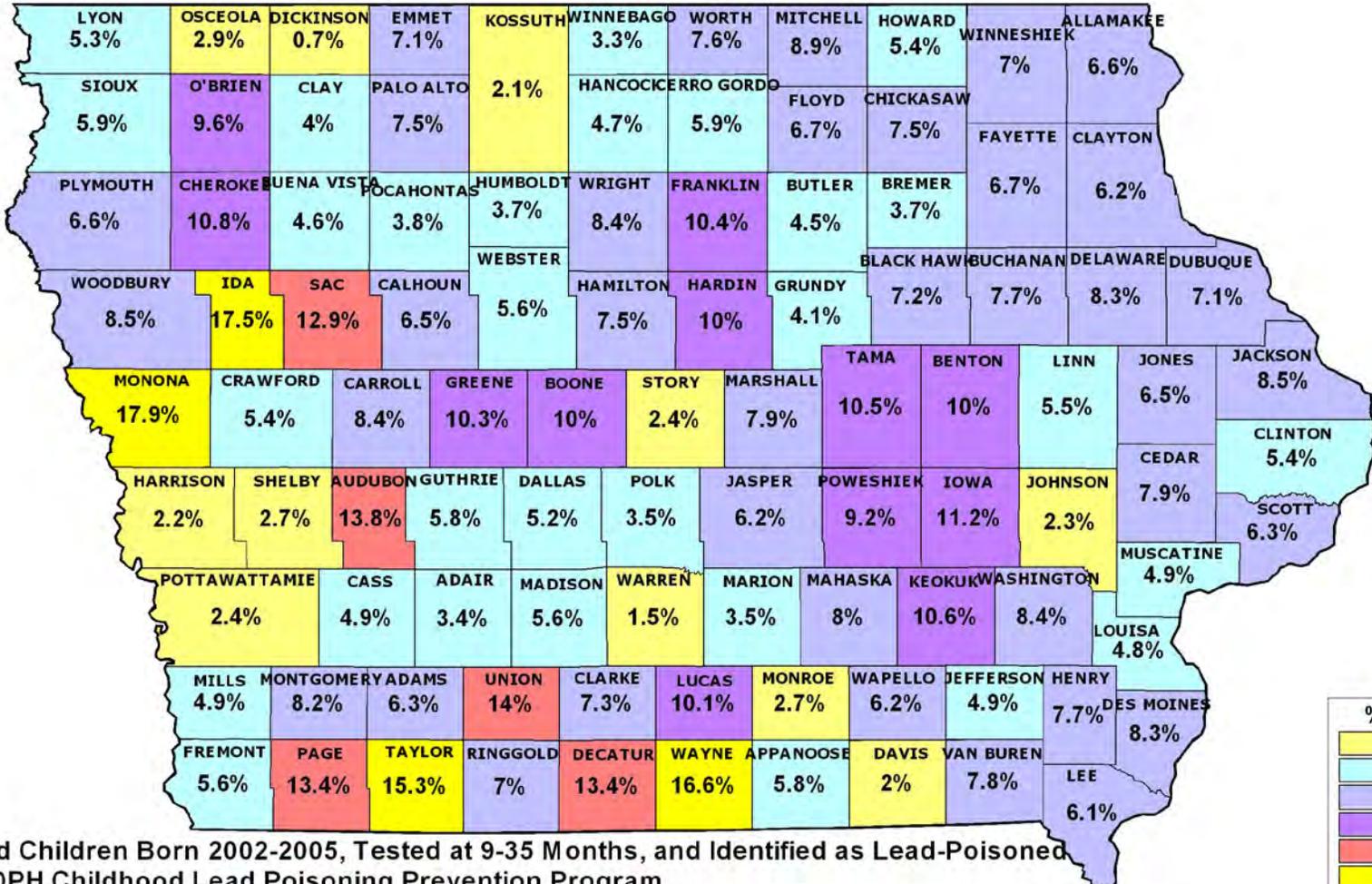
\*EBL means elevated blood lead (greater than or equal to 10 micrograms per deciliter).

**TABLE 2**  
**CHILDREN BORN 1/1/2002 - 12/31/2005 AND TESTED AT 9 MONTHS TO 35 MONTHS**  
**MEDICAID ENROLLED VERSUS NON-MEDICAID ENROLLED**

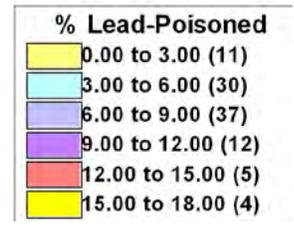
COUNTY	NUMBER MEDICAID ENROLLE D	MEDICAID ENROLLED TESTED	%MEDICAID TESTED	NUMBER MEDICAID EBL*	MEDICAID %EBL*	NUMBER NON- MEDICAID CHILDREN	NUMBER NON- MEDICAID TESTED	% NON- MEDICAID TESTED	NUMBER NON- MEDICAID EBL*	NON- MEDICAID %EBL*
Sac	238	194	81.5	25	12.9	207	148	71.5	4	2.7
Scott	5742	3379	58.8	214	6.3	3375	3169	93.9	52	1.6
Shelby	228	147	64.5	4	2.7	268	143	53.4	5	3.5
Sioux	859	591	68.8	35	5.9	1005	633	63	16	2.5
Story	1558	1185	76.1	28	2.4	2123	1566	73.8	29	1.9
Tama	585	456	77.9	48	10.5	367	325	88.6	6	1.8
Taylor	180	131	72.8	20	15.3	102	79	77.5	6	7.6
Union	382	221	57.9	31	14	195	166	85.1	13	7.8
Van Buren	183	90	49.2	7	7.8	172	79	45.9	3	3.8
Wapello	1516	1362	89.8	84	6.2	400	400	100	12	3
Warren	762	339	44.5	5	1.5	1279	770	60.2	6	0.8
Washington	513	346	67.4	29	8.4	665	289	43.5	5	1.7
Wayne	182	163	89.6	27	16.6	132	102	77.3	5	4.9
Webster	1232	1062	86.2	60	5.6	681	482	70.8	7	1.5
Winnebago	272	212	77.9	7	3.3	171	165	96.5	2	1.2
Winneshiek	322	214	66.5	15	7	450	338	75.1	7	2.1
Woodbury	4758	2563	53.9	219	8.5	1670	1088	65.1	33	3
Worth	158	131	82.9	10	7.6	150	138	92	5	3.6
Wright	436	367	84.2	31	8.4	257	171	66.5	5	2.9
<b>STATE TOTAL</b>	<b>83018</b>	<b>52845</b>	<b>63.7</b>	<b>3310</b>	<b>6.3</b>	<b>70308</b>	<b>47048</b>	<b>66.9</b>	<b>928</b>	<b>2</b>

\*EBL means elevated blood lead (greater than or equal to 10 micrograms per deciliter).



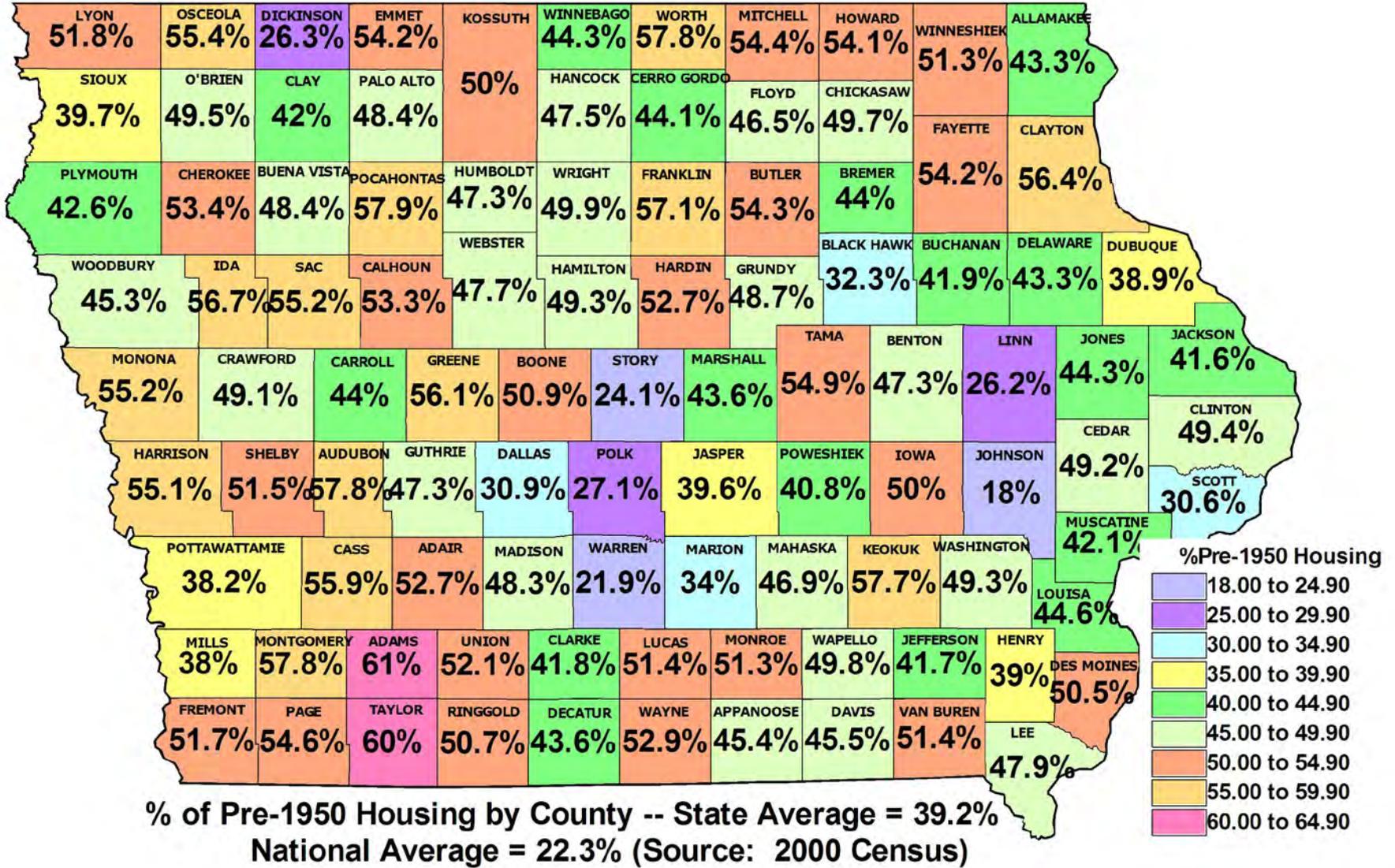


% Medicaid Children Born 2002-2005, Tested at 9-35 Months, and Identified as Lead-Poisoned  
 Source: IDPH Childhood Lead Poisoning Prevention Program



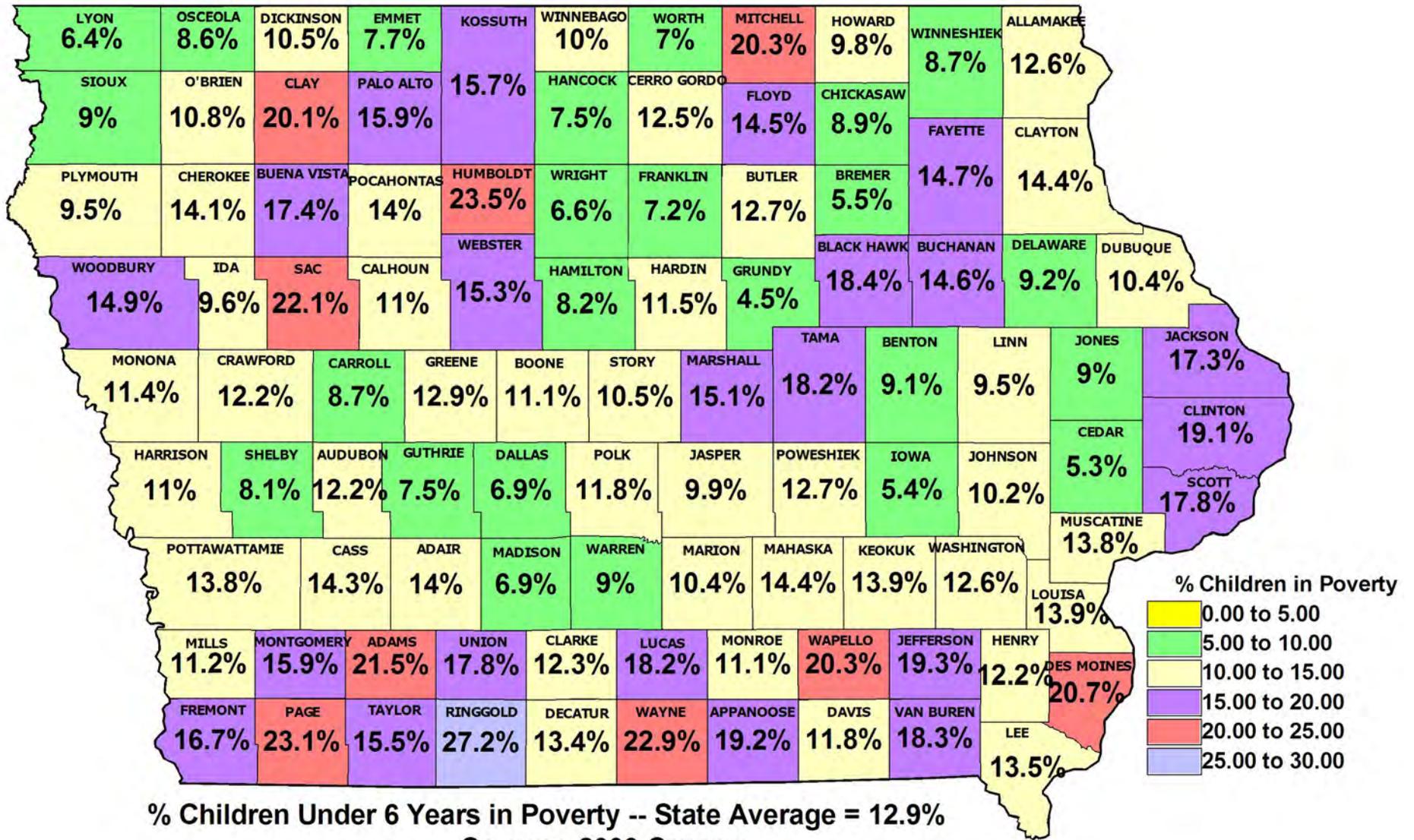
**Housing Data**

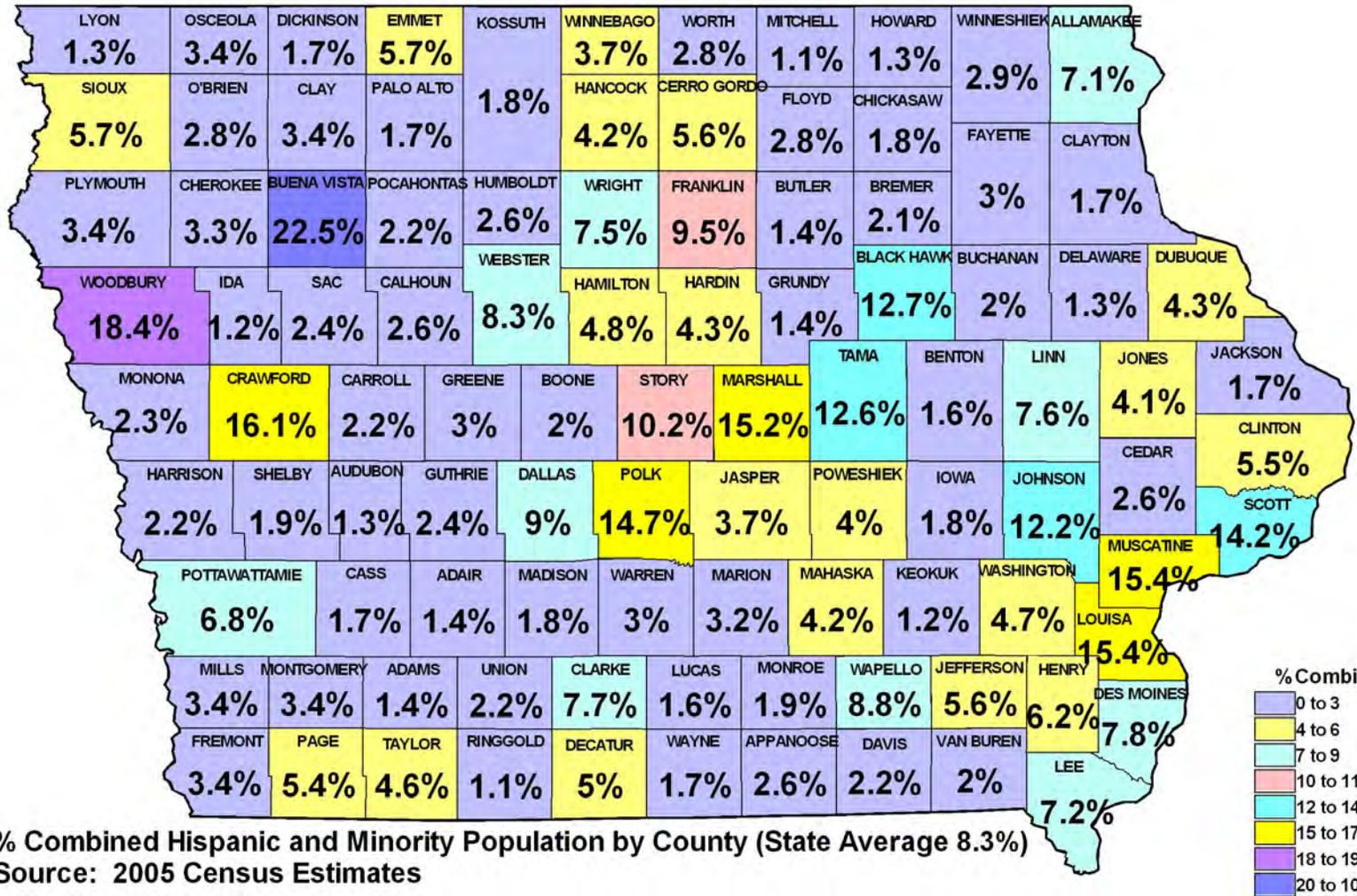
The CDC says that housing data showing the percentage of housing built before 1950 should be used to develop the blood lead testing plan. The map on page 31 shows the percentage of housing built before 1950 for the state of Iowa and for each county.



**Demographic Data on Children: Race/Ethnicity, Income, and Age**

The CDC says that demographic data showing the race/ethnicity, income and age of children should be used to develop the blood lead testing plan. The map on page 33 shows the combined minority and Hispanic population for the state of Iowa and for each county. The map on page 34 shows the percentage of children under the age of 6 years living in poverty for the state of Iowa and for each county. The CDC says that data showing the prevalence of lead poisoning in children aged 9 to 35 months should be used to develop the blood lead testing plan. These data were previously shown on pages 19 to 21 of this document.





### **Data on the Presence of Other Sources of Lead**

Several other sources of lead have contributed to a small number of cases in Iowa. These sources include take-home exposure when the parents work with lead, candy imported from Mexico and Southeast Asia, and miniblinds. In the Iowa counties with a large number of immigrants, many children are found to be lead-poisoned shortly after coming to the United States. These children were exposed to lead from paint, gasoline, and industrial sources in their native countries. Their exposure may continue when they come to the United States because they often live in older housing. In some cases, they are relocated to safe housing, but their blood lead levels increase after they return to their native countries to visit.

- Iowa has documented several instances of non-paint sources of lead exposure, including ethnic remedies, lead curtain weights, and candy from Mexico and Southeast Asia. In March 2003, at least seven cases of confirmed elevated blood lead levels in Marshalltown were linked to azarcon, which is lead tetroxide. The initial venous blood lead levels of the children ranged from 18 to 72. The azarcon was analyzed by the University Hygienic Laboratory and found to be 25 percent lead by weight with traces of cadmium. The parents who were using the azarcon were dissolving it in water and giving it to the children as a tea. In May 2004, two cases of confirmed elevated blood lead levels (venous blood lead levels of 18 and 33) in Marshalltown were linked to a home remedy called molleja de pollo molida (ground chicken gizzard). This remedy had not been previously identified as a source of lead. Further research determined that ingluvin is a digestive enzyme that is derived from chicken gizzard. It is recommended as a remedy for stomach pain and indigestion and is widely used in Chinese herbal medicine under a different name. After much speculation about how ground chicken gizzards could contain lead, the family admitted that they were mixing the ground chicken gizzard with greta, which is lead oxide, and then giving it to their children to improve their appetite. This remedy was analyzed by the University Hygienic Laboratory and found to be 17 percent lead by weight. The family said that this remedy had been brought to the United States by a relative. IDPH and local CLPPPs continue to look for non-paint sources of lead exposure that may be associated with cases of childhood lead poisoning. IDPH also documented cases of prenatal lead poisoning due to the mother's use of ayurvedic remedies or ingestion of clay. Other sources of lead exposure were ingestion of lead shot from a broken shell and chewing on jewelry that contained lead. While there have been many reports that imported toys contain lead, no cases of lead poisoning in Iowa have been linked to these toys.

### **Blood Lead Testing Capacity**

The CDC says that the committee should also examine information about the state's blood lead testing capacity in developing the state blood lead testing plan. The committee should consider the following items:

- Health department organization and capacity to oversee blood lead testing. The IDPH and the 70 counties that have local childhood lead poisoning prevention programs have the

organization and capacity to oversee blood lead testing. Many of the 29 counties that do not have local programs would develop programs if funding were available.

- Current blood lead testing activity. Iowa laboratories currently analyze approximately 100,000 blood lead samples each year. The two public health laboratories have the capacity to increase the number of samples analyzed by adding personnel to perform analyses during additional shifts.
- Capacity to collect and analyze blood lead testing data. The data analyses contained in this document demonstrate that the IDPH has the capacity to collect and to analyze blood lead testing data.
- Child health care delivery systems and patterns. The IDPH Title V Child Health Program works to ensure that child health care services are available to every child. The IDPH Childhood Lead Poisoning Prevention Program works closely with the Child Health Program, and many local agencies that are part of the childhood lead poisoning prevention program are also contractors for the child health program.
- Enrollment of children in Medicaid managed care. In calendar year 1999, Iowa had 66,079 children under the age of 6 years enrolled in Medicaid. This is 28.6 percent of children under the age of 6 years. Fifty percent of Iowa Medicaid enrollees are covered by a managed care plan, while the other 50 percent are covered by a fee-for-service plan. Because most health care providers are providers for private insurance, Medicaid fee-for-service, and Medicaid managed care organizations, changing to managed care does not usually require a change in provider. The only exception would be if the child has received service from a Title V Child Health Clinic. In this case, the child may have to start seeing a private provider if the Medicaid managed care organization chooses not to contract with the Title V Child Health Clinic. In 2006, only a handful of Iowa Medicaid children are covered by a managed care plan. All but one health plan has stopped offering managed care services to Iowa Medicaid children.
- Health department capacity to support private providers of blood lead testing. The IDPH and the 70 counties that have local childhood lead poisoning prevention programs have demonstrated the capacity to support private providers by providing information and care coordination/case management services.
- Health department capacity to provide blood lead testing for children without other access to care. In the 70 counties where local lead poisoning prevention programs exist, the local agencies can test or arrange for testing of children without other access to care. The IDPH has set aside approximately \$120,000 each year to pay for the blood lead analysis for children who do not have Medicaid or another source of payment for the analysis. These funds have not been completely used during the three years that they have been available. If local programs can be started in the 29 counties that do not have them, a local agency can provide the testing, and IDPH has the funds to pay for the analysis if there is no other source of payment.

#### **DETERMINE THE BOUNDARIES OF THE RECOMMENDATION AREAS**

The committee determined that the boundaries of the recommendation areas should be set after considering the data. For example, if the data show a widespread and homogeneous risk of lead

poisoning throughout the state, then a single recommendation should be made for the entire state of Iowa. If a block of counties show a different pattern of risk, a recommendation could possibly be made for a group of counties. In general, the committee did not support making a recommendation based on zip code unless a large, contiguous area of zip codes showed a different pattern of risk from the rest of the state.

### **DECIDE ON APPROPRIATE BLOOD LEAD TESTING**

In 2000, the IDPH recommended that the committee use a cut-off of 11.5 percent of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  since this was the actual number generated by the CDC cost-benefit analysis. This was also the national average of children with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . In addition, based on earlier guidance from the CDC, the IDPH recommended that the committee consider the following cut-off levels equivalent to the cut-off of 11.5 percent greater than or equal to 10  $\mu\text{g}/\text{dL}$ :

Greater than or equal to 15 $\mu\text{g}/\text{dL}$	3.5 percent
Greater than or equal to 20 $\mu\text{g}/\text{dL}$	1.8 percent
Greater than or equal to 25 $\mu\text{g}/\text{dL}$	0.6 percent

The prevalence criterion was met if the prevalence was greater than or equal to any one of these cut-off percentages, the prevalence criterion was met. All but 13 counties met the prevalence criterion for universal blood lead testing.

In 2000, the IDPH recommended that the committee use a cut-off of greater than or equal to 26.9 percent of pre-1950 housing since this was the actual national average. All but two counties met the housing criterion for universal blood lead testing. In addition, all but two of Iowa's 99 counties (Johnson and Warren) met the criterion for universal blood lead testing.

In 2004, the IDPH recommended that the Child Health Team use a cut-off of 2.9 percent of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . CDC has not reported a current national average for the percentage of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . The current national average for the percentage of children under the age of 6 years with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  is 2.2 percent. In the past, the national percentage of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  has been approximately 1.3 times the national average of children under the age of 6 years with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . Therefore, the current national average of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  can be estimated as 1.3 times 2.2 percent, or 2.9 percent.

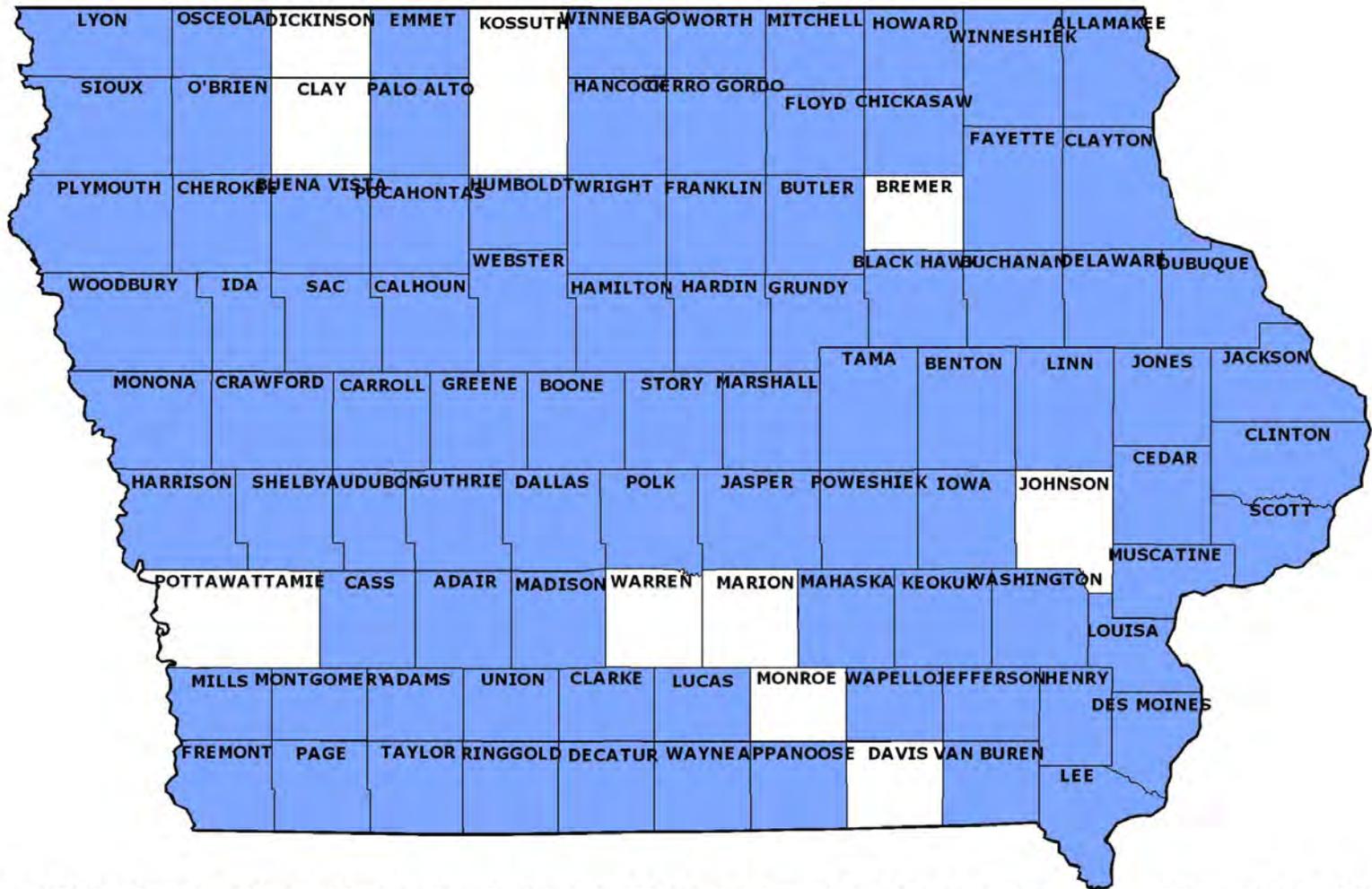
In 2006, the IDPH recommended that the Child Health Team use a cut-off of 2.1 percent of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . CDC has not reported a current national average for the percentage of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$ . The current national average for the percentage of children under the age of 6 years with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  is 1.6 percent. In the past, the national percentage of children aged 9 to 35 months with blood lead levels greater than or equal to 10  $\mu\text{g}/\text{dL}$  has been approximately 1.3 times the national average of children under the age of 6 years with blood lead levels greater than or equal to 10

$\mu\text{g/dL}$ . Therefore, the current national average of children aged 9 to 35 months with blood lead levels greater than or equal to  $10 \mu\text{g/dL}$  can be estimated as 1.3 times 1.6 percent, or 2.1 percent.

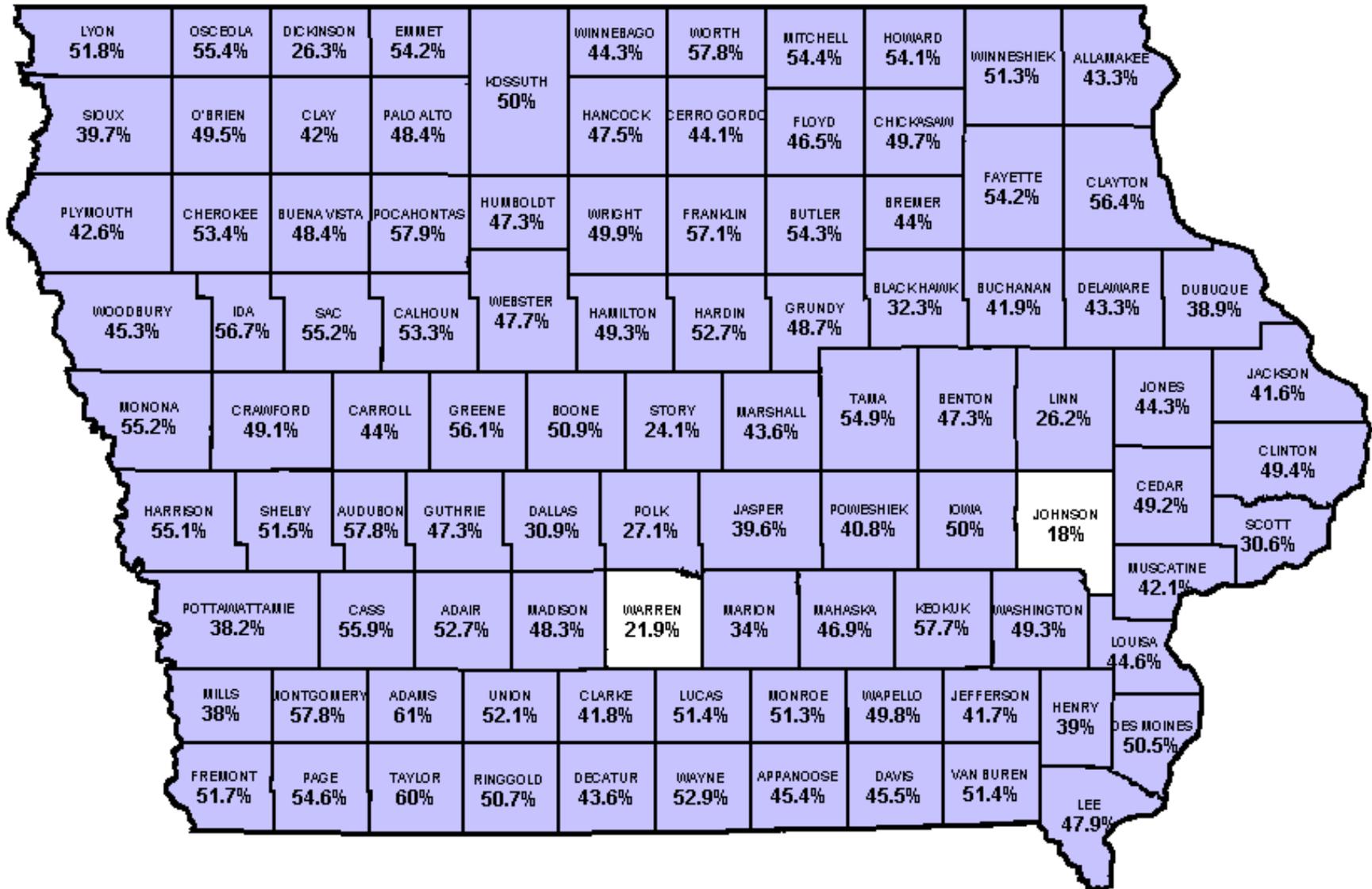
The prevalence criterion was met if the prevalence was greater than or equal to any one of these cut-off percentages, the prevalence criterion was met. All but 3 of Iowa's 99 counties (Clay, Johnson, and Warren) met the prevalence criterion for universal blood lead testing.

In 2004 and in 2006, the IDPH recommended that the committee use a cut-off of greater than or equal to 22.3 percent of pre-1950 housing since this is the current national average. All but two counties (Johnson and Warren) meet the housing criterion for universal blood lead testing.

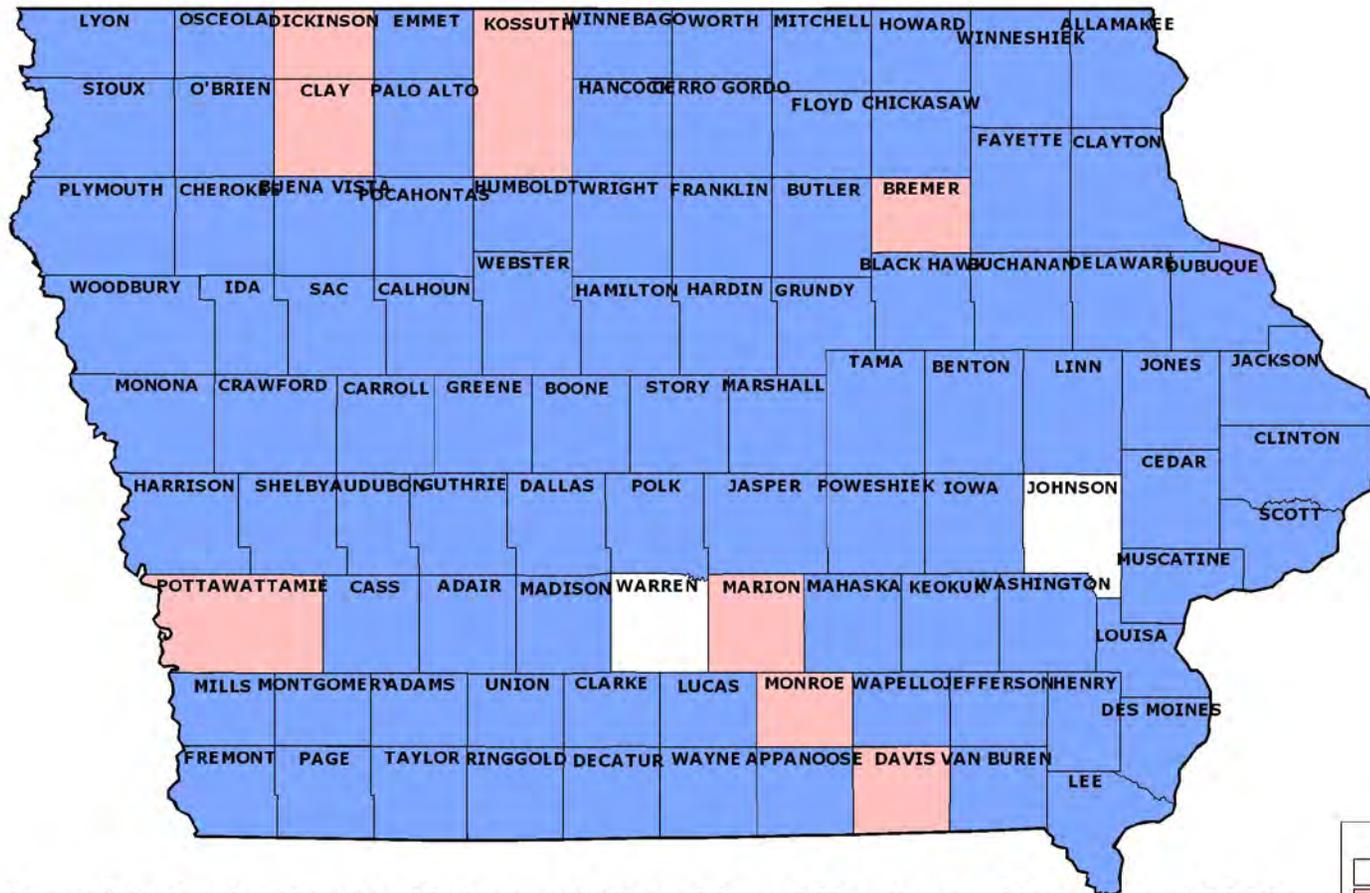
The map on page 39 shows the counties that meet the 2006 criterion for universal blood lead testing based on prevalence of elevated blood lead levels. The map on page 40 shows the counties that meet the 2006 criterion for universal blood lead testing based on the percentage of pre-1950 housing. The map on page 41 shows the counties that meet none, one, or both criteria for universal blood lead testing.



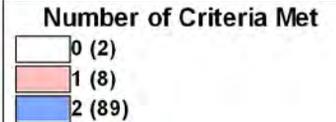
Counties Where Prevalence of Lead Poisoning is Greater Than or Equal to National Average -- November 2009



**Counties with Greater than the National Average of Pre-1950 Housing**



Number of Criteria Met for Universal Blood Lead Testing -- November 2009



### Zip Code Data

In 2000, the committee also examined housing data on a zip code basis. The proportion of pre-1950 housing is less than 26.9 percent in only 30 zip codes that represent less than 10 percent of the housing units in Iowa. The committee concluded that if only one county or a few zip codes could be designated as targeted blood lead testing, it would be better to continue to do universal screening throughout the state. In 2004 and 2006, housing data show that the proportion of pre-1950 housing is less than the national average of 22.3 percent in only 60 out of Iowa's 946 zip codes. The Child Health Team concluded that it was still not practical to designate only a small number of zip codes as areas for targeted blood lead testing.

### Healthy Iowans 2010

The committee also reviewed the objectives and action steps for childhood lead poisoning that are found in the Environmental Health chapter of *Healthy Iowans 2010*. The Environmental Health chapter team had previously recommended universal blood lead testing and had incorporated this recommendation into *Healthy Iowans 2010*. The objectives and action steps for childhood lead poisoning prevention in *Healthy Iowans 2010* may be found on pages 84 to 86 in the Appendix.

### Conclusion

In 2000, the committee recommended that universal blood lead testing be continued throughout the entire state of Iowa. In addition, the advisory committee recommended that the Iowa General Assembly pass legislation to require that all children show proof of a blood lead test before entry to school or to licensed daycare. The committee felt that, considering Iowa's high rate of childhood lead poisoning and the fact that only 37 percent of children were being tested after eight years of childhood lead poisoning efforts, required testing would be a good way to quickly increase the number of children tested for lead poisoning. The Iowa General Assembly will consider this recommendation during its 2001 session.

In 2004, the Child Health Team felt that Iowa's housing issues alone provided the rationale for continuing universal blood lead testing.

In 2006, the Child Health Team felt that Iowa's housing issues alone provided the rationale for continuing universal blood lead testing. In addition, there is finally some momentum in the state for increasing the number of children tested, so the Child Health Team felt that the recommendation should remain the same so as not do anything to interfere with this momentum.

**In 2007, the Iowa General Assembly determined that the risk of lead poisoning among Iowa children is so high that all children should have at least blood lead test. This requirement is enforced at the time that a child starts kindergarten. This law overrides all other policy considerations. IDPH continues to recommend that children be tested starting at the age of 12 months.**

### **WRITE BLOOD LEAD TESTING RECOMMENDATIONS**

The current IDPH blood lead testing recommendation consists of first determining through the use of the questionnaire on page 40 whether a child is at "high risk" or "low risk" for childhood lead poisoning. "High risk" children should be tested at the ages of 12, 18, and 24 months, and 3, 4, and 5 years. "Low risk" children should be tested at the ages of 12 and 24 months. If a provider does not wish to assess risk, the child should be classified as "high risk." The committee felt that many providers were accustomed to this schedule and that it might be confusing to change the schedule. The Iowa Department of Human Services regulations for the Early Periodic Screening, Diagnosis, and

Treatment (EPSDT) program contain this schedule. All of the manuals written for the EPSDT program also contain this schedule. Although this is more testing than is recommended by the CDC, the committee felt that it was currently justified in Iowa for the following reasons:

1. The prevalence of blood lead levels among children tested does not begin to drop until children reach the age of 3 to 4 years.
2. One would expect that children would be tested at the age of 12-35 months, and if identified with an elevated blood lead level, older siblings would then be tested. Unfortunately, the IDPH is now finding the opposite. Children are being tested at entry to preschool or head start and identified at an older age. This then leads to testing and identification of younger children. While it is often not possible to prevent further damage from lead exposure when a lead-poisoned child is identified at the age of 4 to 5 years, the committee felt that it would be useful for parents and teachers to know if a child had been lead-poisoned before the child started school.
3. The committee felt that the 18-month test was important in high-risk children in Iowa because children's blood lead levels often increase significantly in the summer. The IDPH and local lead poisoning prevention programs have observed that about four to six weeks after it gets warm enough for children to play outside and for windows to be open, the blood lead levels of children who were already identified can go up. In addition, a large number of new cases are reported. In a number of cases, children's blood lead levels have been less than 10  $\mu\text{g}/\text{dL}$  in December/January at the age of 12 months and have increased to 30  $\mu\text{g}/\text{dL}$  at the age of 18 months in July/August. Therefore, the 18-month test is very important in Iowa.

The committee noted that the prevalence of lead poisoning among Iowa children who are covered by Medicaid is at least twice that of children who were not covered by Medicaid. Data is not available to show the prevalence of lead poisoning children covered by the Healthy and Well Kids in Iowa (*hawk-i*) child health insurance program. However, the committee felt that the prevalence among these children is probably similar to the prevalence among children covered by Medicaid. Since these children are at very high risk for lead poisoning and a source of payment is available, it is important to stress blood lead testing for these children. However, since other Iowa children are also at high risk for lead poisoning, it is important that providers also test these children.

### **Blood Lead Testing Recommendation**

All testing will be done using a blood lead test. Testing may be done using a capillary or venous test. The questionnaire on page 44 will be used to determine whether a child is at "high" risk or "low" risk for lead poisoning. If the parents answer "yes" or "I don't know" to any of the questions, the child will be considered to be at high risk and tested according to the high risk schedule. If the parents answer "no" to all of the questions, then the child is considered to be at low risk and tested according to the low risk schedule. The screening questionnaire must not be used to determine whether or not to test a child, but only to determine the testing schedule. If a provider does not wish to take time to assess risk, then the provider must test all children according to the high-risk schedule. The schedules for blood lead testing for "high" and "low" risk children are shown in the chart on page 45.

**IOWA DEPARTMENT OF PUBLIC HEALTH  
CHILDHOOD LEAD POISONING RISK QUESTIONNAIRE**

Date \_\_\_\_\_

Name \_\_\_\_\_

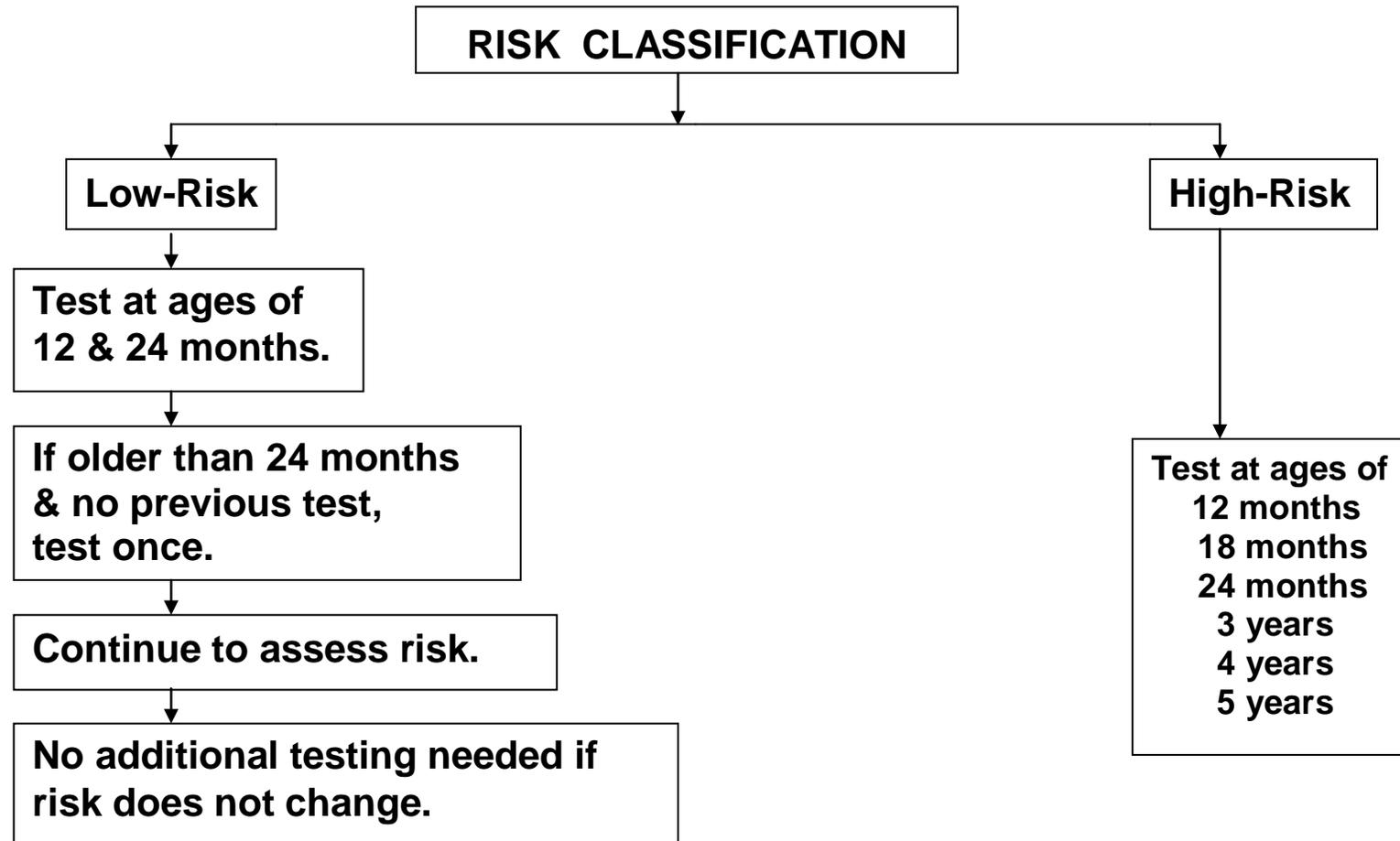
Address \_\_\_\_\_

Date of Birth \_\_\_\_\_

**If the answer to any of these questions is "yes," the child is considered to be at high risk for lead poisoning and must be screened according to the high-risk screening schedule. If the parent does not know the answer to a question, the answer should be assumed to be "yes."** This questionnaire should be reviewed at each regular visit. Write additional dates that the questionnaire is reviewed in the blank for "date" and note any changes to the answers.

- |     |   |     |    |
|-----|---|-----|----|
| 1.  | Has your child <b>ever</b> lived in or regularly visited a house built before 1960?<br>(Examples: home, day-care center, baby-sitter, relative's home)  | Yes | No |
| 2.  | Have you noticed any peeling or chipping paint in or around the pre-1960 house that your child has lived in or regularly visited?   | Yes | No |
| 3.  | Is the pre-1960 home that your child has lived in or regularly visited been remodeled or renovated by:<br><br>A. Stripping, sanding, or scraping paint on the inside or outside of the house.<br>B. Removing walls and/or tearing out lath and plaster.   | Yes | No |
| 4.  | Does your child eat non-food items such as dirt?  | Yes | No |
| 5.  | Have any of your other children or their playmates had lead levels $\geq 15$ $\mu\text{g}/\text{dL}$ ?  | Yes | No |
| 6.  | Does your child live with or frequently come in contact with an adult who works with lead on the job or in a hobby? (Examples: painter, welder, foundry worker, old home renovator, shooting range worker, battery plant worker, battery recycling worker, ceramics worker, stained glass worker, sheet metal worker, scrap metal worker, plumber.) | Yes | No |
| 7.  | Does your child live near a battery plant, battery recycling plant, or lead smelter?  | Yes | No |
| 8.  | Do you give your child any home or folk remedies?<br>(Examples: azarcon, greta, pay-loo-ah)   | Yes | No |
| 9.  | Does your child eat candy that comes from Mexico or is purchased from a Mexican grocery store?  | Yes | No |
| 10. | Has your child ever lived in or Mexico, Central America, South America, Africa, Asia, or eastern Europe, or visited one of these areas for a period longer than two months?   | Yes | No |

# BASIC LEAD TESTING CHART (Based on Risk and Age)



## **IMPLEMENT THE STATEWIDE PLAN**

The CDC says that it is up to state health officials and their advisors to ensure that:

- Staff members of state and local public health agencies understand their roles as established by the statewide plan.
- Health-care providers, medical groups, managed-care organizations, and parents know what type of testing is recommended for their communities.
- Other parties affected by the plan, including the state Medicaid agency, private insurers, and policy makers, are involved in the implementation process.
- The plan is monitored, evaluated, and revised as appropriate.

### **Roles of State and Local Public Health Agencies**

This plan does not substantially change the role of state and local health agencies in Iowa. However, the IDPH Childhood Lead Poisoning Prevention Program will ensure that other staff of the IDPH and staff of local agencies understand this statewide blood lead testing. The Lead Program already works closely with staff of the Title V Child Health program, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the public health nursing program as well as with local agencies.

### **Providers and Parents Know About Recommendation**

One parent who served on Iowa's advisory committee told of her struggle to get her children tested for lead poisoning. Her children's physician did not feel that the children were at risk, even though they lived in an older home. The mother persisted until she found a physician who would test her children. On the other hand, a physician who served on the committee spoke of being frustrated when parents did not want to have blood drawn from the child. Both physicians and public health agencies related that many parents do not seek well-child care for their children after the required childhood immunizations are completed. To implement the universal blood lead testing recommendation, both parents and providers must be educated about the risk of lead poisoning their communities. In addition, parents must be educated about the importance of continuing well-child care for their children.

The IDPH and local agencies in the 70 counties with local childhood lead poisoning prevention programs already provide a significant amount of outreach and education for parents and providers. These efforts will continue and will be reinforced by asking the Iowa Medical Society, Iowa Osteopathic Medical Society, Iowa Chapter of the American Academy of Family Practice, and the Iowa Academy of Family Practice to educate their members about the recommended blood lead testing plan. In addition, the insurance companies that served on the advisory committee have offered to educate their providers. The IDPH has materials available to explain how providers should conduct the testing and how to access follow-up services for lead-poisoned children. In addition, the IDPH has brochures that physicians can use for parent education. The IDPH will continue to work with the Title V Child Health program and its local contractors in their efforts to increase the number of children receiving well-child care.

### **Affected Parties Are Involved in Implementation**

The IDPH, Iowa Department of Human Services (state Medicaid agency) have already been working increase the testing of Medicaid children. The Iowa Department of Human Services (IDHS) modified state EPSDT regulations to require that Medicaid children receive blood lead testing according to the schedule recommended by the IDPH and to provide Medicaid reimbursement for environmental investigations. IDHS includes a requirement for blood lead testing in its managed care contracts.

The IDPH Title V Child Health program is doing the following:

- Requiring Title V child health contractors to assure that their clients, both Medicaid and non-Medicaid, receive blood lead testing, regardless of whether the contractor provides direct services or contracts with physicians for service.
- Providing the names of Medicaid children who have not yet received a blood lead test to the Title V child health contractors so that the contractors can contact the family to arrange for blood lead testing.
- Providing the names of providers who have billed for EPSDT screens without ordering a blood lead test to Title V child health contractors so that the contractors can educate them regarding the requirement that a blood lead test be included in the EPSDT screen.

The *hawk-i* Board has provided written assurance that blood lead testing is a covered service for children enrolled in the program.

The WIC Program allows WIC contractors to collect a blood sample from WIC clients for lead testing so long as funds are available from a source other than WIC to pay for the laboratory analysis and for the time needed to collect the blood sample. In addition, the WIC program encouraged WIC contractors to cooperate with local childhood lead poisoning prevention programs to ensure that WIC children receive blood lead testing.

### **Monitoring, Evaluation, and Revision of the Plan**

As demonstrated by this document, the IDPH already collects blood lead level information on all Iowa children who are tested. As a result, IDPH can determine the number and location of children with elevated blood lead levels and map areas where blood lead testing is taking place and where it is not. IDPH provides this information to local childhood lead poisoning prevention programs, the Title V Child Health Program, the WIC program, public health nursing agencies, and IDPH. As a result, all of these agencies have targeted education, outreach, and funding to areas where blood lead testing rates are low. In the future, IDPH will regularly provide this information to insurance companies, Medicaid managed-care organizations, and health-care providers.

As additional blood lead surveillance data become available, IDPH will provide the data to the advisory committee members and to members of the Iowa General Assembly. Since the requirement that all children be tested for lead poisoning has only been in effect since 2007, it is unlikely that the recommendation of universal blood lead testing throughout the state of Iowa will be changed for several years.

## **PLAN FOR CASE MANAGEMENT OF LEAD-POISONED CHILDREN**

### **Assurance that Children Receive Confirmatory Venous Blood Lead Testing**

All capillary blood lead levels greater than or equal to 15 micrograms per deciliter must be confirmed with venous blood lead measurements. Confirmatory testing will be done according to the following schedule (chart is on page 49):

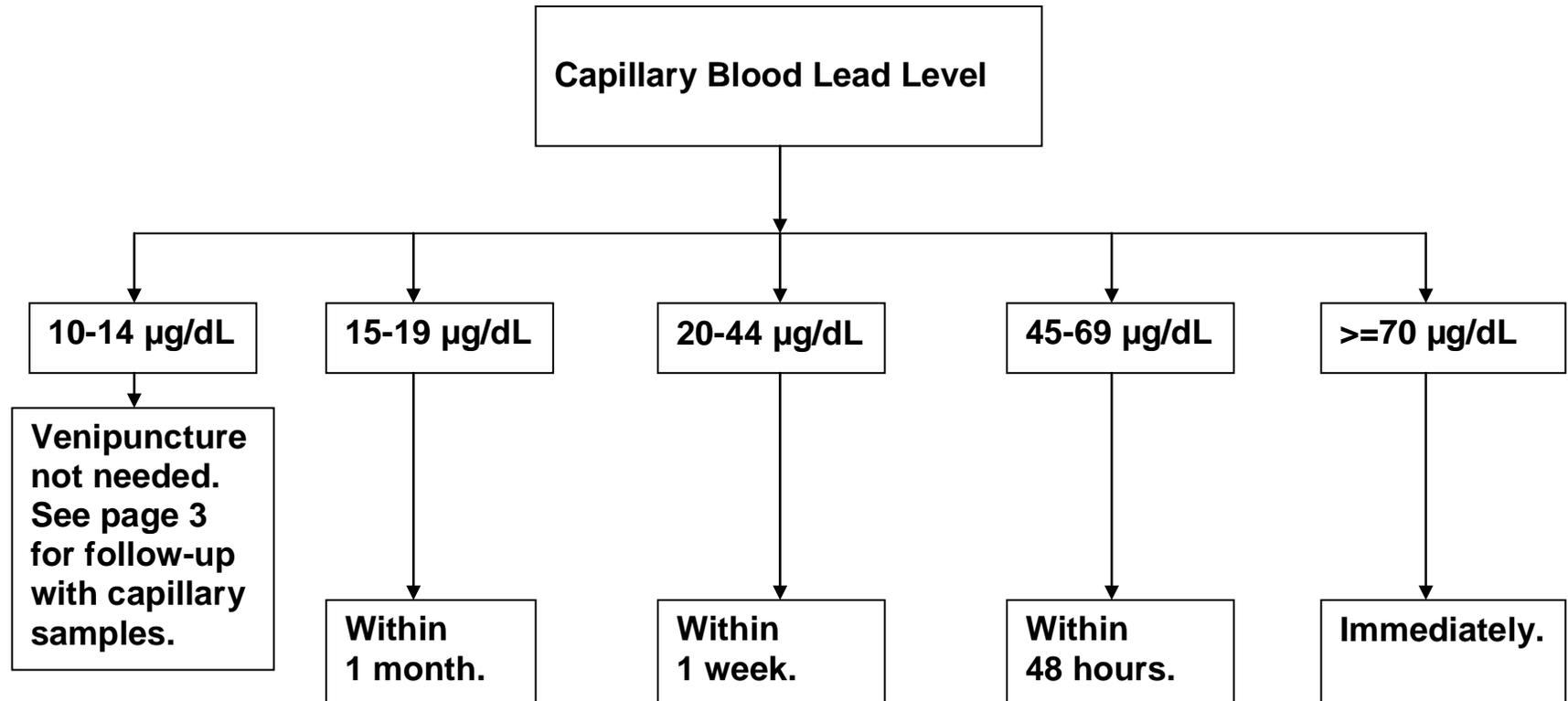
- Capillary blood lead levels greater than or equal to 70 micrograms per deciliter will be confirmed with venous blood measurements immediately upon notification of the capillary results, on an emergency basis if necessary.
- Capillary blood lead levels of 45-69 micrograms per deciliter will be confirmed with venous blood lead measurements within 48 hours of notification of the capillary results.
- Capillary blood lead levels of 20-44 micrograms per deciliter will be confirmed with venous blood lead measurements within one week of notification of the capillary results.
- Capillary blood lead levels of 15-19 micrograms per deciliter will be confirmed with venous blood measurements within one month of notification of the capillary results.

Each screening provider must ensure that children receive confirmatory venous blood lead testing. If the provider is not able to collect pediatric venous blood samples, the provider is responsible for referring the child to another provider or hospital laboratory with personnel who can collect pediatric venous blood samples. This process should be in place before the provider starts to collect blood lead samples.

### **Health Education**

The screening provider is responsible for explaining the results of the confirmatory blood lead analysis to the child's family. IDPH publications can be used for this purpose. It is especially important for the screening provider to explain when the child should be tested again, what case management actions should be taken, who will be inspecting the house, etc.

## SCHEDULE FOR OBTAINING CONFIRMATORY VENIPUNCTURES



## **Case Management of Children with Venous Blood Lead Levels Greater than or Equal to 15 Micrograms per Deciliter**

### **Designation of Overall Case Manager**

Each child with a venous blood lead level greater than or equal to 15 micrograms per deciliter must have an "overall case manager" who will be responsible for ensuring that child is referred for and receives all required services. Each child with a venous blood lead level greater than or equal to 15 micrograms per deciliter must also have an individual plan of care. The Care Plan/Checklist on pages 51 to 53 or another form will be used to track the actions needed for each child, who is responsible for them, when the actions are completed, and what information to enter into STELLAR.

### **Services to Be Provided by Venous Blood Lead Level**

The following summarizes the services that will be provided for each child by blood lead level:

#### **15-19 micrograms per deciliter**

- Home nursing visit.
- Caregiver education.
- Referral for nutrition assessment.
- Follow-up blood lead testing.
- After two venous levels of 15-19, environmental investigation and lead hazard remediation.

#### **20-44 micrograms per deciliter**

- Chelation is NOT recommended.
- Diagnostic evaluation by a physician.
- Home nursing visit.
- Caregiver education.
- Referral for nutrition assessment.
- Follow-up blood lead testing.
- Referral for developmental assessment.
- Environmental investigation and lead hazard remediation.

#### **45-69 micrograms per deciliter**

- Chelation.
- Diagnostic evaluation by a physician.
- Home nursing visit.
- Caregiver education.
- Referral for nutrition assessment.
- Follow-up blood lead testing.
- Referral for developmental assessment.
- Environmental investigation and lead hazard remediation.

#### **Greater than or equal to 70 micrograms per deciliter**

- Emergency chelation.
- Emergency diagnostic evaluation by a physician.
- Home nursing visit. Caregiver education.
- Referral for nutrition assessment.
- Follow-up blood lead testing.
- Referral for developmental assessment.
- Environmental investigation and lead hazard remediation.

### Care Plan/Checklist

Child's name: \_\_\_\_\_

County: \_\_\_\_\_

Date of birth: \_\_\_\_\_

The following plan/checklist must be followed once a child has a venous blood lead level greater than or equal to 15 µg/dL. Write the person who is responsible for the activity on the appropriate line. Once the activity has been completed check the box indicating that it was done and enter the appropriate event in STELLAR.

**ACTIVITY:**

**PERSON RESPONSIBLE:**

**DONE**

**1) Home Nursing Visit** \_\_\_\_\_

Each child with a venous blood lead level greater than or equal to 15 µg/dL must receive a home nursing visit. During the visit, the nurse should provide information on lead poisoning, assess the family's needs, collect race and other information, and make a referral to a dietician. If the child's venous level is greater than or equal to 20 µg/dL, make a referral to the Early ACCESS program or the Area Education Agency (AEA) for a developmental assessment (see Activity 6). This should be the first contact with a lead-poisoned child's family and may be done during the environmental investigation, if one is necessary.



STELLAR child information: Sex, Race, Ethnicity, Language



STELLAR child event code: **HVNUR**

**Action Level**  
≥ 15 µg/dL

**2) Nutritional evaluation/counseling** \_\_\_\_\_

Each child with a venous blood lead level greater than or equal to 15 µg/dL must visit a dietician who will review the importance of calcium, iron, and vitamin C intake and, if needed, suggest involvement in supplemental food programs such as WIC.



STELLAR child event code: **NUTRI**

**Action Level**  
≥ 15 µg/dL

**ACTIVITY:**

**PERSON RESPONSIBLE:**

**DONE**

**3) Follow-up Test Reminders** \_\_\_\_\_

**Medical Provider** (giving the test) \_\_\_\_\_

Continue to have the lead-poisoned child tested according to the testing schedule below. Letters or telephone calls should be directed to either the child's parents or the child's medical provider.

10 - 19 µg/dL	→	Every 3-4 months (can be capillary test if last level was below 15 µg/dL)
≥ 20 µg/dL	→	Every 4-6 weeks (must be a venous test)

Continue on this testing schedule until one of the following three criteria are met. Then you may close the child's case and go back to the Basic Lead Testing Chart (on last page).

- 1) The child has 2 blood lead levels below 10 µg/dL. These levels can be from either venous or capillary tests.
- 2) The child has 3 blood lead levels below 15 µg/dL. These levels can be from either venous or capillary tests.
- 3) The child has 1 blood lead level below 20 µg/dL and is over 6 years old.



STELLAR child event code:

**CONTC**

**Action Level**

≥ 15 µg/dL

**4) Environmental Investigation** \_\_\_\_\_

When a child has two venous levels between 15 and 19 µg/dL or one venous level greater than or equal to 20 µg/dL, it is necessary to perform an environmental investigation on the child's house. Contact the certified EBL inspector/risk assessor for your program immediately. The urgency of the investigation depends on the child's venous blood lead level.

	Inspect within:	Date referred:	Inspect by:
<input type="checkbox"/> 15 - 19 µg/dL*	→ 4 weeks	_____	_____
<input type="checkbox"/> 20 - 44 µg/dL	→ 10 days	_____	_____
<input type="checkbox"/> 45 - 69 µg/dL	→ 5 days	_____	_____
<input type="checkbox"/> ≥ 70 µg/dL	→ 2 days	_____	_____

\* Child must have two levels in this range



STELLAR address event code:

**INSSA**

**Action Level**

15-19 µg/dL\*  
≥ 20 µg/dL

ACTIVITY:

PERSON RESPONSIBLE:

DONE

5) Environmental Follow-up ☐

At least every six months, the owner of the inspected property must be contacted to see how the lead hazard repair work is progressing. If the owner has made progress on the property then an EBL inspector/risk assessor may reinspect it to ensure that the work is being done safely. Once the lead hazard repair work has been completed and verified through a reinspection, the environmental case must be closed and a lead-safe letter must be sent.



STELLAR address event code: **CONTC (for contacting owner)**



STELLAR address event code: **INSAB, INSAI, INSAE (for reinspection)**



Closing a STELLAR address:

**Fill in the *Date of Completion* with the date that the work was verified. Then fill in the *Date Investigation Closed* and the *Reason Closed* fields.**

**Action Level**  
15-19 µg/dL\*  
≥ 20 µg/dL

6) Area Education Agency Referral ☐

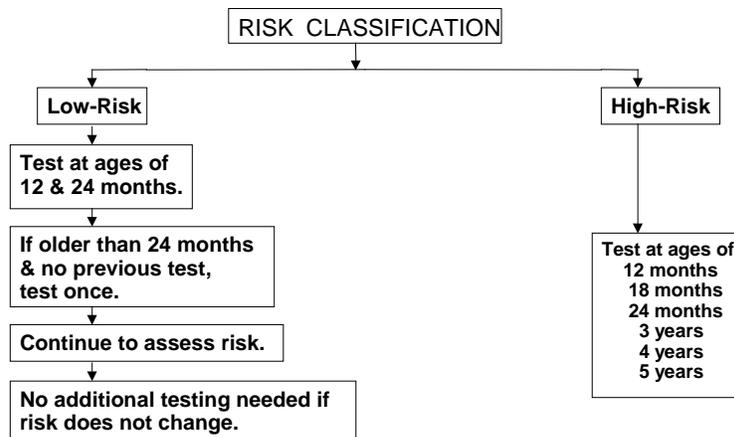
Each child with a venous blood lead level greater than or equal to 20 µg/dL must be offered a referral to the local Early ACCESS program or AEA for a developmental assessment. Always enter a STELLAR event. If the family refuses then note this in the results box of the event.



STELLAR child event code: **AEA EV**

**Action Level**  
≥ 20 µg/dL

**BASIC LEAD TESTING CHART  
(Based on Risk and Age)**



### **Home Nursing Visit**

Each child with a venous blood lead level greater than or equal to 15 µg/dL must receive a skilled home nursing visit, which includes a skilled assessment and instructions to the family on lead poisoning and how to cope with it. This may be combined with the environmental investigation. This is an important opportunity to educate caregivers about the risks that an elevated blood lead level poses to their child, what they can do to eliminate their child's exposure to lead, and the importance of follow-up. The timelines for conducting the home nursing visit are on page 59.

The home nursing visit should include reminding caregivers to:

- Make and keep follow-up appointments for blood tests.
- Notify the case manager if the child moves to a new residence.
- Inform all current and future health care providers of the child that the child had an elevated blood lead level.

This is important even when the child's blood lead level is no longer elevated.

### **Managing a Child's Nutrition**

Children with venous blood lead levels greater than or equal to 15 µg/dL are often at risk for poor nutrition, and their caregivers should receive nutritional counseling to help these children obtain a well-balanced and age-appropriate diet. Therefore, these children should receive a nutrition assessment and counseling from a dietician. If the child is enrolled in the WIC program, the child should be referred to WIC for an additional visit to review nutrition issues related to lead poisoning. If the child is not enrolled in WIC, the family should be advised to find out if the child is eligible for the WIC program. Arrangements should be made for children who are not enrolled in the WIC program to see a WIC dietician or another dietician. If the lead program cannot identify a means for children who are not enrolled in WIC to see a dietician, the Iowa Department of Public Health may approve the use of a nurse for this nutrition counseling. The questionnaire on pages 55 and 56 can be used to assess a child's nutrition. The timelines for referring a child for nutrition counseling are on page 61.

## NUTRITION AND LEAD TOXICITY

**1. How many meals a day does your child eat?**

1      2      3      4+

It is important that children eat at least three meals a day. More lead is absorbed on an empty stomach.

**2. Does your child snack?**

*YES*

*NO*



Nutritious snacks are a good idea for small children. Snacks help them get the nutrients they need and keep them from getting too hungry between meals.

**3. Do you have concerns about your child's appetite?**

*YES*

*NO*

Children with poor appetites or who do not eat regularly have a higher risk of becoming lead-poisoned. Give them small frequent meals.

Sometimes even healthy children do not want to eat. Children's appetites drop off when they are not in a growth spurt. Normal children's appetites vary from day to day. Parents do not need to make their children eat. If you serve your children regular meals that contain nutritious foods, you are doing your part of the job of feeding them.

**4. How many glasses of milk does your child drink in a day?**

1      2      3      4      5+



Milk contains calcium. Calcium helps prevent lead from being absorbed. Serve children two to three glasses of milk a day.

Some children drink large quantities of milk. More than four servings a day is not necessary. Children who drink too much milk are often not interested in eating other healthy foods.

**5. Circle the dairy products your child eats:**

*cheese*  
*pudding*  
*yogurt*

*cottage cheese*  
*ice cream*  
*milk based soups*

These foods are also good sources of calcium. Non-dairy sources of calcium include bok choy, collard, mustard or turnip greens, and salmon and sardines with bones.

**6. Circle any of the following foods your child eats:**

*chicken/turkey*  
*liver/kidneys*  
*dried beans*  
*dried fruit*  
*spinach/greens*  
*whole wheat bread*  
*enriched bread*  
*oat or wheat bran*  
*enriched cereal*

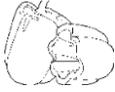
*beef/pork*  
*fish*  
*lentils*  
*raisins*  
*broccoli*  
*oatmeal*  
*brown rice*  
*cornmeal*

These foods are high in iron. Iron in the diet reduces the amount of lead that gets into the body. Iron also helps make red blood cells. When red blood cells are healthy, lead will not attach to them as easily. Red meats are the best source of iron.



7. Circle the foods that your child eats at least once a week:

*orange*  
*orange juice*  
*cantaloupe*  
*tomatoes*  
*potatoes*



*grapefruit juice*  
*strawberries*  
*broccoli*  
*green peppers*

8. From the following choices, circle the foods you most frequently serve:

*graham cracker*  
*baked potatoes*  
*baked chicken*  
*frozen yogurt*  
*fresh fruit*

*cookies*  
*french fries*  
*fried chicken*  
*ice cream*  
*potato chips*

9. Does your child put anything besides food in his or her mouth?

YES

NO



10. Circle any of the following supplements that your child takes:

*bonemeal*  
*oyster shell*

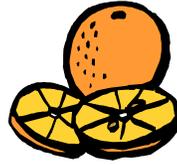
*dolomite*

10. Do you use any of the following:

*Azarcon*  
*Paylooh*

*Greta*  
*Surma*

The vitamin C in these foods helps the body absorb more iron to make healthy blood cells. Serve at least one of these daily.



The foods on the left are low in fat; the foods on the right are high in fat. Too much fat in the diet decreases a child's appetite for healthy foods. Too little fat may keep small children from growing well. All of these foods are fine; serve those on the left more often.



Paint chips and household dust could contain lead. Talk to your local health department about how to reduce the amount of lead in your home.

These supplements may contain lead. Ask your doctor to suggest a different supplement for your child.

Some home remedies for common ailments may contain lead. Talk to your doctor about the remedies you give your child.

Food does not naturally contain lead. However, lead may get into food from the environment. Follow these ways to reduce lead in the diet:

**Wash children's hands before eating.** They may have picked up lead dust while playing.



**Serve food and beverages from glass, plastic or American-made ceramic containers.** Some pottery, leaded crystal or antique collectibles may contain lead. It is safest not to use ceramic containers for serving food.

**Wash garden vegetables thoroughly before eating.** If they are grown in soil that is near an older home, any soil on the vegetables may contain lead.

### **Monitoring a Child's Developmental Progress**

Each child with a venous blood lead level greater than or equal to 20 µg/dL will be referred to the local Early Access Program if the child is under the age of 3 years. If the child is 3 years or older, the child will be referred to the Early Childhood Special Education Program. Each child should receive a developmental assessment to determine if there are currently any developmental delays. If no delays are identified, then a mechanism should be determined to continue to closely monitor the child's development until the child starts school. Please note that the Denver Developmental Screen is not appropriate to assess the development of a lead-poisoned child. A more sophisticated assessment should be used. The referral for developmental assessment should be made at the time of the home nursing visit. The time needed to complete the developmental assessment will depend on the workload for the Early Access Program or the Early Childhood Special Education Program. In addition, some programs operate on a reduced schedule in the summer, so it may take longer to complete the assessment during the summer.

### **Physical Examination**

Children with venous blood lead levels greater than or equal to 20 µg/dL should have a thorough physical examination. Often, these children will not have physical findings that are specific for lead toxicity. However, a physical examination is still recommended to assess the child for iron deficiency and for any findings suggestive of encephalopathy. A serum ferritin or serum iron and iron binding capacity test should be used to determine whether the child is deficient in iron. Hemoglobin or hematocrit should not be used because these tests are not sensitive enough for children with elevated blood lead levels. If the provider suspects that a child may have ingested paint chips, an abdominal radiograph may be ordered to evaluate this suspicion. The chart on page 60 shows the schedule for ensuring that the child receives a physical examination.

### **Chelation Therapy**

Children with blood lead levels less than 45 µg/dL should NOT be chelated. Children with blood lead levels greater than or equal to 45 µg/dL should be chelated. Children with blood lead levels greater than or equal to 70 µg/dL should be treated in a pediatric intensive care unit.

### **Communication/Coordination with Physicians**

The case manager should communicate the results of the home nursing visit to the child's physician. The case manager should also review the recommended follow-up blood lead testing schedule with the physician to ensure that the physician and the case manager are giving consistent information to the family. The chart on page 58 includes additional information for physicians.

### **Follow-Up Blood Lead Testing**

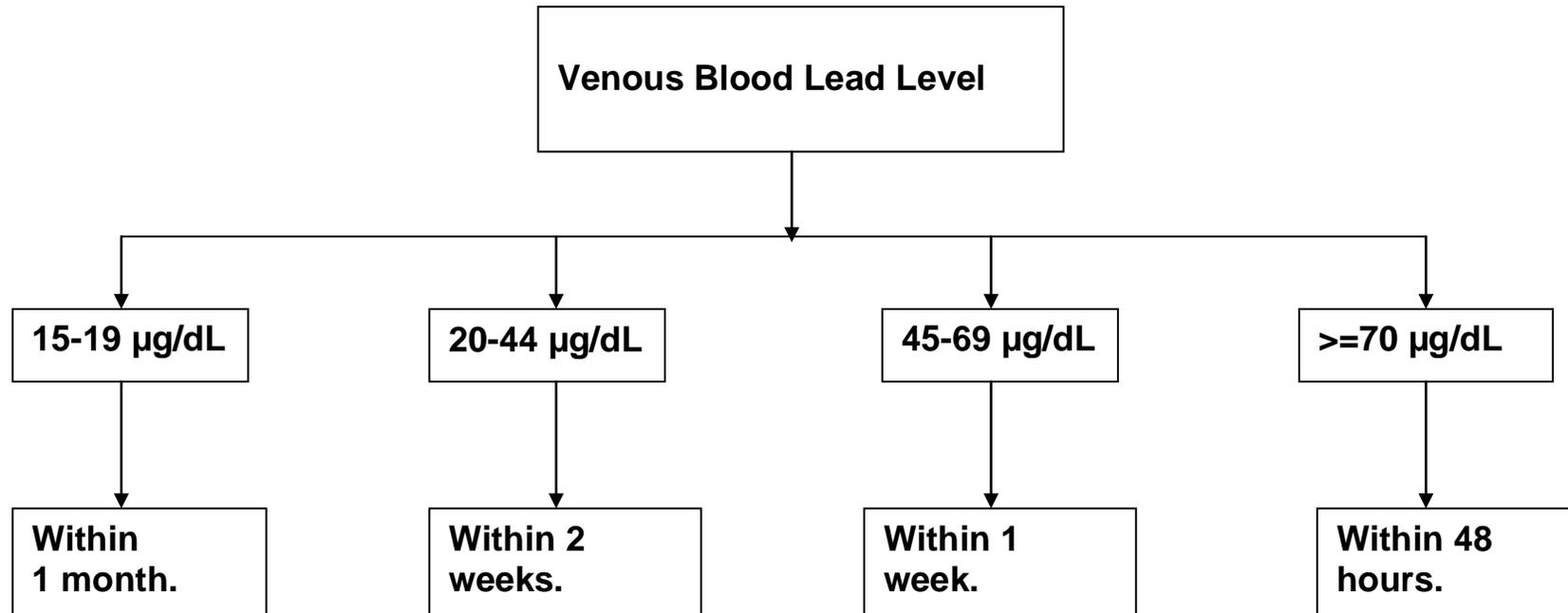
The charts on pages 62, 63, and 64 show the schedules for follow-up blood lead testing. Local programs should send letters or make telephone calls to remind families of the need for follow-up blood lead testing.

**GUIDELINES FOR DETECTION AND MANAGEMENT OF  
ASYMPTOMATIC LEAD-POISONED CHILDREN  
For Physicians and Health Care Providers**

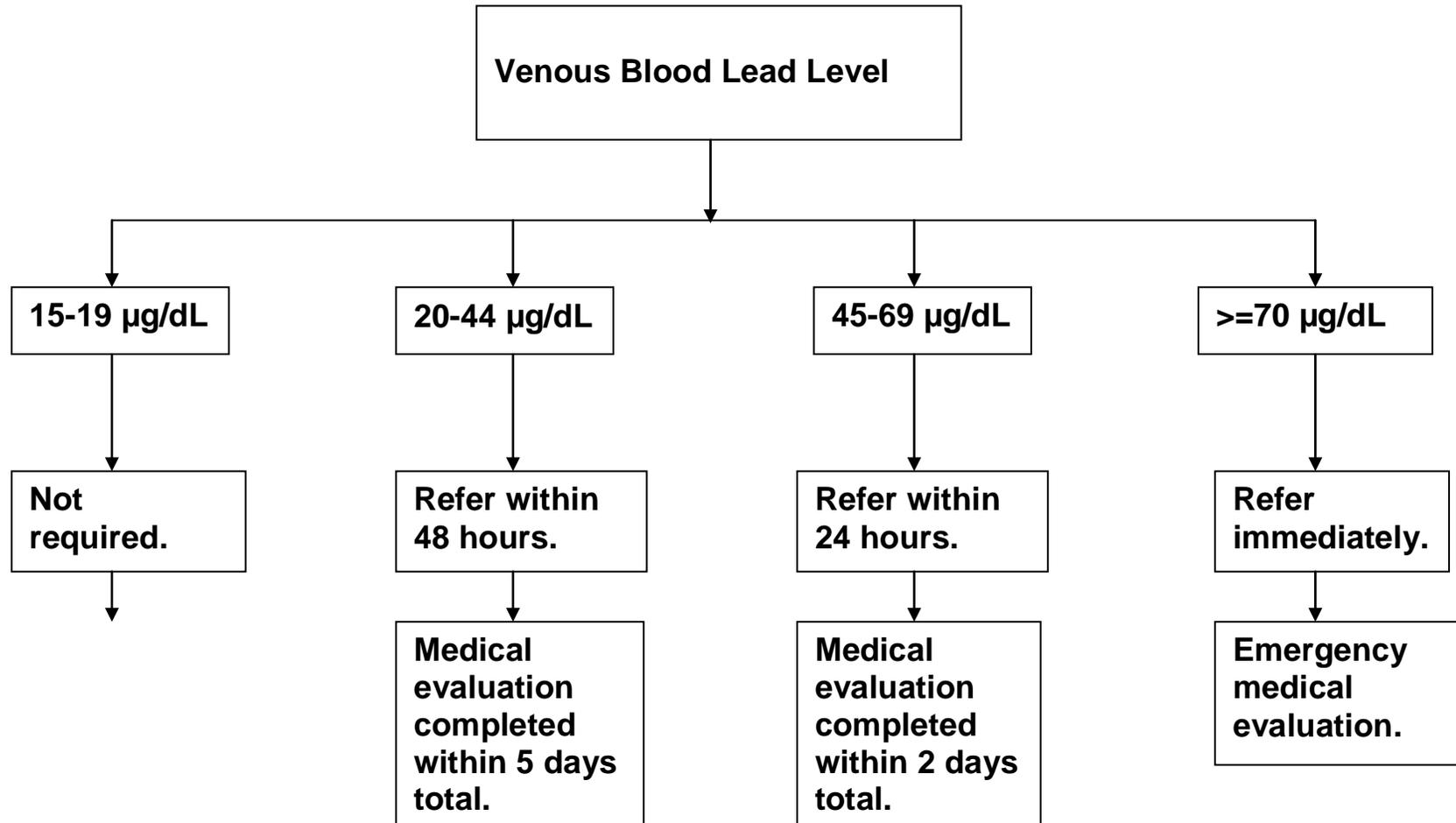
<b>BLOOD LEAD LEVEL in µg/dL</b> (micrograms per deciliter)	<b>TREATMENT</b>	<b>COMMENT</b>
<b>&lt;10 µg/dL</b>	<ul style="list-style-type: none"> <li>• Continue routine blood lead testing. (See Iowa Basic Lead Testing Chart.)</li> </ul>	<ul style="list-style-type: none"> <li>• Child is not lead-poisoned.</li> </ul>
<b>10-14 µg/dL</b> (capillary or venous)	<ul style="list-style-type: none"> <li>• Capillary or venous retest within three months.</li> <li>• Test for iron deficiency using hematocrit or hemoglobin.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide information to family regarding lead poisoning, importance of good nutrition, and housekeeping.</li> </ul>
<b>&gt;=15 µg/dL</b> (capillary)	<ul style="list-style-type: none"> <li>• Order venous blood lead level.</li> </ul>	<ul style="list-style-type: none"> <li>• Further action based on venous blood lead level.</li> </ul>
<b>15-19 µg/dL</b> (venous)	<ul style="list-style-type: none"> <li>• Venous retest in 3 months.</li> <li>• Test for iron deficiency using hematocrit or hemoglobin.</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to dietician for nutrition evaluation.</li> <li>• Refer for public health nursing visit.</li> <li>• Environmental investigation by public health agency after 2 venous levels of 15-19 µg/dL.</li> </ul>
<b>20-44 µg/dL</b> (venous)	<ul style="list-style-type: none"> <li>• Pediatric evaluation.</li> <li>• Venous retest in 4 to 6 weeks.</li> <li>• Test for iron deficiency using serum iron and iron binding capacity or serum ferritin.</li> <li>• Children should NOT be chelated..</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to dietician for nutrition evaluation.</li> <li>• Refer for public health nursing visit.</li> <li>• Environmental investigation by public health agency.</li> </ul>
<b>45-69 µg/dL</b> (venous)	<ul style="list-style-type: none"> <li>• Pediatric evaluation.</li> <li>• Test for iron deficiency using serum iron and iron binding capacity or serum ferritin.</li> <li>• Inpatient or outpatient chelation.* Venous retest before chelation, at the end of chelation, and 21 days after chelation. Public health agency must verify that home is lead-safe for outpatient chelation.</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to dietician for nutrition evaluation.</li> <li>• Refer for public health nursing visit.</li> <li>• Environmental investigation by public health agency.</li> </ul>
<b>&gt;=70 µg/dL</b> (venous) <b>MEDICAL EMERGENCY!!</b>	<ul style="list-style-type: none"> <li>• Pediatric evaluation.</li> <li>• Test for iron deficiency using serum iron and iron binding capacity or serum ferritin.</li> <li>• Inpatient chelation.* Venous retest before chelation, at the end of chelation, and 7 days after chelation. Public health agency must verify that home is lead-safe before child returns home.</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to dietician for nutrition evaluation.</li> <li>• Refer for public health nursing visit.</li> <li>• Environmental investigation by public health agency.</li> </ul>

\*For detailed recommendations regarding chelation, contact the Iowa Statewide Poison Control Center at 1-800-222-1222. Rev. 7/2001

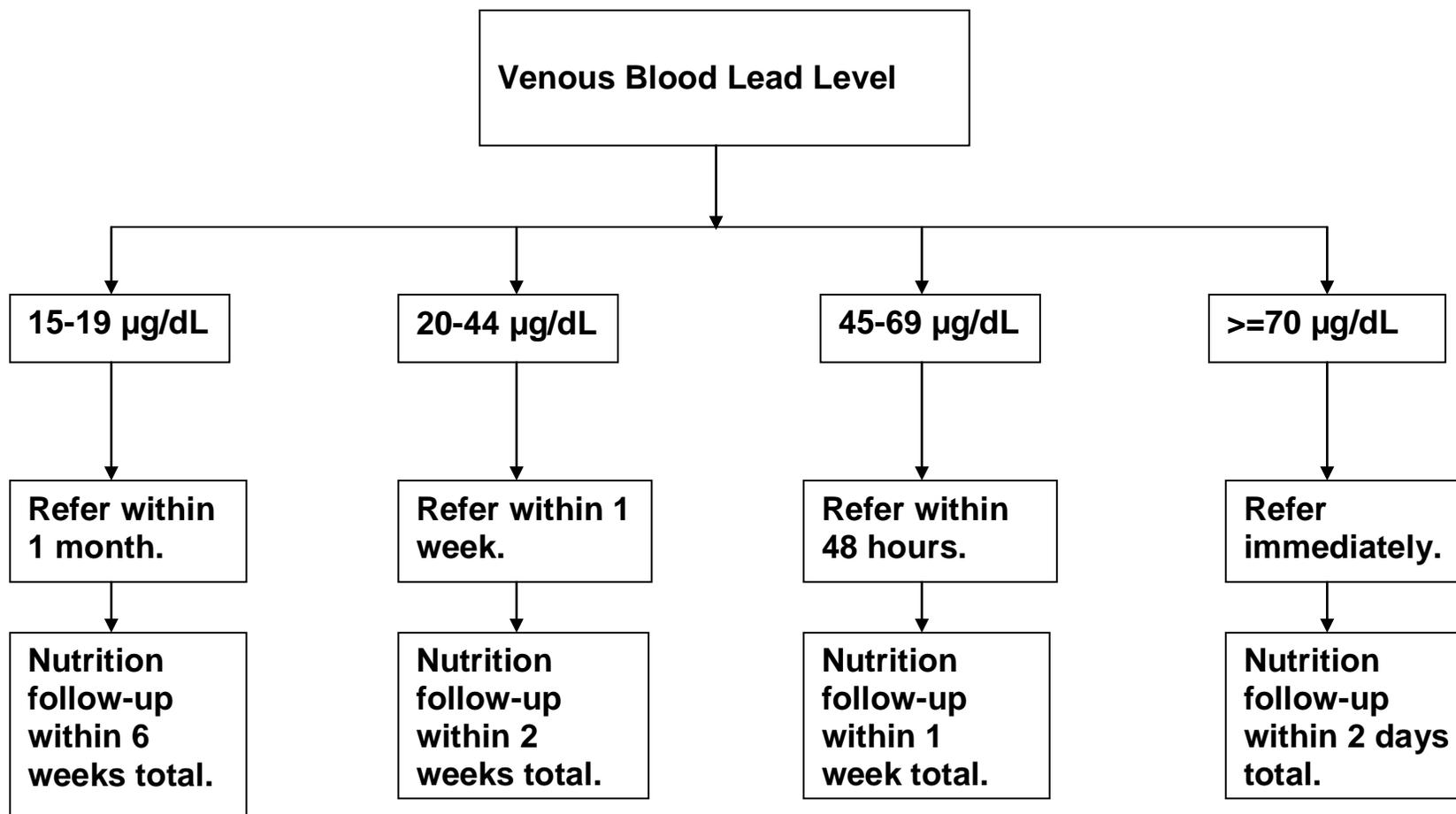
## TIMELINES FOR COMPLETING HOME NURSING VISIT



# TIMELINES FOR MEDICAL EVALUATION



# TIMELINES FOR NUTRITION FOLLOW-UP



## **FOLLOW-UP OF ELEVATED BLOOD LEAD LEVELS (10-14 $\mu\text{G}/\text{DL}$ )**

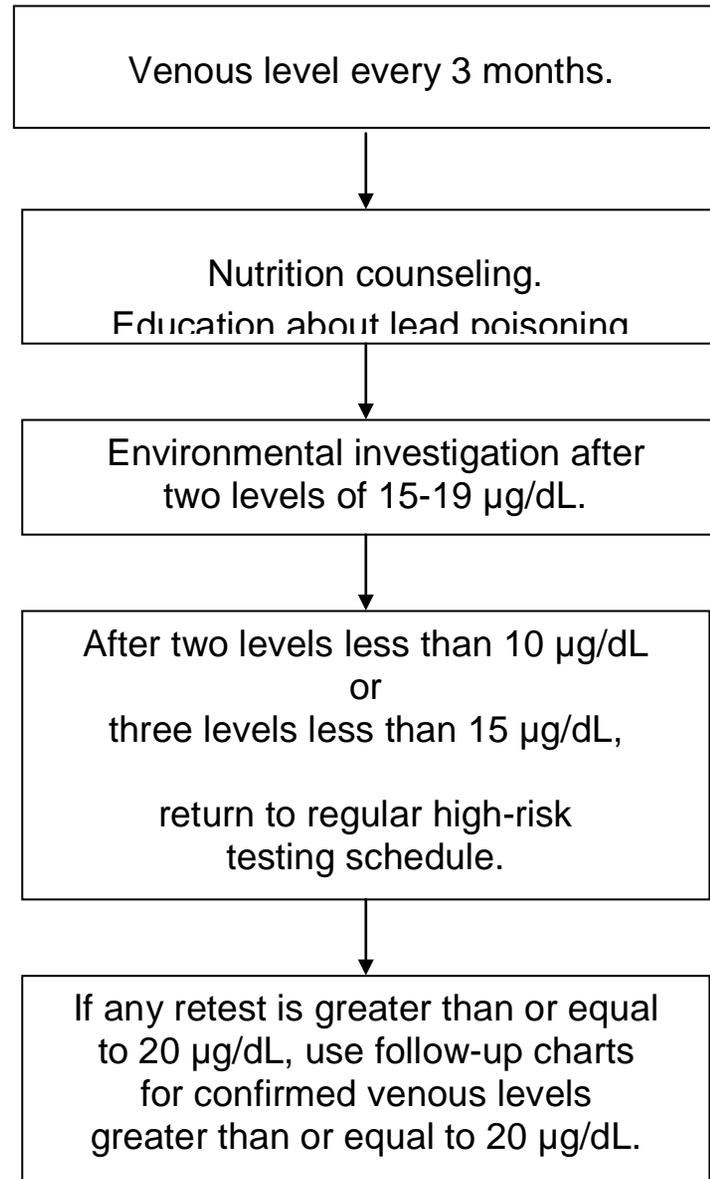
**Retest every 3 months.**

**After two levels less than 10  $\mu\text{g}/\text{dL}$   
or  
three levels less than 15  $\mu\text{g}/\text{dL}$ ,  
return to regular high-risk  
testing schedule.**

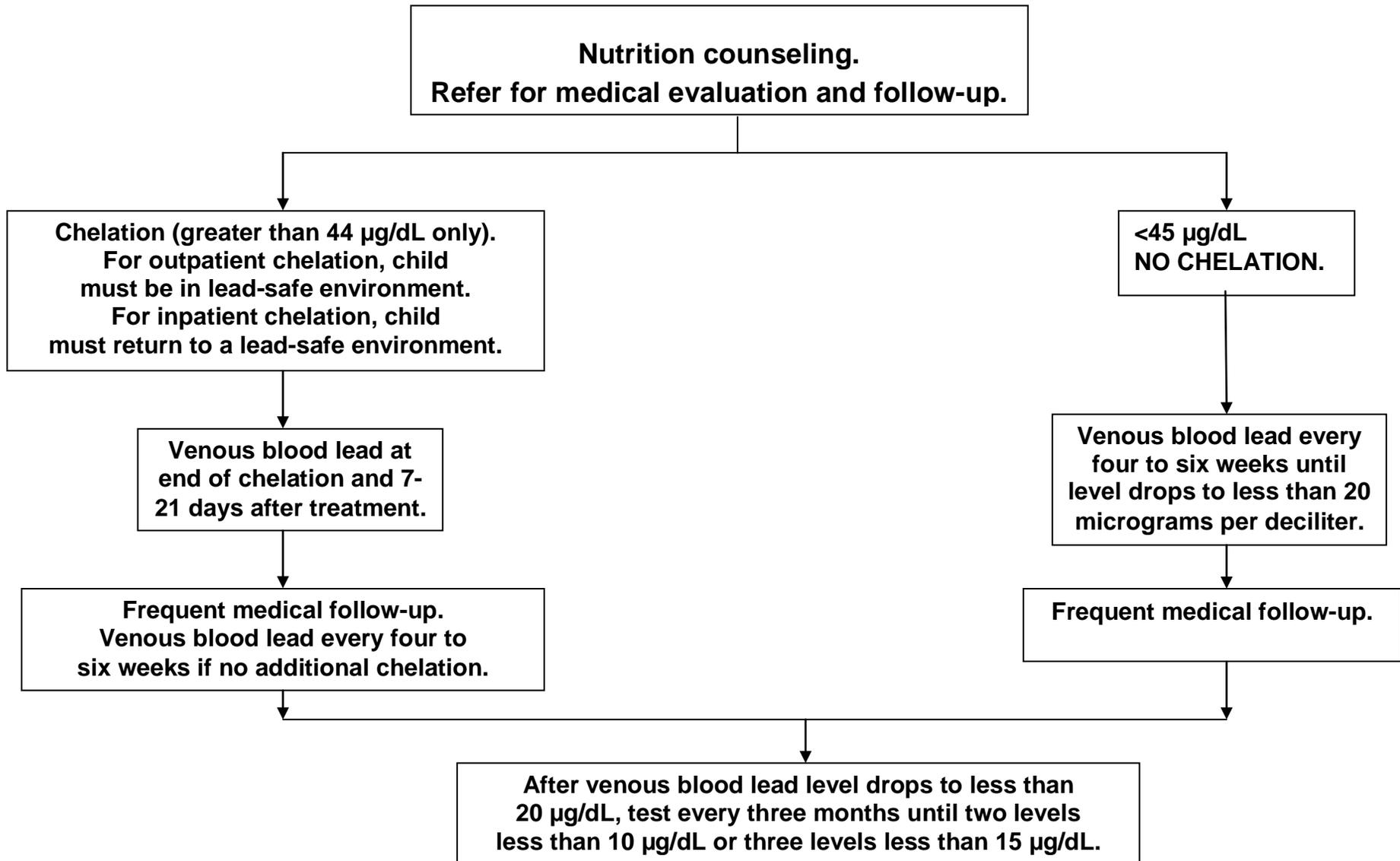
**If any capillary retest is greater than or equal to 15  $\mu\text{g}/\text{dL}$ , follow confirmatory venipuncture schedule.**

**If any venous retest is greater than or equal to 15  $\mu\text{g}/\text{dL}$ , follow charts for confirmed venous levels.**

## FOLLOW-UP OF ELEVATED VENOUS BLOOD LEAD LEVELS (15-19 $\mu\text{G}/\text{DL}$ )



## FOLLOW-UP OF ELEVATED VENOUS BLOOD LEAD LEVELS (Greater than or equal to 20 $\mu\text{g}/\text{dL}$ )



### **Environmental Follow-Up**

Lead hazard investigations will be conducted for all children who have had a single venous blood lead level greater than or equal to 20 µg/dL or two venous blood lead levels of 15 to 19 µg/dL. The two levels of 15 to 19 µg/dL do not need to be consecutive or taken within a specific period. All primary and secondary addresses associated with the child at the time of case identification must be investigated. This includes any sites such as daycare centers or another relative's home where the child spends at least 8 hours per week. It may be necessary to investigate addresses where the child spends even fewer hours than this since, in some cases, children have been lead-poisoned even when spending fewer than 8 hours per week at an address. If the primary source of exposure is determined to be the child's previous address, the inspector should attempt to inspect this address so that lead hazards can be remediated. The inspector must continue to inspect all addresses to which the family subsequently moved or where the child subsequently begins to spend time until the child has had at least three blood lead levels less than 15 µg/dL or at least one blood lead level less than 10 µg/dL. The inspector may continue to inspect additional addresses after this point if requested by the family or medical provider or if the inspector has particular concerns about the family or child.

Lead hazard investigations must be conducted by elevated blood lead (EBL) inspector/risk assessors who are certified by the Iowa Department of Public Health according to the provisions of 641-Chapter 70 *Iowa Administrative Code*: Lead Professional Certification. These investigations must also be conducted according to the provisions of Chapter 70 and the procedures taught in the 48-hour elevated blood lead inspector/risk assessor training program..

Lead hazards will be identified through lead hazard investigations that will consist of educating parents about childhood lead poisoning, conducting an inspection to discover lead hazards in the child's environment, and communicating the results of the inspection to the parents and the property owner (if other than the parents).

The investigator should obtain a case history on the lead-poisoned child if this has not already been done. This includes information regarding the circumstances under which lead poisoning was diagnosed and any medical treatment that the child has been receiving. In addition, the investigator should obtain the names and ages of all children currently occupying this property and should recommend that all children under the age of 6 living in or frequently visiting the home who have not been tested for lead poisoning be tested. If the home is undergoing renovation, adults living in the home may also need to be tested for lead poisoning.

The investigator will give the parents information about the causes of lead poisoning and the health effects of lead poisoning on children. The inspector will remind the parents of the importance of follow-up blood lead testing. The environmental inspector should ask whether the child has pica (consumes non-food items such as dirt, paint chips, paper, etc.). Children with pica are at very high risk for lead poisoning. Children who have pica must be very well-supervised to limit their access to contaminated soil, paint chips, etc.

Most cases of childhood lead poisoning are caused by exposure to lead-based paint. However, the investigator should also ask whether there are other possible sources of lead exposure such as

the use of poorly glazed pottery and the parent's or guardian's occupations and/or hobbies (examples: ceramics, indoor shooting ranges, construction, etc.)

If the home is not owner-occupied, the property owner will be contacted and invited to be present during the inspection. As an alternative, where travel time is not a concern may choose to meet the property owner at the address at a later date to review the results of the investigation.

A timely remediation completion date will be established in consultation with the property owner based on the severity of the hazards and the child's blood lead level. The lead hazards and other conditions which must be remediated and the agreed-upon completion date will be included in a follow-up letter that is sent to the family and to the property owner.

In cases where the investigator cannot identify deteriorated lead-based paint or lead-contaminated soil as the source of lead poisoning for the child, additional environmental testing of dust or other sources of lead may be appropriate. The Iowa Department of Public Health (IDPH) will provide funding for this testing when it is necessary. Contact IDPH at 1-800-972-2026 to find out how to get this testing paid for.

The timelines for conducting environmental investigations are on page 66. The following documents are attached for reference:

- Excerpt of *Iowa Administrative Code* 641—Chapter 70, which gives the required methods for conducting elevated blood lead (EBL) inspections.
- *Iowa Administrative Code* 641—Chapter 68, which can be adopted as a local regulation to require lead hazard remediation. Instructions for adopting Chapter 68 by reference are also attached.
- Eliminating Lead Hazards – instructions for safe remediation of lead-based paint hazards.

### **Communication/Coordination with Physicians**

The inspector will send a summary of the environmental findings to the physician. If necessary, the inspector will speak to or further communicate with the physician to ensure that the physician and the inspector are giving consistent messages to the family.

### **Follow-up After Lead Hazard Investigations**

At least two follow-ups will be conducted on each open address during each year. The follow-ups may be by letter or telephone or may be conducted through an on-site visit. Follow up letters and phone calls should be made to the owner of the property, who is the person responsible for ensuring that lead hazards are remediated. If necessary, the inspector shall identify and contact subsequent property owners if the property is sold. Follow up must continue until the lead hazards are remediated. Beginning in approximately July 2006, properties must pass dust lead clearance testing before the lead hazards are considered to be remediated.

Follow up blood lead testing is the main method of determining the success of medical and environmental case management. When a child's blood lead level does not fall or increases, the environmental and medical case managers must determine why this is occurring. Except for

rebounds that occur after chelation, additional home nursing visits and environmental investigations must be made if a child's blood lead level increases by 5 µg/dL or more. In addition, levels that fail to fall to less than 20 µg/dL must be closely followed to ensure that additional exposure is not occurring.

### **Referrals to the Department of Human Services**

A family may be referred to the Department of Human Services based on medical neglect if the family fails to follow through with follow up blood lead testing, medical treatment, or assuring that the child is in a safe environmental IF all other means of working with the family have been exhausted. While these referrals are sometimes necessary, they should be used only as a last resort.

### **Criteria for Medical Case Closure**

Medical cases can be closed in STELLAR under the following circumstances:

1. If the child is under the age of 6 years, the case can be closed after the child has had three blood lead levels less than 15 µg/dL or two blood lead levels less than 10 µg/dL.
2. If the family has moved from the area and the case has been transferred to another area.
3. If the child has reached the age of 6 years and has a blood lead level less than 20 µg/dL.

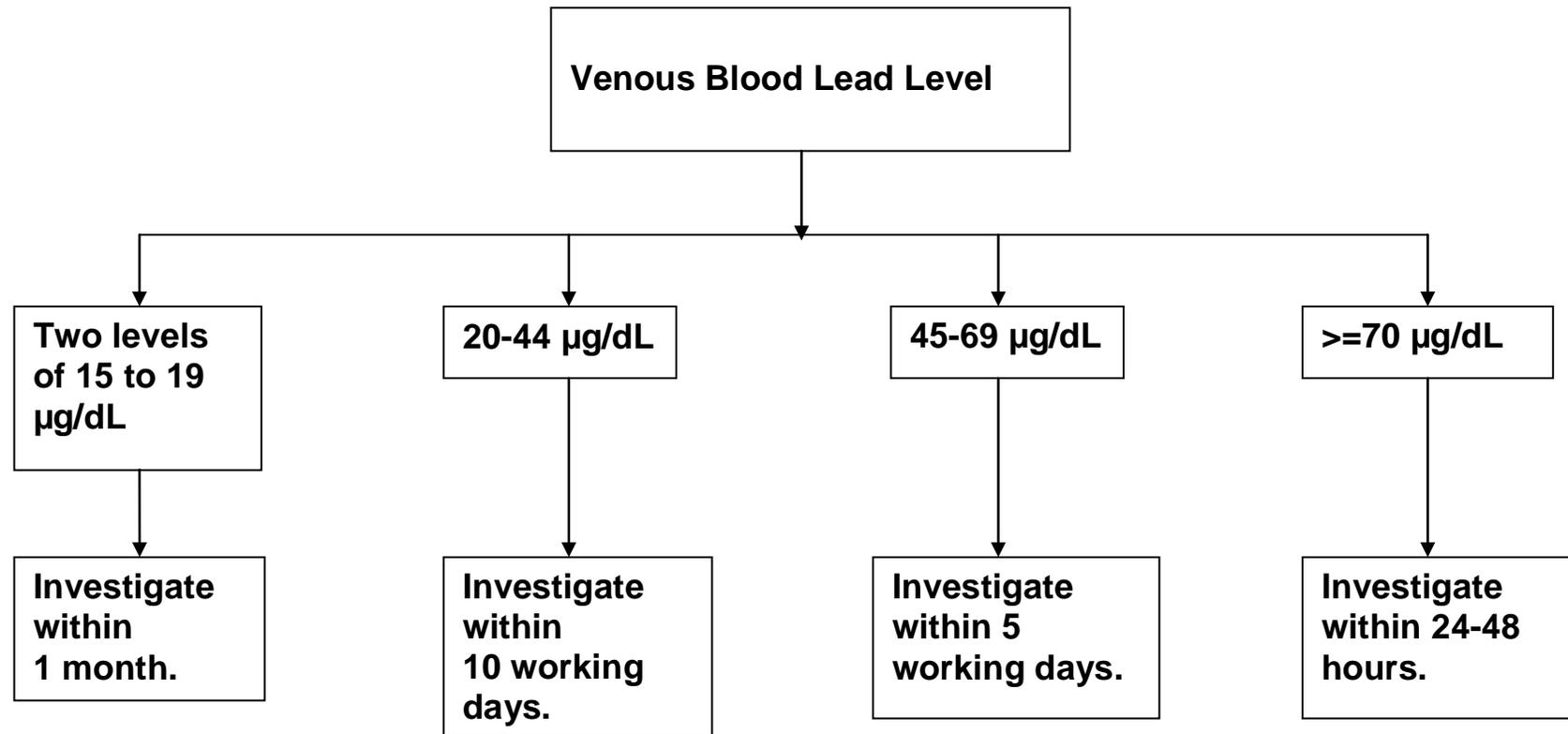
### **Criteria for Environmental Case Closure**

Environmental cases can be closed in STELLAR if no lead hazards are identified in the property or if the inspector has verified that all lead hazards have been remediated. Environmental cases can be closed for other reasons only with prior permission from the Iowa Department of Public Health's Bureau of Lead Poisoning Prevention.

### **Children Over the Age Of Six Years**

The case manager will contact the Iowa Department of Public Health for specific case management guidelines for a child over the age of six years who has a venous blood lead level greater than or equal to 20 µg/dL.

## TIMELINES FOR ENVIRONMENTAL FOLLOW-UP



**EXCERPT FROM 641—CHAPTER 70**

**70.6(3)** A certified elevated blood lead (EBL) inspector/risk assessor must conduct elevated blood lead (EBL) inspections according to the following standards. Beginning March 1, 2000, elevated blood lead (EBL) inspections shall be conducted only by a certified elevated blood lead (EBL) inspector/risk assessor.

a. When conducting an elevated blood lead (EBL) inspection, the certified elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) The certified elevated blood lead (EBL) inspector/risk assessor shall test paint in each room, including each exterior side.

(2) The certified elevated blood lead (EBL) inspector/risk assessor shall test each testing combination in each room. On windows, the window frame, interior windowsill, window sash, and window trough shall each be considered a separate testing combination. One sample shall be taken for each testing combination in a room. If a testing combination is not tested, it shall be assumed to be painted with lead-based paint.

b. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified elevated blood lead (EBL) inspector/risk assessor shall not state that any surface is free of lead-based unless the NIST 1.02 standard film is used for calibration.

(3) The certified elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

(4) If required by the performance characteristics sheet, the certified elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams per square centimeter of lead. For each substrate that requires substrate correction, the certified elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams per square centimeter. For each testing combination, the certified elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation  $(1.1 + 1.3 +$

$1.4 + 1.0 + 1.2 + 1.1)/6$  and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where required by the performance characteristics sheet, then the certified elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings, then the certified elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

c. If lead-based paint is identified through an elevated blood lead (EBL) inspection, the certified elevated blood level (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards, including bare soil in the play area or in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

d. No later than two weeks after the receipt of laboratory results, a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted and shall provide a copy of this report to the property owner and the occupant of the dwelling. The report shall include, at least:

- (1) A statement that the elevated blood lead (EBL) inspection was conducted to determine identify lead-based paint and lead-based paint hazards in the residential dwelling;
- (2) Date of each elevated blood lead (EBL) inspection;
- (3) Address of building;
- (4) Date of construction;
- (5) Apartment numbers (if applicable);
- (6) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
- (7) Name, signature, and certification number of each certified elevated blood lead (EBL) inspector/ risk assessor conducting the investigation;
- (8) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;
- (9) Each testing method and/or sampling procedure employed for paint analysis, including quality control data, and, if used, the manufacturer, the serial number, software, and operating mode of any X-ray fluorescence (XRF) device;
- (10) XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated;
- (11) Specific locations of each painted component tested for the presence of lead-based paint by room and the results for each component expressed in terms appropriate to the sampling method used;
- (12) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint;

(13) A description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the play area or in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.;

(14) A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure-;

(15) Information regarding the owner's obligations to disclose known lead-based paint and/or lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745; and

(16) Information about the notification regarding lead-based paint prior to renovation, remodeling, or repainting as required by IAC 641—Chapter 69.

e. A certified elevated blood lead (EBL) inspector/risk assessor shall maintain a written record for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted for no fewer than ten years. The record shall include, at least:

(1) A copy of the written report required by paragraph 70.6(3)“d.”

(2) Blood lead test results for the elevated blood lead (EBL) child.

(3) A record of conversations held with the owners and occupants of each residential dwelling or child-occupied facility prior to, during, and after the EBL inspection.

(4) Records of follow-up visits made to each residential dwelling or child-occupied facility where lead-based paint hazards are identified to ensure that lead-based paint hazards are safely repaired.

## CHAPTER 68 CONTROL OF LEAD-BASED PAINT HAZARDS

**641—68.1(135) Applicability.** The provisions of this chapter are applicable in jurisdictions in which a local board has adopted this chapter for the purpose of requiring control of lead-based paint hazards where a child has been identified with an elevated blood lead level. Nothing in this chapter shall be construed as requiring a local board to adopt this chapter as a model regulation.

**641—68.2(135) Definitions.**

“*Certified elevated blood lead (EBL) inspector/risk assessor*” means a person who has met the requirements of Iowa Administrative Code 641—70.5(135) for certification or interim certification and who has been certified by the department.

“*Chewable surface*” means an interior or exterior surface painted with lead-based paint that a young child can mouth or chew.

“*Child-occupied facility*” means a building, or portion of a building, constructed prior to 1978, visited by the same child under the age of six years on at least two different days within any week (Sunday through Saturday period, provided that each day’s visit lasts at least three hours and the combined weekly visits last at least six hours). Child-occupied facilities may include, but are not limited to, day care centers, preschools and kindergarten classrooms.

“*Clearance testing*” means an activity conducted following interim controls, lead abatement, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation to determine that the hazard reduction activities are complete. Clearance testing includes a visual assessment, the collection and analysis of environmental samples, the interpretation of sampling results, and the preparation of a report.

“*Department*” means the Iowa department of public health.

“*Deteriorated paint*” means any interior or exterior paint or other coating that is cracking, flaking, chipping, peeling, or chalking, or any paint or coating located on an interior or exterior surface that is otherwise damaged or separated from the substrate of a building component.

“*Dripline*” means the area within three feet surrounding the perimeter of a building.

“*Dust-lead hazard*” means surface dust in residential dwellings or child-occupied facilities that contains a mass-per-area concentration of lead greater than or equal to 40 micrograms per square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present in a residential dwelling or child-occupied facility when the weighted arithmetic mean lead loading for all single-surface or composite samples of floors and interior windowsills is greater than or equal to 40 micrograms per square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled residential dwelling in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled residential unit on the property. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled common area in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled common area in the same common area group on the property. If dust samples are not taken, it may be assumed that surfaces in rooms with hazardous lead-based paint or where renovation, remodeling, or repainting has occurred recently are dust-lead hazards.

“*Elevated blood lead (EBL) child*” means any child who has had one venous blood lead level greater than or equal to 20 micrograms per deciliter or at least two venous blood lead levels of 15 to 19 micrograms per deciliter.

“*Elevated blood lead (EBL) inspection*” means an inspection to determine the sources of lead exposure

for an elevated blood lead (EBL) child and the provision within ten working days of a written report explaining the results of the investigation to the property owner and occupant of the residential dwelling or child-occupied facility being inspected and to the parents of the elevated blood lead (EBL) child. A certified elevated blood lead (EBL) inspector/risk assessor shall not determine that a residential dwelling is free of lead-based paint as a result of an elevated blood lead (EBL) inspection. *“Friction surface”* means an interior or exterior surface that is subject to abrasion or friction including, but not limited to, certain window, floor, and stair surfaces.

*“Hazardous lead-based paint”* means lead-based paint that is present on a friction surface where there is evidence of abrasion or where the dust-lead level on the nearest horizontal surface underneath the friction surface (e.g., the windowsill or floor) is equal to or greater than the dust-lead hazard level, lead-based paint that is present on an impact surface that is damaged or otherwise deteriorated from impact, lead-based paint that is present on a chewable surface, or any other deteriorated lead-based paint in any residential building or child-occupied facility or on the exterior of a residential building or child-occupied facility.

*“Impact surface”* means an interior or exterior surface that is subject to damage by repeated sudden force such as certain parts of doorframes.

*“Lead-based paint”* means any paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram of lead per square centimeter or more than 0.5 percent by weight. Lead-based paint is present on any surface that is tested and found to contain lead equal to or in excess of 1.0 milligram per square centimeter or more than 0.5 percent by weight and on any surface like a surface tested in the same room equivalent that has a similar painting history and that is found to be lead-based paint.

*“Lead-based paint hazard”* means hazardous lead-based paint, a dust-lead hazard, or a soil-lead hazard.

*“Local board”* means the local board of health as authorized by Iowa Code chapter 137.

*“Mid-yard”* means an area of a residential yard approximately midway between the dripline of a residential building and the nearest property boundary or between the driplines of a residential building and another building on the same property.

*“Occupant”* means any person living, sleeping, cooking or eating in, or having any actual possession of, a dwelling or dwelling unit.

*“Owner”* means any person who, alone or jointly with others: (1) has legal title to any dwelling, with or without accompanying actual possession thereof, or (2) has charge, care or control of any dwelling by acting as the agent of the owner or as the executor, administrator, trustee, or guardian of the estate of the owner.

*“Paint-lead hazard”* means the presence of hazardous lead-based paint in a residential dwelling or a child-occupied facility.

*“Play area”* means an area of frequent soil contact by children of less than six years of age as indicated by, but not limited to, factors including the following: the presence of play equipment (sandboxes, swing sets, and sliding boards), toys, or other children’s possessions; observations of play patterns; or information provided by parents, residents, caregivers, or property owners.

*“Residential building”* means a building containing one or more residential dwellings.

*“Residential dwelling”* means (1) a detached single-family dwelling unit, including the surrounding yard, attached structures such as porches and stoops, and detached buildings and structures including, but not limited to, garages, farm buildings, and fences; or (2) a single-family dwelling unit in a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or part, as the home or residence of one or more persons.

*“Retaliation”* means harassment, termination of the tenancy, discontinuation of utilities or other services, and any other action taken against the lessee.

*“Soil-lead hazard”* means bare soil on residential real property or on the property of a child-occupied facility that contains total lead greater than or equal to 400 parts per million for the dripline,

mid-yard, and play areas. A soil-lead hazard is present in a dripline, mid-yard, or play area when the soil-lead concentration from a composite sample of bare soil is greater than or equal to 400 parts per million. If soil samples are not taken, it may be assumed that bare soil within three feet of the foundation of a garage or other structure built prior to 1978 is a soil-lead hazard.

**641—68.3(135) Elevated blood lead (EBL) inspections required.** The local board shall appoint a certified elevated blood lead (EBL) inspector/risk assessor to conduct elevated blood lead (EBL) inspections in residential dwellings and child-occupied facilities where an elevated blood lead (EBL) child lives, visits, or has recently lived. All owners and occupants shall allow access to the residential dwellings and child-occupied facilities that the certified elevated blood lead (EBL) inspector/risk assessor desires to inspect.

**641—68.4(135) Refusal of admittance.** If the certified elevated blood lead (EBL) inspector/risk assessor appointed by the local board is refused entry to a property, then the certified elevated blood lead (EBL) inspector/risk assessor may make a complaint under oath to any magistrate of the county. The magistrate may issue a warrant directing the owner or occupant to allow the certified elevated blood lead (EBL) inspector/risk assessor to conduct an elevated blood lead (EBL) inspection and directing a peace officer to accompany the certified elevated blood lead (EBL) inspector/risk assessor during the elevated blood lead (EBL) inspection/risk assessment.

**641—68.5(135) Lead hazard reduction required.**

**68.5(1)** When the certified elevated blood lead (EBL) inspector/risk assessor appointed by the local board determines that hazardous lead-based paint, a dust-lead hazard, or a soil-lead hazard is present in a residential dwelling unit or child-occupied facility where an elevated blood lead (EBL) child lives, frequently visits, or has recently resided, the certified elevated blood lead inspector/risk assessor shall issue a written notice to the owner within two weeks of the inspection and receipt of any laboratory results. The written notice shall require the owner to complete lead hazard reduction in a time period determined by the certified elevated blood lead (EBL) inspector/risk assessor. If the occupant who occupies the residential dwelling at the time that this written notice is issued vacates the residential dwelling, the residential dwelling shall not be leased or occupied by any other person until the certified elevated blood lead (EBL) inspector/risk assessor issues a written notice that the lead hazard reduction has been completed.

**68.5(2)** The owner of any residential dwelling or child-occupied facility which has been determined to contain hazardous lead-based paint, a soil-lead hazard, or a dust-lead hazard shall correct these hazards within the time period allowed by the certified elevated blood lead (EBL) inspector/risk assessor in the written notice. The following methods shall be used for lead hazard reduction. These methods shall not require the services of a lead abatement contractor certified in accordance with Iowa Administrative Code 641—70.5(135). However, other local, state, or federal regulations may require the use of a contractor who has completed an eight-hour lead-safe work practices course or a lead abatement contractor or lead abatement worker certified in accordance with Iowa Administrative Code 641—70.5(135).

*a.* On a surface that contains hazardous lead-based paint, but is not chewable and does not have evidence of impact or friction, the lead-based paint hazard shall be reduced by removing all loose and deteriorated paint from the surface, preparing the surface for repainting, and repainting the surface with a lead-free coating.

*b.* On a surface that contains hazardous lead-based paint and is chewable or has evidence of impact or friction, the lead-based paint hazard shall be reduced by treating the surface one inch back from the edge or corner through one of the following methods:

(1) All lead-based paint on the treatment area shall be removed to the bare substrate. The surface shall be prepared for repainting and repainted with a lead-free coating.

(2) The treatment area shall be covered with a permanently affixed lead-free material such as plastic, wood, or vinyl. Carpet may be used on floors and stair treads.

c. Dust-lead hazards shall be reduced by thoroughly cleaning the affected surface.

d. Soil-lead hazards shall be reduced by planting grass or groundcover, applying sod, or covering the affected area with six inches of bark, gravel, or other material.

e. Lead hazard reduction shall be conducted using lead-safe work practices to protect the safety of the occupants and workers. Occupants shall not enter the work area while work is underway. The following are prohibited methods of lead hazard reduction:

(1) Open-flame burning or torching of lead-based paint.

(2) Machine sanding or grinding or abrasive blasting or sandblasting of lead-based paint unless used with high-efficiency particulate air (HEPA) exhaust control that removes particles of 0.3 microns or larger from the air at 99.97 percent or greater efficiency.

(3) Uncontained water blasting of lead-based paint.

(4) Dry scraping or dry sanding of lead-based paint except in conjunction with the use of a heat gun or around electrical outlets.

(5) Operating a heat gun at a temperature above 1100 degrees Fahrenheit.

**68.5(3)** The certified elevated blood lead (EBL) inspector/risk assessor shall inspect all areas identified as hazards after lead hazard reduction is complete. The certified elevated blood lead (EBL) inspector/risk assessor may conduct clearance testing pursuant to Iowa Administrative Code 641—Chapter 70 to ensure that no dust-lead hazards exist after the work is complete. Within two weeks of verifying that all lead hazard reduction has been completed as required, the certified elevated blood lead (EBL) inspector/risk assessor shall issue a written notice to the owner and occupant stating that the lead hazard reduction has been completed and that the repaired surfaces must be maintained in good condition.

**641—68.6(135) Retaliation prohibited.**

**68.6(1)** The lessor of a dwelling, the employees of the lessor, and agents or persons acting on behalf of the lessor shall not retaliate against lessees of residential dwellings and child-occupied facilities whose occupants or visitors have been tested for lead poisoning and shall not discourage the occupants or visitors from being tested for lead poisoning.

**68.6(2)** An action taken against the lessee shall not be considered retaliation if it is supported by reasonable cause unrelated to the testing of an occupant for lead poisoning or if it is shown to have occurred as a result of an accident or mistake and not to be the intentional act of the lessor of a dwelling,

the employees of the lessor, or agents or persons acting on behalf of the lessor.

**641—68.7(135) Enforcement.** The certified elevated blood lead (EBL) inspector/risk assessor appointed by the local board shall have the duty and responsibility of enforcing this chapter.

**68.7(1)** Penalties shall be as provided in Iowa Code section 137.21.

**68.7(2)** Upon failure of any person to correct a hazard identified through this chapter in the time specified by the certified elevated blood lead (EBL) inspector/risk assessor appointed by the local board, the local board may direct or cause the correction of said hazards. All expenses incurred thereby may be recovered by suit in the name of the local board, or the local board may certify the amount of said expenses, together with a description of the property, to the county treasurer, who shall enter the same upon the tax books as costs for removing a lead hazard, and said amounts shall be collected as other taxes.

**641—68.8(135) Hearings.** In the event any person is aggrieved by any order of the certified elevated blood lead (EBL) inspector/risk assessor, the person may appeal to the local board in writing within ten days of the date of such order. The appeal shall state the reasons for requesting such order to be rescinded or modified. The local board shall review the action of the certified elevated blood lead (EBL) inspector/risk assessor. The local board shall order compliance with said order or may, with cause, modify or withdraw said order. Any order of the local board may be appealed within ten days to the district court for the county in which the local board is located.

**641—68.9(135) Variances.** The elevated blood lead (EBL) inspector/risk assessor may determine that a chewable surface that would otherwise be identified as a hazard by this chapter is not causing or does not have reasonable potential to cause lead exposure and is not required to be corrected through lead hazard reduction. The elevated blood lead (EBL) inspector/risk assessor shall document the reason for this determination in the inspection report. However, the elevated blood lead (EBL) inspector/risk assessor shall not, under any circumstances, determine that any other surface meeting the definition of hazardous lead-based paint does not need to be corrected through lead hazard reduction.

**641—68.10(135) Injunction.** Nothing in this chapter shall prohibit a local board from pursuing injunctive relief or other relief as allowed by law.

**641—68.11(135) Effective date.** This chapter shall be in effect in a jurisdiction after a local board adopts it.

These rules are intended to implement Iowa Code section 135.102.

**STEPS TO FOLLOW IN ADOPTING IOWA ADMINISTRATIVE CODE CHAPTER 68,  
"CONTROL OF LEAD-BASED PAINT HAZARDS," BY REFERENCE**

1. The board of health determines the text of the regulation. The suggested text for this regulation is:  
  
 \_\_\_\_\_ County Board of Health Regulation Number \_\_\_\_\_  
 Control of Lead-Based Paint Hazards  
 Iowa Administrative Code 641—Chapter 68, "Control of Lead-Based Paint Hazards," is adopted by reference.
2. The board of health votes to hold a public hearing on the proposed regulation.
3. The board of health determines the date of the public hearing.
4. The board of health publishes a notice of the time and place of the hearing, as well as the general nature of the proposed regulation. The notice must be published between 4 and 20 days before the hearing in one general circulation newspaper in the county. Notice of the hearing must also be given to the communications media in the county. You may wish to ask for a notarized affidavit of publication or proof of publication from the newspaper(s). Some suggested wording for this public notice is:

**PUBLIC NOTICE**

You are hereby notified that the \_\_\_\_\_ County Board of Health is considering the adoption of proposed \_\_\_\_\_ County Board of Health Regulation Number \_\_\_\_\_, Control of Lead-Based Paint Hazards, which is the adoption, by reference, of Iowa Administrative Code 641—Chapter 68, "Control of Lead-Based Paint Hazards." The purpose of this regulation is to require control of lead-based paint hazards where a child has been identified with an elevated blood lead level.

You are further notified that the \_\_\_\_\_ County Board of Health will hold a public hearing thereon at (time) on (date) at (location). You may submit comments in writing prior to the hearing or appear to give oral or written comments at the hearing.

Dated at \_\_\_\_\_, Iowa this \_\_\_\_\_ day of (month, year).

(name), Chair  
 \_\_\_\_\_ County Board of Health

5. The board of health holds the public hearing. Any "citizen" may appear and be heard at the hearing - everyone has the right to speak.
6. The board of health must then vote to approve the regulation. This can be done at any time after the public hearing.
7. The regulation must then be approved by the board of supervisors. This can be accomplished through a simple motion. The supervisors are not required to hold hearings on the regulation or

have several readings of the regulation. The board of supervisors is required to put the item on the board agenda.

8. The regulation becomes effective when it is published in a newspaper having general circulation in the county. As with the notice of public hearing, you may wish to ask for a notarized affidavit of publication or proof of publication from the newspaper(s). Some suggested wording for the publication is:

**PUBLIC NOTICE**

**NOTICE OF ADOPTION OF \_\_\_\_ COUNTY BOARD OF HEALTH REGULATION  
NUMBER \_\_\_\_\_,**

**CONTROL OF LEAD-BASED PAINT HAZARDS**

**TO WHOM IT MAY CONCERN:**

You are hereby notified that on (date), the \_\_\_\_\_ County Board of Health adopted \_\_\_\_\_ County Board of Health Regulation Number \_\_\_\_\_, Control of Lead-Based Paint Hazards, which is the adoption, by reference, of Iowa Administrative Code 641—Chapter 68, “Control of Lead-Based Paint Hazards.”

The purpose of this regulation is to require control of lead-based paint hazards where a child has been identified with an elevated blood lead level.

This regulation shall be in effect after final passage, approval, and publication.

Dated at \_\_\_\_\_, Iowa this \_\_\_\_\_ day of (month, year).

(name), Chair  
\_\_\_\_\_ County Board of Health



# ELIMINATING LEAD HAZARDS

## Information and Instructions

IOWA DEPARTMENT OF PUBLIC HEALTH  
 Childhood Lead Poisoning Prevention Program  
 1 - (800) - 972-2026

**Lead-based paint hazards can cause lead poisoning in children.** These hazards must be eliminated from homes to prevent lead poisoning and to help lead-poisoned children get better. However, the presence of lead-based paint does not always mean that there are lead-based paint hazards in the home.

An inspector determines whether a surface has lead-based paint on it by using a machine called an x-ray fluorescence monitor (XRF) or by sending a sample of paint to a laboratory. If your property has not been inspected, you can use the publication, *Lead Poisoning: How to Protect Iowa Families*, to look for lead hazards in your home. You can get a copy of this by calling the above number.

### **Lead-based Paint Is a Hazard under the Following Five Conditions:**

1. The paint is on a surface that is **CHEWABLE**. This means that the surface is the right height and angle for children to chew on it. This paint is a hazard even if the paint is in good condition. (Example: window sills.)
2. The paint is on an **IMPACT** surface. Impact surfaces are in locations where people moving furniture or other objects, children playing with toys, etc. often run into the surface. The impact is often hard enough to knock paint off the surface. The paint on this surface is a hazard if you see any paint chipped from the surface. (Ex: Edge of door frame below the four foot level.)
3. The paint is on a surface that is subject to **FRICTION**. Friction occurs when there is up and down, back and forth, or rubbing movement. This friction creates lead dust that can cause lead poisoning in children. This paint is a hazard if you see any worn paint. (Example: track where window goes up and down or a floor.)
4. The paint is **peeling, chipping, chalking, cracked**, or otherwise **deteriorating**.
5. **Bare soil** around buildings that have been painted with lead-based paint contains lead. This is a hazard to children who play in these areas. The bare soil is a hazard within 3 feet of the building. The top 6 to 8 inches of the soil will contain lead. This soil contains lead because the lead-based paint on the building ended up in the soil when it was scraped off or fell off in the past. This bare soil is a hazard even if you cannot see paint chips. The paint chips break down into very small pieces, but the lead is still there. Areas that have a good grass cover or landscaping to cover the soil are not a hazard.

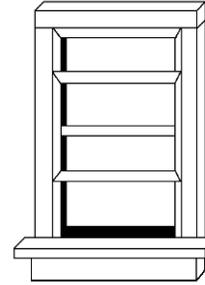
**You must understand what Type of Surface is covered with lead-based paint.  
 The type of surface determines how much paint removal or other work  
 is needed to eliminate the hazard.**

# TYPES OF SURFACES

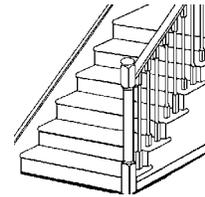


## CHEWABLE surfaces are:

**Windows:** Interior and exterior.  
Window sills below four foot level.  
Inside the windows.



**Stairs:** Stair railings.  
Stair rail spindles.  
Stair treads from four inches from lip on top of tread  
and from lip to riser on the bottom side.



**Porch:** Railings and spindles.



**Other Surfaces:** Anything that  
the investigator decides a child can chew on.



## IMPACT surfaces are:

### **Walls**

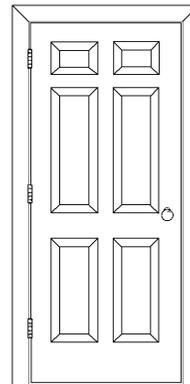
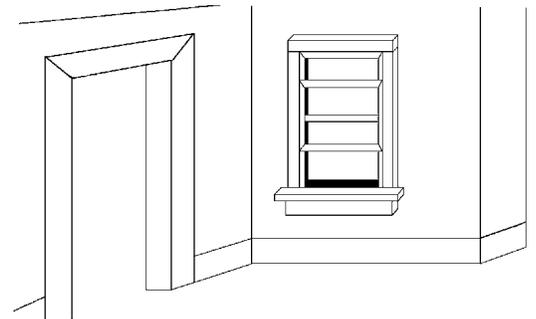
Corners that stick out into the room one inch from the edge on both sides below the four foot level.

### **Baseboards**

Corners that stick out into the room. One inch from the edge on both sides.

### **Doors, door frames, and door stops (interior and exterior)**

Doors, door frames, and door stops below the four foot level and one inch from all edges that are subject to impact.





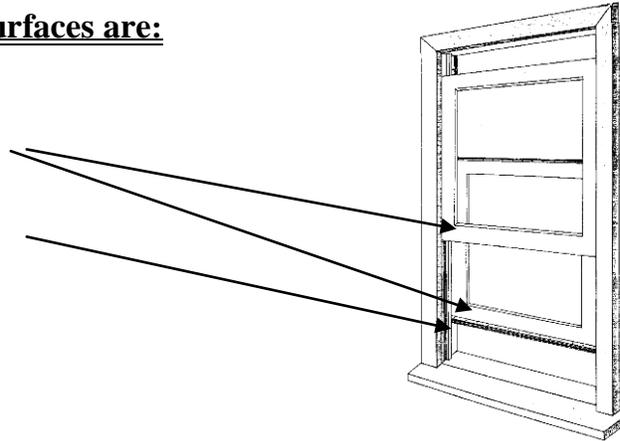
# TYPES OF SURFACES

## FRICITION surfaces are:

Floors

Window sashes

Window tracks



## Eliminating Lead Hazards on Chewable, Impact, and Friction Surfaces

There are three ways to eliminate lead hazards on these surfaces:

1. **Remove ALL paint to the base material.**
  - Repaint or refinish the surfaces with a lead-free finish.
  - You need to remove ALL paint ONLY on the part that is a chewable, impact, or friction surface.
  - On a window sill, this would be the area one inch from the edge of the window sill on the top and bottom of the sill. You do NOT need to do anything to the rest of the window IF the paint is in good condition. If the paint on the rest of the window is not in good condition, remove only the deteriorated paint.
2. **If doors or other wood surfaces are in poor condition, you can also replace them with new ones.**
  - Spray all surfaces to be replaced with a light water mist before removing them from the home. This will reduce the amount of lead dust produced.
3. **Cover surfaces such as corners and floors.**
  - Plastic corner protectors or other materials will protect painted surfaces from hard impacts.
  - Carpet or linoleum will keep you from walking directly on the lead-based paint. Apply coverings tightly enough to keep children from removing them.
  - If applied to a chewable surface, the covering must be sturdy enough so that children cannot chew through it.



*Paint alone is NOT sturdy enough  
to cover chewable, impact, and friction surfaces.*



## Eliminating Lead Hazards on Chewable, Impact, and Friction Surfaces

**There are also three ways to eliminate lead hazards on OTHER surfaces:**

1. **Carefully remove all loose, peeling, chipping, flaking, or otherwise deteriorating paint from the surface.**
  - All remaining paint must stick tightly to the surface.
  - You do **NOT** have to remove paint that is in good condition.
  - Wet sand the surface and remaining paint to smooth it and prime. This will help the new paint stick to the surface so it will not start to peel again.
  
2. **If windows are leaking, you can remove them and install new windows. If doors or other wood surfaces are in poor condition, you can also replace them with new ones.**
  - Spray all surfaces with a light water mist before removing them from the home. This will reduce the amount of lead dust produced.
  
3. **If walls are in poor condition, you can cover them with wallboard or paneling.** If exterior siding is deteriorated and will not hold paint, you can cover it with new siding.

### ELIMINATING BARE SOIL HAZARDS

To eliminate lead hazards from bare soil:

- Cover the soil with 6 inches of rock, mulch, or similar materials.
- Plant bushes or shrubs that keep children from playing near them. (Shrubs with small thorns work well.)
- Use a fence to keep children from playing in the soil.

It is not practical to remove the soil because this is very expensive.

### WINDOWS

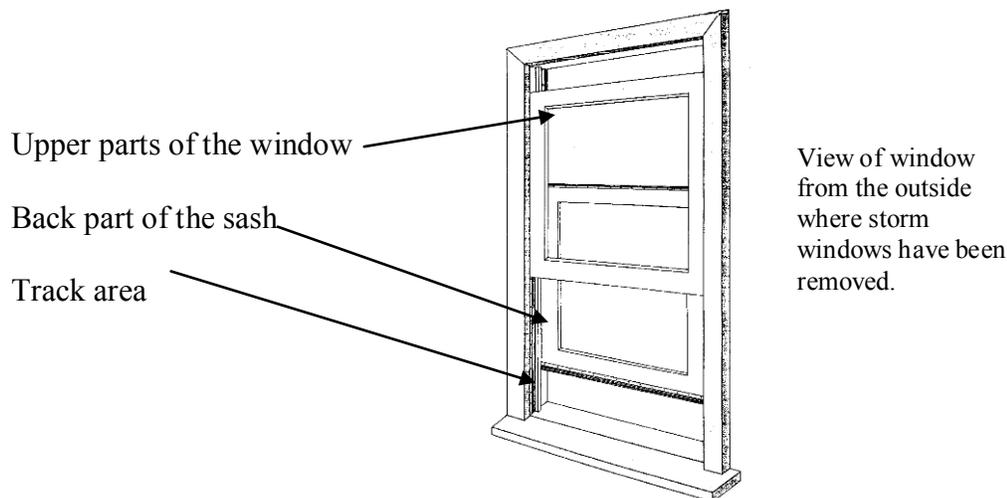
Window sashes, tracks, and the space between the interior window and the screen/storm window are the most common hazard areas. **Almost every home built before 1960 has peeling or chipping lead-based paint in these areas.** Children like to look out or play in open windows. They may put the paint chips in their mouths. Or, they can get paint chips or dust on their hands and toys. They then put these toys and hands in their mouths.

To remove the hazards between the windows:

1. Remove the storm windows/screens.
2. Work on the surfaces only from the **OUTSIDE** of the house while keeping the inside window shut.  
This will keep the dust and paint chips from getting inside the house.

## WINDOWS

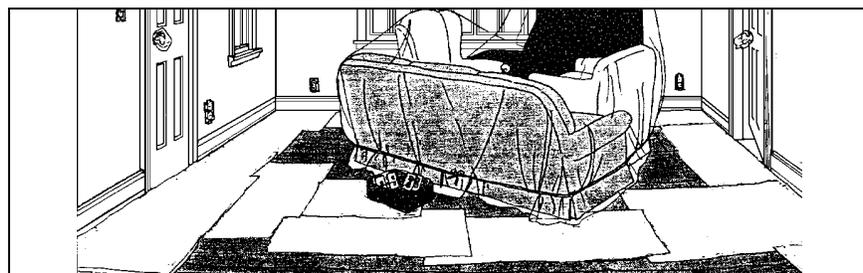
Make sure you remove the chipping and peeling paint from:



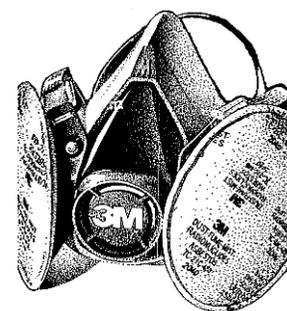
If paint is left in these areas, it can peel or rub away. Then, it falls to the sill where children can find it.

## FOLLOW THESE GUIDELINES

1. Remove lead-based paint carefully! You should **NEVER** dry scrape or dry sand lead-based paint on the inside or outside of your home. **Always mist surfaces with water** before scraping or sanding them. Use a tarp or piece of plastic to catch paint chips when you are working on the outside of your house. This will keep paint chips from falling on the soil. If you are working outside, close windows to prevent lead dust from entering the home.
2. **DO NOT** sandblast or waterblast lead-based paint on the outside of your home. You do not want the paint chips to end up all over your yard or the neighbor's yard. Sandblasting and waterblasting is safe **ONLY** if you have a special machine that will catch the paint chips.
3. Remove furniture, drapes, and if possible, carpet from the room you will work in before starting work. Cover the floor and furniture that cannot be removed from the room with a sheet of 6 mil plastic. Seal each room from the rest of the house with plastic while working in it. Be careful not to track dust and paint chips into other areas of the home.



4. Wear a negative pressure, half-mask respirator with a magenta (purple) HEPA filtration canister. You can buy these respirators at auto parts stores (used for brake and clutch work). The respirator will say “HEPA Filters - Asbestos Approved.” Be sure to read the instructions for positive and negative facefit tests and for cleaning the respirator. If the respirator does not fit properly, it will not protect you. It will also not protect you if it is dirty. These masks do not protect against organic vapors from heat guns or paint strippers. So, use heat guns and paint strippers only where there is good ventilation. This will help disperse any organic vapors from the strippers or from heating the paint.



5. Replace the filters on the respirator if they are damaged. You should also replace them if it gets hard to breathe. This means that the filters are plugging. Wash the facepiece (without the filters) with mild soap. Store the respirator in a bag outside of the work area.
6. If you have asthma, emphysema, or heart problems, do **not** try to wear a respirator. Take off the respirator **immediately** if you feel short of breath. If you have a perforated eardrum that has not been repaired, this respirator will not protect you from inhaling lead dust.
7. If you will be using a heat gun, make sure it is a low-temperature heat gun that operates below 1100° F.
8. Do not eat, drink, or smoke until you have left the work area and thoroughly washed your hands and face. Take a shower, wash your hair, and change clothes before coming in contact with others.
9. Keep pregnant women and children out of the room if you are working on a small project. A small project would be working on only a few surfaces in one room at a time. For larger projects, keep pregnant women and children out of the home until you complete the job.
10. After you complete the job, wash all surfaces thoroughly with any household detergent. Vacuum with a HEPA vacuum or a regular vacuum with microfilter bags. Shampoo carpets using a machine that pumps liquid into the carpet and pulls it back out.
11. Place paint chips, dust, and pieces of wood in a plastic bag at the end of each day. Put this with your garbage that will go to the landfill.



**After you complete work to eliminate lead-based paint hazards, you must** maintain the remaining lead-based paint in good condition. You should also frequently clean the house. Wash floors, window sills, areas between the windows, and other places where dust and dirt accumulate at least once a week. Check the condition of lead-based paint frequently. You need to repair paint when it begins to deteriorate.

## CHAPTER 67 BLOOD LEAD TESTING

**641—67.1(135) Purpose.** The purpose of the blood lead testing requirement is to improve the health of Iowa’s children. Blood lead testing will facilitate early detection and referral for treatment of lead poisoning; reduce the incidence, impact, and cost of lead poisoning; inform parents and guardians of their children’s exposure to lead; promote the importance of reducing exposure to lead as an integral component of preparation for school and learning; and contribute to statewide surveillance of childhood lead poisoning.

**641—67.2(135) Definitions.** For purposes of this chapter, the following definitions apply:

“*Applicant*” means any person seeking first-time enrollment in kindergarten in a public or accredited nonpublic elementary school in Iowa.

“*Blood lead database*” means the database maintained by the department that includes the results of all blood lead testing reported to the department as required by 641—Chapter 1.

“*Blood lead testing*” means taking a capillary or venous sample of blood and sending it to a laboratory to determine the level of lead in the blood.

“*Capillary*” means a blood sample taken from the finger or heel for lead analysis.

“*Department*” means the Iowa department of public health.

“*Elementary school*” means an Iowa school district or accredited nonpublic school offering kindergarten.

“*Health care provider*” means a physician licensed under Iowa Code chapter 148, 150, or 150A, a physician assistant licensed under Iowa Code chapter 148C, or an advanced registered nurse practitioner licensed under Iowa Code chapter 152.

“*Laboratory*” means a laboratory certified to perform either waived or non-waived blood lead analysis according to the federal Clinical Laboratory Improvement Act of 1988 (CLIA).

“*Transfer student*” means an applicant from any elementary school outside Iowa who is seeking enrollment in kindergarten in an elementary school in Iowa.

“*Venous*” means a blood sample taken from a vein in the arm for lead analysis.

“*Very low risk*” means that a child has not (1) lived in, visited, or spent time in any building built before 1960, including but not limited to the child’s home, a daycare center, a preschool, a baby-sitter’s home or a relative’s home; (2) eaten nonfood items; (3) lived with or frequently come in contact with an adult who works with lead on the job or as part of a hobby, including but not limited to painting, welding, foundry work, renovating old homes, working at a shooting range, manufacturing or recycling batteries, working with ceramics or stained glass, working with sheet metal or scrap metal, or plumbing; (4) lived near a battery manufacturing plant, battery recycling plant, lead smelter, or other source of lead emissions; (5) been born in or spent more than three months in Mexico, Central America, eastern Europe, or southeast Asia; (6) ingested food, candy, or remedies containing lead; (7) played with toys, jewelry, or other items that the U.S. Consumer Product Safety Commission has recalled due to lead contamination; or (8) been exposed to any other products or substances determined by the department, the U.S. Environmental Protection Agency, the U.S. Department of Housing and Urban Development, the Centers for Disease Control and Prevention, or the U.S. Food and Drug Administration to contain lead.

**641—67.3(135) Persons included.** The blood lead testing requirement specified in this chapter applies to all applicants and transfer students as defined in this chapter.

**641—67.4(135) Persons excluded.** Exclusions to these rules are permitted on an individual basis for religious reasons and for children determined by the department to be at very low risk for elevated blood lead levels. The parent or guardian of an applicant or transfer student approved for a religious exemption or an exemption for very low risk shall submit to the board of directors of each school district and the

authorities in charge of each nonpublic school a valid Iowa department of public health certificate of blood lead testing exemption. To be valid, the certificate shall be the certificate of blood lead testing exemption provided or approved by the department.

**67.4(1) Religious exemption.** A religious exemption may be granted to an applicant or transfer student if the blood lead testing conflicts with a genuine and sincere religious belief.

*a.* The certificate of blood lead testing exemption for religious reasons shall attest that the blood lead testing conflicts with a genuine and sincere religious belief and that the belief is in fact religious and not based merely on philosophical, scientific, moral, personal, or medical opposition to blood lead testing.

*b.* The certificate of blood lead testing exemption for religious reasons shall be signed and dated by the applicant's or transfer student's parent or guardian.

*c.* The certificate is valid only when notarized.

**67.4(2) Exemption for very low risk.** The department may grant to an applicant or transfer student an exemption for very low risk if the parent or guardian provides evidence satisfactory to the department that the applicant or transfer student meets the definition of very low risk.

*a.* The certificate of blood lead testing exemption for very low risk shall be signed and dated by the applicant's or transfer student's parent or guardian and by the chief of the bureau of lead poisoning prevention.

*b.* The certificate of blood lead testing exemption for very low risk is valid only when notarized.

**67.4(3)** A faxed copy, photocopy, or electronic copy of the valid certificate of blood lead testing exemption is acceptable.

**641—67.5(135) Blood lead testing requirement.**

**67.5(1)** Each applicant and transfer student shall meet the requirements of subrule 67.6(1).

**67.5(2)** The board of directors of each school district and the authorities in charge of each nonpublic school shall, in collaboration with the department, ensure that applicants and transfer students comply with the blood lead testing requirement according to subrule 67.6(1).

**641—67.6(135) Time line for valid blood lead testing.**

**67.6(1)** To be valid, a blood lead test shall be performed on an applicant or transfer student before the applicant or transfer student reaches six years of age, or in cases in which the applicant or transfer student has already reached six years of age, as soon as the department notifies the parent or guardian that a blood lead test has not yet been performed.

**67.6(2) Desirable age for blood lead testing.** A parent or guardian of a child under two years of age is strongly encouraged to have the child tested for elevated blood lead levels by the time that the child reaches two years of age.

**641—67.7(135) Proof of blood lead testing.**

**67.7(1)** The board of directors of each school district and the authorities in charge of each nonpublic school shall furnish the department, in the format specified by the department, within 60 days after the start of the school calendar, an electronic list of the children enrolled in kindergarten, including the names of children who have filed certificates of blood lead testing exemption.

**67.7(2)** The department shall match these electronic lists of children with the department's blood lead database and shall notify the school districts and nonpublic schools of the children who have and who have not met the blood lead testing requirement set forth in this chapter.

**67.7(3)** If the parent or guardian cannot provide evidence that the child received a blood lead test in accordance with subrule 67.5(1), the board of directors of the school district or the authorities in charge of the nonpublic school shall, in collaboration with the department, provide the parent or guardian with community blood lead testing program information, including contact information for the department. The department shall provide this information to and shall work with the school districts, nonpublic schools, and the local childhood lead poisoning prevention programs to ensure that children who have not met the blood lead testing requirement are tested as required by subrule 67.5(1).

**641—67.8(135) Referral requirements.** Parents or guardians of children who require a blood lead test shall be referred to a health care provider of choice. The parents or guardians of children without a health care provider or who have difficulty accessing blood lead testing shall be referred to a local childhood lead poisoning prevention program, local child health center, or local public health agency for assistance with completion of blood lead testing. This assistance may include locating health care providers, scheduling appointments, identifying payment sources, and providing blood lead testing.

**641—67.9(135) Blood lead testing documentation.** A health care provider performing a blood lead test required by this chapter shall ensure that the results of the blood lead test are reported to the department as required by 641—Chapter 1.

**641—67.10(135) Records.** The board of directors of each school district and the authorities in charge of each nonpublic school shall, in collaboration with the department, ensure that each applicant and transfer student complies with the blood lead testing requirement according to subrule 67.6(1) or has a valid certificate of blood lead testing exemption on file.

**67.10(1)** The board of directors of each school district and the authorities in charge of each nonpublic school shall ensure that the certificate of blood lead testing exemption is properly completed according to rule 641—67.4(135).

**67.10(2)** Within the constraints of the privacy rights of the parents or guardians and students, the local board of health, the department of education, and the department or its designee shall have the right to have access to the department's determination that a child has received a blood lead test and to the certificates of blood lead testing exemption of children enrolled in kindergarten.

**641—67.11(135) Provider training.** For the purpose of quality assurance and consistency, the department shall make training and training materials available for health care providers who will be performing blood lead testing and for school officials, school health personnel, local childhood lead poisoning prevention programs, local child health centers, and local public health agencies.

These rules are intended to implement Iowa Code Supplement section 135.105D and 2008 Iowa Acts, Senate File 2111.

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# **APPENDIX**

# HEALTHY IOWANS 2010

## CHILDHOOD LEAD POISONING

### 6–7 GOAL STATEMENT

**Eliminate blood-lead levels greater than or equal to 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) in children under six years old.**

Baseline: Data gathered from mandatory reporting of blood-lead testing for children born from January 1, 1995, through December 31, 1997, and tested before the age of six shows an estimated 9.4% of Iowa children under the age of six have blood-lead levels of 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) or greater.

### **Rationale**

Lead is a poison that affects virtually every system of the body, and it is the single most preventable childhood disease. Lead is especially harmful to the developing brains and nervous systems of children under six years of age. At very high levels, children can have severe brain damage or even die. Levels as low as 10  $\mu\text{g}/\text{dL}$  can affect children's intelligence, hearing and growth. This damage can be stopped if a child's lead exposure is reduced; however, the damage cannot be reversed. A number of studies have estimated that a child's IQ will drop by one to three points for every increase of 10  $\mu\text{g}/\text{dL}$  in blood-lead level. In 2002, researchers estimated that the average decrease in lifetime earnings of a child with a blood-lead level of 10  $\mu\text{g}/\text{dL}$  would be at least \$40,000 and that the average decrease for a child with a blood-lead level of 20  $\mu\text{g}/\text{dL}$  would be at least \$80,000. (Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities. PJ Landrigan, DB Schechter, JM Lipton, MC Fahs, and J Schwartz. Environmental Health Perspectives, Volume 110, Number 7: 721-728.)

The rate of lead poisoning among Iowa children under aged six is 9.4%, approximately four times the national average of 2.2%. From July 1992 to December 2003, 28 Iowa children had blood-lead levels greater than or equal to 70  $\mu\text{g}/\text{dL}$ , which is considered a medical emergency and can result in brain swelling, coma and convulsions. The highest blood-lead level reported in Iowa was 360  $\mu\text{g}/\text{dL}$  in an 18-month-old child. The Iowa Department of Public Health recommends that all children under aged six be tested for lead poisoning. The Department reports the rate of blood-lead testing among children and the prevalence of lead poisoning by birth cohort. A birth cohort is a group of children born during a given period. This method is used because it is the only one that allows reporting of both the percentage of children tested and the percentage identified as lead-poisoned. The percentage of children tested has increased substantially, from 26.2% of children born in 1991 to 57.4% of children born in 2000. (Note: Data for children born in 2000 will not be complete until December 31, 2006, when all children in the birth cohort have reached the age of six.)

In Iowa, most cases of lead poisoning are caused by lead-based paint. Such paint in a home becomes a lead hazard as it deteriorates and paint chips end up on floors and in window wells, as well as in the soil around the exterior. The chips also crumble and become part of the dust on floors and window troughs. Most of Iowa's older homes contain lead-based paint. Young children who live in older homes become lead-poisoned when they put paint chips or exterior soil in their mouths or when they get house dust and soil on their hands and put their hands in their mouths.

Although lead-based paint was not banned until 1978, and most federal regulations apply to housing built before 1978, most cases of lead poisoning in Iowa are associated with homes built before 1960. Some homes built between 1950 and 1960 contain lead-based paint, but the Center for Disease Control and Prevention (CDC) recommends that pre-1950 housing is at the greatest risk of having lead-based paint hazards. Therefore, while the Iowa Department of Public Health advises people to be concerned about lead-based paint in pre-1960 housing, pre-1950 housing is used for statistical analyses. Housing data from the 2000 census show that 39.3 percent of housing in Iowa (483,849 units) was built before 1950. This is substantially greater than the national average of 22.3 percent. Iowa ranks fifth among the states in the percentage of housing built before 1950 and third in percentage of housing built before 1940. Two of Iowa's faster-growing counties are the only ones with less than the national average of 22.3 percent of pre-1950 housing.

#### **6-7.1 Action Step**

By 2007, initiate more local childhood lead poisoning prevention programs and continue to support existing programs so that they are funds of \$600,000 per year are needed to complete this step. (An Iowa Department of Public Health action step.)

#### **Progress**

In Fiscal Year 2005, the programs served 68 counties.)

#### **6-7.2 Action Step**

By 2010, increase the percentage of Iowa children receiving at least one blood-lead test before age six to 90% for both Medicaid and non-Medicaid children. (An Iowa Department of Public Health action step.)

#### **Progress**

Data from the Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) indicate that 57.4% of Iowa children born in 2000 have received at least one blood-lead test.

#### **6-7.3 Action Step**

By July 2006, adopt a model regulation for lead reduction in the cases of lead-poisoned children, using the authority of the Code of Iowa 135.105B, which other cities and counties could adopt and increase to all 99 the number of counties that have adopted such a regulation. (An Iowa Department of Public Health action step.)

**Progress**

In 2003, 10 counties have such a regulation.

**6-7.4 Action Step**

By 2010, increase the number of homes of lead-poisoned children where remediation has been completed to 1,000 per year. (An Iowa Department of Public Health action step.)

**Progress**

In 2003, data from STELLAR indicate that remediation was completed in 300 homes of lead-poisoned children.

**6-7.5 Action Step**

By 2008, develop a matching grant to aid families in covering the costs of treating lead hazards in their homes. (An Iowa Department of Public Health action step.)

**6-7.6 Action Step**

By July 2007, decrease the average time for venous blood-lead levels in children under aged three to drop to less than 20 µg/dL to 10 weeks. (An Iowa Department of Public Health action step.)

**Progress**

In 2003, data from STELLAR indicate the average time was 24 weeks.

**6-7.7 Action Step**

By 2010, increase to 10,000 the number of people who have completed an approved 8-hour course on temporary treatment of lead-based hazards in homes (lead-safe work practices training course). (An Iowa Department of Public Health action step.)

**Progress**

Iowa Department of Public Health data show that 3,330 people completed this course as of Dec. 31, 2003.