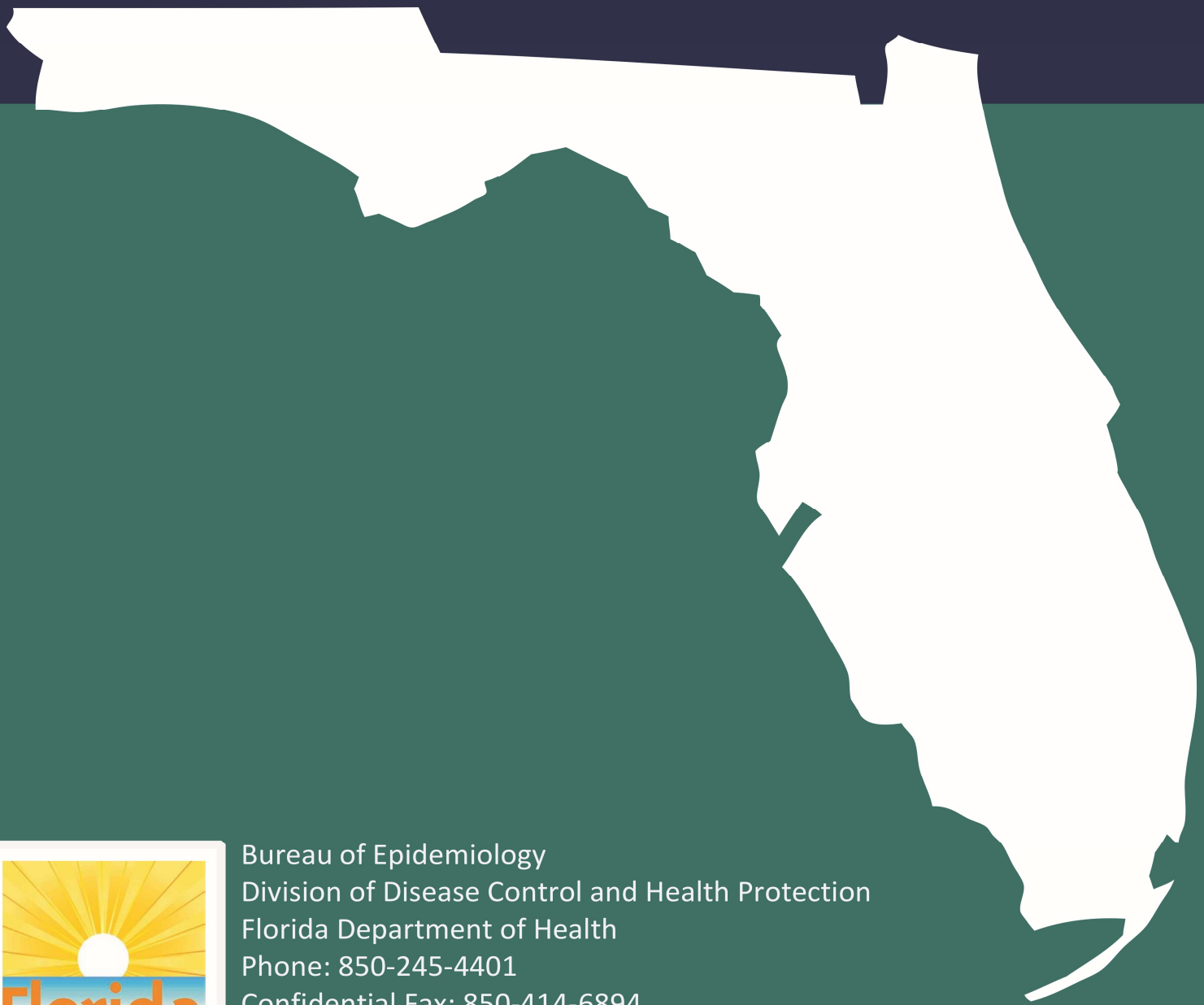
Childhood Lead Poisoning Screening and Case Management Guide

Revised 2022



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Background

Lead Poisoning in Florida

Lead poisoning continues to be a public health issue in the United States. Currently, there are no blood lead levels (BLLs) in children considered to be safe. Lead poisoning can affect nearly every system in the body and have potentially irreversible neurological impacts on children. Poisoning can occur with no obvious symptoms and frequently goes unrecognized. Recent studies suggest adverse health effects of BLLs <10 µg/dL in children extend beyond cognitive function to include cardiovascular, immunological, and endocrine effects, and these effects may also be linked to behaviors, particularly attention-related behaviors and academic achievement.[1,2,3] These effects do not appear to be confined to lower socioeconomic status populations.[2,3] In 2012, CDC adopted a blood lead reference value (BLRV) as a way of identifying the 2.5% of U.S. children ages 1–5 at greatest risk of lead exposure. The BLRV is based on the 97.5th percentile of the BLL distribution among children 1–5 years old in the U.S. from the two most recent cycles of data from the National Health and Nutrition Examination Survey (NHANES). Thus, based on NHANES data from 2015–2018, CDC accepted the Lead Exposure and Prevention Advisory Committee (LEPAC) recommendation to update the BLRV to 3.5 µg/dL.

The BLRV is not a clinical reference value defining an acceptable range of BLLs in children nor is it a health-based toxicity threshold. It is a policy guide to identify children in the upper end of the blood lead distribution in the United States and thereby initiate follow-up actions to reduce the harmful effects of lead and eliminate or control lead exposure risks in the environment. The BLRV can also serve as a standard for evaluating the effectiveness of lead exposure prevention efforts.

Per the American Community Survey 2019 estimates, Florida is the third most populated state in the nation with an estimated population of 21.4 million people, with 1.37 million being children <6 years old. Florida has a large number of refugees who often settle into high-risk areas with older housing. Over 15,000 refugees received services from the Florida Department of Children and Families in Fiscal Year 2018–2019. Another population of special concern for lead poisoning prevention efforts in Florida is foreign-born children. Over 11 percent of Florida's population under 17 years old are foreign-born. Florida has the fourth highest percentage of foreign-born residents in the nation. Homes built prior to 1950 have the highest concentrations of lead hazards and pose the greatest lead poisoning risk for low-income children <6 years old. Florida has over one million pre-1950 homes and almost 737,000 children <18 years living below the poverty line in Florida.

In 2019, 1,168 confirmed and suspected lead poisoning cases were reported in Florida children <16 years old; 1,093 of those were in children <6 years old. For children <6, the rate of lead poisoning cases per 100,000 population was 2.3 in whites, 8.2 in Blacks and 39.7 in other races, a striking disparity. The demographic and socioeconomic characteristics of Florida's large pediatric population underscore the importance of addressing childhood lead poisoning.

People residing in pre-1978 homes, children in low-income families, and immigrants are at a greater risk of being exposed to lead. Lead-based paint in older housing is the most significant source of lead exposure for children. All homes built prior to 1978 have a risk for lead exposure, but homes built before 1950 carry a greater risk due to a higher content of lead used in paint before that time. Besides lead-based paint,

secondary sources of lead continue to emerge (e.g., children's jewelry, imported herbal supplements, and food products) and are not limited to high-risk populations. Early identification through blood lead screening, testing, and treatment of lead poisoning reduces the risk of permanent neurological damage and ensures children's healthy futures.

Lead Poisoning Prevention Program

The Florida Department of Health's (FDOH) Lead Poisoning Prevention Program (LPPP) was established using grant funding through the CDC. The program's functions include surveillance of blood lead testing and poisonings, promotion of blood lead screening for high-risk populations, and providing information to health care providers and the community regarding lead poisoning prevention.

Florida Lead Testing Reporting Requirements

In 2006, the Lead Poisoning Prevention Screening and Education Act was passed into Florida law, marking the first legislation in the state related to childhood lead poisoning screening, case management, and poisoning prevention. Sections 381.982 – 381.985, Florida Statutes (F.S) require FDOH to establish a lead screening program to promote the standard of care for lead poisoning case management.

In accordance with Florida Administrative Code rule 64 D-3.029, Florida Administrative Code (F.A.C.), health care providers and laboratories are required to report **all** blood lead level results to FDOH.

- BLLs ≥3.5 µg/dL must be reported to FDOH by the next business day
- BLLs <3.5 µg/dL produced by on-site blood lead analysis devices (i.e., portable lead care analyzers or other portable devices used to perform blood lead analysis) must be reported to FDOH within 10 business days

Health care providers are responsible for obtaining and providing patient demographic and contact information as well as BLL testing methods to the laboratories at the time the specimen is sent to or received by the laboratory.

Failing to report a disease or condition as required by this rule or otherwise failing to act in accordance with this rule can result in a misdemeanor of the second-degree charge and a fine not more than five hundred dollars ($500.00) as provided in sections 775.082 or 775.083, F.S.. Each violation is considered a separate offense. All violations by providers, hospitals, or laboratories shall be reported to the appropriate professional licensing authorities and public financing programs.

Screening Methods and Recommendations

Screening Methods

Venous and capillary blood lead tests are the only lead screening method recommended by CDC. While capillary finger-prick specimens are appropriate for screening tests, all BLLs ≥3.5 µg/dL from capillary specimens should be confirmed with a venous blood lead test due to frequent false positive results in capillary specimens.

Venous blood lead test: Venous testing is the preferred method and should be used for lead measurement whenever practical as the test is more accurate, may signal recent exposure, and has a lower chance of contamination.

Capillary blood lead test using a capillary tube: Children screened using this method with an elevated BLL require a confirmatory venous blood lead test. Contamination of blood specimens obtained by the capillary blood testing method can be minimized if trained personnel follow the proper technique outlined by the CDC.

Capillary blood lead test using an on-site blood lead analyzer (i.e., LeadCare® Analyzer): Health care providers should follow the user guide carefully when collecting and analyzing blood using this method. Providers using this method must meet all Clinical Laboratory Improvement Amendments (CLIA) requirements. When using portable testing machines, reporting all BLL results becomes the provider's responsibility. If needed, contact FDOH's LPPP to discuss reporting requirements and the most efficient way to report BLL results.

Capillary blood lead test using filter paper: The use of filter paper is not recommended. Children screened using this method with an elevated BLL require a follow-up venous blood lead test.

Whenever possible, health care providers should use laboratories that can achieve routine quality control of plus or minus ±2 µg/dL for blood lead analysis. Federal regulations allow laboratories that perform blood lead testing to operate with a total allowable error of ±4 µg/dL.

Screening Recommendations

Targeted screening recommendations: Since not all Florida children are at a high risk of lead exposure, targeted testing based on established risk factors is recommended for most areas of the state. Recommendations are focused on population most at risk in terms of age, socioeconomic status, age of housing and renovation status of home, refugee status, immigration status, and potential exposures in utero and during lactation.

Children enrolled in Medicaid: All children enrolled in Medicaid are required to be screened for lead at ages 12 months and 24 months; any child between 24 and 72 months with no record of previous screening must also be screened.

Screening refugee populations: Refugee children aged 6 months to 16 years should be screened upon entry into the United States. Screening should be repeated 3 to 6 months after placement in a permanent residence regardless of initial test results.

Additional screening should be strongly considered if children:

- Are <6 years old and not previously screened.
- Live in a house built before 1978 or in a high-risk ZIP code where pre-1978 housing is prevalent (available in Appendix B).
- Enrolled in the Women, Infant and Children Supplemental Nutrition Program or Head Start.
- Have any of the risk factors in the Verbal Risk Assessment (page 6).
- Are adopted outside the United States, in foster care, or are immigrants.
- Have a known history of lead exposure after the age of 2 years old.
- Have a sibling or a playmate with lead poisoning.
- Have parents who request testing.
- Live near a lead-emitting facility.
- Live in housing built before 1978 or a home that was recently repaired or renovated.
- Are exhibiting neurodevelopmental disabilities or conditions such as autism, attention-deficit/hyperactivity disorder, and learning delays.
- Have a history of ingested non-food items or exhibit pica behavior.

Verbal Risk Assessment

The Verbal Risk Assessment helps health care providers assess if a child should be screened for lead poisoning if they do not meet targeted screening recommendations outlined in the Screening Methods and Recommendations section. It also provides health care providers an opportunity to educate families about lead hazards. The American Academy of Pediatrics recommends that the Verbal Risk Assessment be performed at ages 6, 9, 12, 18, and 24 months, and ages 3, 4, 5, and 6 years. However, if there is suspicion of lead exposure, the assessment should be administered regardless of age or visit type.

Any time a lead poisoning Verbal Risk Assessment is done, document when it was completed, any positive response, and action taken in the patient's medical record.

If the answer to any question on the lead poisoning risk assessment form is "**Yes**" or "**I don't know,**" then:

- Screen the child for lead poisoning at that time regardless of the child's payer source or ZIP code.
- Screen the child at least annually or if any other risk factor exists. Continue to test until the child turns 6 years old or the responses to the assessment change.
- Provide lead poisoning prevention education.

Completion of the assessment does not meet the Medicaid requirement. The Medicaid requirement is met only when the two blood lead screening tests as identified above are conducted.

For an explanation of the purpose for each question on the assessment, refer to Appendix B.

Verbal Risk Assessment

This assessment is to help determine if a child has been exposed to lead. Please circle **"Yes", "No" or "I don't know"** for each question.

In the past year, has your child lived in, near, or regularly visited:			
A house built before 1978 that has peeling, chipping, or flaking paint?	Yes	No	I don't know
A house built before 1978 that has been remodeled within the past 6 months?	Yes	No	I don't know
A sibling, cousin, or friend who has been diagnosed or treated for lead poisoning?	Yes	No	I don't know
A factory or industrial plant or mine?	Yes	No	I don't know
Mexico, India, Middle East, Central America, South America, Africa, or Asia?	Yes	No	I don't know
In the past year, has your child been around adults who:			
Hunt, fish, reload bullets, refinish furniture, stain glass, work with metal, or paint with fine artist paints?	Yes	No	I don't know
Work as plumbers, mechanics, metal/battery recycling, construction workers, miners, or welders?	Yes	No	I don't know
In the past year, has your child consumed:			
Food or beverages from ceramic cookware/dishware or imported pottery?	Yes	No	I don't know
Food with spices imported or brought in from another country (such as turmeric)?	Yes	No	I don't know
Candies from other countries containing tamarind or chili powder?	Yes	No	I don't know
Ayurvedic medicines or home remedies (such as Azarcón, Greta, Rueda, or Pay-loo-ah)?	Yes	No	I don't know
Dirt or non-food items regularly (more than the typical baby mouthing behavior)?	Yes	No	I don't know

If the answer to any question is **Yes** or **I don't know**, screen the child for lead.

Assessment, Management, and Intervention

Assessment

Medical History:
Due to the variability in the effects of lead with children, medical and neurodevelopmental history are key to a child's clinical evaluation. Providers should also discuss risk factors and symptoms with the parent or caregiver. Because developmental history and testing at the time of an elevated BLL usually will not identify lead-caused problems, a child's elevated BLL history should be part of their permanent medical record, and any previous lead test result should be reviewed. A referral for testing of intellectual and behavioral performance should be made if indicated.

Environmental History:
A child's environmental history can provide information about the child's possible exposure to residential and other sources of lead. The provider should ask questions that are specific to the child's ethnic group, parent/caregiver hobbies and occupations, age, and environmental condition of all sites where child spends significant amounts of time (e.g. day care facility, secondary residence, etc.).

Nutritional Assessment:
Nutritional interventions are an important part of clinical evaluation. Iron and calcium deficiencies may increase the absorption of lead; therefore, frequent balanced meals may be helpful in the reduction of lead absorption when ingested. Evaluating the child's iron status and treating iron deficiency, if present, are essential for the management of elevated BLLs.

Physical Examination:
Children examined because of an elevated BLL found by screening most often have no symptoms or physical findings specific for lead toxicity. A thorough evaluation of all children with a venous BLL ≥10µg/dL is necessary to help assess whether there are any findings suggestive of encephalopathy, if the child is engaging in at-risk behaviors, and to help identify behavioral and neurodevelopmental disorders, such as distractibility, aggression, or speech delay. If the child does have any of these findings in conjunction with elevated BLLs, the provider should refer the child to an early intervention program for further assessment.

Laboratory and Imaging Evaluation:
All children should have a hemoglobin or hematocrit test performed as anemia is associated with elevated BLLs. Iron deficiency may delay children's neurological development independent of the effects of lead. The inhibition of heme synthesis leads to the accumulation of excess porphyrins, particularly protoporphyrin IX, in red cells. Elevation of erythrocyte protoporphyrin (EP) level is one of the consequences of iron deficiency. In children with high lead levels, EP becomes elevated because lead interferes with the creation of red blood cells. Providers should also test for EP when a child has their blood drawn for lead testing.

Acute Foreign Body Ingestion:

Although less common, ingested foreign bodies containing lead are another cause of poisoning in young children. Commonly ingested foreign bodies that contain lead include fishing weights or sinkers, curtain weights, air rifle pellets, and some toys and medallions. Children absorb a higher percentage of lead from the gastrointestinal tract than adults. Lead-containing foreign bodies located in the stomach pose a higher risk of lead poisoning than do objects located more distally in the gastrointestinal tract as gastric acid causes dissolution of the leaded object which allows increased absorption.[8,9]

Management of lead-containing foreign bodies depends on the location of the object in the esophagus or stomach warranting prompt removal if they do not progress into the gastrointestinal tract.[8,9] As with any ingested foreign object, a chest and abdominal X-ray should be performed to locate the object. Lead-containing objects have no distinguishing radiographic features, yet properly locating the foreign body is important for clinical management. A consultation with a pediatric gastroenterologist is recommended. Radiologic examination of the abdomen may show radiopaque foreign material if the material was ingested within the preceding 24 to 36 hours. Abdominal X-rays should be considered if the child is suspected of ingesting paint chips containing lead or foreign objects containing lead. In such cases, bowel decontamination is recommended.[8,9] Venous BLLs must be drawn immediately and repeated every 3—5 days until objects have been excreted.[8,9] Initial evaluation and treatment should be coordinated by Florida's Poison Information Center Network (FPICN) and the local emergency department. LPPP will provide follow-up case management.

Management

Medical management is part of the comprehensive follow-up care for a child with lead poisoning and should include the coordination of efforts between the child's health care provider, LPPP case manager, environmental investigator (when available), and referral for early intervention services or special education services when appropriate.

Action Based on Capillary Blood Lead Testing: When the result of a capillary blood lead test is elevated (≥3.5 µg/dL), providers should obtain a confirmatory venous BLL. Recommended time frames for obtaining confirmatory tests are given below. For BLLs ≥3.5 µg/dL, providers should consider testing other children in the home. Regardless of test results, providers should discuss hand-to-mouth activity, handwashing, sources of lead exposure, and encourage good nutrition with foods containing iron, calcium, and Vitamin C. If a child is <12 months old, or if there is reason to believe that the BLL is rising rapidly, an earlier diagnostic confirmation may be indicated. Children with a prior exposure to lead may continue to have elevated blood lead levels. Health care providers should continue to monitor these children with follow-up lead testing at less frequent intervals than the usual recommendation.

Management Based on Venous BLL

Case management requires a cooperative approach that includes case managers, pediatricians, caregivers, lead risk assessors, and referral agencies. The case management plan provides the basis for interventions

that reduce further lead exposure, make appropriate referrals, determine primary concerns of the family, and identify other situations that may influence the child's BLL.

Refer to Appendix C for case management.

BLL (µg/dL)	Request a confirmatory venous blood lead test within
≥3.5–9.9	3–6 months
10–19.9	1–3 months
20–44.9	1 week–1 month *
45–59.9	48 hours
60–69.9	24 hours
≥70	Immediately as an emergency lab test

* The higher the BLL on the screening test, the more urgent the need for confirmatory testing.

Follow-up of confirmed elevated BLLs for case management: Given below are the recommended time frames for follow-up of venous confirmed elevated BLL. Health care providers may choose to repeat tests on new patients within a month to ensure their BLL is not rising rapidly. Follow-up testing should be done on all children with levels ≥3.5 µg/dL until BLLs decline to <3.5 µg/dL. Providers are encouraged to maintain communication with case managers at the local county health department.

BLL (µg/dL)	Follow-up test within	Later follow-up testing after BLL declining
≥3.5–9.9	3 months*	6–9 months
10.9–19.9	1–3 months*	3–6 months
20.9–24.9	1–3 months*	1–3 months
25.9–44.9	2 weeks–1 month	1 month
≥45	As soon as possible	Retest every 2 to 4 weeks (or more based on most recent BLLs)

*Health care providers may choose to repeat blood lead tests on all new patients within a month to ensure that their BLL level is not rising more quickly than anticipated. Greater exposure in summer months may necessitate more frequent follow-ups.

Intervention

Chelation:

Chelation therapy is recommended and may be initiated on children with a venous BLL ≥45 µg/dL, but should be used with caution. Primary care providers should consult with a pediatrician experienced in lead chemotherapy prior to using chelation agents. If unaware of a pediatrician with such expertise, primary care providers can contact the FPICN or FDOH's Lead Poisoning Prevention Program. Refer to Appendix D for more on chelation.

Appendix A: The Verbal Risk Assessment

Question	Explanation
In the past year, has your child lived in, near, or regularly visited:	
A house built before 1978 that has been remodeled within the past 6 months or has peeling, chipping, or flaking paint?	Lead from paint including lead-contaminated dust is one of the most common causes of lead poisoning, and buildings constructed before 1978 may contain lead paint.
A sibling or cousin or a friend who has been diagnosed or treated for lead poisoning?	Children living in, playing in, or visiting the same environment as other children with lead poisoning may be exposed to the same source of lead.
Near a factory or industrial plant or mine?	Smelting, metal, and battery recycling facilities may release lead. Over time, the environment may become contaminated.
Mexico, India, China, Middle Eastern countries, and Latin American countries?	Spices, glazed pottery, and herbal or Ayurvedic remedies from other countries may be contaminated with lead. Children spending extended time in these countries may have been exposed to these products.
In the past year, has your child been around adults who:	
Work as welders, auto mechanics, battery and metal recycling, arms manufacturing and testing, construction workers or renovators?	Workers in these professions may be exposed to lead and can bring home lead on their skin, clothes, shoes, and work items.
Fish, hunt, make or cast bullets or lead sinkers, make jewelry, refinish furniture, stain glass, work with metals and paint with artisan paints?	Lead can be found in products associated with many hobbies. Children who have access to items used in such hobbies may be exposed to lead.
In the past year, has your child consumed:	
Food or beverages from ceramic cookware/dishware or imported pottery?	Leaded glazes have traditionally been used on ceramic and glassware products because they are easy to use, add color, and provide a smooth bright finish. Lead is also found in decorative paints that are used to decorate pottery and glassware from Latin American countries.
Food with spices imported or brought in from another country (turmeric)?	Spices and cultural powders imported from Asian and Latin American countries may contain lead. Spices such as turmeric, chili powder, coriander powder, and black pepper can be contaminated with lead through processing or added color for weight.
Imported candies containing Tamarind or chili powder?	Tamarind and chili grown on lead-contaminated soil or processed in a lead-contaminated area can contain lead. Imported candies containing these substances can be contaminated with lead.
Home remedies (Azarcón, Greta, Rueda, Pay-loo-ah)?	Ayurvedic or homemade remedies from East Indian, Indian, Middle Eastern, West Asian, and Hispanic cultures contain lead. Certain branches of ayurvedic medicine encourage use of heavy metals for certain ailments.
Dirt or non-food items regularly (more than typical mouthing behavior)?	Children known to eat non-food items, especially dirt, have been found to have high blood lead levels.

Appendix B: High-Risk ZIP Codes

A high-risk area is a census block group with 27% pre-1950 housing or 74% pre-1970 housing. The ZIP codes listed below are areas that exceed the national average for pre-1950 or pre-1970 housing.

An interactive lead poisoning risk map was developed to display census tracts (neighborhoods) where populations are at increased risk for lead poisoning. To see which neighborhoods are considered high-risk, visit https://arcg.is/0W5nbm.

A list of high-risk ZIP codes was created as an alternative resource when the lead risk map is not feasible for use. ZIP codes were labeled as high-risk if they contained one or more neighborhoods deemed high-risk. Note: There are eight counties that don't have a high-risk ZIP code listed in the section below (Baker, Citrus, Gilchrist, Glades, Lafayette, Liberty, Union, and Wakulla).

Children 1 to 2 years old living in these ZIP codes should be screened. If not tested by age 2, children 3 to 6 years old living in these ZIP codes should also be screened.

County Name	High-Risk ZIP Codes for Pediatric Blood Lead Poisoning
Alachua	32601, 32603, 32605, 32607, 32608, 32609, 32611, 32613, 32615, 32618, 32640, 32641
Bay	32401, 32403, 32405, 32407, 32408, 32444
Bradford	32091
Brevard	32754, 32730, 32796, 32901, 32905, 32920, 32922, 32925, 32926, 32931, 32934, 32935, 32937, 32952, 32953, 32955
Broward	33004, 33009, 33019, 33020, 33021, 33023, 33024, 33060, 33062, 33063, 33064, 33069, 33301, 33304, 33305, 33306, 33308, 33309, 33311, 33312, 33313, 33315, 33316, 33317, 33334, 33441
Calhoun	32424
Charlotte	33950, 33952
Clay	32065, 32073, 32043
Collier	34102, 34103
Columbia	32025, 32055, 32096
DeSoto	34266
Dixie	32628, 32648
Duval	32073, 32202, 32204, 32205, 32206, 32207, 32208, 32209, 32210, 32211, 32212, 32216, 32217, 32218, 32219, 32220, 32221, 32226, 32227, 32233, 32244, 32246, 32250, 32254, 32266, 32277
Escambia	32501, 32503, 32504, 32505, 32506, 32507, 32508, 32533, 32534, 32535
Flagler	32136
Franklin	32320, 32322

Gadsden	32324, 32351
Gulf	32456
Hamilton	32052
Hardee	33873
Hendry	33440
Hernando	34601
Hillsborough	33534, 33565, 33566, 33570, 33572, 33573, 33602, 33603, 33604, 33605, 33606, 33607, 33608, 33609, 33610, 33611, 33612, 33614, 33615, 33616, 33617, 33618, 33619, 33629, 33634
Highlands	33825, 33870
Holmes	32425, 32440
Indian River	32960, 32967
Jackson	32440, 32446, 32448
Jefferson	32344
Lake	32726, 32757, 32778, 32784, 34711, 34748
Lee	33901, 33905, 33907, 33916, 33919, 33921, 33922, 33924, 33931, 33936, 33956
Leon	32301, 32303, 32304, 32308, 32310, 32312
Levy	32621, 36265, 34449, 34498
Madison	32331, 32340
Manatee	34203, 34205, 34207, 34208, 34209, 34219, 34221
Marion	34470, 34471, 34472, 34475, 34481
Martin	33455, 33469, 34994, 34996, 34997
Miami-Dade	33010, 33012, 33013, 33015, 33016, 33030, 33031, 33032, 33033, 33034, 33039, 33054, 33055, 33056, 33122, 33125, 33126, 33127, 33128, 33129, 33130, 33131, 33132, 33133, 33134, 33135, 33136, 33137, 33138, 33139, 33140, 33141, 33142, 33143, 33144, 33145, 33146, 33147, 33148, 33149, 33150, 33154, 33155, 33156, 33157, 33160, 33161, 33162, 33165, 33166, 33167, 33168, 33169, 33170, 33173, 33174, 33175, 33176, 33179, 33180, 33181, 33186, 33189
County Name	**High-Risk ZIP Codes for Pediatric Blood Lead Poisoning**
Monroe	33040, 33070
Nassau	32034
Okaloosa	32531, 32542, 32547, 32548, 32569, 32579, 32580
Okeechobee	34974

Orange	32703, 32730, 32757, 32789, 32792, 32798, 32801, 32803, 32804, 32805, 32806, 32807, 32808, 32809, 32810, 32811, 32812, 32813, 32818, 32819, 32824, 32827, 32839, 34761, 34787
Osceola	34741, 34744, 34746, 34758, 34769
Palm Beach	33401, 33403, 33404, 33405, 33406, 33407, 33408, 33409, 33410, 33430, 33431, 33432, 33435, 33436, 33444, 33460, 33461, 33462, 33480, 33483, 33486
Pasco	33523, 33525, 33540, 34639, 34652, 34653
Pinellas	33701, 33702, 33703, 33704, 33705, 33706, 33707, 33708, 33709, 33710, 33711, 33712, 33713, 33714, 33744, 33755, 33756, 33764, 33765, 33770, 33772, 33773, 33777, 33778, 33781, 34677, 34681, 34683, 34689, 34698
Polk	33801, 33803, 33805, 33815, 33823, 33827, 33830, 33834, 33837, 33841, 33843, 33844, 33850, 33853, 33860, 33880, 33881, 33884
Putnam	32112, 32121, 32148, 32177
St. Johns	32084, 32086, 32095, 32145
St. Lucie	34947, 34950, 34982, 34983
Santa Rosa	32561, 32570, 32583
Sarasota	34232, 34234, 34236, 34237, 34239, 34243, 34275
Seminole	32701, 32730, 32771, 32773
Sumter	34585, 34785
Suwannee	32060
Taylor	32347
Volusia	32114, 32117, 32118, 32130, 32168, 32169, 32174, 32176, 32720, 32724, 32763
Walton	32433, 32455, 32464
Washington	32428

Appendix C: Case Management

General medical evaluation recommendations:

- Perform routine history and assessment of physical and mental development.
- Assess nutrition and risk for iron deficiency.
- Evaluate for lead exposure risks.
- Initial and routine test may be a capillary or venous test. Children with identified risk factors must be retested with a venous sample.

General clinical management recommendations:

- Notify parent or, caregiver by phone or letter.
- Report the blood lead result to your local county health department.
- Discuss result with family and counsel on any identified risk factors.
- Provide health education located at FloridaHealth.gov/environmental-health/lead-poisoning/educational-materials.html
- Counsel on healthy eating especially iron, calcium, and Vitamin C.
- Consider referral to Supplemental Nutrition Program for Women, Infants, and Children.

Medical Evaluation Recommendations and Testing	Case Management
BLL <3.5 µg/dL	
General medical evaluation recommendations (given above) **Who to screen?** • Medicaid recipients at 12 and 24 months, or any time before 6 years old if not previously screened. • Children in homes built before 1978 or with other risk factors (see FloridaHealth.gov/LeadPoisoning). • Anyone <21 years old when indicated by changed circumstances or at the request of a parent or guardian.[4] • Follow up with a venous blood lead level as indicated in the CDC schedule.[5]	**General clinical management recommendations (given above)** **Chelation is NOT recommended in this blood lead level range.**
BLL 3.5-19.9 µg/dL	
General medical evaluation recommendations PLUS: • Note the child's environmental history. Identify potential sources of exposure and provide preliminary advice on reducing/eliminating them. • Ensure iron sufficiency with laboratory testing and treatment per American Academy of Pediatrics guidelines. • Perform structured developmental screening evaluations at periodic health visits as lead effects may manifest over years. • Evaluate risk to household contacts such as siblings and pregnant/lactating women in the home. **Monitor BLLS:** • Retest within 1–3 months until BLL declines. • If retest result is in another range, follow up as for that range. • If BLLs are stable or decreasing, monitor initially with venous BLLs every 3 months and thereafter based on venous BLL trend. If retest result is in another range, follow-up or retest as for that range.	**General clinical management recommendations PLUS:** • Assess the child's environmental risk factors, eating habits, housing, and family's social service needs. • If a past exposure is noted, perform developmental screenings at periodic health visits. Health effects of lead manifest over time. • Test for iron sufficiency. Consider starting a multivitamin tablet with iron. • Test siblings, other children <6 years old, and household contacts, especially pregnant and lactating women • Make referrals to the local Children's Medical Services office if necessary. • Include primary/secondary residence and child care facility as part of the investigation. • If BLL is persistent or rising, contact the FDOH's Lead Poisoning Prevention Program at 850-245-4401 for an environmental investigation and recommendations for remediation services. **Chelation is NOT recommended in this BLL range.**

<table>
<tr><th colspan="2">BLL 20-44.9 µg/dL</th></tr>
<tr><td>General medical evaluation recommendations

Monitor BLLs:
• Retest within 1 week to 1 month to ensure BLL is not rising.
• Monitor monthly and afterward based on the BLL trend. If retest result is in another range, follow up as for that range.
• Any treatment for BLLs in this range should be done in consultation with a toxicologist.</td><td>General clinical management recommendations

Chelation is NOT recommended in this BLL range.</td></tr>
<tr><th colspan="2">BLL 45-69.9 µg/dL (Urgent Medical Situation)</th></tr>
<tr><td>General medical evaluation recommendations

Monitor BLLs:
• Retest within 48 hours.
• If confirmed in this range, monitor BLL’s during chelation.
• Retest every 2 to 4 weeks (or more based on most recent BLLs).
• Modify treatment guidelines if BLL remains elevated.
• Monitor frequently until BLL declines.</td><td>General clinical management recommendations PLUS:
• Evaluate whether hospitalization is needed to reduce lead exposure.

Consider chelation therapy
• Consult with a provider experienced in managing chelation therapy.
• Consider bowel decontamination as an adjunct to chelation if abdominal X-ray indicates enteral lead is present.
• Succimer can be prescribed.
• A minimum of two weeks between courses is recommended, unless more prompt treatment is indicated.
• Discontinue iron supplements.
• Monitor for anemia and neutropenia.

Post-Chelation Therapy Guidelines:
• Repeat venous lead test in 1 to 3 weeks after hospital discharge.
• Repeat venous lead test every two weeks for 6 to 8 weeks after hospital discharge.
• Monitor lead level closely for 4 to 6 months after chelation. If the lead level “rebounds” to pre-treatment levels, consider repeat chelation therapy.
• Minimum of two-week intervals is needed between chelation courses.</td></tr>
<tr><th colspan="2">BLL ≥ 70 µg /dL (Urgent Medical Situation)</th></tr>
<tr><td>General medical evaluation recommendations

Blood lead levels:
• Retest within 1 week to 1 month to ensure BLL is not rising.
• Monitor monthly and afterward based on the BLL trend. If retest result is in another range, follow up as for that range.
• Any treatment for BLLs in this range should be done in consultation with an expert.
• Refer to CDC and American Academy of Pediatrics recommendations related to chelation management.</td><td>General clinical management recommendations PLUS:

Follow chelation therapy and post-chelation therapy guidelines.</td></tr>
</table>

Appendix D: Chelation

Points to consider before chelation therapy:

- Consult a pediatrician experienced in lead chemotherapy.
- Draw a second venous BLL to confirm ≥45 µg/dL.
- If symptomatic, the child should be admitted to a pediatric intensive care unit, and a second BLL should be drawn before the beginning of treatment.
- Treatment should occur in a lead-safe environment.
- Succimer is recommended for asymptomatic children with BLLs 45-70 µg/dL due to its ability to substantially reduce the risk of essential mineral depletion associated with conventional parenteral chelating agents.
- Children with symptoms of lead poisoning with BLLs ≥70 µg/dL or who are allergic or react to Succimer will need parenteral therapy with calcium disodium ethylenediaminetetracetic acid (EDTA) and hospitalization.[5]
- If enteral lead is present, bowel decontamination is recommended before chelation.[5]
- Children with a BLL ≥70µg/dL exhibiting clinical symptoms require inpatient chelation therapy with efficacious parenteral chelating agents.[5]

Points to consider post-chelation:

- A child, if hospitalized, should be released only to a lead-safe environment.
- The BLL should be re-tested two weeks after chelation, and additional treatment per AAP should be administered if necessary.
- If oral outpatient chelation therapy is done, the case manager should ensure that caregivers adhere to the prescribed dosing schedule and should serve as the liaison between the primary care provider and the child's caregiver.

Resources

Contacts:

- FDOH Lead Poisoning Prevention Program: 850-245-4401
- Florida's Poison Control Centers: 800-222-1222

Web resources:

- CDC Guidelines for Collecting and Handling Blood Lead Samples: cdc.gov/nceh/lead/training/blood_lead_samples.htm
- LPPP County Screening Maps: FloridaHealth.gov/environmental-health/lead-poisoning/county-map.html
- Florida Agency for Health Care Administration Evaluation and Management Services Coverage Policy: ahca.myflorida.com/medicaid/review/specific_policy.shtml
- CDC ACCLPP Guidelines for Measuring Lead in Blood Using Point of Care Instruments, Atlanta, CDC 2013: cdc.gov/nceh/lead/acclpp/20131024_pocguidelines_final.pdf
- Magellan Diagnostics LeadCare II Quick Reference Guide: magellandx.com/leadcare-products/leadcare-ii/support/product-literature/
- CDC Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention: cdc.gov/nceh/lead/casemanagement/managingEBLLs.pdf

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