

3 The Statewide Plan for Childhood Blood Lead Screening

State public health officials should develop a statewide plan for childhood blood lead screening.

The plan should address:

- Division of the state, if necessary, into areas with different recommendations for screening.
- Screening recommendations for each area. (A basic targeted-screening recommendation is provided below as an example.)
- Dissemination of screening recommendations for each area.
- Evaluation.

Screening policy should be based on data that is representative of the entire population. Children should be screened according to state policy.

In the absence of a statewide plan or other formal guidance from health officials, universal screening for virtually all young children, as called for in the 1991 edition of *Preventing Lead Poisoning in Young Children* (CDC, 1991), should be carried out.

A Basic Targeted-Screening Recommendation

State health officials should use this basic recommendation only as an interim measure. A recommendation that is based on assessment of local data and an inclusive planning process is preferred.

Within the state or locale for which this recommendation is made, child health-care providers should use a blood lead test to screen children at ages 1 and 2, and children 36-72 months of age who have not previously been screened, if they meet one of the following criteria:

- Child resides in one of these zip codes: *[place here a list of all zip codes in the state or jurisdiction that have $\geq 27\%$ of housing built before 1950. This information is available from the U.S. Census Bureau.]*
- Child receives services from public assistance programs for the poor, such as Medicaid or the Supplemental Food Program for Women, Infants, and Children (WIC).
- Child's parent or guardian answers "yes" or "don't know" to any question in a basic personal-risk questionnaire consisting of these three questions:

-Does your child live in or regularly visit a house that was built before 1950? This question could apply to a facility such as a home day-care center or the home of a babysitter or relative.

-Does your child live in or regularly visit a house built before 1978 with recent or ongoing renovations or remodeling (within the last 6 months)?

-Does your child have a sibling or playmate who has or did have lead poisoning?

There are six steps to developing and implementing the statewide screening plan.

1. Form an advisory committee.
2. Assess lead exposure and screening capacity.
3. Determine the boundaries of recommendation areas.
4. Decide on appropriate screening.
5. Write screening recommendations for areas with universal screening and for those with targeted screening.
6. Implement the statewide plan.

Editor's Note: In the rest of this chapter, we outline (on the left hand pages) the step-by-step process for developing and implementing a statewide screening plan and provide a discussion of those steps on the facing right hand pages.

1. Form an advisory committee.

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

The advisory committee

The statewide plan for childhood blood lead screening developed by the health department should, at a minimum, have the input of child health-care providers, insurers, and parents.

Involvement of health-care providers, their organizations, and managed-care organizations throughout the process will improve acceptance of screening recommendations. The importance of community collaboration in public health decision-making is underscored by community health research (e.g., Green and Kreuter, 1991). Studies (e.g., Greco and Eisenberg, 1993) also indicate that health-care providers respond well to information and recommendations that come from peers and from their organizations.

Working with insurers, especially the state Medicaid agency, will help ensure that screening is included, as appropriate, in contracts and policies.

2. Assess lead exposure and screening capacity.

2.1. Examine information on children's risk for lead exposure.

2.1.1. Examine BLL data.

Exercise caution in using BLL data to assess risk for lead exposure, because these data may not reflect the risk of the entire population. If BLL data are not thought to be reliable, other data should be used (see following sections) until improved BLL data are available.

Use the following criteria to evaluate BLL data. *Data should meet all of these criteria.* If they do not, they are probably not an adequate basis for screening decisions.

Criteria for evaluating BLL data

1. Laboratory data are available for children who have been screened.
2. Laboratory data are of good quality.
3. Laboratory data are available for individual children.
4. Demographic, socioeconomic, and geographic data are available for individual children.
5. Screening data are representative of the pediatric population of the jurisdiction.
6. Screening data are available for a sample that is large enough to allow for a valid estimate of prevalence to be made.

Evaluating BLL data, additional considerations

- Labs reporting data should be successful participants in an approved proficiency-testing program.
- BLL test results should be maintained in a way that allows identification of duplicate and sequential tests on a single child. It must be possible to distinguish between number of children tested and number of tests performed.
- The results of all tests, regardless of BLL, should be available, so that calculation of rates of elevated BLLs among screened children can take place.
- The data should be representative, i.e., the demographic, socioeconomic, and geographic distribution of children screened should be similar to that of all children in the jurisdiction.
- Screening data that are *not* representative of the entire population, although not ideal, may be useful. For example, data showing low prevalence among those at highest risk would tend to support a targeted-screening recommendation; data showing high prevalence among those at lowest risk would tend to support a universal-screening recommendation (see Step 5).

2.1.2. Examine data on housing.

These data are widely available from the U.S. census and can be used to estimate potential lead-exposure risk in an area. If adequate BLL data are unavailable, housing data can be used alone. Data are available for states, counties, zip codes, census tracts, and census block groups.

The focus should be on housing built before 1950 because it poses the greatest risk for lead exposure.

Age of housing

Housing built before 1950 poses the greatest risk for lead exposure because it is much more likely to contain lead-based paint than is newer housing.

- Paint manufactured before 1950 has more lead than paint manufactured after that year (Lead-Based Paint Hazard Reduction and Financing Task Force, 1995).
- 27% of U.S. housing was built before 1950. Percentages of pre-1950 housing vary widely among states and counties.
- Data from the most recent National Health and Nutrition Examination Survey (NHANES III, Phase 2) confirm the relationship between housing age and BLLs (CDC, 1997).

Table 3.1. Percentage of children ages 1-5 years with BLLs ≥ 10 $\mu\text{g}/\text{dL}$, by year house built, and geometric mean BLL, by year house built, U.S., 1991-1994

Year house built	% with BLLs ≥ 10 $\mu\text{g}/\text{dL}$	Geometric mean BLL ($\mu\text{g}/\text{dL}$)
Before 1946	8.6	3.8
1946-1973	4.6	2.8
1973 onward	1.6	2.0

2.1.3. Examine data on demographic characteristics of children.

The focus should be on poor children and children of racial/ethnic minority groups because generally they are at higher risk than other children.

Demographic data on children are widely available from the U.S. census and can be used to identify places with high proportions of children who may be at higher than average risk for lead exposure.

Data on demographic characteristics of children: race/ethnicity and income

Data from NHANES III, Phase 2, show strong relationships between BLL and race/ethnicity and between BLL and income.

Table 3.2. Percentage of children with BLLs ≥ 10 $\mu\text{g}/\text{dL}$ by race/ethnicity and income, U.S., 1991-1994

Characteristic	% children, ages 1-5 with BLLs ≥ 10 $\mu\text{g}/\text{dL}$
<i>Race/Ethnicity</i>	
Black, non-Hispanic	11.2%
Mexican-American	4.0%
White, non-Hispanic	2.3%
<i>Income</i>	
Low	8.0%
Middle	1.9%
High	1.0%
All children	4.4%

2.1.3. Examine data on demographic characteristics of children (continued).

The focus should be on children between the ages of 12 and 36 months (1- and 2-year-old children) because BLLs tend to be highest in this age group, and more children in this age group have BLLs $\geq 10 \mu\text{g}/\text{dL}$.

Examine census and local information to determine whether there are places with high percentages of young children. Estimates generated since the last U.S. census (conducted in 1990) are available to help identify these areas.

Data on demographic characteristics of children: age

Focus on children at ages 1 and 2.

One- and 2-year-old children are at greatest risk for elevated BLLs because of:

- Increasing mobility during the second year of life, resulting in more access to lead hazards.
- Normal hand-to-mouth activity.

In addition, the developing nervous systems of young children are more susceptible to the adverse effects of lead.

Data from NHANES III, Phase 2, reinforce the association between children's age and their risk for elevated BLLs.

Table 3.3. Percentage of children ages 1-11 years with BLLs ≥ 10 $\mu\text{g}/\text{dL}$ by age group, U.S., 1991-1994

Age group (years)	% with BLLs ≥ 10 $\mu\text{g}/\text{dL}$
1-2	5.9%
3-5	3.5%
6-11	2.0%

2.1.4. Examine data on the presence of other sources of lead.

Examine data from within the state on other sources of lead exposure, such as pottery, traditional remedies and cosmetics, operating or abandoned industrial sources, waste-disposal sites, occupational and take-home exposure, and drinking water. (See National Research Council, 1993, for a comprehensive discussion of sources and pathways of lead exposure.)

Data from local surveys may supply additional information about local sources of lead exposure. BLL surveillance data may also reveal the presence of unusual sources.

Other sources and pathways of lead exposure

Industries, work sites, occupations, and associated materials

Secondary smelting and refining of nonferrous metals
Brass/copper foundries
Firing ranges
Automotive repair shops
Bridge, tunnel, and elevated highway construction
Motor vehicle parts and accessories
Storage batteries (lead batteries)
Valve and pipe fittings
Plumbing fixture fittings and trim
Pottery
Chemical and chemical preparations
Industrial machinery and equipment
Inorganic pigments
Primary batteries, dry and wet

Hobbies and home activities

Recreational use of firing ranges
Home repairs, repainting, or remodeling
Furniture refinishing
Stained glass making
Casting ammunition
Making fishing weights or sinkers, or toy soldiers
Using lead solder (e.g., for electronics)
Using lead-containing artists' paints or ceramic glazes
Burning lead-painted wood
Car or boat repair

2.2. Assess the capacity of local public health systems within the state to oversee and provide lead screening.

This assessment will be one basis for deciding whether to divide the state into areas with different recommended screening.

Examine local information about:

- Health department organization and capacity to oversee screening.
- Current screening activity.
- Capacity to collect and analyze screening data.
- Child health-care delivery systems and patterns.
- Enrollment of children in Medicaid managed care.
- Health department capacity to support private providers of screening.
- Health department capacity to provide screening for children without other access to care.

Information on local health systems

Some locales have long-standing, comprehensive childhood lead poisoning prevention programs with ties to managed-care organizations and support from providers. Other places have less experience, fewer allocated resources, and less provider involvement.

Information about local activities should be used to develop a plan that is responsive to local needs and respectful of local capacities.

3. Determine the boundaries of recommendation areas.

If necessary, subdivide the state into recommendation areas. A recommendation area is a geographic area for which a screening recommendation can be reasonably made.

Efforts should be made to draw boundaries so that recommendation areas are reasonably homogeneous both in magnitude of risk and in health-system capacity to provide screening.

Boundaries of recommendation areas

Some states have relatively widespread and homogeneous risk, while others have less risk or scattered pockets of risk. States also differ with regard to the capacity of local health systems to oversee and provide screening.

Universal screening is appropriate in areas with widespread risk. A state with widespread risk may comprise a single recommendation area with universal screening. Other states with less risk or scattered pockets of risk may be divided into different areas, some with universal screening and others with targeted screening.

Example: A state is divided into two recommendation areas: 1) a large city, designated as a universal-screening area because of its high percentage of older housing, and 2) the rest of the state, throughout which older housing is scattered, which is designated as a targeted-screening area. The large city's health department, with its experienced lead program, will oversee screening in the city; the state health department will oversee screening in the rest of the state.

4. Decide on appropriate screening.

Choose universal or targeted screening for each recommendation area. Use the following table to guide decision making.

Table 3.4. Guidelines for choosing an appropriate screening recommendation

% children, ages 12-36 months, with BLLs $\geq 10 \mu\text{g/dL}$	% housing built before 1950	Recommended screening
$\geq 12\%$	----	universal
$< 12\%$	$\geq 27\%$	universal (or targeted--see discussion)
3-12%	$< 27\%$	targeted
$< 3\%$	$< 27\%$	see discussion
unknown	$\geq 27\%$	universal
unknown	$< 27\%$	targeted

Cut-off points

These should be used as guides to decision making and should not inhibit, for example, universal screening at prevalences of elevated BLLs or older housing that are slightly lower.

12% prevalence: The vast majority of children in recommendation areas where less than 12% of children have BLLs $\geq 10 \mu\text{g}/\text{dL}$ will have BLLs below $20 \mu\text{g}/\text{dL}$, the level requiring medical and environmental intervention. The members of CDC's advisory committee reached substantial, although not unanimous, agreement on the 12% cut-off, which is also supported by a cost-benefit analysis.

27% pre-1950 housing: Housing data can be used as a proxy for BLL data; 27% of U.S. housing was built before 1950. (Bureau of the Census, 1992)

$\geq 27\%$ of housing pre-1950, but prevalence $< 12\%$:

- Universal screening should be recommended unless prevalence data are reliable and representative.
- If targeted screening is recommended, the condition of older housing stock should be monitored. Decline in housing conditions should trigger universal screening.

$< 3\%$ prevalence: Where reliable BLL prevalence estimates are extremely low and exposure sources are demonstrably lacking, methods other than routine screening should be used. Examples of alternatives are periodic focused surveys, routine review of BLL lab data, and public health alerts about newly identified sources of lead exposure.

Note: Whenever a parent or a health-care provider suspects that a child is at risk for lead exposure, a BLL test should be performed regardless of health-department recommendation.

5. Write screening recommendations for areas with universal screening, and for those with targeted screening.

5.1. Write a universal-screening recommendation.

A sample:

Using a blood lead test, screen all children at ages 1 and 2, and screen all children from 36-72 months of age who have not been screened previously.

Implementation of universal screening is discussed in Step 6.

The universal-screening recommendation

In many places, universal screening will be the policy of choice.

In practice, universal screening has often been difficult to achieve. Barriers to screening and how to overcome them are discussed in Step 6.

5.2. Write a targeted-screening recommendation.

A sample:

Using a blood lead test, screen children at ages 1 and 2, and screen children from 36-72 months of age who have not been screened previously if they meet at least one of the health-department criteria.

Usual health-department criteria:

- Residence in a geographic area (e.g., a specified zip code) where there is risk for lead exposure. (See 5.2.1.)
- Membership in a group (e.g., Medicaid recipients) at risk for lead exposure. (See 5.2.2.)
- Parent/guardian answers “yes” or “don’t know” to any question in a personal-risk questionnaire. (See 5.2.3.)

The importance of targeted-screening criteria

The criteria established by the health department and its advisors will make it possible for child health-care providers and parents to identify children who need screening. These criteria must be crafted to enable identification of as many at-risk children as possible. The criteria must be tailored to local conditions and easy to use.

Development of these criteria is discussed in detail on the following pages.

5.2.1. Criterion: residence in a geographic area.

This criterion makes it possible to identify children within a recommendation area who live in places where likelihood of lead exposure is increased (e.g., places with older housing).

Effectiveness of screening on the basis of place of residence

An analysis was performed on a state's BLL surveillance data in order to test the effectiveness of screening that is based on residence in zip codes and census tracts with high proportions of older housing.

An analysis of Rhode Island surveillance data - 1995

Rhode Island is a state that requires universal screening and has BLL data on a relatively high proportion of its children. Analysis of 1995 Rhode Island surveillance data shows that:

If, contrary to fact, the state of Rhode Island were to comprise a recommendation area with targeted screening:

- Using the criterion “screen all in zip codes with $\geq 27\%$ pre-1950 housing” would result in identifying 92% of children with BLLs $\geq 10 \mu\text{g}/\text{dL}$.
- Using the criterion “screen all in census tracts with $\geq 27\%$ pre-1950 housing” would result in identifying 93% of children with BLLs $\geq 10 \mu\text{g}/\text{dL}$.

5.2.1. Criterion: residence in a geographic area (continued).

Within a larger recommendation area, smaller places where lead exposure is likely should be pinpointed. Residence in such a place constitutes a screening criterion.

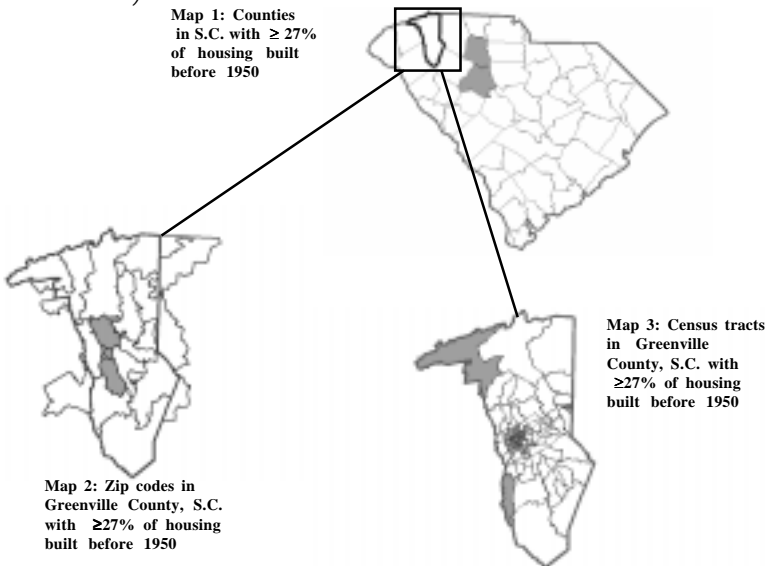
The use of relatively small units of analysis (e.g., census tract, census block group) may reveal “pockets of risk” that would be invisible within a larger unit (e.g., county, zip code). However, small analytic units whose boundaries are not widely recognized will not be useful as screening criteria in a clinical setting, where providers and parents must be easily able to identify children for screening. For example, most people cannot readily identify the census tract in which they live.

Another possible criterion might be residence in a widely recognized neighborhood whose boundaries approximate those of a relatively small analytic unit, such as a census tract, in which increased risk is identified.

Geographic analysis

Computerized mapping software and U.S. census data files make it easy to search recommendation areas for smaller areas with older housing or with high-risk groups. For example, the maps of South Carolina (Map 1), and of Greenville County, S.C. (Maps 2 and 3), below show areas of older housing (shaded areas) for **counties** (Map 1), **zip codes** (Map 2), and **census tracts** (Map 3). The use of smaller units of analysis (zip code or census tract) reveals areas of older housing that are obscured when the larger unit (county) is used. (Note that zip code boundaries do not necessarily coincide with county boundaries.)

Figure 3.1. Housing built before 1950 in South Carolina: geographic analysis at three different levels—county, zip code, and census tract. (Shading indicates $\geq 27\%$ of housing built before 1950.)



5.2.2. Criterion: membership in a high-risk group.

This criterion should make it possible to identify children who may be at risk for reasons other than place of residence.

The focus should be on children who 1) are poor; 2) are members of racial/ethnic minority groups, including black children and some groups of Hispanic and Asian-American children; 3) have occupationally exposed parents; or 4) have some other significant group characteristic that puts them at high risk.

Current (1997) Medicaid policy reflects the assumption that all child beneficiaries are at risk for lead poisoning and requires lead screening for all children who receive Medicaid benefits. Anticipated changes in this policy may give states the responsibility of deciding whether all Medicaid-recipient children should be screened. *In general, children who receive Medicaid benefits should be screened unless there are reliable, representative BLL data that demonstrate the absence of lead exposure in this population.*

Screening among children in a high-risk group

Ways to increase screening of poor children:

- Screen all children who receive Medicaid benefits or vouchers from the Supplemental Food Program for Women, Infants, and Children (WIC).
- Add questions to the personal-risk questionnaire that elicit the poverty status of respondents.
- Increase screening in geographic areas with high percentages of children in poverty.
- Screen in public clinics that serve poor children.
- Improve access to health care for uninsured children.

The importance of membership in a high-risk group: Data from NHANES (CDC, 1997) and other studies (e.g., Rothenberg et al., 1996) demonstrate that children who are poor, are members of racial-ethnic minority groups, or who have occupationally exposed parents are at higher risk of lead exposure than are other children. Membership in a minority group does not predict risk in every community, and children in minority groups who are not exposed to lead do not have elevated BLLs. Traditional remedies and lead-glazed cooking pots and ceramicware used by some Mexican-American and other (e.g., Southeast Asian) families may cause BLL elevations. Children may also be exposed to lead brought home on clothes or persons, or in the car from adults' worksites.

Occupations likely to be associated with "take-home" exposures include primary or secondary lead and copper smelting, battery manufacturing, battery recycling, painting and repair of older housing, construction and demolition, pottery work, stained-glass making, radiator repair, electronic components manufacturing, work in gold-assay labs, and gold and silver recovery.

5.2.3. Criterion: response to a personal-risk questionnaire.

This criterion makes it possible to identify children who may be at risk but who do not meet other criteria. CDC recommends a basic three-question questionnaire as a starting point.

A basic personal-risk questionnaire:

1. Does your child live in or regularly visit a house that was built before 1950? This question could apply to a facility such as a home day-care center or the home of a babysitter or relative.
2. Does your child live in or regularly visit a house built before 1978 with recent or ongoing renovations or remodeling (within the last 6 months)?
3. Does your child have a sibling or playmate who has or did have lead poisoning?

Screen all children whose parent/guardian responds “yes” or “don’t know” to any question.

The personal-risk questionnaire

Educational value of questionnaires.

A personal-risk questionnaire stimulates dialogue between the health-care provider and parent about whether or not an individual child should be screened and gives health-care providers the opportunity to educate families about lead hazards.

Predictive value of recommended questions.

Many, but not all, studies* have associated increased risk for elevated BLLs with positive answers to the first two questions. The third question is unlikely to cause a large amount of unnecessary screening, and it may be important in individual situations.

Sensitivity in predicting markedly elevated BLLs.

Results of some studies have suggested that the questionnaire is more sensitive for identifying children with more severe BLL elevations, e.g., $\geq 15 \mu\text{g}/\text{dL}$ or $\geq 20 \mu\text{g}/\text{dL}$, than for identifying children with BLLs in the range of 10–14 $\mu\text{g}/\text{dL}$.

Cut-off date, 1978.

The cut-off date, 1978, is recommended in question 2 because there was some lead in residential paint until this time. Renovations have been shown in many studies to be associated with children's increased risk for elevated BLLs. Lead hazards from unsafe renovations could occur in housing before 1978.

* For a list of studies of personal-risk questionnaires, see Chapter 5, List of Additional Information Available from CDC.

5.2.3. Criterion: response to a personal-risk questionnaire (continued).

Other questions. State health officials and their advisors should tailor the questionnaire to include questions about local sources of exposure in addition to housing, which is covered by the recommended basic three-question questionnaire.

In recommendation areas where exposure to lead from older housing is unlikely, the personal-risk questionnaire could contain questions about other risk factors such as parental occupation or the use of lead-containing ceramicware or traditional remedies.

Examples of additional questions

Personal or family history.

- Have you ever been told that your child has lead poisoning?

Occupational, industrial, or hobby-related exposure.

- Does your child live with an adult whose job or hobby involves exposure to lead?
- Does your child live near an active lead smelter, battery recycling plant, or other industry likely to release lead into the environment?

Other sources.

- Does your child live within one block of a major highway or busy street?
- Do you use hot tap water for cooking or drinking?

Cultural exposures.

- Has your child ever been given home remedies (*e.g., azarcon, greta, pay looah*)?
- Has your child been to Latin America?
- Has your child ever lived outside the U.S.?
- Does your family use pottery or ceramicware for cooking, eating, or drinking?

Poverty.

- Does your family receive medical assistance?
- Do you rent your home?
- Do you or the child's parents perform migrant farm work?
- Have you recently moved?

Behavior.

- Have you seen your child eating paint chips?
- Have you seen your child eat soil or dirt?

Associated medical problems.

- Have you been told that your child has low iron?

6. Implement the statewide plan.

It is up to state health officials and their advisors to ensure that:

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

Implementation

Health-care provider groups and parent groups should educate their members about recommended screening through their newsletters and meetings. Maps of areas of likely exposure are helpful in showing areas of risk.

Health-care provider groups should be made aware of how screening will be monitored and of the importance of their participation in evaluating recommendations.

Providers should receive supportive materials. (For a prototypic provider handbook, see list of additional resources available from CDC in Chapter 5.) These materials include information on background, screening, parent education, referrals, and local sources of lead exposure.

It is important that health departments, Medicaid, and managed-care organizations work closely together to bring about screening of Medicaid enrollees, as recommended. Contracts between the state Medicaid agency and managed-care organizations should include screening, follow-up, and reporting requirements. (For samples of contract language, see list of additional resources available from CDC in Chapter 5.)

6.1. Special considerations in the implementation of a universal-screening recommendation.

The recommendation for universal screening is straightforward, but implementation of such a recommendation has often been inadequate.

Health officials should not assume that making and communicating a universal-screening recommendation are sufficient to bring about such screening. It is critical to involve health-care providers, medical groups, managed-care organizations, Medicaid agencies, and community members in the decision to recommend universal screening and to use the decision-making process to educate these groups about preventing lead poisoning.

In areas where universal screening is recommended, health departments should monitor the effectiveness of the recommendation to ensure that screening rates are high.

Universal screening

Since 1991, when CDC recommended virtually universal screening of U.S. children, barriers to such screening have been identified.

The two most important are:

- Many providers and parents do not believe that lead exposure is a problem in their community.
- Some children who are at high risk for lead exposure because of poverty and residence in deteriorating housing do not receive routine well-child care and thus are not screened for lead.

To address these barriers, health departments have stepped up outreach and lead education for parents and providers and have worked with other agencies and communities to increase rates of well-child care.

Monitoring of screening activity is necessary so that efforts to improve screening rates can be directed to areas where screening is inadequate. See discussion in 6.2.

6.2. Steps to take in implementing recommendations.

Screening recommendations should be based on data. Of particular interest are BLL data. These data should be used to explain and support the recommendations to those who must carry them out, especially child health-care providers, medical groups, managed-care organizations, insurers, and parents. Ongoing collection and dissemination of data are necessary. Public health officials should:

- Collect BLL information.
- Determine the number and location of children with elevated BLLs.
- Determine where screening is taking place and where it is not.
- Compare information about screening activity and BLLs. (Graphics that display both screening and case information are helpful in this comparison.)
- Target education and outreach to areas where more screening is indicated.

Importance of feedback

Research, as well as common sense, suggests that health-care providers are more compliant with clinical practice guidelines when they receive feedback about the effectiveness, importance, and relevance of what they are being asked to do (Elrodt, et al., 1995). Every effort should be made to supply providers with screening data showing BLLs among children in the areas where they practice.

Sources of BLL information

Childhood blood lead surveillance systems that collect results of all BLL tests from all laboratories that serve residents of the area are preferred. Such systems make possible the analysis of screening and case data so that rates of elevated BLLs among screened children can be calculated, trends in BLLs and in service delivery can be detected, and appropriate improvements made.

Alternatively, other monitoring methods can be used, such as serial BLL surveys; surveys of knowledge, attitudes, and behaviors of health-care providers and parents in targeted communities; and studies performed by providers and provider groups using chart-review or other methods to ascertain screening practices.

Public health agencies, Medicaid agencies, and managed-care organizations have a mutual interest in monitoring screening delivered under Medicaid and can share data to achieve this goal.

6.3. Revise screening recommendations as better data become available.

As time passes, screening recommendations may become obsolete. Health officials should periodically evaluate the recommendations and revise them as appropriate.

Pediatric health-care providers, medical groups, managed-care organizations, Medicaid agencies, local health departments, and parents may want to vary from recommendations that have been made. Health officials should develop a review process to explore background and supporting evidence, and to consider the reasons both for retaining and for changing current recommendations.

Revising screening recommendations

Changes in the risk for lead exposure.

Change in the condition of older housing stock in a recommendation area is a reason to revisit a screening recommendation. Such housing may deteriorate or improve, creating a change in the potential risk for exposure to lead.

Additional information for making decisions.

Additional BLL data may become available, making it possible to generate better estimates of elevated BLL prevalence and to use these estimates to refine recommendations, including the recommended personal-risk questionnaire. Better tools for analyzing and presenting data will also be developed, allowing better prediction of risks for lead exposure.

Local input.

Local medical groups and managed-care organizations may perform blood lead surveys of their patient populations. Data from such surveys should be carefully evaluated, since these data can enhance the local decision-making process.

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