Environmental Health Indicators

Whether we consider global warming or water quality, it is clear that our environment affects us both directly and indirectly. While some environmental health issues have existed since the beginning of the human race, most have become evident in the last few centuries. These problems have emerged as a result of our growing and changing population. The industrial revolution has created air and water pollution problems as well as overcrowding and sanitation issues. As of June 2005, over 6.4 billion people inhabited the earth.

The environment plays a role in many health issues previously discussed including birth defects, cancer, respiratory diseases, and many infectious diseases. Other concerns include allergies, fertility, and exposure to animal and insect vectors. In Iowa, public health officials are especially concerned with the quality of their drinking water, recreational waters, indoor and outdoor air quality, lead poisoning, safe housing, and hazardous and solid waste.

ISSUES IN IOWA…

- ✓ Drinking water quality
- ✓ Recreational water quality
- ✓ Indoor and outdoor air quality
- ✓ Lead poisoning
- ✓ Safe housing
- ✓ Hazardous and solid waste

As we attempt to provide food, water, and shelter for the world's population, we must remain aware of how our actions affect our local and global environment. At the same time, we must monitor and attempt to prevent any adverse health conditions that are caused by interactions with the environment.

Childhood Blood Lead Poisoning

Childhood lead poisoning has significant effects on the health of children and on 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 six years. At very high blood lead levels, children can suffer severe brain damage or even die. At blood lead levels as low as 10 micrograms per deciliter (µg/dL), a child's intelligence, hearing, and growth are affected. 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.

High blood lead levels have adverse effects on nearly all organ systems in the body, and are especially harmful to children.

Most cases of childhood lead poisoning are caused by lead-based paint, which is found in most homes built before 1960. Young children who live in pre-1960 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 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.

Most cases of childhood lead poisoning are caused by lead-based paints found in homes built before 1960.

Since 1992, the Iowa Department of Public Health (IDPH) has recommended that all children in Iowa under the age of six years be tested for lead poisoning. In addition, state and federal laws require that all children under the age of six and covered by Medicaid be tested for lead poisoning. In spite of this, the statewide testing rates among children covered by Medicaid and children who are not covered by Medicaid are virtually identical.

In Iowa, blood lead testing is conducted by the Title V Child's Health Program, local health departments, and by many private physicians. The IDPH childhood blood lead level surveillance system tracks all testing in the state. Thus, blood lead testing results collected as required by Medicaid, as well as those collected from voluntary testing of non-Medicaid children are reported to IDPH.

In the following tables, data are presented for children who were born in calendar year 1997 and 1998 and who received at least one blood lead test before their sixth birthday. Children followed for blood lead poisoning may be tested multiple times. The test results that are presented in the following tables reflect the highest blood lead level for any particular child.

For each county, the number of children receiving a blood lead test who were identified with blood levels greater than or equal to 10 micrograms per deciliter (µg/dL). A blood level of 10 µg/dL has been identified by the Centers for Disease Control and Prevention as the threshold for lead poisoning in children and is categorized as "high" for the graphs. Additional data, such as the percent of children in each birth cohort who were tested for lead poisoning, are also presented.

For Iowa children born in 1997-1998, 55.1 percent were tested for lead poisoning, and 8 percent of these children had blood lead levels greater than or equal to 10 µg/dL.

Of the children born in Iowa in 1997, 53.1 percent received at least one blood test before their sixth birthday (range by county: 11.9 to 100 percent), and 7.5 percent of these children had blood levels greater than or equal to 10 µg/dL (range by county: 0 to 22.6 percent). Of the children born in Iowa in 1998, 57.1 percent received at least one blood test before their sixth birthday (range by county: 20.3 to 100 percent), and 7.5 percent of these children had blood levels greater than or equal to 10 µg/dL (range by county: 2.4 to 20 percent).

Percent of Children Tested for Blood Lead Poisoning, 1997-1998[1]

	County	1997	1998	County	1997	1998
Counties with 2004 Population < 10,000	Adair	73.5%	65.8%	Monona	57.8%	49.5%
	Adams	45.5%	64.0%	Monroe	60.0%	68.8%
	Audubon	54.9%	65.3%	Osceola	17.5%	15.8%
	Clarke	50.6%	53.5%	Palo Alto	23.0%	43.9%
	Davis	45.4%	33.3%	Pocahontas	37.7%	31.0%
	Decatur	54.1%	69.6%	Ringgold	72.3%	97.9%
	Fremont	14.9%	33.7%	Taylor	79.7%	87.9%
	Howard	53.2%	52.7%	Van Buren	36.7%	29.9%
	Ida	45.5%	44.4%	Wayne	77.2%	60.7%
	Lucas	96.8%	87.0%	Worth	58.7%	67.8%
				County Grp %	51.6%	54.5%
Counties with 2004 Population 10,000 – 20,000	Allamakee	72.7%	75.0%	Hardin	100.0%	100.0%
	Appanoose	37.6%	41.8%	Humboldt	85.9%	71.0%
	Butler	60.0%	62.3%	Iowa	49.4%	57.5%
	Calhoun	46.4%	56.1%	Jefferson	39.1%	48.8%
	Cass	76.9%	74.3%	Keokuk	53.5%	47.9%
	Cedar	55.1%	58.9%	Kossuth	64.9%	61.3%
	Cherokee	60.6%	61.1%	Louisa	49.5%	52.0%
	Chickasaw	55.4%	65.1%	Lyon	39.4%	37.6%
	Clay	36.5%	44.7%	Mitchell	36.1%	36.6%
	Clayton	56.9%	72.0%	Montgomery	50.0%	51.3%
	Crawford	60.2%	74.6%	O'Brien	31.8%	30.0%
	Delaware	32.7%	38.5%	Page	33.3%	44.2%
	Dickinson	14.2%	20.5%	Poweshiek	44.3%	47.2%
	Emmet	11.9%	21.4%	Sac	27.7%	41.1%
	Floyd	67.9%	61.2%	Shelby	42.1%	53.5%
	Franklin	70.8%	70.5%	Tama	71.0%	78.4%
	Greene	81.8%	85.5%	Union	37.5%	48.1%
	Hamilton	53.8%	61.5%	Winnebago	69.6%	75.6%
	Hancock	55.9%	48.9%	Wright	82.9%	83.2%
				County Grp %	53.4%	57.0%
Counties with 2004 Population > 20,000	Boone	58.1%	54.2%	Lee	50.2%	51.7%
	Buchanan	45.8%	56.0%	Mahaska	59.7%	54.0%
	Buena Vista	18.5%	20.3%	Marion	51.7%	69.2%
	Carroll	42.9%	52.4%	Marshall	100.0%	100.0%
	Cerro Gordo	66.5%	65.5%	Muscatine	58.9%	58.0%
	Clinton	85.1%	85.4%	Plymouth	36.0%	44.1%
	Des Moines	84.2%	87.0%	Sioux	39.7%	38.3%
	Fayette	44.6%	54.9%	Wapello	93.0%	97.2%
	Henry	61.4%	68.0%	Webster	66.7%	74.1%
	Jackson	76.9%	78.8%	Winneshiek	69.0%	77.9%
	Jasper	33.5%	34.3%	**County Grp %**	62.0%	65.4%
MSA Counties	Benton	39.5%	51.1%	Linn	58.0%	64.9%
	Black Hawk	68.1%	73.0%	Madison	38.5%	45.7%
	Bremer	58.9%	72.4%	Mills	34.0%	51.0%
	Dallas	48.3%	46.1%	Polk	46.5%	50.3%
	Dubuque	69.6%	68.8%	Pottawattamie	20.9%	30.0%
	Grundy	60.9%	68.4%	Scott	75.4%	76.4%
	Guthrie	44.9%	50.8%	Story	50.9%	53.0%
	Harrison	24.6%	33.1%	Warren	32.4%	38.5%
	Johnson	29.6%	36.9%	Washington	40.6%	49.6%
	Jones	48.8%	64.5%	Woodbury	31.3%	30.9%
				County Grp %	49.7%	54.3%
	State %	53.1%	57.1%			

[1]*Children born in years 1997, 1998*

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

Elevated Levels of Blood Lead: Children Born in 1997[1]

	County	# Born	# Tested	≥ 10 µg/dL	Total % High	County	# Born	# Tested	≥ 10 µg/dL	Total % High
Counties with 2004 Population < 10,000	Adair	68	50	4	8.0%	Monona	109	63	10	15.9%
	Adams	33	15	0	0.0%	Monroe	95	57	5	8.8%
	Audubon	82	45	3	6.7%	Osceola	80	14	1	7.1%
	Clarke	83	42	5	11.9%	Palo Alto	122	28	1	3.6%
	Davis	119	54	9	16.7%	Pocahontas	77	29	1	3.4%
	Decatur	98	53	12	22.6%	Ringgold	65	47	9	19.1%
	Fremont	94	14	4	28.6%	Taylor	79	63	10	15.9%
	Howard	124	66	5	7.6%	Van Buren	79	29	3	10.3%
	Ida	99	45	5	11.1%	Wayne	57	44	5	11.4%
	Lucas	95	92	15	16.3%	Worth	75	44	2	4.5%
						Total	1,733	894	109	12.2%
Counties with 2004 Population 10,000 – 20,000	Allamakee	165	120	9	7.5%	Hardin	189	189	30	15.9%
	Appanoose	141	53	4	7.5%	Humboldt	128	110	8	7.3%
	Butler	160	96	9	9.4%	Iowa	156	77	5	6.5%
	Calhoun	97	45	5	11.1%	Jefferson	161	63	2	3.2%
	Cass	160	123	17	13.8%	Keokuk	127	68	14	20.6%
	Cedar	198	109	11	10.1%	Kossuth	174	113	5	4.4%
	Cherokee	142	86	13	15.1%	Louisa	190	94	8	8.5%
	Chickasaw	157	87	4	4.6%	Lyon	137	54	2	3.7%
	Clay	197	72	5	6.9%	Mitchell	133	48	7	14.6%
	Clayton	195	111	14	12.6%	Montgomery	112	56	7	12.5%
	Crawford	211	127	16	12.6%	O'Brien	192	61	9	14.8%
	Delaware	208	68	9	13.2%	Page	171	57	8	14.0%
	Dickinson	169	24	2	8.3%	Poweshiek	192	85	9	10.6%
	Emmet	118	14	0	0.0%	Sac	130	36	8	22.2%
	Floyd	209	142	10	7.0%	Shelby	140	59	2	3.4%
	Franklin	130	92	13	14.1%	Tama	248	176	29	16.5%
	Greene	110	90	5	5.6%	Union	136	51	2	3.9%
	Hamilton	210	113	12	10.6%	Winnebago	135	94	2	2.1%
	Hancock	127	71	2	2.8%	Wright	152	126	16	12.7%
						Total	6,107	3,260	333	10.2%
Counties with 2004 Population > 20,000	Boone	289	168	16	9.5%	Lee	446	224	23	10.3%
	Buchanan	284	130	8	6.2%	Mahaska	258	154	11	7.1%
	Buena Vista	259	48	3	6.3%	Marion	333	172	12	7.0%
	Carroll	238	102	7	6.9%	Marshall	472	472	74	15.7%
	Cerro Gordo	525	349	16	4.6%	Muscatine	570	336	39	11.6%
	Clinton	629	535	50	9.3%	Plymouth	328	118	9	7.6%
	Des Moines	549	462	55	11.9%	Sioux	413	164	19	11.6%
	Fayette	260	116	11	9.5%	Wapello	416	387	38	9.8%
	Henry	241	148	14	9.5%	Webster	520	347	31	8.9%
	Jackson	242	186	14	7.5%	Winneshiek	200	138	11	8.0%
	Jasper	436	146	11	7.5%	**Total**	7,908	4,902	472	9.6%
MSA Counties	Benton	281	111	9	8.1%	Linn	2,584	1,498	119	7.9%
	Black Hawk	1,586	1,080	95	8.8%	Madison	169	65	8	12.3%
	Bremer	219	129	5	3.9%	Mills	159	54	3	5.6%
	Dallas	482	233	18	7.7%	Polk	5,685	2,645	122	4.6%
	Dubuque	1,143	796	63	7.9%	Pottawattamie	1,185	248	10	4.0%
	Grundy	128	78	3	3.8%	Scott	2,175	1,639	149	9.1%
	Guthrie	127	57	8	14.0%	Story	846	431	14	3.2%
	Harrison	179	44	8	18.2%	Warren	513	166	2	1.2%
	Johnson	1,274	377	10	2.7%	Washington	254	103	10	9.7%
	Jones	213	104	8	7.7%	Woodbury	1,691	530	68	12.8%
						Total	20,893	10,388	732	7.0%
	State Total	36,641	19,444	1646	8.5%					

[1]*Children tested before six years of age*

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

Elevated Levels of Blood Lead: Children Born in 1998[1]

	County	# Born	# Tested	≥ 10 µg/dL	Total % High	County	# Born	# Tested	≥ 10 µg/dL	Total % High
Counties with 2004 Population < 10,000	Adair	76	50	4	8.0%	Monona	99	49	10	20.4%
	Adams	50	32	2	6.3%	Monroe	77	53	3	5.7%
	Audubon	72	47	4	8.5%	Osceola	76	12	1	8.3%
	Clarke	99	53	9	17.0%	Palo Alto	107	47	3	6.4%
	Davis	102	34	3	8.8%	Pocahontas	71	22	3	13.6%
	Decatur	92	64	10	15.6%	Ringgold	47	46	9	19.6%
	Fremont	89	30	1	3.3%	Taylor	66	58	11	19.0%
	Howard	112	59	2	3.4%	Van Buren	107	32	1	3.1%
	Ida	90	40	7	17.5%	Wayne	56	34	6	17.6%
	Lucas	115	100	20	20.0%	Worth	90	61	1	1.6%
						Total	1,693	923	110	11.9%
Counties with 2004 Population 10,000 – 20,000	Allamakee	172	129	19	14.7%	Hardin	206	206	24	11.7%
	Appanoose	153	64	5	7.8%	Humboldt	107	76	9	11.8%
	Butler	162	101	8	7.9%	Iowa	174	100	10	10.0%
	Calhoun	114	64	5	7.8%	Jefferson	172	84	5	6.0%
	Cass	144	107	14	13.1%	Keokuk	142	68	3	4.4%
	Cedar	185	109	11	10.1%	Kossuth	173	106	5	4.7%
	Cherokee	131	80	7	8.8%	Louisa	173	90	7	7.8%
	Chickasaw	126	82	3	3.7%	Lyon	149	56	6	10.7%
	Clay	179	80	1	1.3%	Mitchell	123	45	6	13.3%
	Clayton	207	149	8	5.4%	Montgomery	152	78	6	7.7%
	Crawford	193	144	20	13.9%	O'Brien	160	48	3	6.3%
	Delaware	247	95	15	15.8%	Page	190	84	13	15.5%
	Dickinson	176	36	2	5.6%	Poweshiek	195	92	9	9.8%
	Emmet	126	27	1	3.7%	Sac	112	46	3	6.5%
	Floyd	196	120	9	7.5%	Shelby	142	76	3	3.9%
	Franklin	112	79	9	11.4%	Tama	222	174	28	16.1%
	Greene	110	94	3	3.2%	Union	156	75	11	14.7%
	Hamilton	218	134	12	9.0%	Winnebago	127	96	3	3.1%
	Hancock	135	66	3	4.5%	Wright	149	124	11	8.9%
						Total	6,110	3,484	320	9.2%
Counties with 2004 Population > 20,000	Boone	295	160	10	6.3%	Lee	449	232	19	8.2%
	Buchanan	309	173	11	6.4%	Mahaska	285	154	9	5.8%
	Buena Vista	236	48	3	6.3%	Marion	403	279	12	4.3%
	Carroll	246	129	3	2.3%	Marshall	511	511	84	16.4%
	Cerro Gordo	525	344	20	5.8%	Muscatine	614	356	34	9.6%
	Clinton	677	578	40	6.9%	Plymouth	306	135	12	8.9%
	Des Moines	514	447	53	11.9%	Sioux	400	153	10	6.5%
	Fayette	235	129	10	7.8%	Wapello	391	380	38	10.0%
	Henry	250	170	14	8.2%	Webster	513	380	32	8.4%
	Jackson	236	186	4	2.2%	Winneshiek	208	162	17	10.5%
	Jasper	420	144	5	3.5%	**Total**	8,023	5,250	440	8.4%
MSA Counties	Benton	325	166	11	6.6%	Linn	2,635	1,710	138	8.1%
	Black Hawk	1,638	1,196	89	7.4%	Madison	164	75	4	5.3%
	Bremer	210	152	8	5.3%	Mills	194	99	4	4.0%
	Dallas	527	243	15	6.2%	Polk	5,898	2,964	125	4.2%
	Dubuque	1,152	793	38	4.8%	Pottawattamie	1,160	348	9	2.6%
	Grundy	136	93	5	5.4%	Scott	2,339	1,787	144	8.1%
	Guthrie	122	62	5	8.1%	Story	860	456	11	2.4%
	Harrison	166	55	4	7.3%	Warren	504	194	5	2.6%
	Johnson	1,275	471	15	3.2%	Washington	284	141	13	9.2%
	Jones	183	118	11	9.3%	Woodbury	1,664	514	68	13.2%
						Total	21,436	11,637	722	6.2%
	State Total	37,262	21,294	1,592	7.5%					

[1]*Children tested before six years of age*

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

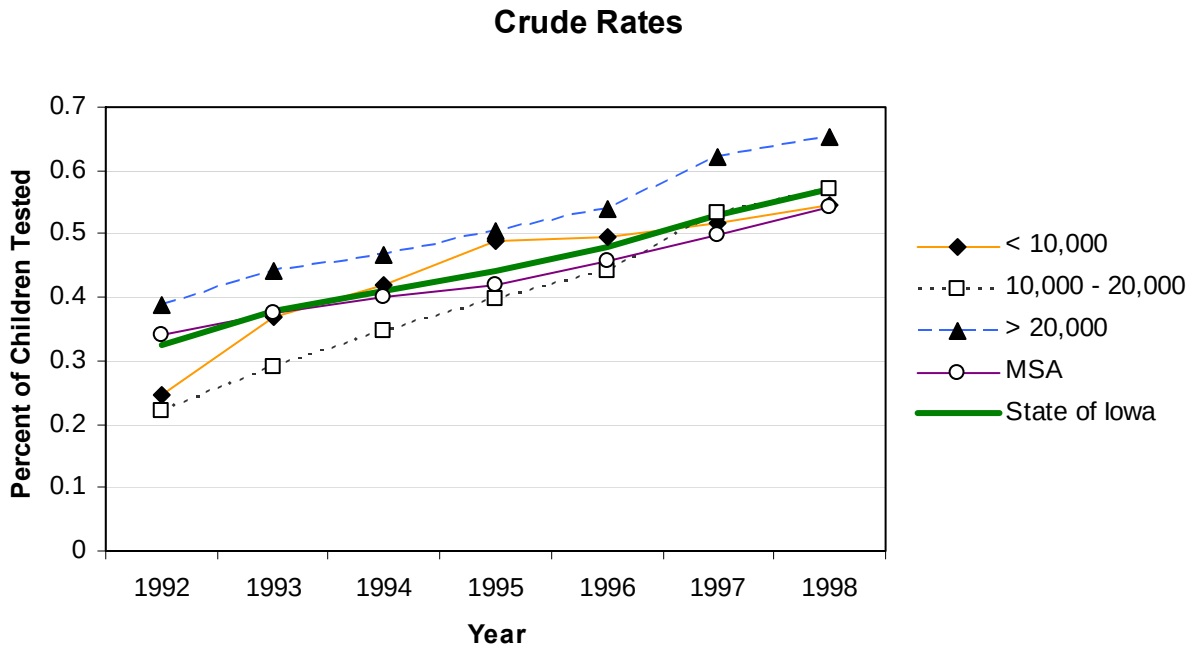
Elevated Levels of Blood Lead: Children Born in 1997-1998[1]

	County	Number Tested	% with High Levels	County	Number Tested	% with High Levels
Counties with 2004 Population < 10,000	Adair	100	8.0%	Monona	112	17.9%
	Adams	47	4.3%	Monroe	110	7.3%
	Audubon	92	7.6%	Osceola	26	7.7%
	Clarke	95	14.7%	Palo Alto	75	5.3%
	Davis	88	13.6%	Pocahontas	51	7.8%
	Decatur	117	18.8%	Ringgold	93	19.4%
	Fremont	44	11.4%	Taylor	121	17.4%
	Howard	125	5.6%	Van Buren	61	6.6%
	Ida	85	14.1%	Wayne	78	14.1%
	Lucas	192	18.2%	Worth	105	2.9%
				Total	1,817	12.1%
Counties with 2004 Population 10,000 – 20,000	Allamakee	249	11.2%	Hardin	395	13.7%
	Appanoose	117	7.7%	Humboldt	186	9.1%
	Butler	197	8.6%	Iowa	177	8.5%
	Calhoun	109	9.2%	Jefferson	147	4.8%
	Cass	230	13.5%	Keokuk	136	12.5%
	Cedar	218	10.1%	Kossuth	219	4.6%
	Cherokee	166	12.0%	Louisa	184	8.2%
	Chickasaw	169	4.1%	Lyon	110	7.3%
	Clay	152	3.9%	Mitchell	93	14.0%
	Clayton	260	8.5%	Montgomery	134	9.7%
	Crawford	271	13.3%	O'Brien	109	11.0%
	Delaware	163	14.7%	Page	141	14.9%
	Dickinson	60	6.7%	Poweshiek	177	10.2%
	Emmet	41	2.4%	Sac	82	13.4%
	Floyd	262	7.3%	Shelby	135	3.7%
	Franklin	171	12.9%	Tama	350	16.3%
	Greene	184	4.3%	Union	126	10.3%
	Hamilton	247	9.7%	Winnebago	190	2.6%
	Hancock	137	3.6%	Wright	250	10.8%
				Total	6,744	9.7%
Counties with 2004 Population > 20,000	Boone	328	7.9%	Lee	456	9.2%
	Buchanan	303	6.3%	Mahaska	308	6.5%
	Buena Vista	96	6.3%	Marion	451	5.3%
	Carroll	231	4.3%	Marshall	983	16.1%
	Cerro Gordo	693	5.2%	Muscatine	692	10.5%
	Clinton	1,113	8.1%	Plymouth	253	8.3%
	Des Moines	909	11.9%	Sioux	317	9.1%
	Fayette	245	8.6%	Wapello	767	9.9%
	Henry	318	8.8%	Webster	727	8.7%
	Jackson	372	4.8%	Winneshiek	300	9.3%
	Jasper	290	5.5%	**Total**	10,152	9.0%
MSA Counties	Benton	277	7.2%	Linn	3,208	8.0%
	Black Hawk	2,276	8.1%	Madison	140	8.6%
	Bremer	281	4.6%	Mills	153	4.6%
	Dallas	476	6.9%	Polk	5,609	4.4%
	Dubuque	1,589	6.4%	Pottawattamie	596	3.2%
	Grundy	171	4.7%	Scott	3,426	8.6%
	Guthrie	119	10.9%	Story	887	2.8%
	Harrison	99	12.1%	Warren	360	1.9%
	Johnson	848	2.9%	Washington	244	9.4%
	Jones	222	8.6%	Woodbury	1,044	13.0%
				Total	22,025	6.6%
State Total		40,738	7.9%			

[1]*Children tested before six years of age*

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

Tested for Blood Lead: Children Born in 1992-1998



Elevated Levels of Blood Lead: Children Born in 1992-1998