



Louisiana Department of Health & Hospitals/Office of Public Health/Section of Environmental Epidemiology & Toxicology/  
Occupational Health & Injury Surveillance Program

The following tables summarize heavy metal laboratory results reported to Louisiana's Occupational Health & Injury Surveillance Program. Louisiana Law requires that healthcare providers, including clinical laboratories, report all laboratory tests for lead, mercury, cadmium, and arsenic. Test results above the action threshold are investigated to determine the source of exposure. The action threshold for each heavy metal is listed below each table. Detailed documents describing occupational and non-occupational exposure sources, toxicity and susceptible populations, medical monitoring guidelines and result standards are available at [www.seet.dhh.la.gov](http://www.seet.dhh.la.gov).

For more information about the heavy metal surveillance program or this report, contact 504.568.8160 or [oph.seetweb@la.gov](mailto:oph.seetweb@la.gov).

#### Adult Blood Lead Laboratory Surveillance (Ages 16 years and older)

	2007		2008		2009		2010		2011		2012		Average Annual (2007-2012)	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Number of tests received	5572		5453		5641		5932		6496		6566		<b>5943</b>	
Number of patients tested	4458		4350		5007		5298		5502		5766		<b>5064</b>	
Sex														
Male	3569	80%	3476	80%	3956	79%	4341	82%	4616	84%	4791		<b>4125</b>	<b>81%</b>
Female	889	20%	874	20%	1051	21%	957	18%	886	16%	975		<b>939</b>	<b>19%</b>
Blood lead level (µg/dL)														
0 to < 10	4060	91%	3922	90%	4625	92%	4979	94%	5193	94%	5375	93%	<b>4692</b>	<b>93%</b>
10 to <25	228	5%	241	6%	246	5%	271	5%	250	5%	326	6%	<b>260</b>	<b>5%</b>
25 to < 45	145	3%	158	4%	123	2%	43	1%	48	1%	60	1%	<b>96</b>	<b>2%</b>
>45	25	1%	29	1%	13	<1%	5	<1%	11	<1%	5	<1%	<b>15</b>	<b>&lt;1%</b>

The blood lead action thresholds are based on the goals outlined in the CDC's "Healthy People 2010" for improving health and preventing and preventing illness and injury. The CDC aims to reduce blood lead levels of all exposed workers to < 25 µg/dL, with a long-term target of <10 µg/dL. The action level for women of childbearing age is 10 µg/dL.

## Mercury Laboratory Surveillance

	2007		2008		2009		2010		2011		2012		Average Annual 2007 - 2012	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Number of tests received	1706		1898		2432		2571		1788		1467		<b>1977</b>	
Number of patients tested	1410		1423		1998		2088		1519		1389		<b>1638</b>	
<b>Test Results: Adults (≥ 16 years)</b>	1351	96%	1344	94%	1918	96%	2019	97%	1423	94%	1322	95%	<b>1563</b>	<b>95%</b>
<b>URINE</b> ≥35 µg/g creatinine- adjusted	815	60%	449	33%	541	28%	751	37%	369	26%	326	25%	<b>542</b>	<b>35%</b>
<b>BLOOD</b> >10 µg/L	536	40%	895	67%	1377	72%	1268	63%	1054	74%	996	75%	<b>1021</b>	<b>65%</b>
	36	4%	33	7%	0	0%	3	0%	1	0%	0	0%	<b>12</b>	<b>2%</b>
	19	4%	21	2%	34	2%	27	2%	12	1%	10	1%	<b>21</b>	<b>2%</b>
<b>Test Results: Child (&lt; 16 years)</b>	59	4%	79	6%	80	4%	69	3%	96	6%	67	5%	<b>75</b>	<b>5%</b>
<b>URINE</b> >10 µg/L	33	56%	17	22%	20	25%	18	26%	19	20%	14	21%	<b>20</b>	<b>27%</b>
<b>BLOOD</b> >10 µg/L	2	6%	0		0		0		0		0		<b>&lt;1</b>	<b>2%</b>
	26	44%	62	78%	60	75%	51	74%	77	80%	53	79%	<b>55</b>	<b>73%</b>
	1	4%	1	2%	0	0%	1	2%	0	0%	0	0%	<b>1</b>	<b>1%</b>

Mercury blood and mercury urine action thresholds correspond to the biological exposure index (BEI) levels established by the American Conference of Industrial Hygienists for the evaluation of occupational exposures in workers. The mercury blood and urine action thresholds for children are the values recommended in CDC's Case Definitions for Chemical Poisoning.

## Arsenic Laboratory Surveillance

	2007		2008		2009		2010		2011		2012		Average Annual 2007-2012	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Number of tests received	1512		1236		2301		2350		1597		1303		<b>1717</b>	
Number of patients tested	990		906		1335		1463		1230		1185		<b>1185</b>	
<b>Test Results:</b>														
<b>URINE</b>	525	53%	317	35%	405	30%	499	34%	413	34%	485	41%	<b>441</b>	<b>37%</b>
≥35 µg/L (inorganic & methylated metabolites)	0		0		1	<1%	1	<1%	2	<1%	0		1	<1%
≥50 µg/g creatinine-adjusted (organic)	0		0		0		0		0		0	0%	0	
<b>BLOOD</b>	465	47%	589	65%	930	70%	964	66%	817	66%	700	59%	<b>744</b>	<b>63%</b>
≥70 µg/L	0		0		0		0		0		1	<1%	<1	<1%

The arsenic threshold for adults corresponds to the biological exposure index (BEI) level established by the American Conference of Industrial Hygienists for occupational exposures. The action level for creatinine-adjusted urine tests is based on exposure to organic Arsenic only. ARUP reports total As creatinine-adjusted for urine tests. There is no reference interval for this. The blood action level for adults and children corresponds to the value cited by CDC/ATSDR for use by primary care practitioners.

## Cadmium Laboratory Surveillance

	2007		2008		2009		2010		2011		2012		Average Annual 2007 - 2012	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Number of tests received	445		648		1038		912		873		1168		<b>847</b>	
Number of patients tested	288		451		577		615		619		960		<b>585</b>	
<b>Test Results:</b>														
<b>URINE</b>	159	55%	172	38%	173	30%	198	32%	172	28%	285	30%	<b>193</b>	<b>33%</b>
≥3 µg/g creatinine-adjusted	0		0		0		1	1%	0		2	1%	1	<1%
<b>BLOOD</b>	129	45%	279	62%	404	70%	417	68%	447	72%	675	70%	<b>392</b>	<b>67%</b>
≥5 µg/L	3	2%	1	<1%	1	<1%	0		0		0		1	<1%

The cadmium blood and urine action thresholds are based on requirements established by OSHA for medical surveillance of workers with occupational cadmium exposure.

## Carbon Monoxide Laboratory Surveillance

	2009		2010		2011		2012		<i>Average Annual (2009-2012)</i>	
	#	%	#	%	#	%	#	%	#	%
Number of tests received	153	100%	169	100%	116	100%	524	100%	<b>241</b>	
Number of patients tested	149	97%	149	88%	115	99%	294	56%	<b>177</b>	<b>73%</b>
<b><u>Test Results:</u></b>										
<b>≥ 9</b>	11	7%	7	5%	13	11%	24	8%	<b>13.8</b>	<b>8%</b>

The carbon monoxide action threshold is determined by a laboratory report of a venous blood specimen with a COHb level  $\geq 12\%$  for smokers or  $\geq 9\%$  for non-smokers (ATSDR, 2012).