PROCEEDINGS

BUILDING SOLUTIONS TOGETHER

Second Annual

Lead Poisoning Prevention Conference

Hyatt Regency Hotel • New Brunswick

May 11, 1990

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BUILDING SOLUTIONS TOGETHER

The Second Annual Lead Poisoning Prevention Conference

May 11, 1990

Prepared by

Joan Cook Luckhardt, Ph.D.
for the

Interagency Task Force on Prevention of Lead Poisoning
a committee of the

Governor's Council on the Prevention of Mental Retardation and Developmental Disabilities

Office for Prevention of Mental Retardation and Developmental Disabilities

Department of Human Services

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Building Solutions Together

8:30-9:30	**Registration and Exhibits**
9:35-9:45	**Fred Patterson** Chairman Governor's Council on Prevention of Mental Retardation and Developmental Disabilities *Welcome*
9:45-10:00	**Judith Yaskin** **Commissioner** Department of Environmental Protection *The Environmental Perspective on Lead*
10:00-10:05	**Robert K. Tucker, Ph.D.** Chair Interagency Task Force on Prevention of Lead Poisoning *Introduction of Speaker*
10:05-10:45	**Herbert Needleman, M.D.** Professor University of Pittsburgh Medical School *The Long Term Costs of* *Childhood Lead Exposure*
10:45-10:50	**William Connolly , AIA** Director Housing and Development NJ Department of Community Affairs *Introduction of Speaker*
10:50-11:15	**Anthony Villane, D.D.S.** Regional Administrator Region II U.S. Department of Housing and Urban Development *Federal Views on* *Removing Lead from* *Homes*
11:15-11:30	**Coffee Break**

11:30-11:35	**Anita Curran, M.D.** Assistant Dean For Clinical Affairs UMDNJ-Robert Wood Johnson Medical School *Introduction of Speaker*
11:35-11:55	**Vernon Houk, M.D.** Director Center for Environmental Health and Injury Control Centers for Disease Control *The* *CDC Lead Poisoning* *Prevention Efforts*
11:55-12:10	**Frances J. Dunston, M.D., M.P.H.** **Commissioner** NJ Department of Health *Remarks on the Efforts to* *Prevent* *Lead Poisoning*
12:10-1:30	**Lunch**
12:30-12:45	Luncheon Entertainment **Sabrina Johnson and the Johnson Cousins** *Selections from the Prevention Album*
12:45-12:50	**Cecile Dickey** President New Jersey Head Start Association *Introduction*
12:50-1:00	**Remarks of Senator Frank Lautenberg** *A Congressional View on* *Lead Poisoning Prevention* read by **Michelle Tuck** Legislative Assistant *Introduction of Speaker*
1:05-1:20	**The Honorable Bob Smith** Chair Energy and Environment Committe New Jersey Assembly

1:30-2:45 **Workshops/Discussion**

L. **Legislation and Public Policy** (Conference Rm. C)
Organizer: Bob Tucker, Ph.D.
Panelist: Norman Miller, Ph.D. Assistant Commissioner, DEP
Topic: A comprehensive state and federal lead poisoning prevention program: Implications for local governments and agencies.

M. **Modern Medical Management** (Garden State Ballroom B)
Organizer: Nancy Murphy, RN
Speaker: S. Marcus, M.D.
Topic: New methods of treatment and management of lead poisoned children (The A-team approach).

N. **New Policies for Paint Abatement** (Conference Rm. A)
Organizers: Colleen O'Hara and Bob Haug
Panelists: Ellis Goldman, US HUD
James McCabe, Baltimore, MD
Topic: Current status of lead abatement policy and technology.

O. **Organizing at the Grassroots** (Douglass)
Organizer: Joan Luckhardt, Ph.D.
Panelists: Cecile Dickey, Head Start and Ciro Scalera, ACNJ.
Topic: Ways to bring about changes for children through lobbying, and building coalitions.

P. **Public Programs that Work** (Garden State Ballroom A)
Organizer: Madeline Brown, RN
Panelists: Connie Clayman-Solberg, Richard Brown,
Topic: Making municipal lead poisoning advisory committees work and implementing a revolving loan program to help working poor families abate their homes.

Q. **Questions about Public Schools** (Conference Rm. B)
Organizer: Leta Bagdon, M.D.
Topic: Educational strategies for lead poisoned children.

R. Research **Questions about Lead in the Environment.** (Kilmer)
Organizers and Speakers:
Ed Stevenson, Randy England, Barker Hammil
Topic: Lead in Water: A danger? New perspectives on sources of lead and soil contamination.

2:45-2:50	**Judith Yaskin** **Commissioner** NJ Department of Environmental Protection *Introduction of Speaker*
2:50-3:20	**The Honorable William Bradley** **Senator** *Acting on Lead Issues* . . . *Questions and Answers*
3:20-3:25	**Deborah Cohen, Ph.D.** Director Office for Prevention of Mental Retardation and Developmental Disabilities *Introduction*
3:25-3:35	**William Waldman** Deputy Commissioner Department of Human Services *Closing Remarks*
3:40-4:30	**Wine and Cheese Reception**

THE GOVERNOR'S COUNCIL ON PREVENTION OF MENTAL RETARDATION AND DEVELOPMENTAL DISABILITIES

On behalf of the Governor's Council on Prevention of Mental Retardation and Developmental Disabilities, I wish to bring to the attention of citizens throughout the State the dangers of lead toxicity to children as well as to adults. The Interagency Task Force on Prevention of Lead Poisoning, a committee of the Governor's Council, spearheaded a coordinated effort to look at this problem and sought to "Build Solutions Together." By bringing the issue to the public, they have made a significant contribution to the health and well-being of New Jersey's citizens. It will remain a challenge to all of us to strive together to eradicate the problem of lead toxicity.

Fred Patterson
Chairperson
Governor's Council on
Prevention of Mental Retardation
and Developmental Disabilities

THE OFFICE FOR PREVENTION OF MENTAL RETARDATION AND DEVELOPMENTAL DISABILITIES

Since its inception in 1988, the Office for Prevention of Mental Retardation and Developmental Disabilities has been committed to preventing childhood lead poisoning. Lead is one of the 16 priority areas in which the Office is involved in prevention activities. The priorities are derived from the recommendations published in 1985 by the Governor's Council on the Prevention of Mental Retardation in their report entitled "Programs for Preventing the Causes of Mental Retardation." The Environmental Task Force of the Governor's Council, which developed the lead priorities, was co-chaired by Leah Ziskin, M.D., of the Department of Health and Robert K. Tucker, Ph.D., of the Department of Environmental Protection. Currently, Dr. Tucker is providing leadership by serving as the chair of the Interagency Task Force on Prevention of Lead Poisoning. It is encouraging to see the recommendations of this committee begin to come to fruition through interagency cooperation.

The problem of lead toxicity, although known for centuries, cannot be solved today without crossing the boundaries of various state agencies and coordinating these efforts with many community groups. The unique legislative mandate for the Office for Prevention places an emphasis upon interagency efforts. It is our privilege to serve as the bridge between these state agencies as well as to provide a forum for interchange among many divergent voices and areas of expertise.

Deborah Cohen, Ph.D.
Director
Office for Prevention of Mental Retardation
and Developmental Disabilities

GOVERNOR'S COUNCIL ON THE PREVENTION OF MENTAL RETARDATION AND DEVELOPMENTAL DISABILITIES

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Educational and Cause Related Marketing
Johnson and Johnson

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Dr. John Ellis
Commissioner
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Jeffrey Osowski,
DE Representative
Director, Division of
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Frances J. Dunston, M.D., MPH
Commissioner
Department of Health

Susan Lennox Goldman
DOH Commissioner Representative
Assistant Commissioner

Judith A. Yaskin
Commissioner
Department of Environmental Protection

Robert K. Tucker, Ph.D.
DEP Commissioner Representative
Director, Division of Science and Research

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Commissioner
Department of the Public Advocate

Elizabeth M. Boggs
Parent

Jeanne Brooks-Gunn, Ph.D.
Senior Research Scientist
Educational Testing Services

Kevin Halpern
President and CEO
Cooper Hospital/
University Medical Center

John Harrigan, M.D.
Director Maternal Fetal Medicine
St. Peter's Medical Center

Robert Johnson, M.D.
UMDNJ/New Jersey Medical School

Lula Linder
Executive Director
AD House, Inc.

Artea Lombardi
Century 21, A. Merola & LaVecchia

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New Jersey Early Intervention Coalition
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Attorney

Raymond Sanchez

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Deborah E. Spitalnik
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Ann Wilson, Ph.D.
Coordinator
NJ Network on Adolescent Pregnancy

Ilana Zarafu, M.D.
Medical Director
Children's Specialized Hospital

Leon Zimmerman
Public Relations Council

INTERAGENCY TASK FORCE ON PREVENTION OF LEAD POISONING

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Director
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Trenton NJ

Cecile Dickey
NJ Head Start Association
Paterson, NJ

Randy England
DSR
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PREFACE

As the most densely populated state of the Union and among those with the oldest and most extensive industrial heritage, New Jersey is particularly subjected to the dangers of lead exposure. We have a legacy of lead in our soil, water, air and our homes. New Jersey has more frame houses that were painted with lead-based paint and more roads per square mile than do other states. Today lead is the second most frequently used chemical by industry in New Jersey. Although we have a toxic inheritance that potentially exposes our population, particularly the urban population, to the effects of lead, we as yet screen only one-third of our highest risk children for lead toxicity.

The Interagency Task Force for Prevention of Lead Poisoning was established as a subcommittee of the Governor's Council on Prevention of Mental Retardation and Developmental Disabilities in September 1988. The purpose of the Task Force was to bring together the agencies and the community groups with interests in and responsibility for solving the problem. Informing the public and policymakers of the dangers of lead toxicity has motivated our activities. In addition to discussing ways to cooperate in efforts to reduce lead exposure, the Task Force held two public forums. In March 1989, the Task Force, focusing on legislative issues, sponsored a forum for legislators and policy-makers. In May 1989, about three hundred people attended the "Minimizing the Risk," a state-wide public forum, devoted to exploring childhood lead poisoning. "Building Solutions Together," the May 11th, 1990, conference, which attracted nearly 350 people, featured speakers whose words are contained within this volume.

Another Task Force activity has been to develop a comprehensive policy agenda based on a review of agencies' policies, state legislation regarding lead issues and additional needs to protect against exposure. Once completed and approved, the agenda will contain a comprehensive plan dedicated to developing policies and programs to increase a public understanding of the problem, to reduce sources of lead in the environment, to expand the number of children tested, to support programs to reduce occupational exposure, and to link efforts of agencies that share responsibilities for solving problems of lead exposure.

It is our hope that these proceedings will bring the message of the dangers of lead exposure to a broader audience.

Bob Tucker
Chair
Interagency Task Force on Prevention of Lead Poisoning

ACKNOWLEDGEMENTS

Appreciation and gratitude are extended to the Interagency Task Force on Prevention of Lead Poisoning, and especially to the subcommittee members who worked to arrange the conference. Among those who helped bring the event together and made the day run smoothly were Colleen O'Hara, Bob Haug, Glenna Gundell, Chris Caruso, Deborah Cohen, and Nancy Murphy.

To capture the proceedings of any event is fraught with the risk of leaving out the significant or of including too much. Without McNeil Laboratories' help in capturing most of the conference on audio tape, the proceedings would not have been possible. Thanks especially to Keith Krasnigor and Dr. John Travers of McNeil who met with cheer my questioning interruptions of their day. Thanks to Gene Peters for reviewing the manuscript. My gratitude is extended to all the speakers who took precious time from their hectic schedules to review and correct the transcripts of their talks and draft documents. Debbie Cohen's careful editing helped reduce the number of errors. Those remaining are solely my own.

The publication would not have been so quickly available without the work of Larry Perrine of Red Bank Regional High School who gave freely of his time to help typeset the manuscript and to print the document. Thanks to the printing class who worked so diligently on the preparation of this publication. Their reputation as a school of excellence is repeatedly validated by the quality of their work.

Without the support and helpful counsel of Joe Smith and Jerry Hershovitz of the Centers for Disease Control this monograph could not have been produced. Their enthusiasm and commitment to the health of children is contagious and sustaining. Dr. George Halpin spent hours at his computer to rescue and translate disk files that I needed. Thanks also to the staff of the Office for Prevention of Mental Retardation and Developmental Disabilities and the Department of Human Services, especially the DHS' Public Relations staff, without whose support no work could be easily accomplished. I am indebted in particular to the photographers who donated the photographs and to Ed Rogan whose good cheer and wit helped maintain my occasional flagging enthusiasm.

Lastly, this publication would not have been possible without the patience of my husband who tolerated my dedication to finishing the manuscript.

Joan Cook Luckhardt

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INTRODUCTION

The proceedings and the conference "Building Solutions Together," illustrate the breadth of the problem of lead toxicity that crosses the boundaries of many disciplines and the responsibilities of many agencies. The proceedings contain the keynote speeches as well as the remarks of departmental leaders and key legislative representatives. The words were derived from the speakers' advanced written notes and from audio tapes.

The keynote speakers described new research and new programs to better understand and better address lead and lead poisoning. Dr. Herbert Needleman, an eminent researcher who has studied the life-long effects of childhood lead exposure occurring at levels we once thought safe, discussed the health effects of lead. He reviewed lead research showing that lead reduces IQ, contributes to attention deficits, and may contribute to juvenile delinquency. All pose barriers to children reaching their full potential.

Dr. Anthony Villane, who in January 1990 became Regional Administrator for Region II US Department of Housing and Urban Development, delineated how HUD under his direction would now address the issue of lead in housing. Dr. Villane mentioned that Mr. Jack Kemp, Secretary of US HUD, and he were committed to grappling with this issue. Dr. Villane explained components of the recently released (April, 1990) HUD guidelines on abating lead in housing as well as some sources of funding for abatement.

Vernon Houk, M.D., Director of Center for Environmental Health and Injury Control, Centers for Disease Control, reviewed the history of the CDC's efforts to understand and better solve lead toxicity. He described how new research motivated CDC to renew efforts to ameliorate the effects of lead toxicity and to announce a new CDC lead program that will begin to eradicate the problem.

The leaders from each department examined the history of their departments' involvement in the lead issue and pointed out the need for interagency cooperation to solve

the problem of lead toxicity. Commissioner of the New Jersey Department of Health, Frances Dunston, M.D., MPH, described her department's long commitment to a lead program in the Division of Community Health. She pledged her department to join with others to help protect the health of children and adults from exposure to lead. Judith Yaskin, Commissioner of the NJ Department of Environmental Protection, also pledged her department to working to better solve removing lead from the environment and working with industry to reduce the amount of lead used and encourage recycling.

William Connolly, who is Director of Housing and Development for the Department of Community Affairs, mentioned the need to face the difficult task of removing lead in housing and urged solving the problem within an interagency context. He also cautioned the audience that the solution of removing lead from housing units (some estimate 2 million units in New Jersey alone) will not be cheap and that the cost of abatement may exceed the value of many urban units. Lastly, William Waldman, Deputy Commissioner of the Department of Human Services, pledged continuing the department's work to solve the problem of lead toxicity. He observed that there would be a costly loss of human potential if society does not seek a solution. He pointed out that Human Services deals daily with society's most vulnerable citizens, some of whom have been damaged by lead.

Federal and State legislative issues were addressed by United States Senator Bill Bradley and New Jersey Assemblyman Bob Smith. Senator Lautenberg sent a staff member to read a letter outlining his interest in and legislative activities on lead. Senator Bradley announced his personal commitment to the issue and described his "Get the Lead Out" Program and his recently introduced federal legislation to reduce lead in the environment. The program underscored that primary prevention--removing lead from the environment--had become an important direction because research increasingly showed that lead toxicity occurs at ever decreasing levels, levels at which traditional medical interventions become less useful. Assemblyman Smith announced his series of seven bills that were to be introduced in the assembly in late summer (they were introduced in early October and the hearings were set for mid-October).

A summary of the activities in the workshops gives a flavor of what each intended to do. The lead agenda which was discussed in the legislative workshop appears in the appendix.

To help reduce the size of this monograph, with one exception, words of introduction were omitted: an exception was made when a departmental representative both outlined a departmental role and introduced a major speaker. The names of the speakers, the people offering introductions, and workshop leaders and the order of appearance are listed in the agenda printed above.

J. Luckhardt
South Brunswick, New Jersey

ENVIRONMENTAL PERSPECTIVES ON LEAD

Judith Yaskin
Commissioner
New Jersey Department of Environmental Protection

We have just celebrated NJDEP's twentieth birthday as well as the twentieth anniversary of Earthday, and I believe we can be proud of the progress we've made in protecting the environment. But just to indicate that we have no cause for complacency, consider the case of lead: Before the start of recorded history, we humans had begun to pollute our environment with this metal. Archaeologists have uncovered evidence of substantial occupational and environmental damage associated with early lead mining activities; effects on the environment in those prehistoric mining areas can still be detected today. The Greeks and Romans used lead pipes and conduits to carry drinking water, setting a precedent followed to the present time. Storage of wine in lead containers and use of lead compounds as sweeteners and preservatives for wine may have contributed to the poisoning of the more affluent Romans and contributed the decline of their empire.

Scientific studies, such as those Dr. Herbert Needleman and his colleagues have carried out and which he will tell you about later this morning, indicate that a silent epidemic of lead poisoning continues to exist in this country, despite substantial reductions of lead in paint, food, milk, water, air and gasoline. A study completed in 1980, and recently confirmed by the Centers for Disease Control, showed that 9.1 percent of all preschool children in the United States had elevated levels of lead in their blood. Among

black preschoolers, the number was 24.5 percent.

Lead is everywhere in the environment of the United States, as a result of the industrial and commercial uses of lead. Unfortunately, New Jersey has higher averages of lead in its air, soil, and water, than the nation as a whole. Our higher rates, in part, stem from a high industrial density and extensive urbanization as well as a long history of industrial uses of lead.

In 1984, Dr. Robert Tucker from my Department, was asked to chair the Environmental Task Force of the Governor's Council on the Prevention of Mental Retardation. That Task Force identified lead as a substantial public health problem in New Jersey. Subsequently, our Division of Science and Research, which Dr. Tucker heads, has begun an extensive reevaluation of environmental sources of lead exposure in New Jersey. Identification and mitigation of sources of exposure will make a substantial contribution to the current Interagency Lead Poisoning Prevention initiative, and will contribute significantly to prevention of developmental disabilities and to the better health of New Jersey's children. I am delighted that DEP is helping to "Build Solutions Together" with all of you here today.

Within NJDEP, our air program in the Division of Environmental Quality has been monitoring the decline in air lead levels following the phase-down of organic lead compounds in gasoline in the late '70s. Ironically, this great success in reducing lead exposure was brought about by the need to protect the catalytic converters in automobiles, rather than by the argument to protect people from the effects of lead. In the early 1920s, organic lead compounds were added to gasoline to stop or reduce engine knock. Lead was released into the air and contributed to a world-wide buildup of lead in the environment. Measurements of lead in ice cores from Greenland and other areas in the Arctic show a buildup of lead, beginning in about 1924. Although levels of lead in people have declined, as lead in gasoline has been phased down, the federal Agency for Toxic Substances and Disease Registries estimates that 5.6 million children living in the 100 largest U.S. cities are potentially exposed to lead from combusted gasoline. New Jersey, which has the greatest population density of any state and more highway miles per square mile of area, has been particularly subject to contamination from this source.

Lead in the air also comes from burning fossil fuels, lead smelting, battery manufacturing, synthesis of lead-fuel compounds, and pigment production. Incineration operations, such as the burning of domestic garbage in resource recovery plants, can also emit lead into the atmosphere. One of the prime considerations during the present review of our solid waste operations, the "Pause" exercise, will be to consider every option possible to limit environmental emissions of toxic substances, including lead, from the necessary operations to deal with our solid waste. Twenty-eight million automobile batteries are disposed of in the United States each year. Unless we pursue a vigorous recycling program, these outworn batteries end up in landfills or being incinerated, with a consequent 260,000 tons of lead potentially spewed into the environment. Crankcase oils from vehicles also contain substantial amounts of lead. If such oils are improperly disposed of, they create another source of exposure. I am especially pleased that Senator Bradley will be here later today; I anticipate that he will tell you of his efforts to further New Jersey's battery recycling program, and to further federal research in source reduction.

In 1988, our Right to Know data indicated that 65 New Jersey industrial sources emitted more than 41 tons of lead into the atmosphere. Emissions from industrial sources are generally local and may result in very high levels of lead contamination in the immediate vicinity. Lead particles released from these sources tend to be much larger and heavier than those found in automobile exhaust. Because industrial sites can release large amounts of lead and because the larger particles fall out of the air quickly into the soil, high levels of lead contamination can remain near a site. Even in the case of a currently well-controlled plant, past emissions may be responsible for significant amounts of lead present in soil, street dust, or house dust in the immediate area.

In 1988, more than 1.4 million pounds of lead was emitted into the New Jersey environment. This figure includes air emissions which I just discussed, disposal to water, land, or to publicly owned treatment works, or transported off-site from industrial operations. Much of the lead taken off-site was for disposal at other locations. Whether directly disposed of in landfills or incinerated first with the ash landfilled, lead contaminated waste presents the potential for eventual exposure to people. Moreover, incineration, unless carefully controlled, can allow unacceptable atmospheric lead contamination.

Our Bureau of Safe Drinking Water in the Division of Water Resources has also been active in the effort against lead poisoning. Virtually all children are potentially exposed to some level of lead in drinking water. In the United States, about 3.8 million children are exposed to residential drinking water containing lead concentrations of 20 ug/liter or higher, according to the recent report by the Agency for Toxic Substances and Disease Registries (ATSDR, p.I-20).

Children under 6 years old and exposed to lead in residential drinking water at levels high enough to result in toxic blood-lead levels (at 15ug/dl) are estimated to number 241,000. Children of school age have potential exposure to lead in drinking water in school buildings. Both our Bureau of Safe Drinking Water and the Division of Science and Research have begun studies on School Drinking water; for those of you particularly interested in this aspect of environmental lead exposure, there will be more information presented in one of the workshops this afternoon.

In the last few years it has become evident that plumbing in the home can be a source of lead in drinking water. Lead containing solder has been used to join copper pipes; under certain conditions the lead may gradually dissolve into the water. If water that is drunk has been standing overnight, or for a longer period of time, in the pipes it is more likely to contain high concentrations of lead. The use of lead containing solders has been banned in New Jersey, and also prohibited in the recent Federal Safe Drinking Water Act. Homes built before the ban, however, still may have the lead solder; in addition, plumbers may still be using the lead solder despite its being banned. In some areas of the United States, and possibly in New Jersey, lead pipes may still be part of some water delivery systems, although their installation was discontinued many years ago.

Not all plumbing in which lead solder has been used, necessarily is a source of dangerous concentrations of lead. Often, after a period of time, minerals such as calcium and magnesium carbonates naturally found in water coat the insides of the pipes and may prevent lead from being dissolved into the water. Some water is more corrosive, and thus more likely to dissolve lead from the pipes. Most water companies in New Jersey now treat the water they deliver to the home to make it less corrosive and thus less likely to dissolve lead from the pipes.

A vigorous program of research is being carried out to better understand the corrosion process that may contribute to high levels of lead in drinking water. The Division of Science and Research in the NJDEP is working with researchers at the United States Geological Survey and at Stevens Institute of Technology to investigate the problem in our State. The United States Environmental Protection Agency and the Agency for Toxic Substances and Disease Registries are also actively carrying out research on lead in drinking water and corrosive water contributions to the problem.

As you can see, the New Jersey Department of Environmental is very actively pursuing environmental sources of lead and exploring ways to reduce exposure. Perhaps one of the most promising efforts to reduce toxics, including lead, is our new Pollution Prevention Program, whose intent is to bring about source reduction, reducing the amount of toxic materials before they are ever produced. By a careful audit of industrial processes, substitution of less toxic materials, changes in processes and equipment, analysis of economic incentives to reduce hazardous waste, and by encouraging changes in the life styles of consumers, we intend to produce less toxic materials potentially to end up in the environment. My Department and I are committed to this pollution prevention effort.

Lead has been around a very long time as a poison to the human population. Current evidence indicates that children in our inner cities may be bearing the brunt of toxic exposure to this metal, probably largely because of leaded paint in older housing, but also as a result of lead buildup in soil and in dust. I know you will be hearing later today from my colleagues in other departments more about these sources and efforts to control them, but let me take this opportunity to tell you that I share your commitment to a greater effort to protect our inner-city children. The environmental movement has often been construed to represent a concern for woods, mountains, trees - the unspoiled natural areas of the country, and to be the purview of the mostly white middle and upper classes. Let me say how important I believe the environment of our cities to be to all of us and to pledge that I will work, during my tenure as DEP Commissioner, to broaden the constituency for our efforts to all the citizens of New Jersey.

THE LONG TERM COSTS OF CHILDHOOD LEAD EXPOSURE

Herbert Needleman, M.D.
Professor
University of Pittsburgh Medical School

Mr. Chairman, thank you for your very kind remarks. I appreciate them. Think about this: in 20 years we could wipe out what could be the most serious disease for American children. We could make it a disease of historical interest. We have that opportunity. When I finish my talk today, I want you to be convinced of this. I don't think there's any other affliction of this magnitude that is as accessible to remedy. In the process we could attack other blights on our society. Blights that obscure our claim that we are a humane and caring people. Now in order to do that, I have two tasks. One, I want to convince you how serious the disease is. Then, I will suggest some things we can do to extinguish it so that my grandchildren won't know what lead poisoning is all about.

We've had some remarks about the history of lead from our chairman and others. Here is a 2000 year history of lead in 90 seconds. In second century B.C., Dioscerides, the Greek physician said that lead makes the mind give way. Two hundred years ago Benjamin Franklin spoke of the dry gripes and colic in tinkers, smelters and typesetters. Franklin was a printer and he knew about this. As we have heard this morning, almost a hundred years ago childhood lead poisoning was described in Brisbane, Australia, by a young pediatric resident, A. J. Turner, and his boss,

James Lockhart Gibson. They encountered a terrific struggle with the medical community and industry to get lead removed from paint, but they did. In 1920 the bill was passed over the opposition of a number of doctors. That was 50 years before we passed a bill in this country.

Childhood lead poisoning in America was reported by Kenneth Blackfan at the Boston Children's Hospital in 1914. For 30 or 40 years, it was the general belief that there were only two outcomes: a child either died or was left without any traces of the disease. Randolph Byers, who was one of the world's first pediatric neurologists, followed up 20 children who had recovered from lead poisoning and were assumed to be unblemished. Randy reported that 19 out of 20 were behavior disordered or having trouble learning in schools, setting fires, things like that. And in that paper he asked how many cases of school failure or behavior disorder were in fact missed cases of lead poisoning. And as we heard, childhood toxicity began to become of interest in the '50s. In that decade, if a child had a blood lead greater than 60 was admitted to hospital, you treated him. If they had a blood lead at 59, you watched them. Then, because of Jane Lynn Fu's very hard work at DHEW, the Surgeon General pronounced that 40 micrograms per deciliter was the level of what was called "undue lead exposure." That kind of implies that there's "due lead exposure," -that there's some that we're entitled to. Then in 1978, the CDC reconvened the task force and, on the basis of studies that we had up until that time, we redefined the level of undue lead exposure to 30. In '84 the task force was again convened under John Rosen's chairmanship, and decided that 25 was appropriate action level. I will show you some recent studies including our work which revises that downward. CDC is going to have a new meeting of the task force to look at the modern data. So you see, the sweep of our information has driven what we recognize as toxic way down.

This is a picture of Randolph Byers who was a teacher, friend and mentor of mine. This was taken in his last year of life in 1988. He was still an extraordinarily creative man who continued to give me ideas by telephone and by letter until he died.

Now, if one molecule of lead enters a cell, it changes the state of that cell--the cell is different. Is that an adverse health effect? That's almost a theological question. But it has direct regulatory import. At EPA hearings on their lead regulation, it was the industry's

position that certain things, like increased free resithyprotporpan in the blood, anemia and other things, were merely biochemical changes. They were not disease.

The conventional wisdom before Byers was that there was either death or there was no lasting effect. Until the mid-70s it was believed if you did not have brain hemorrhage and brain edema, you had no psychologic changes in the exposed child. That violated my notion about how the brain works. It's the most complicated phenomenon in the universe and it should be much more sensitive to perturbation. I believed that the place where you put psychologic outcome, behavioral outcome was at lower dose. And the place where you would exactly define it would depend on how sensitive your outcome measures were and how good your experimental design. That's been the guiding principal of people who have worked with me and I think that the evidence justifies that belief.

In community psychiatry in north Philadelphia, I began to see a lot of kids who were doing poorly in school and began to think about how many of them really had lead poisoning. There were very few studies but, in general, they had these problems: one was they relied on blood as a marker of exposure. Lead in the blood doesn't have a long residence time so it might be normal if a child's exposure stopped when he was two years of age and you see the kid when he's six. The second is that many of the studies that reported no effect used very coarse tests of function. If you're looking for effects of low dose, you've got to use appropriate and sensitive tests. The third is that there are other things which effect development and they can confound the relationship of lead and outcome. The fourth is that in a free society you can't make people join your study. You invite people to join your study and people may decline participation for the very reason that you're interested in. In other words, mothers who are afraid their children are slow might not join the study because they're afraid to find out. So you might miss exactly what you're looking for. It could work the other way just as well. Finally, there are a number of studies which had small sample sizes and reported no effect.

So we designed a set of studies which attempted to confront these five issues. Alan Levitan, my colleague at Harvard, and I thought this over very thoroughly and designed a study in '73 that looked at these issues.

I wanted to look at first grade kids, and the blood lead might not be good. It occurred to me that there is a boney biopsy available if you just catch it and that's the deciduous tooth. So I collected a lot of deciduous teeth. It turns out that's a very good marker of past exposure. And then I went to Boston to see if differential amounts of lead in the teeth were associated with differences in IQ. In the Philadelphia studies, we used Kennedy half dollars. My late father-in-law was a banker and from my first small grant he gave me a sack of real silver Kennedy half dollars which I gave to the dentists of Temple Dental School and Penn Dental School and I said, when a kid comes who's got a deciduous tooth that's in the way, take it out and give them this Kennedy half dollar. And what I discovered was that the dentists at Temple Dental School, I don't know about Penn, but I know about Temple, were giving the kids two quarters and keeping the Kennedy half dollars. You cannot use cash in field epidemiology. It's corrupting. It's corrupting in other places too.

This badge was designed by my secretary's husband who was a commercial artist. It was a very powerful reward in Somerville-Chelsea, Massachusetts. We had a campaign, talked to the principals, the superintendents, put posters with this badge in the windows of the school. We had to take the tooth back from the tooth fairy, you see. So, to get the badge, the child had to give the tooth to the teacher, and the teacher would put it a coded envelope, and she would look in the child's mouth and look for space and there was a diagram on the envelope of the child's mouth and she would put an X where the missing tooth was supposed to be. If there wasn't one, we threw the tooth out because we got some funny things. We got dogs teeth. But we had an anatomical picture of what a tooth from a different space should look like and they had to match.

We looked at thousands of teeth and we analyzed them for lead and the highest and the lowest were brought in for study. Controlling for the variables between the high/low lead groups, we've discovered that having high lead in your teeth was associated with significant differences in Wechsler IQ, Seashore Rhythm Test, token test and sentence repetition. Children also differed in attention and reaction time. High lead subjects had longer reaction times.

We paid to have the teachers released from school for half a day and they had to answer yes and no questions about every child. The questions were: is the child distractable; is the child able to persist at work; is the child able to work independently; is the child disorganized; do you consider the child hyperactive, impulsive, frustrated, a day-dreamer; is the child able to follow directions; and is the child's performance on a par with his or her classmates. We had that data on 2,000 children from Somerville-Chelsea. As tooth lead went up, bad marks on each one of these categories went up. Teachers who did not know the lead levels found that children with high lead in their teeth were more distractable, less persistent, more impulsive, more hyperactive. We published this in the New England Journal of Medicine. It caused a great deal of attention and the British government funded four studies to disprove it. The British government owned half of British Petroleum and they did not want to take lead out of gasoline. And one of them was by Bill Yule, the Institute of Psychiatry in London. He found the same thing. This has subsequently been replicated in South Africa and in Greece by Angelos Hatzakis. So this is a world-wide phenomenon.

And this is Bill Yule's graph of the reaction time. His subjects who have lower blood lead levels are in yellow and mine are in blue. And you see that as blood lead goes up, reaction time at varying intervals of delay goes up also. So this is what is called a dose response curve.

Lead goes across the placenta and it can be measured in the newborn's umbilical cord blood, before the child's had a chance to take more than a couple of breaths, or eat anything. A friend of mine, Jack Scanlon, who's a neonatalogist, had the wit in 1970 to look at 48 or so umbilical cord bloods from children born into Boston Hospital for Women. He showed that children of mothers who lived in the inner city had higher umbilical cord bloods than children from mothers in the suburbs, so Jack and I tried to get funding to look at this. We examined umbilical cord blood leads in 5,000 newborns over 2 years at the Boston Hospital for Women.

This looks at the relationship between the amount of lead in umbilical cord blood and minor anomalies. Small congenital anomalies, such as birth marks, extra digits, hydrocoeles and hernias, none of which have many major health consequences, may predict

undiagnosed major anomalies. All are dose related to umbilical cord blood lead. These are associated with later developmental deficits like autism, hyperactivity or behavior disorders. We found, in examining 5,000 births, that as the umbilical cord bloods went up from the lowest measured, 3, to the median, about 6, the risk almost doubled, and when it went to 24, it almost tripled.

Dave Bellinger took over this study when I came to Pittsburgh. He continued to follow these children at 6, 12, 18, 24, 48, 57 months. They are now nine years old. We found that the children with the lowest blood lead has the highest IQ scores adjusted for other factors at each epoch. At 57 months of age, this effect no longer is statistically significant. It begins to become attenuated but the relationship between blood leads at 24 months of age become an important factor. The effect of prenatal exposure continues to remain important in the poorest children who continue to have high lead exposure.

This work has also been replicated by the people in Cincinnati and in Port Pirie, Australia.

The children for the tooth lead study are now adults. In your packet you have the report this January of their performance as adults. We started off with 2335 first and second graders, and in 1977 or so we examined 270 of them, in 1988 we were able to find 177 of the 270 and 132 of those were willing to come back. At that time they were 18-19 years of age. And we report here the relationship between tooth lead levels in 1976 and performance in their 19th year of life. After we adjusted for other factors, we find that having high lead in your teeth is associated with a seven-fold risk for not graduating from high school. That's serious business. This is not just points on an IQ score. This how much money you're going to make and where society is going to place you. And reading disabilities, defined as reading two years below what's expected, show a six-fold increase in the risk.

Other findings significantly related to tooth lead levels in 1976 were: grade achieved. The children with high lead did not go as far in high school. Standing in the final year in class: children with high lead in their teeth in 1976 had lower class standing in 1988; higher numbers of days absent in the final year; a lower performance on a grammatical reasoning test, vocabulary scores; and diminished fine motor function, hand-eye coordination, reaction

time, and speed of finger tapping.

Other studies from around the world generally had larger sample sizes. Mary Fulton, in middle class Scottish kids, found IQ changes down to 15 and below, actually 10 were below. Hansen's ground in Aarnas, Denmark, showed the same thing. Artrahis in Greece found changes in 25 ug/dl. Joel Schwartz has also found that hearing is effected with no threshold at all. Wherever you look for lead's effects, you find them if you look with enough sensitivity.

EPA and ATSDR both say that on the basis of the latest data, 10 to 15 is the level in which lead begins to become neurotoxic. Remember that 30 years ago it was 60. What does that mean in terms of numbers? In terms of prevalence rates? This is from the ATSDR Report to Congress, a historic document that really hasn't gotten as much attention as it deserves. It means that one child in six of all Americans has blood leads over 15. There is a strong class bias. Being poor increases the rate for whites by almost four percent and for Blacks two times. If you're black and poor, you have a 55 percent chance of having an elevated blood lead level. One in two children, poor black children, have levels of lead that begin to compromise their ability to cope with this society. That means three to four million children.

In a book written in 1985 by Hernstein and Wilson, two professors from Harvard, about crime and human nature, they argue that criminality is constitutional. They don't say it's genetic, but they say it's in the body. They argue that you can predict criminality very early. Second, it's much more common in males. Third, it's much more common in Blacks. Fourth, criminality is associated with lower IQ scores, particularly verbal IQ scores. They have a much higher history of hyperactivity. And criminals come from homes which are dirty, disorganized and often violent. All of these are associated with lead, either as outcomes variables or risk factors for lead.

If you have high lead, I've shown and other people have shown, you have an attributable risk of delinquency of 50 percent. Half of the children with high lead have hyperactive behavior. If you have hyperactivity, you have an attributable risk of 40 percent of being a criminal. If you multiply those two you get the joint probability of being a criminal and having high lead and it's 20 percent. I think 20 percent is the lower boundary

of attributable risk for delinquency given elevated lead. I'm studying that now. I think that an important large part of antisocial behavior is preventable and is mediated through lead.

Now, I hope that I've succeeded in the first part of what I've tried to convince you of: that it's a very serious omnipresent problem. Why has it been ignored? Well, there are a number of reasons. The first is that it's been thought to be a disease of the poor alone and somehow that suddenly gets translated into it's a problem that belongs to the mother who reared her children improperly. If the mother only took better care of the child, the child wouldn't have eaten paint. The third is that the lead industry has paid people to obscure the effects of lead on behavior for at least 60 years. There's a published documented literature on that in the American Journal of Public Health. There are two papers and there will be more to say about in the future. And the fourth is the sluggishness and worse of major sectors of our government. I include in that Consumer Products Safety Commission who drag their feet about regulating lead in a number of things including paint, the Food and Drug Administration which is slowly coming around, EPA which is beginning to face its responsibilities but was timid initially in dealing with lead in gasoline.

And finally HUD. Housing and Urban Development has been a real viper in this picture. It's safe to say that the poor would have been better off if Housing and Urban Development had never been authorized. That's harsh but it's true. As a matter of fact, when HUD in the early '70s, under the Lead Paint Poison Prevention Act, was given the authority, the mandate, to study lead and make recommendations, they discovered it was going to cost about $30 billion or more. That was a forbidding figure, so they spent $9 million proving that lead paint was not the problem. Their responsibility was not lead in gasoline, that's EPA, was not in lead in consumer products, not lead from smoke stacks, but they spent a lot of money trying to prove that it was all these other sources. It was so egregious a set of behaviors that the General Accounting Office was asked to study this. The Inspector General then published a document called HUD not Fulfilling Its Responsibility in Preventing Lead Paint Poisoning. This government document indites them for breaking their own regulations and not doing their job. And I see little to give me confidence that they've modified their behavior.

Now, what are we going to do about this? Well, it occurred to me about 5 years ago

that if you were simply to map the place where this superabundance of lead exists, draw one of those geographical computer-generated maps, you will get histograms. And then if you were to map the place where jobs are short, you get a histogram. And if you were to draw a map where there's a shortage of decent housing, you will get a histogram. The three maps would be virtually identical. If you overlapped them, they would look almost the same. So, what would a rational society do about that disequilibrium? Abundance of lead, shortage of jobs, shortage of housing. What would benign Martians, who if they came down here, looked at that, what would they recommend?

Well, they might recommend training the unemployed, to delead housing safely, paying them a decent scale. For the same dollar you might make a significant impact on housing, on unemployment, the most serious threat to our society, and lead poisoning could be wiped out. There are two million houses in this country which have peeling paint and children living in them. That's an obscene situation to allow that to continue. Those are the pest houses of America.

If it were done right, and this was not exploited for profit, a small house can be safely deleaded for about 5,000 bucks. That's $10 billion. Well, for that kind of money you could put 40,000 people to work for 10 years, not at minimal wages, at $7.50 an hour, $15,000 a year, increment them 7 percent a year--you'd have four billion dollars left over for training cadre, supplies, insurance, equipment and at the end of that you could have deleaded two million American homes. There wouldn't be a lot of profit for contractors, but the money would then be spent in the inner cities so you would see sandwich shops reopening, dry cleaners, people would have to have their cloths laundered, that money would recirculate in the areas where it's most badly needed.

Does that sound utopian? Well you ought to know that it cost, the budget estimate in Pennsylvania for a new prison bed, a new high security prison bed, is $100,000. Spend $5,000 to delead a house in which three or four people might live or $100,000 to construct a high security prison bed which then will require $30,000 a year for maintenance, room and board for that prisoner. So you can pay now or pay later.

What will it take? Well, it will require that we forfeit that loser image of ourselves, the pessimism that you can't fight city hall, that the poor are always with us. It will take

vigorous political action to make the peace dividend a reality, to let it not be treated as some kind of fiction, and to give that money back to where it belongs: to the lower class and poor. And it will take some courage to elbow the intractable government agencies out of the way. On the other hand, we are fortunate to have some government officials who are awake, and waking up more regularly and sincere and committed to this. And New Jersey's particularly fortunate. First of all, I am very impressed with the vigor of the people in the health apparatus I've met here today, and the enthusiasm and commitment. It puts my state, Pennsylvania, to shame. You have Congressman Roukema, who's been in this fight for a long time. [You have] Senator Lautenberg, Senator Bradley, really good people who are informed and who are going to do something and they need to be helped and pushed. In Connecticut, [there is] Senator Leiberman; in Nevada, Senator Reed. Senator Leiberman at the hearings I testified at, at the end said, "Well, you know we've been talking about this in calm language, as we're supposed to. But I've done my preparation for this hearing and what I have learned about lead poisoning makes me outraged. And we're going to do something about it." Now that's the kind of thing that we have to begin to nurture and emphasize. And in federal government you have people like Dr. Hack who put the lead poisoning in the front ranks when he took over from the Bureau of Community Environmental Management in the early '70s, and I've mentioned Dr. Mason who is very seriously committed to it. This can be achieved in the near future. In the life span of my children, my grandchildren, it can be done. Because I believe it can be done, I'm going to tell you about something else I'm involved in.

I and other people have formed the Alliance to End Childhood Lead Poisoning. We recognize that there's an enormous amount of ignorance among interest groups who should know about this, like Children's Defense Fund, children's rights groups, like educators, know about the impact of lead on schools, on the educational process, people in the justice system, and Black interest groups. I've had a meeting with John Jacobs, President of the Urban League. He's very enthusiastic about this. Our Executive Director is a former senior staffer on the House Appropriations Committee who resigned his job because he wants to get into this battle. I think we're going to have an impact.

Thank you.

REMARKS

William Connolly, AIA
Director
Housing and Development
NJ Department of Community Affairs

After the previous discussion, I get the pleasure of introducing a representative of the Department of Housing and Urban Development. He is someone I respect more than anyone in the world.

We are glad to be a participant here. And we think that it is a very important issue and very important that we address this issue. The Department of Community Affairs is both the state's housing agency with particular concern for the housing conditions of our low and moderate income citizens and also the state's building regulatory agency. We have about 400,000 families in this state who desperately need housing assistance. We have 160,000 who do get it. And for these 160,000 families it is indeed much better that the Department of Housing and Urban Development has existed.

As the state's regulatory agency we have comprehensive authority over all aspects of safety and health in the built environment. That is a bit unusual. There aren't many states building regulatory agencies that can make that statement. Through our comprehensive uniform state-wide building codes, fire codes and housing codes, there is little doubt that we have the authority to deal this problem, but with authority goes responsibility.

In New Jersey there is little doubt where the buck stops on this issue--at least where it concerns the built environment. At the DCA we have that authority. We are very happy to be here today to participate in the building of a consensus not only on what the problem is, but what we can all do about it--by working together.

There can be no debating about the seriousness of the problem, nor its scope nor the potential costs of addressing it. And therein lies the problem. Ten billion dollars is not a very good estimate. It is significantly higher than that. It's not a reason to turn the other way, but our housing stock doesn't stand still. If there are a number of homes that have a

problem today, a certain number of more homes will have the problem tomorrow. And our ability to maintain them doesn't increase.

It isn't gross costs that matter. It doesn't matter if the cost is 10 billion or 100 billion dollars. What matters in addressing the problem in the areas that we need to address it the most is relative cost, not absolute cost. If the cost of lead abatement in a unit exceeds the value of the unit, we have very little leverage to compel the abatement through regulatory means. And that means that the taxpayer will have to step up and no I'm not overestimating the cost of abatement.

Those of you who found what I said a bit incredible are probably underestimating the value of urban rental housing. Ten thousand dollars a unit value is a lot. So if you are even talking five thousand dollars a unit in abatement you are talking about a difficult thing if you are talking about imposing a regulatory solution.

More importantly, trying to impose a regulatory solution, ultimately passes costs along. In that area the people in these homes of New Jersey are least able to bear those costs. This is a state in which ten percent of the homeless are two wage earner families. This is a state wherein of the people who are homeless and wage earners--and more than half of the homeless are wage earners households--the percentage of income devoted to rent is 76 percent. There is not much more that can be wrung out of them in rents to correct the problem. Nor can the cost be wrung out of the financial community to provide the loans to correct the problem from the landlords standpoint, if there is no value in the property that can be borrowed against to fund the costs of the remediation.

That's where the public sector is going to have to step up. Not just in terms of dollars, but in terms of a sensible prioritized action agency, those cost factors intimidate us as they have in the past. That is why we as a department are so pleased to be involved in this because at last we see an opportunity to have a coordinated action agenda.

If we are going to talk about action, I can't think of anyone who would be more qualified than to talk to us about action and the kinds of things that can be done than Anthony M. "Doc" Villane. He has devoted a life-time to the service of the people of this state. Starting in local government in Monmouth County, as a member of the state legislature since the early 1970s, as chair of the Assembly Appropriations Committee in the

1980s, as commissioner of the Department of Community Affairs until this past January, and the first person who has sat as Region II Administrator from the state of New Jersey. I worked for Doc Villane for two years and I am still trying to catch my breath. He is the sort of man who doesn't think that anything should take very long. He has a deep commitment particularly to the disadvantaged people in our state.

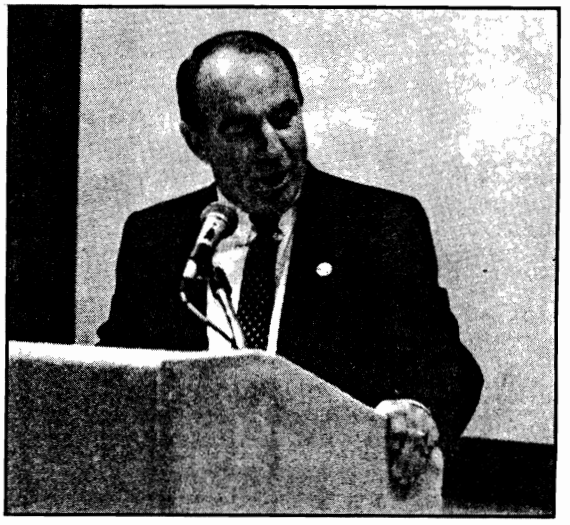
They don't call him Doc because its shorter than Anthony, they call him Doc because it characterizes his commitment, his skill, his caring and the energy with which he approaches problems. It is my honor to introduce, Doc Villane, the Regional director for the US Department of Housing and Urban Development.

FEDERAL VIEWS ON REMOVING LEAD FROM HOMES

Anthony Villane, DDS
Regional Administrator
U.S. Department of Housing and Urban Development
Region II

As the new Regional Administrator for HUD, I'm very pleased to be "home" again for this second annual New Jersey conference on lead poisoning prevention. I'd also like to thank Dr. Tucker, Chairman of the Interagency Task Force on Lead Poisoning Prevention, and the Governor's Council on the Prevention of Mental Retardation and Developmental Disabilities for sponsoring this event.

I'm sure that today's program will be very informative -- and also, hopefully, the catalyst for further improvements on an issue that concerns all of us.



Risks of High Blood-Lead Levels

Decades of research have demonstrated that lead exposure can come from a variety of sources -- such as paint pigments, automobile/industrial emissions, surface and ground water, and even some forms of solder. Adults may suffer from ailments due to excessive lead in their blood -- but the groups most at risk are fetuses, infants, and children under seven.

Thresholds for Blood-Lead Levels

In seeking to develop standards, blood-lead levels of over 30 micrograms per deciliter are presently of concern to us for abatement workers, and other adults (especially women of childbearing age). And, a threshold criterion (25 micrograms of lead per deciliter of blood) has been established by the Centers for Disease Control in examining children's blood-lead level. However, recent research is indicating that levels of half that can cause

adverse health effects in fetuses and children under 7 years of age. And, as research continues, the bottom line is that there may be no margin of safety between the danger "level" and the levels of blood-lead that are present in most of the population.

Lead-Based Paint Concerns

My Department is, obviously, most concerned about the dangers of lead present in the home -- or housing -- environment. Of particular concern is the use of lead-based paint (LBP) in that environment. Lead was a major ingredient in many types of house paint for years until the late 1940s. Then, in the early 1950s, other pigment materials became more popular; but, lead compounds were still used in some pigments and as drying agents.

Over the years, other sources of lead in our environment -- such as gasoline, or contamination of water systems using lead pipes/lead solder -- have been significantly reduced. But, the lead-based paint in older homes (and dwelling units) remains a significant problem. A recent report by the Agency for Toxic Substances and Disease Registry estimates that some 42 million homes contain lead-based paint, and house approximately 12 million children.

Our way of looking at the lead-based paint hazard has changed too.
In the 1970s, the principal hazard to children was thought to be paint chips containing lead -- primarily from peeling paint. In the 1980s, however, research raised serious concerns over lead dust. In part, this is because the smaller particles are more easily absorbed by the body...and, in part, because the then-common methods of paint removal -- such as sending, scraping and burning -- created excessive amounts of dust. Interior paint dust also can arise from the normal abrasion of painted surfaces -- such as the opening/closing of windows and doors. This lead dust is especially hazardous to young children because they play on the floor, and engage in a great deal of hand-to-mouth activity.

Lead dust is also a problem from exterior paints. For many years, exterior paint films were designed to "chalk" (lose some of the surface paint to rain and UV light) in order to keep the surface looking fresh. But, the lead pigment, which washed-off in this process, accumulated in the soil around the house. Other sources of soil lead -- including improperly

performed exterior de-leading, gasoline exhausts washed out of the air, and some types of road dirt -- exacerbate the problem. This lead-contaminated soil poses a hazard because children may play in, or near, it; and, the dirt tracked into a home can lead to increased lead-dust levels there.

The recently published HUD Guidelines, which I'll be discussing in some detail, do not directly address the issue of lead in the soil. However, the Environmental Protection Agency (EPA) is currently carrying-out a demonstration program to address the issue of estimating, a controlling, the potential hazard of lead in soil.

Federal Agencies Involved in LBP Activities

Federal regulatory efforts began with the enactment of the Lead-Based Paint Poisoning Prevention Act in 1971. In 1973, the Consumer Product Safety Commission established a maximum lead content in paint of .5 percent by weight (in a dry film of paint newly applied). In 1978, the CPSC lowered this allowable paint lead level to .06 percent.

HUD

In 1973, amendments to the Lead-Based Poisoning Prevention Act designated HUD as the lead agency in the Federal effort to eliminate the hazard of LBP in housing. During the 1970s, HUD carried out an extensive research program with the National Bureau of Standards (now the National Institute of Standards and Technology). Regulations were issued addressing the LBP hazard in HUD-associated housing -- including the prohibition on the use of lead-based paint in HUD-associated housing.

The Housing and Community Development Act of 1987 changed the definition of the LBP hazard and:

--required inspection of applicable surfaces in HUD-associated housing contructed prior to 1978 to determine if defective paint surfaces exist;

--redefined applicable surfaces to include exterior (as well as interior) intact painted surfaces;

-- imposed notification requirements for purchasers and tenants of HUD-associated housing constructed or substantially rehabilitated prior to 1978;

-- established a testing threshold level of 1.0 milligram per centimeter squared, to be determined by means of an x-ray fluorescence analyzer (XRF);

-- required testing (in Public Housing) of each vacant unit prior to re-renting, of a random sample of all occupied dwellings, and, or each dwelling in any housing where one dwelling has been determined to have a LBP hazard;

-- required testing of all Public Housing units within 5 years; and required abatement for any unit in which test results equal or exceed the standard established;

-- called for a research and demonstration program for HUD-owned single and multifamily properties;

-- established requirements eliminating LBP hazards in all federally-owned residential properties prior to the sale of such properties.

In establishing these requirements, certain types of housing were exempted. These include: housing for the elderly; housing for the handicapped except if occupants are under 7 years old; and, insured nursing homes/intermediate care facilities; supplementary loans, and hospitals.

The 1989 HUD appropriations act mandated the development of comprehensive

technical guidelines; and, the 1990 HUD appropriation mandated that these guidelines be published no later than April 1, 1990. It is these published Guidelines, which I will be discussing shortly.

Other Federal agencies are also involved in the elimination of the lead hazard in housing -- and, in the environment in general.

Environmental Protection Agency (EPA)

EPA has addressed the issues of: lead in gasoline; lead in industrial emissions; lead in water due to lead pipes and lead-based solder; lead in water treatment systems; and, lead in soil. EPA also regulates the disposal of hazardous and toxic substances, which may include some LBP debris. EPA is assisting HUD in the current LBP research and demonstration program.

Department of Health and Human Services (HHS)

Several elements of HHS are involved in issues of lead poisoning in children. The Agency for Toxic Substances and Disease Registry published a major report to Congress in 1988, "The Nature and Extent of Lead Poisoning in Children in the United States".

The National Institute of Occupational Safety and Health (NIOSH) is carrying-out studies of worker protection methods in conjunction with HUD's demonstration program, Elements of the Centers for Disease Control are also involved in this project. Moreover, the Bureau of Maternal and Child Health and Resources Department is also involved in childhood lead poisoning prevention programs.

Department of Labor

The Occupational Safety and Health Administration (OSHA) has established regulations governing lead-related occupations. While these regulations do not specifically pertain to construction workers, many of the OSHA (and State) regulations have been used in developing the published HUD Guidelines. One portion of the Guidelines, "Worker Protection", is based on OSHA regulations.

State Regulations

In addition to Federal regulations, at least two states -- Maryland and Massachusetts -- have recently promulgated regulations covering LBP abatement. Many other states have established lead poisoning prevention statutes; and, environmental protection regulations (based on EPA requirements) which address hazardous and toxic waste handling.

There may not be general agreement that HUD's -- or, any other Federal, State, or local agency's -- regulations have been completely effective in eliminating the lead hazard. Such elimination is partially dependent upon effective methods of removal -- and, of course, available dollars. However, all of these agencies are working -- perhaps slowly, but working nonetheless -- toward a solution.

Conferences such as this one are a positive force for advancing that work. By sharing information on lead hazards -- and, focusing interest on those hazards -- we can sour the legislative actions that are still required.

In these comments, I have been trying to establish a context for the discussion of the recently published "Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing." I have already referred to these "Guidelines" several times this morning; and, I believe that they deserve our close examination.

About the Guidelines

In the Federal Register, Volume 55, Number 75, Wednesday, April 18, 1990, interim Guidelines were published as part of a Department of Housing and Urban Development Notice. The interim Guidelines provide information on the need for, and appropriate methods of identifying and abating lead-based paints in Public and Indian housing.

The Guidelines focus on the Comprehensive Improvement Assistance Program (CIAP), a multi-billion dollar annual program which provides for needed physical and management improvements of existing Public/Indian Housing developments. It should be noted that these are interim Guidelines; and, are subject to change as new information becomes available. Also, the Guidelines are to be used in conjunction with the requirements of any State or local code which may apply to the specific project under consideration.

Since existing Federal, State, and local codes/regulations vary widely, each housing agency must become familiar with the State or local code in its jurisdiction; and, determine whether that code is more stringent than Federal requirements. PHA's are required to adhere to the more stringent requirements.

More importantly -- and less specifically -- the Guidelines represent the first national compilation of technical protocols, practices, and procedures on:

-- testing,
-- abatement,
-- worker protection,
-- clean-up, and
-- disposal of lead-based paint in residential structures.

As such, they provide valuable information for any local agency or group that is, or will be, involved in lead-based paint testing and/or abatement. The Guidelines are the work of a dedicated group of professionals from the private sector, public health agencies, HUD, and EPA. This document is the first step in creating a policy which will be influential in protecting the health of thousands of children and adults in this country.And, I urge anyone who is interested in lead-based paint abatement to obtain a copy of this Federal Register. This document is a "treasure-trove" of information.

The Guidelines

The Guidelines are presented in such a way as to guide the user through the process of determining whether LBP is present at levels of concern, and -- if so -- how to carry-out

an effective abatement program. They include extensive sections on:

-- Reducing the Risks of Lead-Based Paint Poisoning - a three-part strategy for reducing LBP poisoning risks by: screening, eduction, and setting priorities.

-- Roles and Responsibilities in Testing for LBP - a discussion of the various people, organizations, and functions involved in the identification of LBP.

-- Testing for LBP - detailed methods for determining whether LBP is present in a sufficient quantity to require abatement.

-- Roles and Responsibilities in Abatement - a discussion of the various Federal, State, local agencies, and other participants involved in abatement.

-- Before You Abate Lead-Based Paint - a structure for an Abatement Plan to be used when testing has shown that LBP hazards are present.

-- Choosing an Abatement Strategy - discussions of: the various alternative approaches to abatement, the advantages and alternative approaches to abatement, the advantages and disadvantages of each, and some of the issues which must be considered in the process.

-- Worker Protection - a description of the steps which should be taken to protect abatement workers, and others who may be exposed to potential lead poisoning due to the abatement.

-- Abating the Lead-Based Paint Hazard - the specific activities that should be accomplished in an abatement project, and descriptions of the approaches to be used on various building elements.

-- Cleanup - methods for thoroughly cleaning the abated area.

-- Waste Disposal - discussion of the proper handling of debris generated by LBP abatement.

-- Single Unit Abatement: An EBL Child - a special section on abatement efforts in units which house, or will house, a child identified as having an elevated blood-level (EBL) level.

In addition, there are extensive technical appendices:

-- *directory, and samples, of educational materials*

-- *glossaries of abatement terminology*

-- summaries of state/local lead-based paint statutes

-- a state-by-state resource directory for lead poisoning prevention

-- discussion of the scientific units, terms, concepts employed in measuring lead

-- operation of the XRF in testing for lead

-- laboratory testing of samples (including selection of qualified labs)

-- solid and hazardous wastes as defined by the Resource Conservation and Recovery Act

-- a listing of local OSHA offices

-- a list of recommended laboratories for lead analysis

-- a list of approved laboratories for blood lead analysis

-- a reprint of the EPA handbook of hazardous waste rules

-- suggested notification notices, and clearance notices

-- quality assurance guidance for sampling and analysis

-- instructions on integrating LBP abatement into CIAP activities (including sample HA plans)

While I cannot discuss the entire Guidelines document in detail, there are some highlights which should be noted.

The Strategy

Abatement procedures are an extremely important part of the strategy of reducing the risks of lead poisoning. However, abatement is only one element of a broader strategy to protect residents from lead-based paint poisoning. Residents must be educated on the dangers of lead; and, the steps that can be taken to protect themselves, and their families. Screening of all children -- particularly pre-school -- must be encouraged.

In the process, we must also realize that not every unit that contains LBP can be abated at one time. Such projects may extend over several years; so, it is imperative that risk assessments be conducted to set priorities for testing and abatement.
Risk assessment procedures/sample forms are included in the Guidelines.

Testing

Obviously, thorough and accurate testing is a key part of the effort to eliminate LBP

hazards. In the testing process, it is important to recognize the differences in State and local requirements -- which must be followed if they are more stringent than the HUD requirement.

The Guidelines discuss these potential areas of difference, which include:

-- concentration levels requiring abatement

-- surfaces to be tested

-- allowable testing methods

-- priorities for inspection/testing

-- training/certification requirements for inspectors

An extensive section is devoted to the testing process: to a thorough explanation of allowable testing methods; potential sources and types of testing errors; and, specific sampling procedures for project and scattered site housing.

The Guidelines specify that an x-ray fluorescence analyzer (XRF) is to be used as the on-site testing device; and, denominate a reading of 1.0 milligrams per centimeter squared as a positive finding of lead-based paint. The Guidelines further specify that where XRF readings are inconclusive, atomic absorption spectroscopic analysis (AAS) will be used as a backup or confirmatory test. Alternatively, PHA's may use AAS without the on-site XRF.

These Guidelines are the first general authorization of the use of the AAS. In addition, an AAS standard of .5 percent (by weight) is used for the first time in the Guidelines. This represents a somewhat higher level of accuracy than can be achieved with on-site testing.

It should be noted that the McKinney Act concept of using a .06 percent (by weight)

standard is not authorized in the Guidelines. Such a standard will only be implemented by final rule, after an analysis of whether testing/abatement to this level is scientifically and practically feasible.

Planning Abatement Activities

Once the need for abatement is identified, one section of the Guideline contains specific information on: Federal agencies to be contacted (i.e., HUD, EPA, OSHA), additional sources of local advice and assistance, coordination with Federal, State, and local agencies and, the roles and responsibilities of planners, abatement contractors, and abatement workers. In addition, a detailed section is devoted to finding a qualified contractor, developing the abatement plan, and coordinating and scheduling abatement work.

Abating the Lead Hazard

In performing abatement work -- as is true for many other health-related choices -- a balance must be struck between the efficacy of the methods and the costs incurred. Any abatement activity must be conducted with appropriate protection of the workers, residents, and the neighborhood-at-large. When the abatement is finished, the property must be a safe place for adults and children to live. But, this process -- which may extend to hundreds, or thousands, of units -- must be completed within a realistic financial budget.

The costs we incur must not be so prohibitive that they deter abatement activity. Obviously -- as we have heard, and will hear -- there are still unsettled questions in the field of lead abatement that require investigation. Experts are not yet certain what residual concentrations, and total amounts of residual lead in dust, are compatible with safety for residents. Questions also remain about how effective the various clean-up and containment methods are in reducing residual lead dust. Some of the answers to these questions will only result from the field experiments now being conducted by HUD to determine which abatement methods are acceptable in large-scale lead control programs. But, the fact is that we can't wait for all the answers before initiating abatement projects.

So, the Guidelines are based on what is now known -- and, the experience of housing and public health officials who have undertaken LBP abatement over the years.

The Guidelines deal with an updated approach to abatement, which concentrates on:

-- selection of a cost-effective abatement method
-- relocation/protection of occupants
-- protection of workers
-- use of containment and careful work practices to minimize hazards and ease clean-up
-- careful post-abatement cleaning
-- the barring of re-occupancy until specific clearance criteria are met

In general, the HUD philosophy behind selection of an abatement method can be summarized as: the method is safe if

--workers are properly protected

--the unit is unoccupied, or occupants are protected

--containment is in place during abatement

--units are cleaned well enough to meet re-occupancy standards

The Guidelines go into great detail in discussing three abatement methods: replacement, encapsulation, paint removal -- and, the strengths and weaknesses of each. Additional factors -- beyond method strengths and weaknesses -- are also discussed, in order to help assure that the best abatement method is chosen. Such factors include:

-- need/availability of skilled labor

-- need for alternative housing

-- need for additional protective measures

-- need for repeated clean-up

-- condition of the housing components

-- and, the context of abatement with other needed renovations

Specific tables are given which illustrate acceptable abatement methods for individual interior/exterior housing components.

Worker Protection/Clean-Up and Re-occupancy

Worker protection is discussed thoroughly, with information from OSHA regulations. And, one chapter provides guidance on:

-- site preparation

-- containment

-- controlling off-site dispersal of lead dust/debris

-- occupant protection

-- recordkeeping, and abatement management

Since the goal of any abatement program is to provide an environment relatively free of lead contamination, clean-up considerations are discussed in detail. Alternative clean-up methods and procedures are thoroughly explained. Threshold clearance criteria (for re-occupancy) are suggested based on Maryland and Massachusetts State law. Procedures for testing, prior to final clearance, are also recommended.

Waste Disposal

In the abatement process, it is important to develop a philosophy of minimizing waste production -- and, preventing waste products from entering the environment. This, obviously, reduced the potential for environmental contamination or harm to residents -- and, reduces disposal costs. A clear understanding of regulations, and familiarity with the types of wastes normally generated during abatement, will help avoid potentially costly errors -- such as mixing hazardous and non-hazardous wastes, or mixing different types of hazardous wastes.

One chapter of the Guidelines deals with applicable Federal laws, and provides detailed information on waste identification and disposal.

Abatement in Units Occupied by an EBL Child

As I have said, the Guidelines primarily address the situation in which a PHA is abating a number of units at one time. But a particularly urgent situation arises when a child with an elevated blood-lead level is found to live in a unit, or is planning to move into a unit.

In order to minimize the damage to the child from ongoing exposure to lead hazards, such abatements must be performed on an accelerated schedule. Regulations require that the PHA must either:

-- test and abate such units, or

-- assign the family to a post-1978 unit (or one previously tested and found to be free of lead hazard).

In the event of the former:

-- testing must be completed within 5 days of PHA notification;

-- if full abatement cannot be completed within 5 days of positive testing, emergency intervention actions must be taken; and,

-- full abatement must be completed within 14 days after positive testing.

If funding sources are not immediately available for this type of abatement, the PHA may use operating reserves -- or, request reimbursement from current fiscal year CIAP funds, or reprogramming of previously approved funds.

Funding

This brings us neatly to the critical question in any discussion of lead-based paint abatement -- where is the money for these activities? There's not easy answer to that one... As much as we might wish it otherwise, there is an economic reality -- and, very often, the need for a trade-off between cost and numbers of units abated.

Even if we make the assumption that there are only two million units nationwide with deteriorated lead surfaces (probably a very low estimate), abatement on these units could

easily cost $10 billion. So, now is the ideal time for some creative approaches:

-- the use of lead abatement labor to earn equity in rehabilitated housing for the homeless or first-time homebuyers; or,

-- the training/use of unemployed workers in lead abatement projects.

Such approaches have the added virtue of addressing more than one of the pressing problems confronting us today.

In addition, private companies must be encouraged to develop new, and more cost-effective, lead abatement technology. Conferences, like this one, can serve as the "incubators" for more imaginative lead abatement solutions. Using these (and other) approaches to make the best use of our dollars, funding may already be available from State and local housing and community development programs -- particularly for low-income housing.

In addition, CIAP funds can be used for PHA lead abatement. PHA operating reserves may also be used to address LBP hazards found during routine maintenance, or for single-unit abatement for EBL children. Lead-based paint abatement is also an eligible activity under the CDBG program. Communities in New Jersey have been allocated over $83.7 million in these funds during FY 90. HUD doesn't have all the answers yet -- or, all of the funds necessary to implement those answers. But, I can assure you that this Department -- under the direction of Secretary Jack Kemp -- is firmly committed to providing decent, safe, and affordable housing.

The elimination of lead hazards in housing is critical to that commitment, because we know that safe housing -- in New Jersey and elsewhere -- is lead-free housing.

I -- and all of my staff -- will give you the closest cooperation in our joint effort to make lead-free housing a reality.

Thank you.

REMARKS

CHILDHOOD LEAD POISONING CONFERENCE

Frances Dunston, M.D., MPH.

INTRODUCTION

I am very pleased to have the opportunity this morning to make a few welcoming comments at this conference on Childhood Lead Poisoning Prevention.

As some of you may know, my appointment as Commissioner of Health is a reintroduction for me to the state of New Jersey. I worked here as a chemist for several years in the late sixties, right here in central New Jersey. The perspective now, however, is very much different.

As a pediatrician, I was pleased to see that, upon my return, New Jersey is so active at the state and national level in attempting to eliminate childhood lead poisoning. This is most clearly the most preventable of environmental diseases, and needs to be made a priority for the 1990s.

I am also pleased that New Jersey has in place an interdepartmental effort to prevent mental retardation and developmental disabilities. As in the case of childhood lead poisoning, there are several serious public health issues which affect mothers and children, such as low birth weight infants and vaccine preventable infectious diseases which still cause developmental impairment of too many of our children. The problems are large, and we will have to work together if we are to achieve the health objectives being set for the Year 2000.

I would like to take a few minutes and describe for you how the Department of Health views childhood lead poisoning and its prevention here in New Jersey.

I. HISTORY

For over thirty years, the New Jersey Department of Health has worked steadily to identify and treat lead-burdened children. In the late 1950s and early 1960s, many children with lead poisoning were not recognized until they arrived at hospital emergency rooms in convulsions. Coma, severe mental retardation and death were frequent complications of this poorly recognized "silent" epidemic. The primary public health effort during this period was to stop these preventable deaths and to develop the screening, diagnostic and treatment protocols and technology necessary to reduce these catastrophic effects of lead.

In order to direct and coordinate childhood lead poisoning activities throughout the state, the Department established the Accident Prevention and Poison Control Program in 1967. New Jersey passed, in 1971, one of the first state laws prohibiting the use of lead paint and requiring its removal from dwellings where children resided.

Federal support during the 1970s provided New Jersey with the funding needed to begin the first major prevention effort. Mass screening of children in high risk areas identified those with lead burdens before their symptoms became severe. Ten New Jersey cities received grants from the Centers for Disease Control during this period.

In 1977, the Department of Health strengthened its commitment to a prevention strategy when it adopted regulations requiring that childhood lead poisoning prevention be a core activity under Minimum Standards of Performance for all local health departments in the state. A major change in the efforts to prevent childhood lead poisoning occurred with the passage of The Omnibus Budget Reconciliation Act of 1981 which created the Maternal and Child Health Block Grant and which incorporated the previous direct federal categorical grants to local communities. Despite a 25 percent reduction in funding levels, the Department continued to support the all lead project cities. During this period of limited federal involvement, the Department continued to develop and implement an active lead prevention efforts under the MCH Block Grant.

In 1982, the Department expanded lead prevention activities to five new projects in an effort to assess the risk of lead poisoning for children living in suburban and rural areas of the state. As part of the MCH Block Grant needs assessment, the Accident Prevention and Poison Control Program, in 1987, conducted a statewide needs assessment

in conjunction with Princeton University. This assessment estimated that 177,000 or 30 percent of New Jersey children under 6 years of age are at high-risk for lead poisoning.

The Department's efforts to increase statewide awareness of the childhood lead poisoning problems in New Jersey and the advocacy of the newly formed Anti-Lead Coalition, under the leadership of the Paterson Head Start Director, Cecile Dickey, resulted in additional legislative action. Senator Graves, with support from the Governor's Commission on Children's Services, proposed a new law which mandated testing of all high risk children and provided the first appropriation of state funds for this purpose. This bill was signed into law in March, 1985. The following year, in 1986, the Medicaid EPSDT Program mandated annual lead screening for infants and preschool children who receive an EPSDT evaluation.

II. PROGRESS

Since the Maternal and Child Block Grant began in 1982 through 1989, the thirteen local projects funded by the Department have screened 380,763 children and identified 10,680 new cases of lead toxicity. For a state, 2.5 percent is a significant positive rate on a statewide basis. We learned from our expanded screening that low income children in rural and suburban areas are at lower risk for lead toxicity than urban inner city children. Urban demolition of old housing stock in cities such as Atlantic City and Camden also have reduced New Jersey's overall positive rate. Newark's positive rate remains at 8-10 percent and reflects the serious lead problems that still exist in high-risk areas.

Increased screening efforts have resulted in earlier identification of children with lead poisoning, thus reducing the number of urgent and high risk cases requiring immediate hospitalization for treatment to lower blood lead levels.

There has been a 67 percent increase in the number of children screened for lead toxicity (35,534 in 1982 to 59,481 in 1988). The New Jersey positive rate has decreased from 5.4 percent in 1982 to 2.6 percent in 1988 (1,930 new cases in 1982 to 1,525 new cases in 1988).

Through the work of the New Jersey Lead Consortium physicians, Dr. Anna Haroutunian, Dr. Steven Marcus and Dr. Antonia Ty, and other key physicians across the state, ambulatory treatment and chelation services have been established to better meet the need of the increased level of screening.

These initiatives have increased the number of children requiring medical management for lead absorption from 1,672 children under care in 1982 to 1,957 children under care in 1989. Careful follow-up by the staff of lead projects and local health departments throughout the state have kept 86 percent of these children current in their medical care.

Despite these accomplishments, New Jersey is reaching only one-third of its high risk children. The inability to "get chronically lead poisoned children well" however, reflects the serious lack of resources (federal, state and local) necessary to achieve timely and effective abatement of lead paint and related lead hazards in these childrens' environment.

III. PROBLEM

Lead is a pervasive toxin that continues to contaminate our environment. Dr. Needleman's extensive research clearly demonstrates the negative health effects of lead on our children's educational outcomes. The resulting long term social and economic consequences for our State and Nation should motivate us to improve our current efforts to reduce lead contamination.

Significant progress has been made in reducing exposure from air and water through the removal of lead from gasoline and the ban on lead solder in plumbing. Existing lead paint in our housing and lead in dust and soil, however, remain as major sources of ongoing exposure for our children. Remediation efforts until now to delead houses and to reduce exposure from dust and soil have been largely unsuccessful.

In New Jersey, there are more than 1.7 million houses, 65 percent of the total housing stock, built before 1960 which are likely to contain some lead paint at potentially toxic levels. We are left, therefore, a generation after we began, with the challenge to find new solutions for an old and serious problem.

IV. FUTURE

It is helpful in such a difficult campaign to have a champion and Senator Frank Lautenberg deserves our special thanks and appreciation for his role in reestablishing

federal support for lead prevention activities though the Lead Contamination Control Act of 1988.

The Department of Health is eager to apply for the new grant funds and looks forward to joining forces with the Department of Community Affairs, the New Jersey Office for Prevention of Mental Retardation and Developmental Disabilities, and the other state departments represented on the Interagency Lead Task Force, in designing a model community-based childhood lead prevention program.

It is now time to remove the lead from our children's world and go beyond the secondary prevention approach modeled after the miners and their use of canaries. Miners used to test for poison gas by carrying canaries down into the mine shafts. If the canaries died, the miners knew not to go down into the mine. In a very similar way we still tag houses in need of abatement by finding lead poisoned children. We do not take that approach to any other hazardous waste. There are easier ways to identify houses in need of an environmental clean up.

In this regard, two New Jersey communities deserve special recognition for their commitment to the primary prevention approach of: identifying lead paint hazards in housing before children are poisoned and facilitating the abatement of these houses.

Paterson is now by city ordinance requiring lead inspections and abatements of multi-family dwellings or apartments before a certificate of occupancy can be issued. Since February 1985, 1,763 dwelling units in Paterson have been inspected by local health department sanitarians. Of these units, 555 had lead paint hazards identified and abatement was completed in 549 of these residences (99 percent).

Creative initiatives by the Jersey City Lead Program Advisory Committee have negotiated $100,000 of community redevelopment funds to help families of lead-burdened children with abatement costs (see workshop descriptions section). These and similar actions need to be expanded statewide if we are serious about our commitment to the primary prevention of lead poisoning.

We face some difficult choices as we attempt to allocate existing resources. The concern to initiate programs which identify every mildly exposed New Jersey child must be balanced with the need to increase our efforts to effectively treat the more seriously

exposed child. Poor and minority children, especially those in inner-city areas, are easily ignored, yet these children face the highest risk of lead exposure in their homes and neighborhoods and frequently suffer the most severe damage to their cognitive and emotional development. Adults, not children set the rules and the priorities for the society in which we live. It is up to us to decide today and in the future whether or not we are willing to take the steps necessary to protect children from lead before they are poisoned.

THE CENTERS FOR DISEASE CONTROL LEAD POISONING PREVENTION EFFORTS

Vernon N.Houk, M.D.
Assistant Surgeon General
Director
Center for Environmental
Health and Injury Control
Centers for Disease Control
Public Health Service

I am delighted to have this opportunity to address the Second Annual Lead Poisoning Prevention Conference sponsored by the Office for Prevention of Mental Retardation and Developmental Disabilities. Conferences such as this are important because they remind us that this disease is still with us. It has not gone away.

Of the diseases that affect U.S. children, lead poisoning is the most common environmental and the most socially devastating. It is more common than most serious infectious diseases. In 1984, the last year for which estimates are available, 250,000 children were thought to have blood lead levels currently defined as elevated. More than 3 million children were thought to have blood lead levels above 15 micrograms per deciliter (ug/dl), levels high enough to cause adverse health effects.

Childhood lead poisoning does affect children in all parts of the country and in all socioeconomic strata, but it disproportionately affects poor, inner city, minority children who

are already disadvantaged by poor nutrition and other factors that make them particularly vulnerable to this disease. Make no mistake, however, no child, regardless of race or socioeconomic status, is immune. People say the studies on health effects are done on poor children from disturbed societal situations. This is not true. The children from the Somerville-Chelsea study by Dr. Herbert Needleman, from the Boston studies by Dr. David Bellinger, and from the Australian studies, do not fit this description.

Lead is a poison that affects every system in the body. Lead exposure is particularly harmful to the developing brain and nervous system, making it especially devastating to fetuses and young children. Very severe lead exposure can cause coma, convulsions, and even death. Lower levels of lead, which rarely cause symptoms, result in decreased intelligence, developmental disabilities. behavioral disturbances, and disorders of blood production. Many serious effects of lead are irreversible. Children who have moderate blood lead levels when they are very young have markedly increased school dropout rates, difficulties with reading, and a decreased ability to learn.

We have known for decades that childhood lead poisoning is preventable. In the 1970s and 80s, Federal regulatory actions significantly reduced or eliminated lead from many consumer products, including new paint and gasoline. Federal agencies continue to take actions to further reduce lead in water. soil, air, and the workplace. Before these efforts began, however, millions of tons of lead were widely dispersed throughout the environment, and we still have to deal with them.

Until we eliminate the environmental sources of lead, we will continue to have a significant childhood lead poisoning problem. Removing the lead hazards from a child's environment is the only permanent solution to this problem.

We are now using our children as sentinel pheasants or canaries. When we find children with elevated blood levels, we examine their environment and <u>may</u> take action. This is the counter to true prevention action and is blatantly unfair to our children .. the most important asset of this country or of any country.

Unfortunately, we are making little progress in eliminating leaded paint from older housing, which is the major source of high.dose lead poisoning in the Nation. Abatement

of lead.painted homes is an essential part of both the prevention and the treatment of childhood lead poisoning.

At the Centers for Disease Control (CDC), we would like to see the Department of Housing and Urban Development (HUD) expand its role as it relates to the public health of our children. Current legislation does not provide funds for lead hazard abatement, which is an integral part of the treatment of childhood lead poisoning. It is also the crucial first step in preventing new cases. Abatement programs must work in tandem with public health programs to ensure that the homes which are abated first are those that either have lead poisoned children or are likely to poison children in the near future.

Because of limited resources. current screening programs can identify only a small fraction, less than 10 percent, of lead-poisoned children. Most children whose intelligence and development are being affected by lead are never identified. To eliminate childhood lead poisoning, we must have as an essential part of our national strategy, increased funding for intensive screening in high-risk communities.

I am not going to cite the many convincing statistics that underscore the need for new, expanded, and improved childhood lead poisoning prevention programs, but I am going to give you a brief historical perspective of the problem. Childhood lead poisoning was first described in the 1890s in Australia. It was not until the 1940s that the severe effects of lead poisoning were recognized in this country. Then, we were concerned about blood lead levels of 80 ug/dl; by the 1960s, we were concerned about 60 ug/dl; in the 1970s, it was 40 ug/dl; and by the middle 1980s, we were concerned about levels as low as 25 ug/dl.

As we learn more about lead, we see conclusive evidence that adverse effects on the fetus and child begin with blood lead levels of 10 to 15 ug/dl. Such problems may be present at even lower levels. If there is a threshold for the adverse effects of lead on the young, it may be near zero ug/dl.

From 1973 through 1981, CDC administered a categorical grant program to fund lead screening and follow-up activities in State and local health departments. During this period, more than 100 communities in 40 States received financial assistance for lead poisoning prevention activities. More than $89 million was distributed, and a quarter of a million children with elevated blood lead levels were identified and received referrals for medical

and environmental intervention. This grant program was the principal means by which lead poisoning in children was diagnosed and, in turn, housing most in need of abatement was identified. Little or no financial resources were available, however, for environmental abatement.

In 1981, these categorical grants were made a part of the Maternal and Child Health Services Block Grants to States, which was administered through the Health Resources and Services Administration. Under the block grant program, each State sets its own priorities for using these funds.

In 1988, Congress passed the Lead Contamination Control Act (H.R. 4939), which authorized new Federal categorical grants, administered by CDC, to State and local government agencies for childhood lead screening, referral of children with elevated levels for treatment and environmental intervention, and education about childhood lead poisoning. Until just this year, however, no funds were appropriated. The program now has $4 million of the $22 million authorized grant funds.

In response to the mandate for CDC to restart a childhood lead poisoning prevention program, CDC has continued or has begun a number of activities:

Grant Program. Using the money available in 1990, a grant program is expected to support comprehensive screening and follow-up programs in three to six States, counties, or cities with a demonstrated severe childhood lead poisoning problem. Although many more States and communities need to implement such programs, this grant program is an important first step in identifying children at high risk for lead poisoning. The Federal Register notice announcing the availability of $2.5 million in grants was published in mid-April. In the meantime, CDC staffers have been meeting with State and local agencies and others to provide consultation on childhood lead poisoning prevention. Once the grants are awarded, CDC will continue to provide technical assistance and consultation to both funded and nonfunded programs.

Strategic Plan for the Elimination of Childhood Lead Poisoning. CDC is developing a plan for eliminating childhood lead poisoning during the next 20 years. Under the plan, CDC will examine the costs and benefits of abating lead-contaminated homes and make recommendations for the steps that must be taken to eliminate childhood lead poisoning.

CDC Lead Statement. CDC is convening an advisory committee to update the 1985 CDC lead statement, Preventing Lead Poisoning in Young Children." The updated edition will take into account results of recent well conducted prospective studies that have shown adverse effects on children's health at blood lead levels previously thought to be safe. The statement will provide guidelines for pediatricians and screening program staff on how to screen children for lead poisoning and conduct follow-ups of children with elevated lead levels. Emphasis will be placed on lead abatement and prevention. Final guidelines are expected to be published by early 1991.

Proficiency Testing Program. CDC, with the Health Resources and Services Administration and the University of Wisconsin, administer the Blood Lead and Erythrocyte Protoporphyrin (EP) Proficiency Testing Program. Through this program, participating laboratories evaluate each month how well they can measure lead and EP levels. Laboratories that perform poorly receive technical assistance. Several hundred laboratories routinely participate in the program. New laboratory evaluation techniques are being developed to accurately measure blood lead at the lower levels.

Epidemiologic Studies. We are evaluating data from screening programs and other sources that will help to improve childhood lead screening efficiency. For example, we are working with the City of Chicago to analyze data about the sensitivity and specificity of the currently used screening test for lead poisoning. We are also helping public health officials in Louisville, Kentucky, evaluate a screening form for determining which housing is most likely to poison children. Several essential studies

that CDC plans to conduct include an evaluation of ways to improve the efficacy of screening and a further examination of the relative contributions of different lead sources to children's blood lead levels.

National Surveillance. The only data now available for estimating how many children have elevated blood lead levels are from national nutritional and health status surveys that are conducted about once a decade. These data, although extremely valuable, can be used to monitor only long term trends. They cannot be used to characterize geographic distributions of the disease or the relative importance of different environmental sources of lead on a population basis .. information that is essential to any national effort to eliminate the disease. To address such information needs. CDC is working with the Association of State and Territorial Public Health Laboratory Directors, the Council of State and Territorial Epidemiologists, and the National Institute for Occupational Safety and Health to develop an ongoing laboratory-based surveillance system for elevated lead levels.

Traditionally, surveillance has been conducted for many infectious diseases by making them reportable conditions. States are beginning to include elevated blood lead levels among their reportable conditions. New Jersey is already among those States that report elevated blood lead levels in workers. The Council of State and Territorial Epidemiologists recently recommended that elevated blood lead levels be made reportable to State health departments and to CDC. CDC is working closely with a number of States to strengthen their surveillance efforts.

NHANES III. We are now measuring the blood lead levels as part of the Third National Health and Nutrition Examination Survey.

Cooperative Activities. CDC is continuing to work with the American Academy of Pediatrics, the Department of Housing and Urban Development or HUD, the Environmental Protection Agency, other Federal agencies, State and local government agencies, the media, parent groups' and anyone else who will listen to

develop a concerted effort to eliminate this entirely preventable disease from the country and, we hope, from the world.

CDC has a cooperative working relationship with HUD. In 1988, the National Institute of Building Sciences received a contract from HUD to develop guidelines for lead-based paint testing and abatement in public and Indian housing. CDC participated in the development of these guidelines, which were published in the Federal Register on April 18, 1990.

HUD also has a demonstration project designed to evaluate alternative methods of lead-based paint abatement. CDC has been evaluating worker exposure at these projects. On the basis of data collected so far, CDC has provided HUD with interim recommendations. Involvement in this Project is ongoing.

CDC also participates in a number of interagency working groups that address issues related to childhood lead poisoning and lead-based paint in housing.

Disabilities Prevention Program. CDC has begun the Disabilities Prevention Program, which has worked closely with the National Council on Disability to develop a national program to prevent disabilities. This program has supported cooperative agreements with nine States, including New Jersey, and four institutions. These projects target selected disability groups, including people with developmental disabilities. Some State developmental disability projects focus on childhood lead poisoning prevention, as in New Jersey.

Conclusion

The activities being conducted by CDC and others represent an important step toward protecting children from the adverse effects of lead. After nearly two decades of effort, we know that mass screening and public education, although important, are not enough to eliminate this disease. The key to eliminating childhood lead poisoning is to prevent it from occurring. This requires eliminating the source of exposure, which, for most poisoned children, is lead-based paint. The greatest impediment to our preventing this disease is the high cost of abating lead-contaminated paint in older housing and lead-

contaminated dust and soil around these older homes and other dwellings. Unless adequate abatement is carried out, and unless abatement is tied to public health programs designed to identify children at risk for lead poisoning, we will continue to have lead-poisoned children for generations to come.

Resources and programs efforts to prevent childhood lead poisoning have barely begun to ease the burden of this disease and its cost to society, but your presence here indicates to me that New Jersey is trying to change that.

All of you here today, especially those who represent State and local government agencies, can do much toward this end by assuming a number of responsibilities that will promote the national agenda to eliminate childhood lead poisoning within the next one to two decades. This effort includes developing surveillance systems to detect elevated blood lead levels, developing and implementing comprehensive, multifaceted intervention programs; providing information; and even promoting appropriate public policy and legislative proposals.

The future of the childhood lead poisoning prevention program looks bright. With our first categorical appropriation for childhood lead poisoning prevention in nearly 10 years, we are optimistic that the funding level will grow and that with this new momentum we will secure an institutionalized status for childhood lead poisoning prevention programs in State and local government agencies.

Much of what I have said today has focused on CDC, but I know that your interest and commitment are the real keys to success in preventing childhood lead poisoning. Our children and the children of future generations are depending on you.

I look forward to the fruits of your labor.

Thank you.

FRANK R. LAUTENBERG
NEW JERSEY

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COMMITTEE:
BUDGET

COMMITTEE:
ENVIRONMENT AND PUBLIC WORKS

SUBCOMMITTEES:
SUPERFUND, OCEAN AND WATER PROTECTION, CHAIRMAN
ENVIRONMENTAL PROTECTION
WATER RESOURCES, TRANSPORTATION AND INFRASTRUCTURE

HELSINKI COMMISSION

May 11, 1990

Governor's Council on Prevention
of Mental Retardation and Developmental Disabilities
c/o New Jersey Department of Human Services
222 South Warren Street
Trenton, New Jersey 08625

Dear Friends:

A silent killer lurks among us. It contaminates our soil, our water, our air and even our homes. You are all very familiar with the damage it has inflicted on our children and the threat it presents to their futures. Lead is the killer, and I am proud to join with you in the fight to "Get the Lead Out" of New Jersey.

Because my presence is required at an Aviation Security Commission meeting in Washington today, I am unable to be present at this conference. I would, however, like to take this opportunity to commend the Governor's Council on the Prevention of Mental Retardation and Developmental Disabilities for its fine work in lead poisoning prevention efforts.

New Jersey has distinguished itself as a leader in developing innovative ways to combat lead poisoning. The Interagency Task Force's approaches--developed with the expertise of representatives from the Departments of Community Affairs, Education, Environmental Protection, and Health and Human Services, as well as from grassroots organizations such as the New Jersey Anti-Lead Poisoning Coalition, the Coalition on Prevention of Mental Retardation and Concerned Parents for Head Start-- have the potential to serve as a national model. Few states have as many talented and committed individuals working together to combat a very serious health hazard.

Congress has acknowledged the severity of the lead poisoning problem, and in 1988 passed the Lead Contamination Control Act. Part of that Act authorized funds for the Centers for Disease Control to award grants for community programs designed to combat childhood lead poisoning.

REPLY TO:

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WASHINGTON, DC 20510
(202) 224-4744

☐ ONE GATEWAY CENTER SUITE 1510
NEWARK, NEW JERSEY 07102
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SUITE 408 SOUTH
CAMDEN, NEW JERSEY 08103
(609) 757-5353

As many of you know, Congress appropriated $4 million for the lead poisoning program for this year. Many of you may also know that I secured language in the report accompanying the Senate appropriations bill to ensure that our state will receive at least $500,000 in grants out of the $4 million provided for the Centers for Disease Control program. My staff has been working with CDC and the state to make the funds available to the state in the near future. I how that this money will help New Jersey win its fight against lead poisoning.

While $4 million is a good beginning, it is not enough. Much more needs to be provided for this program if we are going to get the lead out of our children's lives. As a member of the Senate Appropriations committee, you can be sure that I will continue to work hard to obtain funding for lead prevention efforts, both in New Jersey and throughout the nation. Lead poisoning is a very serious problem that requires very serious action.

Best wishes for a successful conference.

Sincerely,

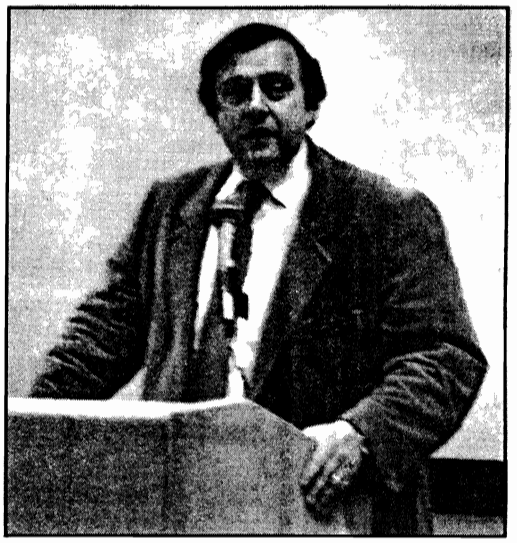
Frank R. Lautenberg

Senator Frank Lautenberg

REMARKS

Bob Smith
Assemblyman
Chairman
Energy and Environmental Committee

New Jersey Assembly



On behalf of state government let me thank the Task Force on Prevention of Lead Poisoning for their hard work on developing the legislative recommendations that hopefully that we in the legislature can implement. I can tell you that as a result of their memorandum of recommendations that even while we sit here having lunch, the Office of Legislative Services is and has been for some time drafting at least seven bills dealing with the lead problem here in New Jersey as well as a number of resolutions asking the federal government to do its part. That will happen this summer.

I chair the Energy and Environment Committee; the lead package will be in the Assembly Energy and Environment Committee this summer for hearings. I invite all those present here today who have an interest in this to come forward at the hearings and to tell us what we can do to improve the legislative package or to indicate the degree of the problem. I don't think that anyone in this room has to be sold on the problem.

The biggest single problem associated with lead legislation is money. We in New Jersey have been Reaganized. The federal government is paralyzed because there is such a crippling federal deficit due to unbelievable military spending during eight years of that administration. There are no new social programs, no money being properly allocated to the needs of our citizens. Well, in New Jersey I guess we can say that we have been Keaned. When Jim Florio took office, he unlike all past governor's of the state of New Jersey--normally they come in they gripe about the fact that they have no surplus--that the prior government ate up the surplus and isn't that going to make the next budget more difficult to do.

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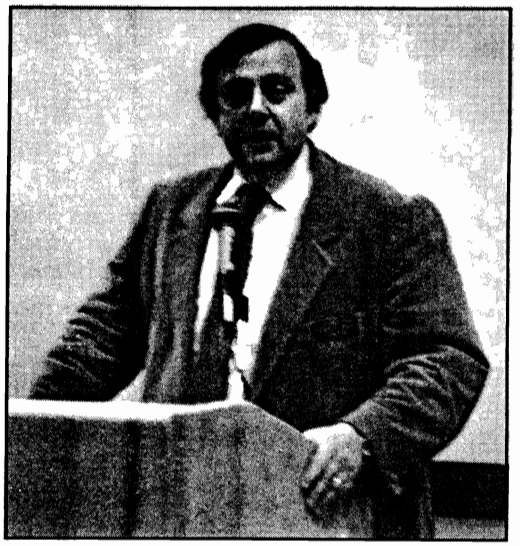

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Unfortunately for Governor Florio, when he came into office, the minimum hole in the existing budget--the budget that he walked into--was 600 million dollars. And if you watch your New Jersey Nightly News you now know that that is looking worse. Never in the history of the state of New Jersey has any governor walking into office ever had a hole in the existing budget. So at night I light a candle for Jim Florio. If you come by my home in Piscataway, New Jersey, you will see a lighted candle in the window. I say prayers, and I'm not an overly religious person--because it's so bad.

Now the question that I have for you--and I hope that somebody will jump up and shout out the answer--is where do we get the money? If we've been Keaned and if we've been Reaganized, how do we get the money to do the proper screening of our kids, to provide loans for the rehabilitation of housing to remove the leaded materials and to do all the things that we are supposed to do?

In providing the funds for lead, environmentalists may say that you are not providing us with the money we need to take care of the environment in the state or the mosquito control people may say that you are going to have more encephalitis in the state of New Jersey, and so on. What the Governor and the treasurer have told us on the appropriations committee is that if you have a new program that you better figure out how to fund it. I think I have an answer. I just want to check-- are there any reporters in the room? Are there any members of the Press present? Okay. Now don't write this down.

The good news and the bad news in New Jersey, depending on your point of view is--well its bad news but maybe we can turn it into good news. Is that in New Jersey in 1989, 600 million gallons of leaded gasoline was consumed. That's 19 percent of all the gas consumed in the state of New Jersey. And everyone knows that when that gasoline goes through your internal combustion engine and comes out your tail pipe you know what comes along with the carbon dioxide and water hydrocarbons and nitrogen oxide--lead. Which ends up in the soil, water and air that you breathe and so on.

I don't think that it would be unreasonable to say that at least two cents on a gallon of leaded gasoline to provide funds for programs to screen our children, to provide the proper health care, to clean up housing would be that unreasonable. If we did two cents on leaded gasoline it would raise at least 12 million a year. What do you think? (clapping)

Now I have to tell you that that hand clapping was better than I expected. Any politician in New Jersey that uses the "T" word usually gets stoned. Now I don't mean stoned as in alcohol use--but stoned as in against a wall.

When this summer legislative package comes up before the New Jersey Assembly and in our committee, will you do me a favor and will you do those kids a favor? Will some of you come down to our hearings and say that the governor and the legislators would not be evil people if they put two cents on a gallon of leaded gasoline. Would you do that for me. Would you do that for me. Could I hear that response one more time? [Audience responded yes.] Would you do that for me? Okay. When.

We're looking at hearings in August and hopefully getting a bill package out. Then it has go through the rest of the legislative process which means approval by the assembly, though the legislative process in the Senate and then the governor has to sign it. The rule is in New Jersey is that you have to have 41 assembly people, 21 senators to vote for bills and one governor to sign it for things to happen.

So if we all got behind this, there is a chance that we could see some action this year. I have to tell you, knowing what I know about the legislative process and knowing what I know about the trauma that legislators will be in on July the first. You know that New Jersey has a constitution that requires a balanced budget by midnight June the 30th for the following year. But on the first you are going to see legislators with blood-shot eyes and who are going to look like they have been trampled by rhinoceroses; just wiped out. They're going to need a little moral support to help this package along. I would hope that for the kids sake that you would call their offices and say that I know that you had to bite the bullet on some of these very difficult tax issues and on the state budget, but would you consider two cents on a gallon of leaded gasoline for the kids of the state. If you do that, maybe we will have a happy ending to our story.

I wish you a great conference.

GETTING THE LEAD OUT
FEDERAL EFFORTS TO REDUCE LEAD EXPOSURE
Senator Bill Bradley

Thank you very much, Judy, for that very generous introduction, which you started by saying she's going to refer to a period of history, I thought maybe it was the 69-73 Knicks period, but the renaissance is maybe even more generous and I appreciate that. You know, I hope the conference has gone well today. I know there have been some really good people here and I think we have a real problem on our hands. And so what I'd like to do is spend a few minutes with you talking about some of the things I'm trying to do in Washington for lead in the environment, and trying as well to share with you my own personal involvement with this issue.

I know that all you in this room are the experts so I'm not going to get too technical here because you will help me think the problem through. But to set a little tone, I'd like to tell you a story.

It's about me in 1964 when I was a member of the US Olympic basketball team. I figured that we were going to play the Soviet Union in the final game. So I went to a Russian professor in college and I said, "could you give me a few words I could use in case I get into trouble out there on the floor against the Soviets." And he said, "What do you want to know in Russian?" And I said, "How about 'Hey, big fella, watch out.'" And so he gave me the words in Russian. And sure enough, we got to the final of the Olympic games and I got out on the floor and my opponent was 6'7" and weighed 240. I was my present height and weighed 195. About 8 minutes into the game he gave me an elbow up along my upper chest and lower neck, and I fell back, lost my voice briefly, gathered myself, remembered what the professor said, looked at him and said, "Botcha da rushna!" which literally translated means "Hey, big fella, watch out." Right? He fell back, looked astonished, and a funny thing happened. Up until that moment, the Soviets had called all of their plays verbally. But after that moment, they stopped talking to each other. We went on to win the gold medal, and the professor deserves all the credit. But there's a little moral there and the moral of that story is, be prepared. Be ready.

That's kind of how I've tried to live my life, both politically and when I was a

basketball player. On the other hand, be ready, be prepared clearly does not apply when it comes to lead in our environment. I first got involved with the issue of lead a long time ago. I had an uncle who worked in a lead factory for about 30-40 years. He developed all kinds of health problems, died earlier than he otherwise would. From an early age, then, lead has been a part of my awareness. And the danger of lead in the environment has been a part of my awareness for a long time.

That's why, back in 1984, when I heard that there were some homes down in Ocean County that had very high levels of lead, I responded. I looked into it, and I discovered that lead was leaching from brand new pipes. At the time I said, that shouldn't happen. That shouldn't happen again. As a result, an amendment to the Safe Water Drinking Act completely banned lead in drinking water systems, lead solder. The building code in New Jersey changed as a result of that law.

And so, lead reappeared in my life. And then I began reading some recent testimony taken in the Senate. First health professionals coming to detail that lead is not just a problem of kids in the cities who eat lead paint off the walls, but lead in our environment is a problem of many sources from many places and effects a lot of people. One professor who testified said unless we do something about lead, that the number of people, kids, who have IQs over 125 could decrease by 50 percent. Well, that is a startling statistic, whether that is correct or not. The fact is simply that lead is a dangerous substance in our environment. It has potential dangerous effects on intelligence and we've got to do something about it.

I was reminded of that further when one of my staff members took his child to the doctor. Because we'd been working on the lead issue, he told the doctor to go check the child's blood lead. As you know too well, you don't get lead in the blood levels checked when you take your child to the pediatrician with an ordinary examination. So the doctor checked the blood level. The doctor came back and said, "Well, it's OK. It's 22 micrograms per deciliter and the CDC limit is 25 micrograms per deciliter. So he's all right." Well, my friend said, "Wait a minute, I understand the man from CDC was just here, and they're going to lower that level." The doctor responded, "Well, they haven't lowered that level yet and I only know what the official level is." Well, you know, what are you going to say if

you're the parent of a child who has 22 micrograms per deciliter of lead in the blood? You know what effect it has on intelligence, you know particularly the danger period's up the first 57 months, and you work in my office, and you know how I feel about lead, and you have been involved in some of these other issues. My staff person comes back and tells me, that we really have to do something about this. Just think of the other parents who are out there, in New Jersey. One group estimates as much as 60 percent of the kids in northern New Jersey have elevated blood lead levels that are above the 10-15 microgram per deciliter level. There's got to be a sense of urgency about this.

Therefore, because of those actions, and those experiences, we have introduced what I think is a comprehensive ban on lead, and more importantly in the terms of immediate emergency, I've written a letter to every pediatrician in New Jersey and told them the CDC is about to lower this level and we ought to begin to get ready in your normal examinations to think about testing the lead levels in the blood of kids. Some have responded to that. In part, as a result, I was in a pediatrician's office up in Bergen County just last week and the pediatrician's son was in the office to be checked that day. Now maybe that's because I was there. I had balloons and all kinds of things, but nonetheless, he had not been checked before.

So we are up against a serious health problem that is much more pervasive than many imagined, and about which there are some very clear things to do. And that brings us to some of the things that I've suggested in my bill.

Take one example, these water coolers that are lead-lined tanks. Can you imagine drinking water that's been sitting in weeks in a cylinder made out of a potent neurotoxin, like lead? The Consumer Products Safety Commission was supposed to recall those things under a 1988 law. But they haven't done it yet. So what this bill would say to the Consumer Products Safety Commission, "Why haven't you done it yet? Why should there be any of those coolers out there, with potential toxic effects?" Lead is still used in food packaging. More than a billion food cans a year have lead solder, even though there's no need for it. Many of the cans containing lead are big institutionalized containers, the type intended for school cafeterias. What my bill would do is say, get the cans out of the schools, get the lead out of the children's food for good.

When you go to purchase your goods at the store, you figure somebody's looking out for your health. Not when it comes to this issue, I'm afraid.

What about the 300 million pounds of lead every year that enter the environment from batteries. How about that? They're mostly car batteries. Mostly we recycle them, perhaps 80 percent of the car batteries, depending on the price of lead. Well, I think we ought to recycle 100 percent of the car batteries. You might throw an old battery into a landfill someplace. You might put it in an incinerator, burn it or packages that contain lead. The lead goes up into the air, the lead then falls down on the soil and your child goes out and plays in the soil and is exposed to unacceptably high levels of lead. You take him to the pediatrician and you say "Well, there are 22 micrograms per deciliters in his blood, how did that happen?" It happened because we've been careless when it comes to this toxic substance.

On lead batteries, there is some good news for New Jersey. In the supplemental appropriation that has moved out of the Senate, there is a $500,000 demonstration program in there for New Jersey to be the first state to be able to demonstrate you can recycle 100 percent of lead batteries. And in this bill, people say, "How are your going to pay for that?" Well, I just don't want a demonstration program. I want to take care of New Jersey first, make no mistake about that, but I also want this to be a national program. It's going to cost a little more than 500 thousand or a million dollars. So my suggestion is 5 cents, 5 cents on essentially each ounce of lead, for a leaded battery. It's not a whole lot. But it's enough to finance a real recycling campaign.

Now, take another issue. I faced this in the Clean Air Act, straight on. Here we're considering a Clear Air Act. The Clear Air Act says in one of the provisions that leaded gasoline shall be banned in five years. Five years? Why five years? Why four years? Why three years? Leaded gasoline, out the tail pipe, up to the sky, lead in the air, back on the soil. Your child goes out and plays and develops unacceptably high levels of lead. Why 4 or five years? Farmers have problems, came back the response. Exempt the tractors. Oh, didn't think of that. I say, ban lead in urban areas in two months. Ban leaded gasoline in urban areas in two months. Then give some of the less urban areas a little time, but not five years. Not five years. Give them a year, two years, max. It's too pressing. There's got

to be more public awareness.

Now what's going to happen is that we're going to have more people who understand that lead is dangerous, a threat to children. There's got to be more testing. As a routine, kids have to be tested. As a regular course. And then, of course, there's the question, what if you are one of those families, like, as a detective, the member of my staff is, who lived in an old house that had a lot of lead paint in the house? What do you do about that? Well, you know, you go to a doctor, and you're a parent and you find high, elevated levels of lead in the blood, and you say to the doctor, "Well, what do we do?" Should we sand blast off all the old paint, risking even more exposure from fine lead dust? Or should we move, should we sell our house and move? Should we look around for other sources in addition to the lead paint? Or should we just try to ignore it, pretend it isn't there? The fact is, we need better ways to remove lead paint than we know about now. Another part of this bill will be $30 million, 10 a year, to try to figure out a better way to get lead paint out of places where it is than simply scraping it or sand blasting it.

All of you are experts, you've dealt with lead poisoning for a long while. You probably understand better than any group of people in New Jersey about how pervasive it is. I personally am going to look to you for help in the legislative process as we move this bill through. There are going to be a lot of people who are going to be complaining. Oh, if you remove lead from the environment, you will hurt x, y and z. I'm not saying remove all lead from the world. I'm saying, remove it from those areas where it is most likely to contaminate the environment for children. And do it now.

Sometimes the lead lobby reminds me a little bit of tobacco lobby. They're not as bad, but they remind me of that. And that's where we have to stand together. That is what I intend to do. This is a fight I'm in for the duration. If we get $500,000 for a demo in New Jersey and it shows because of Judy's leadership and all of your involvement that we can recycle 100 percent, next year I'm going to get that nationwide and we're going to go after this issue persistently and with knowledge and with results. Because our kids deserve no less. So please join me, as I know you're already a member of the "Get the Lead Out" campaign.

Thank you very much.

REMARKS

William Waldman
Deputy Commissioner
Department of Human Services

INTRODUCTION

Senator Bradley--Thank you. Not just for being here today, but for waging a crusade against lead poisoning on our behalf in Washington. Your remarks underscore a simple truth: no single individual, no single community or city or town, no single county or state or federal agency, can resolve all the problems caused by lead.

Today's program has given us some ways to make a difference, to "get the lead out." The problems seem insurmountable, the costs in human and economic terms are staggering. We find ourselves thinking: "Lead is everywhere. We can't remove it entirely from our environment. We can't protect all of the children who need to be protected. The costs are too high." And we've learned today that those costs are very, very high. But the old proverb says, "Even the longest journey begins with a single step."

We can take that step in the same way that Cecile Dickey, President of Head Start, took it. As you know, Head Start serves children who are the poorest of the poor; children who live in dilapidated housing where they eat lead chips because they are hungry and the paint is sweet. Yet each child in Head Start is screened for lead. That's a very positive step. Sure, there's a lot more we need to do.

We need to remove the lead from the homes of these children and make sure that they have wholesome food to eat. But Cecile has given us a great example of how we can break the lead problem into manageable components. How we can start to resolve one component at a time. This way, the problem won't seem so overwhelming.

We've take this approach in the Department of Human Services. Four of our divisions are tackling the lead problem: Our Division of Medical Assistance, Medicaid, offers the Early Periodic Screening and Diagnostic Testing program. Children up to the age

of 21 who are eligible for Medicaid may be evaluated through this program. All children who receive these services are screened for lead. Our Division of Developmental Disabilities insures that lead paint is removed from the Developmental Centers. This helps to protect residents from becoming ill due to ingestion of lead chips. Our Division of Youth and Family Services works with children and their families who may reside in the older structures that still have lead paint in them. Similarly, our Division of Economic Assistance has contact with poor women and children who are most likely to be exposed to lead in their homes.

In addition, our Office of Prevention for Mental Retardation and Developmental Disabilities and our Office of Child Care Development have direct concerns about how lead affects children. Our Office for Prevention is committed to primary prevention by educating the public about the problems caused by lead--before they happen. This conference, which they sponsored, with support from the Centers for Disease Control and from each of you, is a good example of their advocacy. Each of these divisions and offices work with agencies on the local, county and federal levels.

We're also working together with other departments. For example, in 1988, the Departments of Health and Human Services started a program--HealthStart. HealthStart seeks to reduce the rate of infant mortality and the incidence of low birth weight babies in New Jersey. Many of the women in HealthStart are the children who ten or fifteen years ago may have been poisoned by lead. We also have an interagency agreement with the Department of Community Affairs to address the problem of homelessness in New Jersey. Through efforts like these state departments can work together to resolve major social problems.

There's also a way that a multitude of agencies--state, community, educational, medical, and public, private, and non-profit--can work together to attack this problem. The Interagency Task Force for Prevention of Lead Poisoning, a committee of the Governor's Council on the Prevention of Mental Retardation and Developmental Disabilities, planned today's conference. Members of this Task Force have met for almost two years to identify successful models for removing lead and to strengthen our public policies on preventing lead poisoning. This Task Force is a model for collaboration. I know it will continue to develop

ways to help eradicate lead from our bodies and our environment.

Again, thanks to Senator Bradley and to all of you here today. It is my sincere hope that working together we will one day "get all of the lead out" and build a lead-free future for our children.

Thank you.

From the left: Fred Patterson, Senator Bill Bradley, William Waldman, and Commissioner Judith Yaskin

WORKSHOP HIGHLIGHTS

LEGISLATION AND PUBLIC POLICY

Organizer and Presentors:

Robert K. Tucker, Ph.D., Director of DSR, DEP

Norman Miller, Ph.D., Assistant Commissioner, DEP

Dr. Tucker explained the development of the lead agenda. He described how Task Force members reviewed their departments' policies and regulations that pertain to lead as well as a review of laws. Suggestions were made about ways to improve regulations or policies to close gaps or alter inconsistencies in policies or regulations. Suggestions were then sent to Commissioners of participating departments for their review. The action agenda was then brought back to the committee for comment and further development (see appendix for the document). Dr. Miller described the legislative process in New Jersey and the ways that government works to address problems and the ways it is responsive to people.

MODERN MEDICAL MANAGEMENT

Panelist: Dr. Steven Marcus

Organizer: Nancy Murphy

Dr. Steven Marcus presented a comprehensive overview of the diagnosis and treatment of the lead-burdened child to 69 workshop participants. A pharmacological update of chelating agents included a detailed description of Dimercaptosuccinic Acid (DMSA), a new oral chelating drug currently undergoing clinical trials in New York City, Baltimore and Newark. Dr. Marcus, Director of the Newark Beth Israel Medical Center's lead clinic, is a participating physician in this study. In addition to the advantage of a participating physician in this study. In addition to the advantage of oral administration, DMSA is specific to heavy metals and, therefore, does not deplete body stores of zinc, iron and other essential minerals as does the most commonly used chelating agent, ETDA. Dr. Marcus also discussed ongoing developments in medical and laboratory technology and their role in assisting the practicing physician to make a more specific clinical diagnosis and treatment plan for the lead-poisoned child.

One new and promising diagnostic tool is the XRF fluorescent analyzer which can detect and measure lead in bone. Dr. Marcus emphasized that improved diagnosis and treatment, if combined with effective environmental intervention, could more accurately identify and reduce body lead burdens, and therefore, help mediate the residual effects of lead toxicity in infants and preschool children.

NEW POLICIES FOR PAINT ABATEMENT

New Strategies for Abatement

Panelists:

Ellis Goldman, U.S. Department of HUD, Washington, D.C.

James McCabe, City Builders, Baltimore, M.D.

Synopsis:

Mr. Goldman is presently a coordinator of the Lead Base Paint Research and Demonstration program in the Office of Policy Development and Research. One hundred seventy-three units in five metropolitan areas were selected for research using five abatement strategies including enclosure, encapsulation, on site paint removal, chemical removal and replacement. Target date for completion of physical abatement phase is June 1990 with results and recommendations to be published in January 1991. The monitoring is comprehensive as it takes into consideration practical as well as affordable abatement methodology. Data will be generated from initial testing to abatement set up and throughout all phases including the final cleanup stages. It is hopeful that this program will begin to address this serious environmental and health problem which afflicts the largest city as well as the smallest town throughout our nation.

James McCabe currently manages a pilot program for City Builders which is a component within the City of Baltimore, Department of Housing and Developmental Agency. Their program, in conjunction with Johns Hopkins University has developed a very structured and methodological abatement approach. After initial testing and notification of funding availability to owner, the selection of the unit is determined. The process begins with the occupants and their belongings being removed and placed in temporary apartments during abatement. The program is conscious of other housing problems such as leaks, etc. and thus fixes these items prior to beginning abatement. All vents are covered and heating system shut down to control lead dust. Windows are replaced and an aluminum frame is placed around the window. Masonite, fiberglass, and heat guns are all materials used in the

abatement process. Mr. McCabe further noted that cleanup is the most important element in abatement. As lead dust breaks down into micron sized particles, it tends to settle rather than remain airborne. A high efficiency particle air (HEPA) vacuum as well as high phosphate detergent such as TSP is used several times prior to sealing and repainting. Even surfaces such as floors which were not abated are sealed and repainted. Subsequent wipe testing is done and analyzed prior to the family being allowed to move back in. The average cost of abatement per unit is $13,500 in addition to relocation costs. It is obviously an expensive undertaking but one that creates safe housing for the occupants for many years to come.

ORGANIZING AT THE GRASS ROOTS

Speakers: Cecile Dickey, President, Head Start Association

Ciro Scalera, Executive Director, Association for the Children of New Jersey

Organizer: Joan Luckhardt

The speakers discussed how local communities can develop the skills to solve problems that effect them. The procedure they suggested is outlined below:

A. Define what you want to do.

1. What is the nature of the problem?

   Is it a complex problem? There are probably many types of causes to a complex problem. But simplify it. To be effective, choose a target problem.

2. What do you want to do?

   Is it a surveillance or research activity to provide ammunition for action?

3. To solve the problem, you must ask who in your community you need to reach. This is done to expand the number of people who will become concerned about the problem.

   Is it an impoverished inner city family? An affluent suburban family? A working class family living in a mill town?

4. To have a focus for your community organizing, you need to think of three intertwined, overlapping circles. One circle is beliefs (values or mores), another circle is behavior (actions), and the last is conditions (environment, economics, constraints). Each community may differ in its beliefs, behaviors, and conditions. Yet each of these circles guide what organizing is possible in any given community.

5. Before you begin to reach out beyond your immediate group that is concerned about the issue, prepare your products.

   a. Get the Facts: do a literature review of the topic; do research to answer a question as yet unanswered.

   b. Find out who has the facts or where the facts are located. For example, call your local health department. Find out what services they offer. For example, in childhood lead poisoning, you must find out how many people and children are poisoned.

c. Call on experts. For example, the Center for Science in the Public Interest of Washington, D.C. helped the New Jersey Anti-Lead Poisoning Coalition collect information about lead poisoning a number of years ago.

d. Get together a one page fact sheet about the problem.

B. Build a coalition or interest group around the issue.

1. Start talking with people about the problem of lead poisoning in your area. Identify who might be interested in the problem of lead poisoning.

2. Identify which local groups might be interested in lead poisoning. Begin by asking, "who might be affected by the problem?"

3. Identify which state and federal groups might be interested in the problem or have responsibility for solving the problem.

4. Build your network of interested people and groups.

5. Organize the group. Call meetings. Develop strategies.

C. Set strategies.

1.. Ask, "what do you want to do," or "what is your goal?"

2. Identify legislators on the local, state and national level who should be interested in this problem.

3. Ask, "how do you make the goal happen?"

a. Review contacts.

b. Review information you have gathered.

c. Assess best approach for action--sometimes follow your hunch.

The kinds of questions to ask are: who opposes what you are doing?--avoid them or invite them to join you.

Is the action hard to do or easy to do? Will you be successful--if you start with success, it is easier to build on success.

What is hot?-- in the media?--in discussions around the community? If the subject is hot--follow your instinct here also.

d. Timing is all.

1. Know the system--if your program requires public money, know when you need to act in the budget process.

e. Go direct to government leaders. Do not be intimidated by position.

f. Know the rules of lobbying. This is particularly important if you are a state or federal employee and may violate laws which restrict lobbying activities.

From the left: Senator Bill Bradley, Fred Patterson, Debbie Cohen, Commissioner Judith Yaskin, Cecile Dickey, William Waldman, and Bob Tucker.

PUBLIC PROGRAMS THAT WORK

Organizer: Madeline Brown, R.N.

Panelists: Connie Clamon-Solberg, parent

Richard Brown, Director of Neighborhood Housing Services (NHS)

The workshop/discussion began with the history of the Jersey City Lead Advisory Group highlighted by M. Brown. An attorney from Jersey City Legal Aid Services felt strongly that a citizens group should be formed in this Community to address the lead problems. The makeup and background of group members were detailed. The diversity of the group's background made for interesting dialogue and action plans. The Neighborhood Housing Revolving Loan Program was one of the outcomes of the Lead Advisory Group.

RESEARCH QUESTIONS ABOUT LEAD IN THE ENVIRONMENT

Presenters:

Randy England, DSR and Ed Stevenson, DSR, Barker Hamill, DEP

Lead in paint, dust, soil and drinking water are the most important sources of lead in childhood exposure. Lead in soils comes from paint, batteries, and tetraethyl lead, manufacturing as well as municipal waste incinerators. There is also a legacy of 60 years of leaded gasoline in the soils. The Division of Science and Research (DSR) has studied lead in soils and preliminary data indicate that lead in soils which results from residential weathering of paint and renovation activities, in most cases, is equal to or exceeds the lead in soil resulting from industrial emissions. In urban areas of New Jersey, the soil-lead appears to result from the cumulative effect from many sources. There appears to be more lead in soils near roadways, front yards and areas closest to houses, particularly frame houses. Most lead in water is found after water enters homes. The contamination results from lead leaching from lead-soldered pipes, or lead pipes, or lead well casings, or lead service pipes. DEP studies show that corrosive water such as that found in parts of New Jersey enhances the leaching process. The most lead is found in the "first draw," from water that has been sitting in the pipes overnight. More research is needed to better define the relative contributions of each source of lead to exposure of children and adults.

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APPENDIX
LEAD POISONING PREVENTION
ACTION AGENDA

I. ABATEMENT OF LEADED PAINT

With the phasedown of lead in gasoline and substantial decreases of lead in food, most scientists now believe that lead in paint and in soil/dust represent the most substantial exposure sources of lead to children. The removal of lead containing paint from residential and public buildings, such as schools and day-care centers, must be one of our highest-priority public health actions.

*** ESTABLISH A LEAD PAINT REMOVAL UNIT AT THE STATE LEVEL TO SERVE AS A MODEL**

A unit within the Department of Community Affairs, devoted exclusively to lead paint testing and remediation efforts, will serve as a model for local efforts and can also provide training and advice to counties and municipalities.

*** PROVIDE SUBSTANTIALLY INCREASED FUNDING FOR LOCAL LEAD PAINT TESTING AND REMOVAL EFFORTS**

New Jersey must actively lobby for increased federal funding for lead paint removal as well as appropriate state funds for this critical public health problem. The eventual costs of treatment and of dealing with the consequences of lead exposure are substantially greater than the costs to prevent exposure in the first place.

*** INVESTIGATE MODEL PROGRAMS THAT HAVE BEEN SUCCESSFUL TECHNICALLY AND/OR FINANCIALLY IN REMOVING LEADED PAINT**

Examples of innovative programs include the Neighborhood Housing Services of Jersey City, which has developed a cooperative agreement with the Lead Advisory Council to process Lead Abatement Loans on a City-wide basis, and that in Baltimore, Md., which is a national leader in lead removal technology. Successful programs can provide models for a state-wide approach.

*** FEDERAL HOUSING PROGRAMS MUST BE MUCH MORE RESPONSIVE TO THE NEED TO ABATE LEADED PAINT**

HUD must be involved to effectively solve this problem; lead paint abatement may be one way to regain some credibility with the public after the agency's recent troubles. The Lead-based Paint Poisoning Prevention Act, passed by the United States Congress in 1973, mandates prevention by removal of paint where exposure is likely. The reauthorization of Superfund also makes it clear that Congress intends action on lead exposure. It is high time that HUD gets on with compliance with Congress' wishes.

*** LOW INTEREST LOAN PROGRAMS ARE NEEDED FOR PRIVATE HOUSING**

While public housing and homes covered by federal loans are subject to remediation under HUD, there is also a need to develop mechanisms for removal of lead in privately owned housing. Low or no interest loans may help homeowners of modest means.

* **REGULATIONS REQUIRING LANDLORDS TO REMOVE LEAD IN RENTAL HOUSING** Tenants are entitled to safe homes. Regulations must ensure lead paint removal, with proper alternate accommodations for residents while remediation is carried out, and assurance against eviction or discriminatory treatment if tenants bring lead paint problems to the landlords attention. Some municipalities in New Jersey have already experimented with ordinances to require lead removal in rental housing; we should benefit from such experience.

***REVIEW OF INSURANCE/LIABILITY REQUIREMENTS**

Legal liability for lead poisoning may be a substantial incentive for remediation of housing and public buildings. Liability and insurance issues need to be investigated.

* **NOTIFICATION OF LEAD STATUS IN PROPERTY DEEDS**

Certification should be required, attesting to whether the structure was tested for lead paint, and if found, the manner in which it was treated (i.e., "Lead-free structure", or "Treated for lead paint"). Certification would be required prior to approval of any government sponsored mortgage. With proper education and publicity, the general public might demand a similar certification on all private mortgage transactions.

II. SCREENING FOR LEAD

There is an urgent need for additional screening of children in New Jersey for body burdens of lead. Currently only about one third of children at high risk for lead poisoning are tested. Of 59,672 NJ children screened in 1987, 1361 were identified with elevated blood lead levels. Advice from the American Academy of Pediatrics and from the United States Public Health Service, Centers for Disease Control, that long term toxic effects occur at blood lead levels previously thought to be safe will add thousands more NJ children to high risk status. Consequently an even greater need exists for expanded screening.

* **FUND NECESSARY SCREENING AND FOLLOW-UP SERVICES**

Current State and Federal funding is grossly inadequate to support needed screening and prevention efforts. The funding level for the NJ Department of Health's existing local projects under the Maternal and Child Health Program has not increased since 1983 (MCH Block grant) and 1985 (State allocations), resulting in loss of staff and decreased outreach and follow up activities

* **EDUCATE HEALTH PROVIDERS TO SCREEN FOR LEAD**

The majority of private physicians do not routinely screen for lead. Particularly with concern for toxic effects at lower lead levels, many children at risk may be missed. Thus,

as suggested in the March, 1989 Lead Forum, there is a need to target lead prevention education to physicians, especially those in high-risk communities.

*** IMPLEMENT TESTING METHODS FOR LOWER LEAD LEVELS**

New testing methodologies will be required because of the concern that lower blood lead levels are indicative of potential neurological damage. The former methods of EP screening may not adequately identify children with these lower blood lead levels.

*** EXPAND LABORATORY CAPABILITY FOR BLOOD LEAD TESTING**

Laboratory capacity for blood lead screening needs substantial expansion. The State laboratory cannot meet a demand for increased mass screening without increased resources. Private laboratory capacity may need to be expanded, but here there is considerable concern about cost and adequate quality assurance.

*** REQUIRE PRIVATE LABORATORIES AND/OR PHYSICIANS TO REPORT ALL BLOOD LEAD LEVELS TO THE STATE HEALTH DEPARTMENT**

Comprehensive data on screening may not be complete, because of lack of reporting requirements for private physicians and laboratories. Current regulations only require reporting of blood lead levels over 25 ug/dl.

*** DEVELOP DATA COLLECTION SYSTEM WHICH PROVIDES UNDUPLICATED SCREENING DATA AND DISTINGUISHES BETWEEN SCREENING AND FOLLOW-UP TESTS**

A comprehensive data system is necessary to make sure we are truly dealing with all children at risk. Coupled with source evaluation, as detailed below, such a data system will constitute a powerful tool for prevention.

III. FURTHER EVALUATION OF LEAD SOURCES

*** CARRY OUT A STATEWIDE, MULTIMEDIA ASSESSMENT OF SOURCES OF LEAD**

We need a comprehensive evaluation of sources and routes of exposure of lead to all segments of our population. The Division of Science and Research in NJDEP has begun research on soil levels and industrial sources throughout New Jersey. A comprehensive assessment of the status of lead in the state's housing stock is vitally needed. The NJDOH has information on occupational exposure to lead. Thus, with some additional effort, we could document lead exposure in a comprehensive fashion for New Jersey. Such an assessment is not available currently for any state or region, according to the 1988 ATSDR report.

*** COOPERATE WITH OTHER STATES AND FEDERAL AGENCIES IN EVALUATING INTERSTATE SOURCES OF LEAD**

A statewide assessment, coupled with investigation of interstate sources would give an overall view of potential exposure.

IV. LEAD IN SOIL

*** INVESTIGATE USE OF SUPERFUND/SPILL FUND FOR SOIL CLEANUP**

Do extant programs provide funding for remediation of lead contaminated soil? Is removal of soil effective, necessary, or financially feasible?

*** DEVELOP METHODS OF COVER TO PREVENT EXPOSURE**

In situ methods, such as ground-cover, bushes, etc., may help to decrease exposure ("sod a lot, save a tot").

V. LEAD IN WATER

*** ENCOURAGE IMPLEMENTATION OF NEW FEDERAL REGULATIONS FOR LEAD IN DRINKING WATER**

USEPA regulatory guidance for lead in public drinking water supplies has been delayed, perhaps by the complexity of the problem.

*** SCHOOLS AND DAY-CARE FACILITIES NEED TO HAVE THEIR WATER TESTED FOR LEAD**

Buildings with extensive plumbing systems may represent a special hazard for water-borne lead exposure.

*** RESIDENCES WITH INDIVIDUAL PRIVATE WELLS REQUIRE A PROGRAM FOR TESTING AND TREATMENT**

Education, outreach, and perhaps loan programs may be required to assist homeowners with wells. Aquifers with aggressive water may need to be targeted.

*** ENFORCE BAN ON USE OF LEAD SOLDER**

Although use of lead solder for drinking water plumbing systems is now illegal in New Jersey, vigilant enforcement of the ban is needed.

VI. INDUSTRIAL CONTAMINATION

*** ENFORCEMENT OF LAWS AND REGULATIONS TO CLEANUP INDUSTRIAL LEAD CONTAMINATION**

New Jersey has some of the most stringent environmental cleanup regulations in the nation; strict enforcement of these for lead should be a priority.

*** SOURCE REDUCTION AND POLLUTION PREVENTION STRATEGIES FOR LEAD**

Use of alternatives and techniques to minimize production of lead are needed.

Perhaps it is time to consider an outright ban on lead, or at least a restriction to absolutely required uses.

VII. OCCUPATIONAL EXPOSURE

* PURSUE LOOPHOLES IN OSHA COVERAGE

Workers who are not covered by federal OSHA regulations should be targeted for state protection. For those who are covered, vigorous enforcement must occur.

* RIGHT TO KNOW DATA BASE

Use of right to know, industrial survey, and other information may be effective clues to occupational exposure to lead.

VIII. CONSUMER USES OF LEAD

* PHASE OUT ALL UNNECESSARY USES OF LEAD IN CONSUMER GOODS AND PACKAGING

Examples of unnecessary packaging include wine bottle cork covers. Alternatives to lead in batteries need to be fostered.

X. DISPOSAL OF LEAD

* EXISTING LEAD NEEDS TO BE RECYCLED IF POSSIBLE

Strategies for reducing further mining or production of lead include aggressive recycling programs.

* ANY DISPOSAL OF LEAD MUST BE CAREFULLY CONTROLLED

To prevent further exposure to lead, prevention of incineration and indiscriminant landfilling of lead waste may be required.

X. EDUCATION/COMMUNITY OUTREACH

Many people can take action to remove lead from their lives and to have their children tested for lead toxicity, if they know that lead exposure poses a problem to them and their families. An informed public and professional groups can help increase the number of children screened, encourage recycling of batteries, reduce lead exposure from hobbies, painting, and soils, and direct people to the appropriate agencies for assistance with abatement, screening, water testing, and for further information. A state-wide educational program needs to be launched to reach parents, workers, and professional groups about the dangers of lead toxicity. Abatement workers need to be trained. Technical assistance should be provided to communities to encourage screening and reduction of or removal of lead from the environment.