

Expert Panel Recommendations

Childhood Lead Exposure

July 2008



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Introduction

The Washington State Department of Health convened an expert panel in June 2008 to review, and possibly modify, the department's existing guidelines related to lead exposure in children.

The guidelines for Washington State were last updated in 2000. Since that time a great deal of new information has been generated about the detrimental health effects of blood lead levels below 10 µg/dL in children. This information reaffirms that there is no known safe level of lead exposure for children. At the same time, awareness and concern has grown regarding potential new sources of lead exposure and the continued risks from traditional sources of lead in the environment. The department felt it was time to re-examine the public health and medical response to lead toxicity in Washington State.

The panel was able to hear about, and benefit from, emerging research related to lead exposure that indicates:

Some "traditional" sources of lead remain in the environment. It appears that the most prevalent source of exposure to lead continues to be paint. Small children can ingest lead-containing dust, flakes, and chips that are generated over time as paint ages. Families remodeling their homes can inadvertently expose children to lead as old paint is removed, and this is particularly true of homes built prior to 1978. Soil contaminated with lead from past industrial emissions or lead arsenate pesticide use can be a source of exposure for children. Some traditional remedies and candies used by certain ethnic groups can also have high amounts of lead.

Potential new sources of lead exposure have been identified in recent years. Toys manufactured in countries where regulations are not as rigorous as those in the United States, for example, may have high levels of lead in the paint or plastic. New studies are emerging about lead in drinking water supplies. Some adoptive children who have come to the United States from foreign countries have been diagnosed with elevated blood lead levels.

In the past, healthcare providers have typically been concerned when a child's blood lead level is ≥ 10 µg/dL. However, new evidence is emerging that even at levels well below 10 µg/dL, detrimental health effects can occur. Neurodevelopmental effects include lowered IQ, decreased learning ability and attention span, lower school test scores, and reduced fine motor skills. Increased dropout rates, aggressiveness, and criminal behavior have been associated with lead toxicity in some studies.

Nationwide, several risk factors have been linked to lead poisoning. These include living in a pre-1950 home, black race, Hispanic origin, and low income. Previous assumptions were that Washington State had few known risk factors for lead exposure, but recent statistics are contrary to that assumption. In fact, Washington ranks 17th among states in

number of households built prior to 1950 (and therefore likely to have lead-based paint hazards). In terms of poverty, a second known risk factor, the state ranks about the middle in relation to other states, with 12 percent of our population living at or below the poverty level. Another risk factor is being a member of an ethnic minority; Washington State's minority population is currently 23 percent of the state's total population, while nationally ethnic minorities comprise 33 percent of the population. Regardless of race or income level, a child can be at risk while living in a pre-1978 home that is being remodeled, and Washington ranks 17th in number of pre-1978 households.

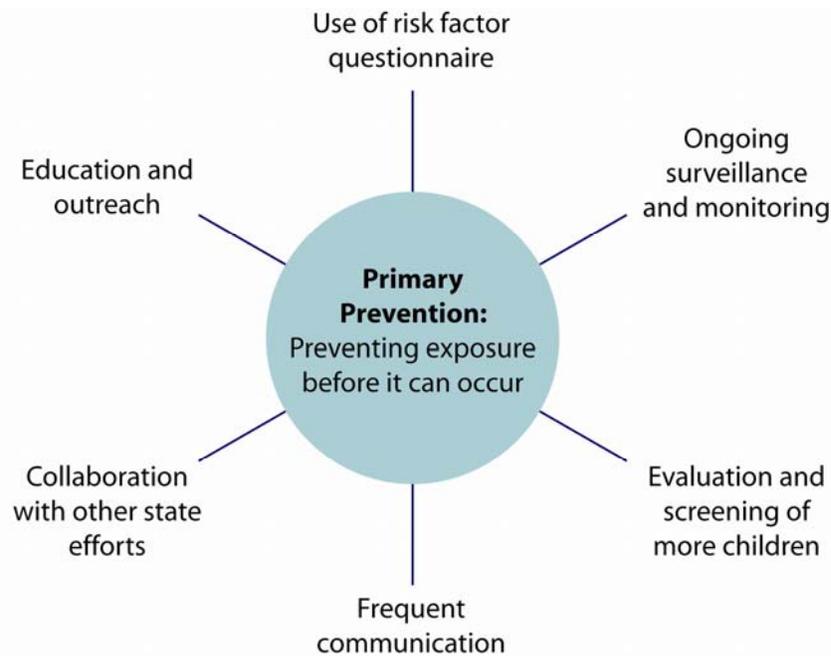
In spite of these risk factors, Washington State ranks near the bottom in the rate of lead screening tests performed on young children. Less than one percent of the children in Washington State are tested for lead levels annually. In sharp contrast, the national average for lead screening among states is 11 percent of children.

Based on this new evidence, the panel felt it was timely and prudent to modify the Department of Health's 2000 guidelines related to lead exposure in children.

Summary of Recommendations

Based on careful review and discussion, the panel recommends that the Department of Health put its highest priority on **primary prevention**, that is, preventing exposure to lead before it can occur. If enacted, all of the recommendations from the panel will lead to significant improvements in primary prevention throughout Washington State. The panel recommends that the Department of Health:

- 1) Implement a comprehensive public outreach and education program.
- 2) Collaborate with, and fully support, other statewide efforts related to the removal of lead from the environment.
- 3) Conduct additional surveillance activities to improve estimates of prevalence of lead exposure, and identify possible sources.
- 4) Adopt and modify a risk factor questionnaire and make it available to physicians and other healthcare providers.
- 5) Implement a pilot program to encourage the evaluation and screening of more children throughout the state.
- 6) Review and strengthen the department's guidelines regarding the appropriate medical responses for elevated blood lead levels.
- 7) Engage in more frequent communication with the healthcare community about lead.



Recommendation One

The Department of Health should implement a comprehensive public education and outreach effort regarding sources of lead and the ways in which exposure can be prevented.

The panel recommends that the department intensify efforts to inform parents, physicians, health and childcare providers, as well as the general public, about the sources and dangers associated with exposure to lead.

Target Audiences

Although everyone should be informed about the dangers of lead exposure, priority should be given to key target audiences including:

- Parents and pregnant women
- Physicians and other healthcare providers
- Childcare providers and preschools
- Owners and renters of older homes
- Public housing authorities
- School districts

Messaging

The panel recognizes that the department has extensive experience in implementing these types of education programs. It is up to the department to design and distribute materials in the most effective manner possible. The panel is also interested, however, in reviewing measures of effectiveness of such an educational program. These measures of effectiveness may include information about the target audience and whether the education has resulted in changed behavior.

Given recent news coverage and enhanced public awareness about lead in the environment, this is a particularly good time to implement as comprehensive an education program as possible. The department should include information about lead in a more generalized “healthy home” campaign designed to broadly share information about possible toxic substances within the home environment.

In addition, the panel recognizes that different audiences access, receive, and process information in different ways. Therefore, a multi-media approach – including print materials, one-on-one visits, health classes, Web, television, and radio –should be implemented.

Recommendation Two

The Department of Health should collaborate with, and fully support, other statewide efforts to reduce lead exposure.

The panel urges the Department of Health to fully support, integrate, and collaborate with other state and local agencies that are working to prevent lead exposure. Examples of such collaboration include:

- 1) The Washington State Department of Ecology is currently developing a statewide Chemical Action Plan to identify and reduce sources of lead and other toxic substances throughout the state. The panel recommends that the Department of Health work closely with, and fully support, Ecology's development and implementation of the Chemical Action Plan.
- 2) Governor Gregoire has convened a panel focused on children's health issues throughout the state of Washington, and the panel recommends that the department integrate with, and support this effort from the Governor's office.
- 3) New federal regulations may soon emerge related to lead exposure, and new state regulations may be both prudent and necessary. The panel recommends that the department fully contribute to, and support, more protective regulations.

Recommendation Three

The Department of Health should conduct additional surveillance to further identify the sources and risk of lead exposure.

The panel is particularly concerned about the need for additional surveillance data related to lead exposure among children. At this time we do not have the data to reliably determine the risk factors or extent of lead exposure for children in Washington. Substantial research has been completed in other states and at the federal level. While the data generated by that research is helpful, more information is needed about the prevalence of childhood lead exposure and potential risk factors for lead exposure in Washington State.

The panel recommends that the Department of Health institute a robust surveillance effort that would provide a more accurate estimate of the population-based prevalence of lead exposure among young children in Washington State. This surveillance system would attempt to identify subpopulations of higher risk for lead exposure, and the relative importance of the breadth of potential exposure sources (traditional and emerging) in Washington State children.

Given that resources for such an effort will be finite, the most realistic and practical approach may be a broad spectrum "sentinel" surveillance effort that would involve the

participation of identified medical practices throughout the state of Washington. This surveillance effort would enlist healthcare provider groups willing to participate in the systematic screening – through the use of a risk factor questionnaire – and universal blood screening of children who may be at risk of lead exposure. The medical practitioners enrolled in this effort should be financially reimbursed for their participation, and every effort should be made to make it as easy to participate as possible.

Data gathered from this program would be carefully monitored and analyzed in an effort to better inform physicians and the healthcare community as a whole about the overall prevalence and associated risk of lead exposure among young children in Washington State. The information would also help health resources statewide to understand how and if a screening questionnaire helps target blood testing at the correct groups of children.

In addition, information from this surveillance program would be used to modify and improve primary prevention strategies.

Further review and expansion of ongoing Department of Health surveillance is also warranted. For example, the department has recently pilot tested a program to loan “quick testing” analyzers to Head Start locations throughout the state. Should the department choose to do so, the analyzers could be used to provide testing for additional children not enrolled in Head Start through coordination with local health agencies or healthcare providers. The blood testing at Head Start could also be combined with use of a questionnaire to understand how/if a questionnaire helps identify a target group of children at increased risk of lead exposure. The surveillance from these testing stations should be carefully logged and monitored.

Recommendation Four

The Department of Health should adopt and modify a risk factor questionnaire and make it available to physicians and other healthcare providers.

The panel does not recommend universal screening for lead of any specific groups of children at this time. However, the panel does recommend that the Department of Health develop, and subsequently make available to physicians, a risk factor questionnaire that identifies children who might be at risk of lead exposure, and would benefit from routine screening.

Healthcare providers may find the use of such a questionnaire helpful, particularly if their practices include families that are linked to known risk factors such as poverty, certain ethnic minorities, or who may live in housing built prior to 1950. By working through the questionnaire with their physicians, patients are able to assume more control about possible “next steps” in their diagnosis and care. This “patient-directed care” should be encouraged by the Department of Health.

These questionnaires could be provided as a stand alone document, or questions about possible lead exposure could be incorporated into a “healthy home” questionnaire that probes for exposure to various toxic chemicals, with lead included in that group.

The panel recognizes that the Department of Health has extensive experience in designing and implementing these types of risk factor questionnaires. It is up to the department to design, monitor the use of, and report on the results of the use of risk factor questionnaires throughout the state of Washington.

The department should consult with the Centers for Disease Control and Prevention’s task force on lead and local experts regarding the inventory of existing tools and questionnaire items available for modification and adaptation. The panel further notes that the state of Oregon has developed and is currently using two documents; a *Lead Screening Questionnaire* for parents and *Lead Screening Protocols for Children*, which appear to be effective for both parents and physicians. The department should review the Oregon documents for their applicability to Washington State.

The panel recommends that the questionnaire be administered at 1 and 2 years of age and between 3 and 5 years of age if the child has not been previously screened. If the answer to any of the risk factor questions is “yes” or “don’t know,” a blood lead test should be performed.

The panel notes that data regarding lead exposure within Washington State is not as comprehensive as it could be, and that a more rigorous surveillance effort should be implemented (Recommendation 3). Nonetheless, it is important to increase awareness among the healthcare community about the potential dangers of lead, and to provide the risk factor questionnaire to those medical practitioners who might find it a helpful tool to evaluate their patients. As more information is gleaned through the surveillance effort, the risk factor questionnaire will be modified and improved.

Recommendation Five

The Department of Health should implement a *direct to parent* education program to encourage the evaluation and screening of more children throughout the state.

Other states have adopted programs to directly communicate with parents about the potential for, and dangers of, lead in their children’s environment.

The panel recommends that the Department of Health develop a pilot program, using marketing expertise to communicate with a target audience of parents who might find it beneficial to pursue additional screening and/or blood testing of their children. For example, notices might be sent to targeted families who live in older homes, or to families that are linked to other known risk factors for lead exposure. Families with international adoptees might be notified.

Another suggestion is for the department to more closely monitor, and report on, the effectiveness of its 1-year Child Profile mailing, which does include information about

lead toxicity and/or other environmental health issues. This mailer could be modified depending on its overall effectiveness.

The goal is to increase awareness of lead toxicity among populations that are potentially at high risk, and to encourage parents to communicate with their physicians about their child's health in this regard.

While an effort such as this will most likely increase both overall levels of awareness and the screening of children, the panel recommends that such a program be implemented on a "pilot testing" basis first. A smaller, more focused effort will greatly inform the department about the messages and information delivery mechanisms that are most successful in persuading parents to pay attention to this issue. Once pilot testing has been completed, the program can be implemented on a statewide basis.

Recommendation Six

The Department of Health should review and strengthen its guidelines regarding the appropriate medical responses for elevated blood lead levels.

The panel is aware of the concern that not all physicians are aware of the most appropriate response when a child has a blood lead level ≥ 10 $\mu\text{g/dL}$. Although there are existing Centers for Disease Control and Prevention recommendations it is unclear whether the medical community within the state of Washington is as fully informed as it should be about these medical responses to elevated blood lead levels. The department should make it a priority to ensure that physicians know how to treat patients with blood lead levels of ≥ 10 $\mu\text{g/dL}$.

In addition, the panel emphasized that there is no known "safe" threshold for lead. It also recognizes that lead levels between 5 and 9 $\mu\text{g/dL}$ can be harmful to children. The panel recommends that the Department of Health further investigate these harmful effects and determine how to best advise the medical community on appropriate responses to these levels.

The panel cautions that it is very important to institute meaningful follow-up actions when a child has a blood lead level between 5 and 9 $\mu\text{g/dL}$. It is not enough to simply report that level without a further defined action for either the healthcare provider or the parent. The panel recommends that the department determine the course of action that may be most effective, for example, a follow-up home visit from an environmental health specialist and/or public health nurse to determine the potential source of lead in the child's home and to advise on ways to prevent exposure. It may also be possible for the physician to issue a note that would enable a family in a low-income housing situation to be relocated should lead be discovered in the home environment.

The panel recommends that the department not raise awareness and concern about blood lead levels between 5 and 9 $\mu\text{g/dL}$ unless and until specific accompanying recommendations on physician or parent follow-up are established.

Recommendation Seven

The Department of Health should engage in more frequent communication with the healthcare community about lead.

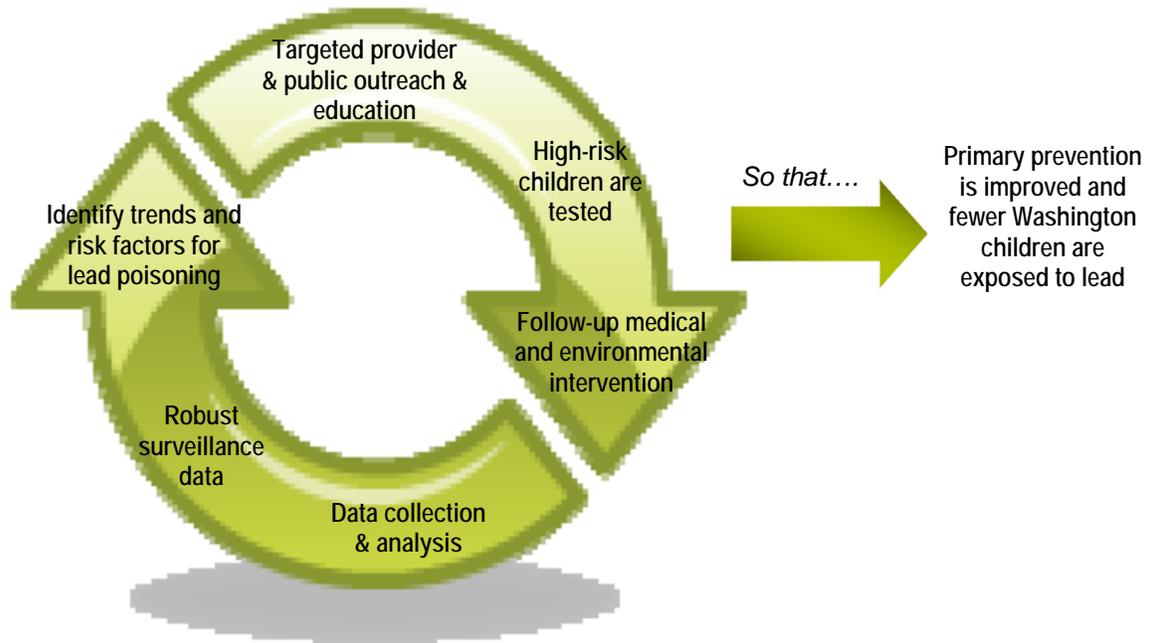
The panel recommends that the department communicate on a more frequent basis with the healthcare community regarding lead exposure in children. Guidelines should be reviewed about every five years, or when important new information emerges that is likely to alter the existing guidelines.

The panel recognizes that the Department of Health is adept at such information efforts, and encourages the department to determine and implement the most effective process possible to a) regularly benefit from the advice, perspectives, and expertise of the healthcare community; and b) communicate frequently with that community about new data, new potential sources of lead, and improved mechanisms for screening, testing, and treating children who may be at risk of lead exposure.

Conclusion

The panel recognizes that data on lead exposure for children in Washington State is inadequate. Nonetheless, data from other states and emerging statistics from within Washington do indicate that lead continues to be a toxic chemical within our environment, and that it can be particularly dangerous to children. The panel's recommendations include a balance of more outreach and information to a number of key groups, combined with a robust surveillance program, an increase in the number of children screened, and more information to physicians on appropriate medical responses to elevated blood lead levels.

Over time, data from the surveillance program will help to inform and improve public education efforts, and will provide more specific guidance to physicians. This "continual improvement" in the state's knowledge of, and response to lead exposure in children should be the ultimate goal for the Washington State Department of Health Childhood Lead Poisoning Prevention Program.



Acknowledgments

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