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# Blood Lead Levels in California Workers

Data Reported to the California Occupational Blood Lead Registry

2015-2018

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## Acknowledgements

This report was prepared by the Occupational Lead Poisoning Prevention Program, a program in the Occupational Health Branch of the California Department of Public Health.

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## Executive Summary

This report was prepared by the Occupational Lead Poisoning Prevention Program (OLPPP) at the California Department of Public Health (CDPH) to serve as a summary of blood lead results reported to CDPH over the period 2015-2018. Some findings in this report are compared to the previous version released in 2017, which contained data from the years 2012-2014.

We describe the operation of the Occupational Blood Lead Registry and a summary of data from the years 2015-2018, along with limitations of these data.

This report defines elevated blood lead level (BLL) to be at or above 5 micrograms of lead per deciliter of venous blood ( $\mu\text{g}/\text{dL}$ ). Key information is often lacking on blood lead laboratory result reports. Due to the volume of results at lower levels, OLPPP strives to complete missing data on occupational blood lead test results  $\geq 10 \mu\text{g}/\text{dL}$ .

Key findings related to workplace lead exposure in the four-year period 2015-2018 include:

- A total of 44,754 workers had a blood lead test performed, and 5,782 (13%) workers were identified with an elevated BLL.
- Two or more BLL tests were performed on 15,903 (36%) workers, and 2,960 (19%) workers had an elevated BLL result on two or more tests.
- The majority of workers with an elevated BLL were male, 40-49 years of age, and had an Hispanic surname.
- Los Angeles County is the jurisdiction of residence for the largest number of workers with  $\text{BLL} \geq 10 \mu\text{g}/\text{dL}$ .
- The manufacturing sector accounts for the greatest percentage (45%) of workers with  $\text{BLL} \geq 10 \mu\text{g}/\text{dL}$ .
- The North American Industry Classification System (NAICS) category “all other amusement,” which includes shooting ranges, was the industry with the highest number of workers tested with very elevated blood lead levels, defined as  $\geq 30 \mu\text{g}/\text{dL}$ . There were 65 workers in this industry with  $\text{BLL} \geq 30 \mu\text{g}/\text{dL}$ , which accounts for 14% of the workers tested.

## Background

The California Occupational Blood Lead Registry (Registry) is a laboratory-based tracking system for adult blood lead tests that has been in operation since 1987. California Health and Safety Code (HSC) §124130 requires laboratories to report all blood lead results drawn in California to CDPH. The state of California established OLPPP by legislation in 1991 (HSC §§105185, et seq.). OLPPP is mandated to monitor cases of adult lead poisoning through the Registry; determine the source of occupational lead exposure; conduct investigations when “take-home” exposure to lead may be the cause of lead poisoning in a child; provide information and technical assistance to employers, workers, clinicians, and others related to lead poisoning prevention; and notify the Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), upon receipt of a laboratory report indicating a blood lead level (BLL) that is injurious to the health of a worker, defined as  $\geq 20 \mu\text{g}/\text{dL}$ .

OLPPP receives and analyzes the BLL laboratory reports for potentially working individuals, aged 16 years and older. OLPPP uses this information to identify cases of lead poisoning that warrant follow-up, to determine the magnitude and distribution of occupational lead poisoning in California, and to target employers and industries for lead poisoning prevention efforts. In addition, OLPPP contributes BLL data without personal identifiers to the national surveillance system, the Adult Blood Lead Epidemiology and Surveillance (ABLES) program, coordinated by the National Institute for Occupational Safety and Health (NIOSH), a part of the Centers for Disease Control and Prevention.

While OLPPP is mandated to provide services related to individuals exposed to lead in the workplace, the Program also provides some educational materials to individuals who experience lead poisoning from non-occupational sources. Additionally, pediatric blood lead results are followed by the Childhood Lead Poisoning Prevention Branch (CLPPB) in CDPH and local health departments. OLPPP does not provide any direct clinical care for adults with lead poisoning.

Workers who are exposed to lead on the job may have BLL tests taken either because their employer has implemented a medical monitoring program that includes periodic blood lead testing of employees or because their personal healthcare provider has ordered a blood lead test. Workplace lead regulations for general industry<sup>1</sup> and construction<sup>2</sup> are enforced by Cal/OSHA. Under these regulations, employers are required to offer blood lead testing to employees when air monitoring shows that their exposure exceeds an action level of 30 micrograms of lead per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ).

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<sup>1</sup> [California Code of Regulations, Title 8 §5198](http://www.dir.ca.gov/title8/5198.html) (www.dir.ca.gov/title8/5198.html).

<sup>2</sup> [California Code of Regulations, Title 8 §1532.1](http://www.dir.ca.gov/title8/1532_1.html) (www.dir.ca.gov/title8/1532\_1.html).

## Data Collection

All laboratories that perform a blood lead analysis on blood drawn in California are required to report specified information to CDPH, including the blood lead test result, demographic data about the person whose blood is being tested, the person's employer, the physician who ordered the test, and the laboratory where the test was performed. Laboratories report this data electronically to CDPH's CLPPB, and OLPPP receives all results for individuals aged 16 or older.

OLPPP staff use a customized data management system to perform many quality control steps that contribute to data accuracy and completeness. These quality control measures include verifying inconsistent dates, names, or other information; obtaining missing demographic, address, employer, and exposure source information; and a thorough process of deduplication which generates the counts of workers and employers. Phone calls are required to obtain missing information about employers, in order to understand the industries where lead exposures occur, and to obtain addresses required for follow-up based on BLL. Registry staff contact laboratories and physicians to gather missing information on individual results  $\geq 10$   $\mu\text{g}/\text{dL}$ ; this function is very labor-intensive and cannot currently be done for the large number of BLLs  $< 10$   $\mu\text{g}/\text{dL}$  that the Registry receives.

In order to analyze data by industry, a trained coder assigns an industry code to any employer with one BLL test result  $\geq 10$   $\mu\text{g}/\text{dL}$ , or at least five BLL tests in a rolling two-year period. OLPPP codes industries using NAICS 2007.

Because OLPPP receives almost no information on the race or ethnicity of workers reported to the Registry, the Program uses Hispanic surname as a surrogate, or approximate measure, for Hispanic ethnicity (Bureau of the Census 1980).

## Limitations

The data presented in this report are limited by the reporting of relevant data to CDPH, ability of OLPPP staff to research and complete missing variables, and incomplete testing of adults exposed to lead at work.

The greatest limitation is due to the failure of all employers who use or disturb lead to provide BLL testing to workers as a means of monitoring their exposure and related health risk. As a result, the Registry data provide an incomplete representation of the extent of lead exposure and poisoning to California's workforce. Therefore, the data presented in this report are likely an underestimation of the scope of worker lead exposure. Additionally, variation in employers offering blood lead testing by industry limits the ability to calculate the relative risk of lead poisoning by industry.

Laboratories are required to report employer information to CDPH but only when the laboratory has this information available. This often leads to incomplete BLL result reports

transmitted to CDPH. OLPPP staff seek employer information by contacting the reporting lab, ordering physician, and patient for all BLLs  $\geq 10$   $\mu\text{g}/\text{dL}$ , but these data cannot always be obtained.

## Results

### Overall

OLPPP received a steadily increasing number of blood lead test results over the period 2015-2018, ranging from 60,169 to over 71,238 test results per year performed on 52,910 to 64,073 individuals. For the five-year period 2008-2012, the number of blood lead test results and individuals tested was relatively stable at around 56,000 test results and 50,000 individuals tested, with minor fluctuations year to year. However, for the three-year period 2013-2015, there has been a continuous increase in the number of blood lead tests and individuals tested each year.

As seen in Table 1, most test results and individuals tested are classified as “unknown” lead exposure source. As testing volumes have increased, the percentage of individuals with unknown exposure source has increased, while those with known non-occupational and occupational exposure have decreased. These results indicate that, while testing has increased overall, the bulk of that increased testing volume represents individuals with lower BLLs. Among individuals with unknown exposure source, more than 98% have a BLL less than 5  $\mu\text{g}/\text{dL}$  and less than 0.1% have a BLL  $\geq 10$   $\mu\text{g}/\text{dL}$ .

*Table 1: Number of BLL Results and Persons Tested, by Type of Lead Exposure, 2015-2018*

Type of Lead Exposure	2015 Results n	2015 Persons n (%)	2016 Results n	2016 Persons n (%)	2017 Results n	2017 Persons n (%)	2018 Results n	2018 Persons n (%)
Non-occupational	2,983	2,552 (5)	2,838	2,435 (4)	1,538	1,120 (2)	1,245	829 (1)
Occupational	23,772	18,324 (34)	21,810	16,258 (28)	21,177	16,137(26)	20,278	15,894 (25)
Unknown	33,416	32,034 (61)	41,618	39,789 (68)	46,785	44,767 (73)	49,715	47,390 (74)
Total	60,169	52,910 (100)	66,266	58,482 (100)	69,500	62,024 (100)	71,238	64,073 (100)

## Hypotheses on Increased Blood Lead Testing Volume

### Non-Occupational Sources

Routine lead poisoning risk assessment and blood lead testing of adults who do not have a known workplace exposure is not clinically recommended as it is in children. Therefore, adults without an occupational exposure source, who undergo blood lead testing outside of an occupational medical surveillance program, are often symptomatic at the time of testing,

indicating a higher BLL. Symptoms typically appear when the BLL is  $\geq 40$   $\mu\text{g}/\text{dL}$  in adults, despite health impacts beginning when the BLL is  $< 10$   $\mu\text{g}/\text{dL}$ . The decline in non-occupational blood lead results may indicate fewer lead poisoned adults from non-occupational sources, as we would expect the BLL of these individuals to be much greater than  $10$   $\mu\text{g}/\text{dL}$ , thus prompting further exploration by OLPPP to determine an exposure source.

An increase in consumer education materials from CDPH CLPPB and other state agencies focused on environmental toxins, along with the implementation of lead exposure laws intended to protect consumers, may be contributing to a lower proportion of non-occupational lead poisoning in adults. In 2005, Assembly Bill 121<sup>3</sup> passed in California, requiring testing and regulation of lead in candy. CDPH Food and Drug Branch conducts testing of candy samples and provides notifications to local health officials and the public when candies are identified as containing lead above the threshold of 0.10 parts per million. In 2006, the Lead-Containing Jewelry Law was enacted in California to limit the amount of lead by weight in jewelry products. The requirements of this law were strengthened in 2019<sup>4</sup>.

Other non-occupational exposures to lead are often due to retained bullet fragments or shrapnel; contaminated spices; contaminated Ayurvedic medications; hobbies like target shooting and ceramics; and renovation projects of older homes that contain leaded paint. Not all sources of non-occupational lead poisoning have a readily identifiable source.

### Occupational Sources

OLPPP has not identified a correlation between increased testing volume or lower BLLs with a specific public health intervention. Increased visibility of lead-related safety issues both from occupational and non-occupational exposures may be contributing. Occupational medical surveillance testing often results in BLLs  $< 10$   $\mu\text{g}/\text{dL}$ , because some employers have implemented effective control measures that generally keep BLLs low; these lower levels may remain in the “unknown” category because they are below OLPPP’s threshold for actively pursuing the exposure source.

In 2011, soon before OLPPP began to notice an increase in blood lead testing volume, Cal/OSHA initiated the public process of revising the lead standards for general industry and construction in California, which dictate employer obligations to protect workers from lead in the workplace, including medical surveillance with blood lead testing. At that time, CDPH researched and [proposed changes to the lead standards](#)<sup>5</sup> that would decrease workplace exposure to lead and more readily identify lead poisoned workers, due to increasing evidence of the detrimental health effects of lead at lower levels than previously known. While not proven, it is possible that as Cal/OSHA conducted advisory committee meetings on revising the lead standards in the subsequent years, employers began to voluntarily incorporate workplace safety measures that

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<sup>3</sup> California Health and Safety Code §110552

<sup>4</sup> California Health and Safety Code §25214.1

<sup>5</sup> [CDPH Recommendations for Improving the Cal/OSHA Lead Standards](#)



would ultimately result in lower BLLs in workers. Of note, the original lead standards for general industry and construction currently remain in place in California. Senate Bill 83 ([Chapter 24, Statutes of 2019](#))<sup>6</sup> in California gave a deadline of September 30, 2020 for the OSHSB to vote on proposed revised lead standards provided to the Board by Cal/OSHA. This deadline was not met, and revisions are still anticipated, following delays in the process due to the COVID-19 pandemic.

### Occupational Results

The remainder of this report will present results where a workplace was identified as the exposure source for lead. BLL results are automatically labeled as occupational in the Registry upon receipt of the laboratory report if one or more of the following criteria are met: the BLL test was sponsored by the employer; the employer information reported with a laboratory result is in an industry known to use or disturb lead; the analyzing laboratory only conducts occupational testing; or the ordering physician only orders occupational testing. For BLLs less than 3 µg/dL, a new worker record is created automatically if a matching existing worker record is not found. Results for new workers are manually reviewed and imported into the Registry by OLPPP staff. If a BLL result does not meet the criteria to be automatically coded as occupational and the BLL is ≥ 9.5 µg/dL, OLPPP staff attempt to obtain source exposure information from the reporting laboratory, physician's office, or directly from the patient. Approximately 23% of BLL results received by CDPH in 2015-2018 were for workers who previously had results in the Registry.

Table 2 shows the distribution of workers identified with occupational lead exposure by BLL range and year. As individual workers may undergo blood lead testing multiple times per year, in the data presented, each worker is counted once at his or her highest BLL in each calendar year presented. The column of cumulative years 2015-2018 counts each worker only once in the four-year period at his or her highest BLL. The total number of workers tested in the four-year period was 44,754, and the total number who ever had an elevated BLL in this period was 5,782 (13%). The total workers with elevated BLLs ≥ 10 µg/dL are also shown, as this is the level at which OLPPP conducts additional research to complete the workers' demographic and contact information and gather employer information, if not provided by the analyzing laboratory with the result. Most workers (approximately 85%) have a BLL < 5 µg/dL. Approximately half of elevated BLLs occur between 5-9 µg/dL.

The percentage of workers in each BLL range remains stable over time. While it appears, based on Table 2 alone, that the total number of workers tested decreased annually, this is likely not an accurate conclusion when compared to the data in Table 1. As previously discussed in the Table 1 results, there has been a concurrent rise in BLL results for which it is unknown if the source is occupational or non-occupational exposure. However, given that most non-occupational exposure testing is conducted when patients are symptomatic, it is reasonable to

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<sup>6</sup> [California Senate Bill No. 83 - Chapter 24](#)

conclude that the unknown results are low BLLs from occupational sources that OLPPP has not been able to confirm due to the Program’s focus on elevated BLLs.

*Table 2. BLL Distribution of Workers Tested, 2015-2018 n (%)*

BLL (µg/dL)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2015–2018 n
Under 5	15,589 (85)	13,711 (84)	13,523 (84)	13,768 (87)	38,972 (87)
5–9	1,436 (8)	1,382 (9)	1,386 (9)	1,096 (7)	3,041 (7)
10–19	1,022 (6)	927 (6)	977 (6)	824 (5)	2,063 (5)
20–29	229 (1)	175 (1)	183 (1)	157 (1)	492 (1)
30 and greater	48 (<1)	63 (<1)	68 (<1)	50 (<1)	186 (<1)
<b>≥5 (Total elevated)</b>	<b>2,735 (15)</b>	<b>2,547 (16)</b>	<b>2,614 (16)</b>	<b>2,126 (13)</b>	<b>5,782</b>
<b>≥10 (Total elevated)</b>	<b>1,299 (7)</b>	<b>1,165 (7)</b>	<b>1,228 (8)</b>	<b>1,030 (7)</b>	<b>2,741</b>
Total tested	18,324 (100)	16,258 (100)	16,137 (100)	15,867 (100)	44,754 (100)

### Demographic Characteristics

The majority of workers with elevated BLLs reported to the Registry are male (96%). Approximately 91% of the workers are between the ages of 20-59, which is expected due to the typical age range for the working population. Workers with an Hispanic surname remain disproportionately represented among workers with elevated BLLs, as was seen in the 2012-2014 Registry data. California’s workforce was 36% Hispanic (American Community Survey 2011-2015 estimate), whereas the proportion of Hispanic surnames among individuals with elevated BLLs reported to the Registry was 60-63% in 2015-2018.

*Table 3. Workers with BLLs ≥ 5 µg/dL, by Demographic Characteristics, 2015-2018*

Demographic Characteristics		2015 n	2015 (%)	2016 n	2016 (%)	2017 n	2017 (%)	2018 n	2018 (%)
<b>Total</b>		<b>2,735</b>	<b>(100)</b>	<b>2,547</b>	<b>(100)</b>	<b>2,614</b>	<b>(100)</b>	<b>2,126</b>	<b>(100)</b>
<b>Sex</b>	Male	2,645	(97)	2,446	(96)	2,509	(96)	2,046	(96)
	Female	85	(3)	96	(4)	105	(4)	80	(4)
<b>Age (years)</b>	16–19	21	(1)	22	(1)	24	(1)	21	(1)
	20–29	515	(19)	447	(18)	485	(19)	346	(16)
	30–39	583	(21)	552	(22)	561	(21)	442	(21)
	40–49	667	(24)	601	(24)	608	(23)	478	(22)
	50–59	618	(23)	568	(22)	586	(22)	523	(25)
	60–69	286	(10)	307	(12)	293	(11)	265	(12)
	70+	45	(2)	50	(2)	56	(2)	54	(3)
<b>Hispanic surname <sup>†</sup></b>	Yes	1,635	(60)	1,569	(62)	1,645	(63)	1,344	(63)
	No	1,100	(40)	978	(38)	969	(37)	782	(37)

## Persistent Lead Exposure

From 2015-2018, 15,903 workers were tested at least twice, of those 2,960 (19%) workers had two results  $\geq 5 \mu\text{g/dL}$  (Figure 1).

Possible reasons for two or more elevated results for an individual worker are:

- two discrete episodes of increased lead exposure in the workplace;
- blood lead testing performed in close succession, which did not allow adequate time for the BLL to decrease following cessation of an exposure; or
- chronically elevated BLL in an individual with bone lead stores.

However, not enough information is known about the majority of the tested workers to draw meaningful conclusions.

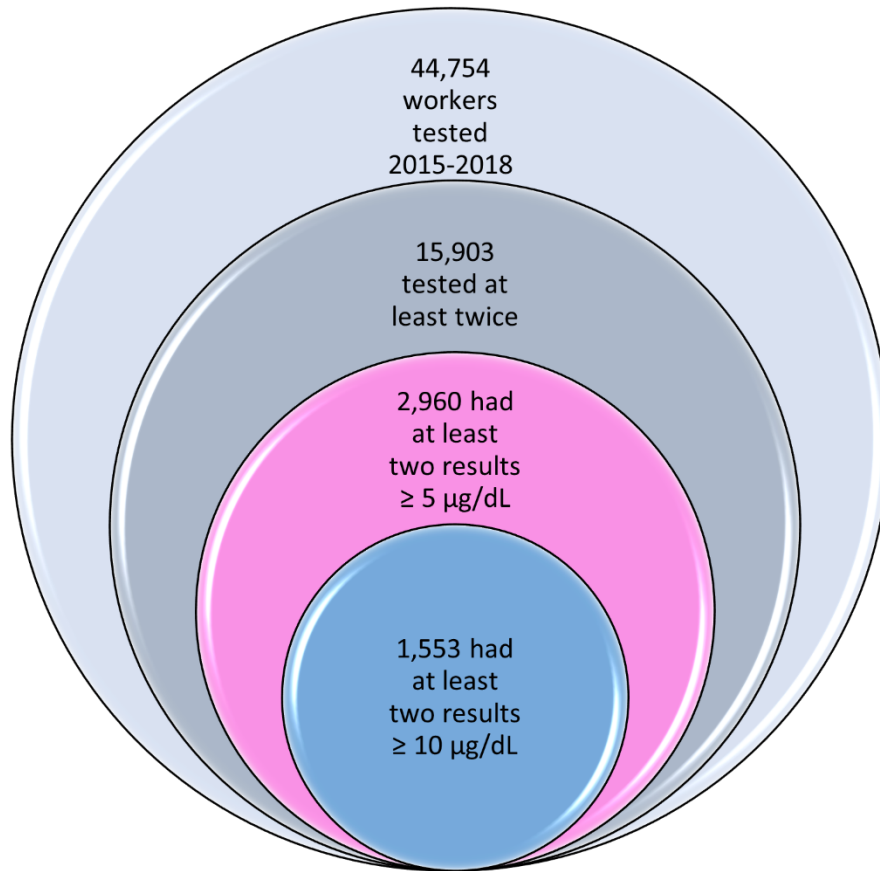
A single elevated BLL may not lead to a clinically significant health impact, but chronic exposure to high levels of lead can result in a multitude of health complications, such as: anemia, hypertension, fatigue, kidney damage, and adverse reproductive outcomes.<sup>7</sup> Additionally, BLLs  $< 5 \mu\text{g/dL}$ , which is lower than previously considered harmful to health, have been connected with cardiovascular disease and associated excess deaths in the United States.<sup>8</sup>

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<sup>7</sup> Kosnett MJ, Wedeen RP, Rothenberg SJ, et al. Recommendations for medical management of adult lead exposure. *Environ Health Perspect.* 2007;115(3):463-471.

<sup>8</sup> Lanphear BP, Rauch S, Auinger P, Allen RW, Hornung RW. Low-level lead exposure and mortality in US adults: a population-based cohort study. *Lancet Public Health.* 2018 Apr;3(4):e177-e184.

*Figure 1. Workers with Multiple BLL Tests, 2015-2018*



### Geography

Figure 2 shows the distribution of workers with  $\text{BLL} \geq 10 \mu\text{g}/\text{dL}$  across California by county of residence. There is a concentration of workers residing in Southern California, specifically in the counties of Los Angeles (35%), San Bernardino (13%), and Riverside (10%), which corresponds to areas with greater numbers of employers who perform BLL testing. The following 11 counties had zero (0) workers residing with  $\text{BLLs} \geq 10 \mu\text{g}/\text{dL}$ : Alpine, Amador, Calaveras, Colusa, Del Norte, Glenn, Inyo, Modoc, Mono, Sierra, and Trinity.

Figure 2. Workers with BLLs  $\geq 10 \mu\text{g}/\text{dL}$  by County of Residence, 2015-2018

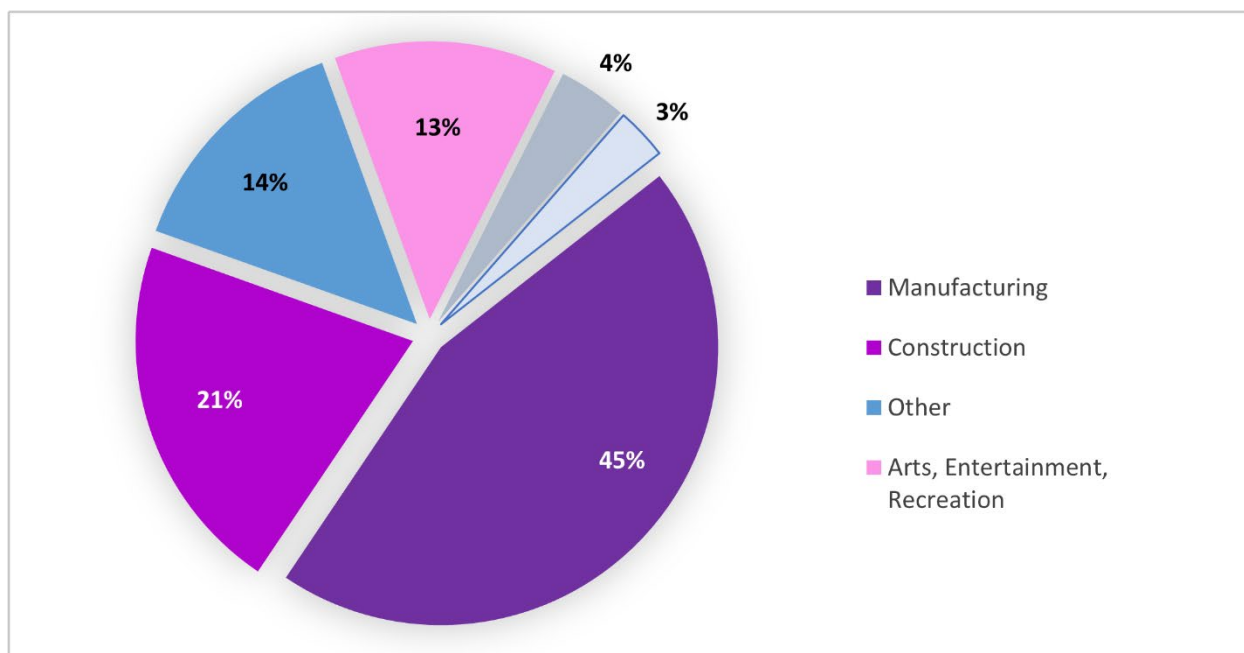


## Industry

There are numerous industries in California that use or disturb lead. Workers in 216 diverse NAICS-coded industries were reported to the Registry in 2015-2018. Table 4 shows aggregate data for 2015-2018 of BLL distributions, numbers of workers tested, and numbers of employers testing, by industry, for those industries reported to the Registry with at least one worker with an elevated BLL.

Industries are grouped into sectors, where each sector is comprised of various industries. Forty-five percent of workers with BLLs  $\geq 10 \mu\text{g}/\text{dL}$  reported to the Registry work in Manufacturing; 21% in Construction; 13% in Arts, Entertainment, and Recreation, which includes shooting ranges; 4% in Wholesale Trade; and 14% in "Other," which includes the industries Waste Management and Remediation Services, Public Administration, and Educational Services (Figure 3). Compared to data from 2012-2014, manufacturing accounts for a smaller proportion of the BLL results  $\geq 10 \mu\text{g}/\text{dL}$ , while construction and the sector containing shooting ranges now account for a larger percentage of these results. This shift is likely due to fewer high BLLs in the manufacturing sector, as the percentages of workers in shooting ranges and construction industries with elevated BLLs is relatively stable over time. As the total number of workers across industries is mostly on the order of hundreds of individuals, deviations in employer testing patterns over the report period can result in significant shifts in the distribution of sectors in Figure 3.

*Figure 3. Workers with BLLs  $\geq 10 \mu\text{g}/\text{dL}$ , by Industry Sector, 2015-2018*



## High-Volume Testing Industries

The industries denoted in bold type in Table 4 are the 20 industries with the greatest number of workers tested, across all represented sectors. The industries with greater than 500 workers

tested in the reporting period are commercial construction; paint contractors; secondary smelting, which is primarily battery recycling; storage battery manufacturing; scrap metal and electronics recycling; remediation services; and government air, water, and waste programs.

The industry category “All Other Amusement,” which is largely comprised of shooting range employers, contains 464 tested workers. Fourteen percent of tested workers in shooting ranges had BLL  $\geq$  30  $\mu\text{g}/\text{dL}$ , making it the only industry out of the top 20 highest testers to have greater than 2% of its workers with BLLs in that range.

Solid Waste Combustion and Fossil Fuel Electric Power Generation were the only two industries out of the top 20 testers that did not have any workers with a BLL  $\geq$  10  $\mu\text{g}/\text{dL}$ .

## Conclusions

While lead poisoning remains a significant concern for California’s workers exposed to lead, the blood lead test results reported to the Occupational Blood Lead Registry in the years 2015-2018 suggest that there may be a trend in exposed workers having lower blood lead levels. This conclusion is based on an increase in reported BLL results  $<$  5  $\mu\text{g}/\text{dL}$ , for which missing information concerning employer and exposure source is not sought by OLPPP, but occupational exposure source is most likely.

Similar to prior reports of Registry data, elevated BLLs are most common in working aged men and those with an Hispanic surname. There is a predominance of workers with elevated BLLs residing in counties in Southern California.

A high percentage of workers in industries related to firearms and shooting ranges have very elevated blood lead levels, beyond what is seen in most other industries that use lead. OLPPP mails educational materials to shooting range workers, recreational target shooters, and shooting range owners with BLLs  $\geq$  10  $\mu\text{g}/\text{dL}$  on a monthly basis to raise awareness of this issue and provide recommendations for prevention, along with our standard educational materials on lead that are mailed to all adults with BLL  $\geq$  10  $\mu\text{g}/\text{dL}$ .

These data are subject to significant limitations due to reporting mechanisms and constraints on completing missing information. A more comprehensive understanding of the magnitude of occupational lead poisoning in California would be possible with increased compliance of employers providing lead testing to exposed workers and complete reporting of worker and employer information to CDPH with laboratory results.

Table 4. Blood Lead Distribution of Workers Tested by Industry, 2015-2018

**Bold** type denotes one of the 20 industries with the greatest number of workers tested

NAICS Industry Category	NAICS Industry Description	NAICS code	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	# of Workers	# of Employers
			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
<b>Agriculture, Forestry, Fishing, and Hunting</b>	Farm Labor Contractors and Crew Leaders	115115	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)	5	1
<b>Mining, Quarrying, and Oil and Gas Extraction</b>	Gold Ore Mining	212221	2 (22)	2 (22)	5 (56)	0 (0)	0 (0)	9	5
	Copper Ore and Nickel Ore Mining	212234	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Clay and Ceramic and Refractory Minerals Mining	212325	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	All Other Nonmetallic Mineral Mining	212399	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Support Activities for Oil and Gas Operations	213112	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	2
<b>Utilities</b>	Hydroelectric Power Generation	221111	25 (100)	0 (0)	0 (0)	0 (0)	0 (0)	25	1
	<b>Fossil Fuel Electric Power Generation</b>	<b>221112</b>	<b>328 (96)</b>	<b>15 (4)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>343</b>	<b>2</b>
	Nuclear Electric Power Generation	221113	44 (98)	1 (2)	0 (0)	0 (0)	0 (0)	45	2
	Other Electric Power Generation	221119	5 (100)	0 (0)	0 (0)	0 (0)	0 (0)	5	3
	Electric Power Distribution	221122	33 (70)	9 (19)	3 (6)	2 (4)	0 (0)	47	8



NAICS Industry Category	NAICS Industry Description	NAICS code	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	BLL (µg/dL)	# of Workers	# of Employers
			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Water Supply and Irrigation Systems	221310	13 (100)	0 (0)	0 (0)	0 (0)	0 (0)	13	1
<b>Construction</b>	New Single-Family Housing Construction	236115	3 (75)	0 (0)	1 (25)	0 (0)	0 (0)	4	3
	New Multifamily Housing Construction	236116	22 (88)	0 (0)	3 (12)	0 (0)	0 (0)	25	4
	Residential Remodelers	236118	24 (59)	7 (17)	8 (20)	1 (2)	1 (2)	41	13
	Industrial Building Construction	236210	27 (38)	14 (20)	21 (30)	9 (13)	0 (0)	71	6
	<b>Commercial and Institutional Building Construction</b>	<b>236220</b>	<b>443 (84)</b>	<b>47 (9)</b>	<b>35 (7)</b>	<b>5 (1)</b>	<b>1 (0)</b>	<b>531</b>	<b>47</b>
	Water and Sewer Line Construction	237110	66 (97)	0 (0)	2 (3)	0 (0)	0 (0)	68	8
	Oil and Gas Pipeline and Related Structure Construction ( <i>pipeline construction, installation, repair, oil tank construction and renovation</i> )	237120	34 (89)	2 (5)	2 (5)	0 (0)	0 (0)	38	4
	Power and Communication Line and Related Structures Construction	237130	31 (94)	0 (0)	2 (6)	0 (0)	0 (0)	33	5
	<b>Highway, Street, and Bridge Construction</b>	<b>237310</b>	<b>177 (78)</b>	<b>16 (7)</b>	<b>21 (9)</b>	<b>12 (5)</b>	<b>1 (0)</b>	<b>227</b>	<b>18</b>
	Other Heavy and Civil Engineering Contractors ( <i>heavy construction contractors incl bridge seismic retrofit</i> )	237990	60 (79)	11 (14)	5 (7)	0 (0)	0 (0)	76	6
Poured Concrete Foundation and Structure Contractors	238110	14 (93)	1 (7)	0 (0)	0 (0)	0 (0)	15	2	

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Structural Steel and Precast Concrete Contractors ( <i>structural steel erection, seismic retrofit</i> )	238120	86 (98)	1 (1)	1 (1)	0 (0)	0 (0)	88	9
	Masonry Contractors	238140	4 (67)	1 (17)	1 (17)	0 (0)	0 (0)	6	1
	Glass and Glazing Contractors	238150	0 (0)	0 (0)	3 (43)	0 (0)	4 (57)	7	5
	Roofing Contractors	238160	1 (25)	0 (0)	3 (75)	0 (0)	0 (0)	4	4
	Other Foundation, Structure, and Building Exterior Contractors	238190	14 (88)	2 (13)	0 (0)	0 (0)	0 (0)	16	2
	Electrical Contractors	238210	70 (95)	2 (3)	0 (0)	0 (0)	2 (3)	74	8
	Plumbing, Heating, Air-Conditioning Contractors ( <i>industrial ventilation installation and maintenance</i> )	238220	37 (69)	3 (6)	13 (24)	1 (2)	0 (0)	54	5
	Other Building Equipment Contractors ( <i>install/dismantle machinery, insulate industrial pipes, maintain building equipment</i> )	238290	31 (63)	5 (10)	10 (20)	2 (4)	1 (2)	49	8
	Drywall and Insulation Contractors	238310	7 (100)	0 (0)	0 (0)	0 (0)	0 (0)	7	5
	<b>Paint and Wall Covering Contractors</b>	<b>238320</b>	<b>637 (60)</b>	<b>129 (12)</b>	<b>207 (19)</b>	<b>67 (6)</b>	<b>24 (2)</b>	<b>1064</b>	<b>80</b>
	Finish Carpentry Contractors	238350	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	3	2
	<b>Other Building Finishing Contractors (<i>waterproofing</i>)</b>	<b>238390</b>	<b>121 (81)</b>	<b>26 (17)</b>	<b>2 (1)</b>	<b>1 (1)</b>	<b>0 (0)</b>	<b>150</b>	<b>4</b>
	<b>Site Preparation Contractors (<i>wrecking and demolition</i>)</b>	<b>238910</b>	<b>264 (69)</b>	<b>56 (15)</b>	<b>52 (14)</b>	<b>10 (3)</b>	<b>1 (0)</b>	<b>383</b>	<b>46</b>

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	All Other Specialty Contractors ( <i>sandblasting, scaffolding, tanklining contractors</i> )	238990	113 (84)	10 (7)	7 (5)	4 (3)	1 (1)	135	23
	Construction (specific industry unknown)	239999	4 (16)	4 (16)	16 (64)	1 (4)	0 (0)	25	6
Manufacturing	Other Commercial Printing	323119	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Petroleum Refineries	324110	29 (100)	0 (0)	0 (0)	0 (0)	0 (0)	29	5
	Petroleum Lubricating Oil and Grease Manufacturing	324191	80 (98)	2 (2)	0 (0)	0 (0)	0 (0)	82	1
	All Other Basic Inorganic Chemical Manufacturing	325188	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Plastics Material and Resin Manufacturing	325211	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)	2	2
	Adhesive Manufacturing ( <i>manufacture of lead-containing adhesive</i> )	325520	7 (88)	0 (0)	0 (0)	1 (13)	0 (0)	8	2
	Explosives Manufacturing	325920	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	1	1
	Vitreous China Fine Earthenware and Other Pottery Product Manufacturing	327112	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Ceramic Wall and Floor Tile Manufacturing	327122	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Clay Refractory Manufacturing	327124	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	1
	Nonclay Refractory Manufacturing	327125	13 (93)	1 (7)	0 (0)	0 (0)	0 (0)	14	2
	Flat Glass Manufacturing	327211	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	2	2
	Glass Product Manufacturing Made of Purchased Glass	327215	1 (2)	4 (7)	36 (65)	13 (24)	1 (2)	55	36

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	327999	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	1
	Iron and Steel Mills	331111	48 (48)	35 (35)	15 (15)	1 (1)	0 (0)	99	2
	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	331210	1 (50)	0 (0)	0 (0)	0 (0)	1 (50)	2	2
	Steel Wire Drawing	331222	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1	1
	Secondary Smelting Refining and Alloying of Copper	331423	2 (15)	4 (31)	7 (54)	0 (0)	0 (0)	13	1
	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	331491	0 (0)	1 (3)	12 (38)	11 (34)	8 (25)	32	1
	<b>Secondary Smelting (battery recycling, lead recovery from scrap)</b>	<b>331492</b>	<b>147 (26)</b>	<b>159 (27)</b>	<b>216 (38)</b>	<b>44 (8)</b>	<b>3 (1)</b>	<b>569</b>	<b>14</b>
	Aluminum Die-Casting Foundries	331521	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Aluminum Foundries (except Die-Casting)	331524	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1	1
	Copper Foundries (except Die-casting)	331525	3 (11)	7 (26)	10 (37)	5 (19)	2 (7)	27	5
	Other Nonferrous Foundries (except Die-Casting)	331528	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	2	2
	Fabricated Structural Metal Manufacturing	332312	31 (100)	0 (0)	0 (0)	0 (0)	0 (0)	31	5
	Sheet Metal Work Manufacturing (lead shielding, roof gutters, flashing manufacturing)	332322	12 (20)	8 (13)	27 (45)	11 (18)	2 (3)	60	8

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Ornamental and Architectural Metal Work Manufacturing	332323	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Metal Tank Heavy Gauge Manufacturing	332420	2 (50)	1 (25)	0 (0)	1 (25)	0 (0)	4	3
	Other Metal Container Manufacturing	332439	0 (0)	1 (33)	2 (67)	0 (0)	0 (0)	3	1
	Hardware Manufacturing	332510	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Machine Shops	332710	19 (53)	11 (31)	5 (14)	1 (3)	0 (0)	36	1
	Bolt Nut Screw Rivet and Washer Manufacturing	332722	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Metal Coating Engraving except Jewelry and Silverware and Allied Services to Manufacturers	332812	5 (71)	0 (0)	2 (29)	0 (0)	0 (0)	7	2
	Electroplating Plating Polishing Anodizing and Coloring	332813	1 (25)	0 (0)	2 (50)	1 (25)	0 (0)	4	2
	Plumbing Fixture Fittings manufacture of brass plumbing fixtures	332913	8 (31)	7 (27)	9 (35)	2 (8)	0 (0)	26	3
	Other Metal Valve and Pipefitting Manufacture	332919	21 (37)	18 (32)	18 (32)	0 (0)	0 (0)	57	2
	Ball and Roller Bearing Manufacturing	332991	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Small Arms Ammunition Manufacturing	332992	9 (33)	0 (0)	8 (30)	5 (19)	5 (19)	27	8
	Small Arms Manufacturing	332994	0 (0)	1 (25)	2 (50)	1 (25)	0 (0)	4	2
	Other Commercial and Service Industry Machinery Manufacturing	333319	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1

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			<5 n (%)	5-9 n (%)	10-19 n (%)	20-29 n (%)	30+ n (%)		
	Turbine and Turbine Generator Set Units Manufacturing	333611	21 (100)	0 (0)	0 (0)	0 (0)	0 (0)	21	1
	Pump and Pumping Equipment Manufacturing	333911	1 (20)	3 (60)	1 (20)	0 (0)	0 (0)	5	1
	Industrial Process Furnace and Oven Manufacturing	333994	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)	2	2
	Other Computer Peripheral Equipment Manufacturing	334119	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1	1
	Radio and Television Broadcasting and Wireless Communication Equipment Manufacturing	334220	2 (40)	1 (20)	2 (40)	0 (0)	0 (0)	5	3
	Other Communications Equipment Manufacturing	334290	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Audio and Video Equipment Manufacturing	334310	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	1
	Bare Printed Circuit Board Manufacturing	334412	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Semiconductor and Related Device Manufacturing	334413	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)	2	2
	Printed Circuit Assembly Electronic Assembly Manufacturing	334418	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)	3	1
	Other Electronic Component Manufacturing	334419	32 (36)	22 (25)	24 (27)	6 (7)	4 (5)	88	4
	Search Detection Navigation Guidance Aeronautical and Nautical System and Instrument Manufacturing	334511	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Automatic Environmental Control Manufacturing for Residential Commercial and Appliance Use	334512	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1	1
	Instruments and Related Products Manufacturing for Measuring Displaying and Controlling Industrial Process Variables	334513	0 (0)	0 (0)	3 (75)	1 (25)	0 (0)	4	2
	Analytical Laboratory Instrument Manufacturing	334516	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Irradiation Apparatus Manufacturing	334517	3 (75)	0 (0)	0 (0)	0 (0)	1 (25)	4	1
	<b>Storage Battery Manufacture</b>	<b>335911</b>	<b>382 (28)</b>	<b>381 (28)</b>	<b>483 (35)</b>	<b>105 (8)</b>	<b>19 (1)</b>	<b>1370</b>	<b>11</b>
	Primary Battery Manufacturing	335912	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	All Other Motor Vehicles Parts Manufacturing <i>(manufacture of radiators)</i>	336399	1 (2)	5 (12)	30 (73)	4 (10)	1 (2)	41	6
	Aircraft Manufacturing <i>(complete aircraft manufacture, assembly, or rebuilding)</i>	336411	92 (93)	3 (3)	3 (3)	1 (1)	0 (0)	99	8
	Other Aircraft Parts Manufacture	336413	10 (22)	11 (24)	15 (33)	7 (16)	2 (4)	45	8
	<b>Ship Building and Repair</b>	<b>336611</b>	<b>210 (93)</b>	<b>10 (4)</b>	<b>5 (2)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>225</b>	<b>6</b>
	Military Armored Vehicle Tank and Tank Component Manufacturing	336992	6 (100)	0 (0)	0 (0)	0 (0)	0 (0)	6	1
	Sporting and Athletic Goods Manufacturing	339920	3 (21)	5 (36)	5 (36)	0 (0)	1 (7)	14	4

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
<b>Wholesale Trade</b>	Motor Vehicle Supplies and New Parts Merchant Wholesalers	423120	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	3	2
	Motor Vehicle Parts Used Merchant Wholesalers	423140	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Electrical Apparatus and Equipment Wiring Supplies and Related Equipment Merchant Wholesalers	423610	0 (0)	0 (0)	4 (100)	0 (0)	0 (0)	4	3
	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	423730	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Industrial Machinery and Equipment Merchant Wholesalers	423830	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1	1
	<b>Recyclable Material (scrap metal and electronics recycling)</b>	<b>423930</b>	<b>376 (59)</b>	<b>168 (26)</b>	<b>79 (12)</b>	<b>9 (1)</b>	<b>5 (1)</b>	<b>637</b>	<b>33</b>
	General Line Grocery Merchant Wholesalers	424410	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	424720	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
<b>Retail Trade</b>	Automotive Parts and Accessories Stores	441310	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Other Building Material Dealers	444190	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
	Supermarkets and Other Grocery (except Convenience Stores)	445110	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Jewelry Stores	448310	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Sporting Goods Stores	451110	1 (14)	0 (0)	4 (57)	2 (29)	0 (0)	7	7



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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
Transportation and Warehousing	Line-Haul Railroads	482111	14 (93)	0 (0)	1 (7)	0 (0)	0 (0)	15	1
	General Freight Trucking, Local	484110	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	General Freight Trucking, Long-Distance, Truckload	484121	14 (100)	0 (0)	0 (0)	0 (0)	0 (0)	14	1
	Used Household and Office Goods Moving	484210	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Specialized Freight (except Used Goods) Trucking, Long-Distance	484230	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)	3	1
	Mixed Mode Transit Systems	485111	112 (92)	9 (7)	1 (1)	0 (0)	0 (0)	122	2
	Other Urban Transit Systems	485119	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	1
	Other Airport Operations	488119	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	1
	Other Support Activities for Air Transportation	488190	106 (93)	2 (2)	5 (4)	1 (1)	0 (0)	114	2
	Port and Harbor Operations	488310	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
	Navigational Services to Shipping	488330	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Other Support Activities for Water Transportation	488390	1 (25)	0 (0)	3 (75)	0 (0)	0 (0)	4	2
	Other Support Activities for Road Transport	488490	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Postal Service	491110	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
Couriers	492110	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1	
Information	Book Publishers	511130	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Wired Telecommunications Carriers	517110	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	2
<b>Finance and Insurance</b>	Monetary Authorities Central Bank	521110	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Insurance Agencies and Brokerages	524210	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	1
<b>Real Estate and Rental and Leasing</b>	Lessors of Nonresidential Buildings ( <i>except Mini warehouses</i> )	531120	4 (100)	0 (0)	0 (0)	0 (0)	0 (0)	4	1
	Residential Property Managers ( <i>property maintenance</i> )	531311	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
	General Rental Centers	532310	3 (60)	0 (0)	2 (40)	0 (0)	0 (0)	5	1
	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	532412	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
<b>Professional, Scientific, and Technical Services</b>	Architectural Services	541310	30 (97)	1 (3)	0 (0)	0 (0)	0 (0)	31	2
	<b>Engineering Services (<i>environmental and construction engineering firms</i>)</b>	<b>541330</b>	<b>263 (95)</b>	<b>7 (3)</b>	<b>7 (3)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>277</b>	<b>68</b>
	Building Inspection Services	541350	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Surveying and Mapping ( <i>except Geophysical</i> ) Services	541370	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Testing Laboratories	541380	11 (100)	0 (0)	0 (0)	0 (0)	0 (0)	11	5

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Computer Systems Design Services	541512	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Environmental Consulting <i>(site assessment design of remediation plans)</i>	541620	93 (92)	4 (4)	4 (4)	0 (0)	0 (0)	101	31
	Other Scientific and Technical Consulting Services	541690	3 (75)	1 (25)	0 (0)	0 (0)	0 (0)	4	2
	Research and Development in the Physical Engineering and Life Sciences	541710	60 (97)	1 (2)	1 (2)	0 (0)	0 (0)	62	7
	All Other Professional Scientific and Technical Services	541990	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
<b>Administrative and Support and Waste Management and Remediation Services</b>	Office Administrative Services	561110	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Employment Placement Agencies	561310	55 (95)	1 (2)	2 (3)	0 (0)	0 (0)	58	5
	Temporary Help Services <i>(wide variety of general and construction industries)</i>	561320	13 (93)	1 (7)	0 (0)	0 (0)	0 (0)	14	4

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	All Other Business Support Services	561499	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Security Guards and Patrol Services	561612	1 (25)	1 (25)	2 (50)	0 (0)	0 (0)	4	2
	Armored Car Services	561613	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	2	2
	Janitorial Services	561720	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)	2	2
	Solid Waste Collection	562111	4 (80)	0 (0)	1 (20)	0 (0)	0 (0)	5	3
	Hazardous Waste Collection	562112	33 (97)	0 (0)	1 (3)	0 (0)	0 (0)	34	11

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Hazardous Waste Treatment	562211	13 (65)	4 (20)	3 (15)	0 (0)	0 (0)	20	9
	<b>Solid Waste Combustion (solid waste incineration)</b>	<b>562213</b>	<b>174 (97)</b>	<b>6 (3)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>180</b>	<b>9</b>
	<b>Remediation Services (lead paint abatement, environmental cleanup)</b>	<b>562910</b>	<b>1199 (84)</b>	<b>126 (9)</b>	<b>91 (6)</b>	<b>12 (1)</b>	<b>6 (&lt;1)</b>	<b>1434</b>	<b>153</b>
	Materials Recovery Facilities	562920	3 (43)	1 (14)	0 (0)	1 (14)	2 (29)	7	2
	Septic Tank and Related Services	562991	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	<b>All Other Miscellaneous Waste Management Services (industrial cleaning contractors, storage tank cleaning)</b>	<b>562998</b>	<b>163 (85)</b>	<b>10 (5)</b>	<b>15 (8)</b>	<b>3 (2)</b>	<b>0 (0)</b>	<b>191</b>	<b>8</b>
<b>Educational Services</b>	<b>Elementary and Secondary Schools (maintenance workers)</b>	<b>611110</b>	<b>337 (96)</b>	<b>12 (3)</b>	<b>1 (&lt;1)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>350</b>	<b>10</b>

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Junior Colleges	611210	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Colleges Universities	611310	51 (98)	1 (2)	0 (0)	0 (0)	0 (0)	52	9
	Other Technical and Trade Schools ( <i>security training programs</i> )	611519	0 (0)	0 (0)	6 (86)	0 (0)	1 (14)	7	6
	Sports and Recreation Instruction ( <i>shooting instruction</i> )	611620	1 (7)	0 (0)	10 (67)	1 (7)	3 (20)	15	5
	All Other Miscellaneous Schools and Instruction	611699	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
<b>Health Care and Social Assistance</b>	Health Care and Social Assistance	621111	51 (94)	3 (6)	0 (0)	0 (0)	0 (0)	54	4
	HMO Medical Centers	621491	9 (100)	0 (0)	0 (0)	0 (0)	0 (0)	9	2
	Medical Laboratories	621511	51 (100)	0 (0)	0 (0)	0 (0)	0 (0)	51	1
	All Other Miscellaneous Ambulatory Health Care Services	621999	20 (69)	7 (24)	2 (7)	0 (0)	0 (0)	29	1
	General Medical and Surgical Hospitals	622110	6 (100)	0 (0)	0 (0)	0 (0)	0 (0)	6	2
	Psychiatric and Substance Abuse Hospitals	622210	15 (94)	1 (6)	0 (0)	0 (0)	0 (0)	16	2
	Residential Mental Retardation Facilities (plant operations workers)	623210	17 (100)	0 (0)	0 (0)	0 (0)	0 (0)	17	1
	Services for the Elderly and Persons with Disabilities	624120	4 (100)	0 (0)	0 (0)	0 (0)	0 (0)	4	1
	Other Individual and Family Services	624190	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Vocational Rehabilitation Services	624310	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
<b>Arts, Entertainment, and Recreation</b>	Independent Artists Writers and Performers	711510	2 (67)	1 (33)	0 (0)	0 (0)	0 (0)	3	1
	Museums	712110	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
	Historical Sites	712120	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	Nature Parks and Other Similar Institutions	712190	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Amusement and Theme Parks ( <i>maintenance</i> )	713110	89 (96)	4 (4)	0 (0)	0 (0)	0 (0)	93	1
	<b>All Other Amusement (<i>shooting ranges</i>)</b>	<b>713990</b>	<b>66 (14)</b>	<b>49 (11)</b>	<b>196 (42)</b>	<b>88 (19)</b>	<b>65 (14)</b>	<b>464</b>	<b>69</b>
<b>Other Services (except Public Administration)</b>	General Automotive Repair	811111	1 (25)	1 (25)	2 (50)	0 (0)	0 (0)	4	4
	Other Automotive Mechanical and Electrical Repair Maintenance ( <i>radiator repair</i> )	811118	10 (24)	1 (2)	16 (38)	10 (24)	5 (12)	42	31
	Automotive Body Paint and Interior Repair and Maintenance	811121	3 (75)	0 (0)	0 (0)	1 (25)	0 (0)	4	4
	All Other Automotive Repair and Maintenance	811198	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	2	2

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	<b>Other Electronic and Precision Equipment Repair Maintenance (<i>repair/servicing of batteries, sonar, radar, and precision instruments</i>)</b>	811219	130 (80)	26 (16)	6 (4)	0 (0)	0 (0)	162	6
	Commercial and Industrial Machinery and Equipment ( <i>except Automotive and Electronic</i> ) Repair and Maintenance	811310	6 (60)	1 (10)	3 (30)	0 (0)	0 (0)	10	2
	Reupholstery and Furniture Repair	811420	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	1	1
	Other Personal and Household Goods Repair and Maintenance ( <i>gun repair</i> )	811490	0 (0)	2 (10)	16 (76)	3 (14)	0 (0)	21	8
	Cemeteries and Crematories	812220	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	2
	Religious Organizations	813110	2 (50)	2 (50)	0 (0)	0 (0)	0 (0)	4	1
	Labor Unions and Similar Labor Organizations ( <i>BLL testing programs run by labor unions; hiring halls</i> )	813930	24 (56)	4 (9)	14 (33)	0 (0)	1 (2)	43	10
	Other Similar Organizations ( <i>except Business Professional Labor and Political Organizations</i> )	813990	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
<b>Public Administration</b>	Executive Offices	921110	6 (35)	3 (18)	7 (41)	1 (6)	0 (0)	17	1



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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Legislative Bodies	921120	7 (78)	0 (0)	2 (22)	0 (0)	0 (0)	9	2
	Public Finance Activities	921130	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	2	1
	Other General Government Support	921190	89 (88)	7 (7)	5 (5)	0 (0)	0 (0)	101	5
	Courts	922110	12 (100)	0 (0)	0 (0)	0 (0)	0 (0)	12	1
	<b>Police Protection</b>	<b>922120</b>	<b>127 (55)</b>	<b>33 (14)</b>	<b>62 (27)</b>	<b>8 (3)</b>	<b>1 (0)</b>	<b>231</b>	<b>57</b>
	Correctional Institutions	922140	6 (86)	0 (0)	1 (14)	0 (0)	0 (0)	7	6
	Parole Offices and Probation Officers	922150	54 (100)	0 (0)	0 (0)	0 (0)	0 (0)	54	2
	<b>Fire Protection (city and county fire departments)</b>	<b>922160</b>	<b>242 (99)</b>	<b>2 (1)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>245</b>	<b>23</b>
	Administration of Public Health Programs (city and county environmental health programs)	923120	64 (97)	0 (0)	1 (2)	1 (2)	0 (0)	66	9
	Administration of Human Resource Programs (except Education Public Health and Veterans Affairs Programs)	923130	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	<b>Administration of Air and Water Resources (government air water and waste program employees)</b>	<b>924110</b>	<b>1059 (98)</b>	<b>24 (2)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1084</b>	<b>25</b>
	Administration of Conservation Programs (government fish and wildlife programs parks recreation departments)	924120	5 (83)	0 (0)	1 (17)	0 (0)	0 (0)	6	6

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			<5 n (%)	5–9 n (%)	10–19 n (%)	20–29 n (%)	30+ n (%)		
	Administration of Housing Programs	925110	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2	1
	Regulation Administration of Transportation ( <i>Coast Guard and ports</i> )	926120	78 (93)	5 (6)	0 (0)	1 (1)	0 (0)	84	9
	Regulation and Administration of Communications, Electric, Gas, and Other Utilities	926130	101 (96)	4 (4)	0 (0)	0 (0)	0 (0)	105	6
	Regulation of Agricultural Marketing and Commodities	926140	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1	1
	National Security ( <i>Armed Forces</i> )	928110	58 (91)	2 (3)	4 (6)	0 (0)	0 (0)	64	20
	Unknown Industry (occupational)		29418 (95)	1429 (5)	66 (0)	13 (0)	9 (0)	30935	--
	Total Tested in 4-Year period		38,972 (87)	3,041 (7)	2,063 (5)	492 (1)	186 (<1)	44,754	--