Cover illustration courtesy of the Los Angeles County Childhood Lead Poisoning Prevention Program
Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention

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March 2002

Suggested reference:
# Table of Contents

List of Tables ................................................................. iii
List of Figures ................................................................. v
Foreword ........................................................................ vii
Preface ............................................................................ ix
Members of the Advisory Committee on Childhood Lead Poisoning Prevention ........ xi
Authors .......................................................................... xv
Acknowledgments .......................................................... xvi
Glossary ......................................................................... xix

Chapter 1. Introduction .........................................................1
  Development of the Case Management Recommendations .................... 3
  Overview of Comprehensive Case Management .................................. 4
  General Considerations ................................................................... 9

Chapter 2. Assessment and Remediation of Residential Lead Exposure .......... 13
  Summary of Recommendations .................................................... 15
  Introduction ........................................................................... 16
  Sources and pathways of residential lead exposure ............................. 16
  Effectiveness and Safety of Lead Hazard Control Measures ................. 19
  Recommendations for Assessment and Remediation ........................... 22
  Enforcement of Laws and Regulations .......................................... 25
  Financial Resources for Lead Hazard Control .................................. 26
  Recommendations for Future Research ......................................... 27

Chapter 3. Medical Assessment and Interventions .................................. 39
  Summary of Recommendations .................................................... 41
  Introduction ........................................................................... 42
  General Principles of Medical Case Management ................................ 42
  Medical History ...................................................................... 43
  Physical Examination ................................................................ 48
  Laboratory and Imaging Evaluation ............................................. 48
  Chelation Therapy ................................................................... 49

*Managing Elevated Blood Lead Levels Among Young Children*
<table>
<thead>
<tr>
<th>Chapter 4. Nutritional Assessment and Interventions</th>
<th>59</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Recommendations</td>
<td>61</td>
</tr>
<tr>
<td>Introduction</td>
<td>62</td>
</tr>
<tr>
<td>Nutritional Interventions: Summary of the Evidence</td>
<td>62</td>
</tr>
<tr>
<td>General Recommendations</td>
<td>68</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5. Developmental Assessment and Interventions</th>
<th>77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Recommendations</td>
<td>79</td>
</tr>
<tr>
<td>Introduction</td>
<td>80</td>
</tr>
<tr>
<td>Detailed Bases for Recommendations</td>
<td>80</td>
</tr>
<tr>
<td>General Recommendations</td>
<td>85</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>88</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 6. Educational Interventions for Caregivers</th>
<th>97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Recommendations</td>
<td>99</td>
</tr>
<tr>
<td>Introduction</td>
<td>100</td>
</tr>
<tr>
<td>Sources and Pathways of Residential Lead Exposure</td>
<td>100</td>
</tr>
<tr>
<td>General Principles</td>
<td>100</td>
</tr>
<tr>
<td>Studies of Various Interventions</td>
<td>101</td>
</tr>
<tr>
<td>General Recommendations</td>
<td>105</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>110</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appendixes</th>
<th>115</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix I. Published Reports of Less Common Causes of Elevated Blood Lead Levels (EBLLs) in Children</td>
<td>117</td>
</tr>
<tr>
<td>Appendix II. Sources of Information on Lead Abatement</td>
<td>128</td>
</tr>
</tbody>
</table>
List of Tables

Table 1.1. Possible Elements of a Case Management Plan Based on Individualized Child Assessment ............................................................ 11
Table 2.1. Summary of Recommendations for Assessment and Remediation of Residential Lead Exposure .......................................................... 15
Table 2.2. Time Frames for Environmental Investigation and Other Case Management Activities According to a Child’s Blood Lead Level .................................................. 36
Table 2.3. Common Sources of Lead Exposure to Consider in an Environmental Investigation 37
Table 3.1. Summary of Recommendations for Children with Confirmed (Venous) Elevated Blood Lead Levels ............................................................... 41
Table 3.2. Guidelines for Questions to Ask Regarding a Child’s Environmental History ............. 45
Table 3.3. Recommended Schedule for Obtaining a Confirmatory Venous Sample .................. 51
Table 3.4. Schedule for Follow-Up Blood Lead Testing ....................................................... 51
Table 4.1. Summary of Recommendations for Nutritional Assessment and Interventions ............ 61
Table 5.1. Summary of Recommendations for Developmental Assessment and Interventions . 79
Table 6.1. Summary of Recommendations for Educational Interventions for Caregivers .......... 99
List of Figures

Figure 2.1. Pathways of Lead Exposure in the Residential Environment .................. 33
Figure 2.2. Relationship of Housing Age and Condition to Dust Lead Levels ............... 34
Figure 2.3. Relationship of Dust Lead Levels to Blood Lead Levels in Children ............. 35
Figure 3.1. Lowest Reported Effect Levels of Inorganic Lead in Children .................. 58
Figure 4.1. Median Calcium Intake by Race from NHANES III .......................... 76
Foreword

The overall reduction in childhood lead levels over the last three decades has been one of the great environmental health success stories in this country. However, our goal has not yet been reached. There are still far too many lower-income children living in older housing who are being hurt by elevated blood lead levels. The public health, housing, and environmental communities must continue to work together to eliminate the threat of lead poisoning for our future generations.

An important factor in the battle against lead poisoning is the proper management of children who have been identified as having elevated blood lead levels. In this publication, the Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP) and other public health practitioners have developed guidelines for assessment and interventions in the areas of medicine, nutrition, environmental exposure, childhood development, and education. Implementation of these “Best Practices” will greatly assist case managers, medical care providers, and others in delivering the most effective services to the lead poisoned child and the child’s caregiver.

I congratulate the ACCLPP and all the authors of these guidelines and thank them for their efforts. This report is a critical piece in the nation’s effort to eliminate childhood lead poisoning in America by the year 2010.

Richard Joseph Jackson, MD, MPH
Director, National Center for Environmental Health
Preface

Because case management of children with elevated blood lead levels varies markedly among states, cities, and other jurisdictions, the Advisory Committee on Childhood Lead Poisoning Prevention developed these nationally applicable recommendations. Based on recently published studies and augmented with opinions of experts, this report defines the elements of case management and offers assessment and management guidelines for health departments, case managers, primary care physicians, and other professionals. Not all recommendations are appropriate for any individual child because of variations in age, blood lead level, housing status, and—most important—the ability of caregivers to respond to recommendations without being overwhelmed.

The report contains five chapters in addition to the introduction: home environment investigation and interventions, medical evaluation and treatment, nutritional assessment and dietary modification, developmental surveillance and interventions, and education for caregivers. At the beginning of each chapter is a summary table of specific management recommendations. (The remainder of the tables, the figures, and the references are at the end of each chapter.) The text of the chapters provides the detailed information and references upon which most recommendations are based. Each chapter concludes with suggestions for further research.

This report, in addition to addressing the case management of individual children, also discusses the importance of state laws, regulations, and financing related to lead abatement efforts and the provision of appropriate services for affected children. Finally, the authors of this report recognize that case management is involved with the secondary prevention of elevated blood lead levels and that primary prevention by the removal of ongoing lead exposure sources should be promoted as the ideal and most effective means of preventing elevated blood lead levels.
Members of the Advisory Committee on Childhood Lead Poisoning Prevention
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Acknowledgments

I am indebted to many people for their input into this document. The Working Group decided on the format and appropriate individuals to develop each chapter, reviewed with those authorities the initial drafts, and suggested modifications that the chapter authors invariably felt benefitted their work. The Working Group members were Carla Campbell, Isabella Clemente, Susan Cummins, Patricia McLaine, Tom Matte, Joel Schwartz, and Michael Weitzman.

For each chapter, its authors, CDC experts in the subject, and outside experts attended a Working Group meeting. They provided background information, additional citations, and suggestions for modifications. Among these experts were Susan Adubato, Carol Ballew, Andrea Carlson, Julian Chisholm, Mary Cogswell, Peter Dallman, Mark Farfel, Warren Galke, Scott Grosse, Randy Louchart, Kathryn Mahaffey, Morri Markowitz, Tim Morta, George Rhoads and Walter Rogan.

The document was reviewed at meetings attended by ACCLPP members, ex officio members, liaison representatives, and chapter authors. Changes requested by attendees were incorporated in the final document.

Special thanks should go to CDC staff members Alan Bloch and Jerry Hershovitz, who assisted in the initial stages of reviewing and commenting on the document; Becky Wright, who organized meetings and typed revisions; Philip Jacobs and Nikki Kilpatrick, who assisted with final formatting; Pamela Meyer, who shepherded the document to its present form; and Joey Johnson and Connie Woodall, who provided graphics support.

Sheila Jurik, Kevin Moran, and Pam Gillis Watson provided editorial support.

Last, my personal thanks to Susan Cummins, chair of the ACCLPP at the time this project was initiated, without whose efforts this document would never have been developed or published.

Birt Harvey, Editor
Chair, Working Group
Glossary

ACCLPP—Advisory Committee for Childhood Lead Poisoning Prevention.

Acidosis—a condition resulting from the accumulation of acid or depletion of bicarbonate content in the blood and tissues.

Aminoaciduria—an excess of amino acids in the urine.

Asymptomatic—without signs or symptoms.

Ataxia—failure of muscular coordination; irregularity of muscular action.

Bioavailable—readily absorbed and used by the body.

BLL—blood lead level, usually measured in micrograms per deciliter (μg/dL).

Caregiver—parent, guardian, or other person involved in a child’s daily care.

CDC—Centers for Disease Control and Prevention; part of the U.S. Department of Health and Human Services, Public Health Service.

Chelation therapy—the use of chelating agents (chemical compounds that bind to metals) to remove toxic metals such as lead from the body.

Clearance standards—maximum allowable lead levels on surfaces (e.g., floors, windowsills, and window wells) after a residence has undergone lead abatement.

Drip line—the area under the edges of a roof.

EBLL—elevated blood lead level, defined as any blood lead level $>10μg/dL$.

Encephalopathy—extensive swelling of the brain.

Environmental investigation—an investigation by trained personnel at a child’s residence (or any secondary addresses where the child spends significant amounts of time) to identify lead hazards.

Gingival lead lines—darkening of the gums just distal to the insertion of the tooth.

Glucosuria—the presence of glucose in urine.
Hypophosphatemia—an abnormally low blood phosphate level.

Fg/dL—micrograms per deciliter, the usual unit of measure for blood lead levels.

Fg/ft²—micrograms per square foot, a unit of measure for measuring dust lead loading.

Papilledema—excessive fluid in the optic disk; also called choked disk.

PCP—primary care provider, the health professional who oversees a child’s care, usually a physician, nurse practitioner, or physician’s assistant.

Phosphaturia—an abnormally high urine phosphate level.

Pica—compulsive eating of nonnutritive substances such as dirt or flaking paint.

ppb—parts per billion.

ppm—parts per million.

Primary prevention—preventing a problem before it occurs. Primary prevention of lead poisoning would eliminate lead sources, thus preventing exposure.

Proteinuria—excess protein in the urine.

Radiograph—a film record of internal structures produced by passing x-rays or gamma rays through the body; frequently referred to as an “x-ray.”

Renal—having to do with the kidneys.

Secondary prevention—responding to a problem after it has been detected. Secondary prevention of lead poisoning involves identifying children with EBLLs and eliminating or reducing their lead exposure.

WIC—Special Supplemental Nutrition Program for Women, Infants, and Children.