

# NATIONAL BUREAU OF STANDARDS REPORT

10 651

## NATIONAL ESTIMATES OF LEAD BASED PAINT POISONING OF CHILDREN (ESTIMATED BY STANDARD METROPOLITAN STATISTICAL AREA)

*Not for publication  
or for reference*



U.S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS

## NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards<sup>1</sup> was established by an act of Congress March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau consists of the Institute for Basic Standards, the Institute for Materials Research, the Institute for Applied Technology, the Center for Computer Sciences and Technology, and the Office for Information Programs.

**THE INSTITUTE FOR BASIC STANDARDS** provides the central basis within the United States of a complete and consistent system of physical measurement; coordinates that system with measurement systems of other nations; and furnishes essential services leading to accurate and uniform physical measurements throughout the Nation's scientific community, industry, and commerce. The Institute consists of a Center for Radiation Research, an Office of Measurement Services and the following divisions:

Applied Mathematics—Electricity—Heat—Mechanics—Optical Physics—Linac Radiation<sup>2</sup>—Nuclear Radiation<sup>2</sup>—Applied Radiation<sup>2</sup>—Quantum Electronics<sup>3</sup>—Electromagnetics<sup>3</sup>—Time and Frequency<sup>3</sup>—Laboratory Astrophysics<sup>3</sup>—Cryogenics<sup>3</sup>.

**THE INSTITUTE FOR MATERIALS RESEARCH** conducts materials research leading to improved methods of measurement, standards, and data on the properties of well-characterized materials needed by industry, commerce, educational institutions, and Government; provides advisory and research services to other Government agencies; and develops, produces, and distributes standard reference materials. The Institute consists of the Office of Standard Reference Materials and the following divisions:

Analytical Chemistry—Polymers—Metallurgy—Inorganic Materials—Reactor Radiation—Physical Chemistry.

**THE INSTITUTE FOR APPLIED TECHNOLOGY** provides technical services to promote the use of available technology and to facilitate technological innovation in industry and Government; cooperates with public and private organizations leading to the development of technological standards (including mandatory safety standards), codes and methods of test; and provides technical advice and services to Government agencies upon request. The Institute also monitors NBS engineering standards activities and provides liaison between NBS and national and international engineering standards bodies. The Institute consists of the following divisions and offices:

Engineering Standards Services—Weights and Measures—Invention and Innovation—Product Evaluation Technology—Building Research—Electronic Technology—Technical Analysis—Measurement Engineering—Office of Fire Programs.

**THE CENTER FOR COMPUTER SCIENCES AND TECHNOLOGY** conducts research and provides technical services designed to aid Government agencies in improving cost effectiveness in the conduct of their programs through the selection, acquisition, and effective utilization of automatic data processing equipment; and serves as the principal focus within the executive branch for the development of Federal standards for automatic data processing equipment, techniques, and computer languages. The Center consists of the following offices and divisions:

Information Processing Standards—Computer Information—Computer Services—Systems Development—Information Processing Technology.

**THE OFFICE FOR INFORMATION PROGRAMS** promotes optimum dissemination and accessibility of scientific information generated within NBS and other agencies of the Federal Government; promotes the development of the National Standard Reference Data System and a system of information analysis centers dealing with the broader aspects of the National Measurement System; provides appropriate services to ensure that the NBS staff has optimum accessibility to the scientific information of the world, and directs the public information activities of the Bureau. The Office consists of the following organizational units:

Office of Standard Reference Data—Office of Technical Information and Publications—Library—Office of International Relations.

<sup>1</sup> Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

<sup>2</sup> Part of the Center for Radiation Research.

<sup>3</sup> Located at Boulder, Colorado 80302.

# NATIONAL BUREAU OF STANDARDS REPORT

## NBS PROJECT

4314518

December 7, 1971

## NBS REPORT

10 651

### NATIONAL ESTIMATES OF LEAD BASED PAINT POISONING OF CHILDREN (ESTIMATED BY STANDARD METROPOLITAN STATISTICAL AREA)

Milestone 6

by

Judith Gilsinn

Lambert Joel

Applied Mathematics Division

Michael Thomas

Technical Analysis Division

Lead Paint Poisoning Project

Building Research Division

Institute for Applied Technology

National Bureau of Standards

Washington, D.C. 20234

*Not for publication  
or for reference*

Sponsored by

Department of Housing and Urban Development

#### IMPORTANT NOTICE

NATIONAL BUREAU OF STANDARDS  
for use within the Government. Before  
and review. For this reason, the report  
whole or in part, is not authorized  
Bureau of Standards, Washington, D.C.  
the Report has been specifically prepared

Approved for public release by the  
director of the National Institute of  
Standards and Technology (NIST)  
on October 9, 2015

Counting documents intended  
ected to additional evaluation  
ng of this Report, either in  
ice of the Director, National  
Government agency for which  
for its own use.



U.S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS



## PREFACE

This report can be grouped, conceptually, with 4 other NBS Reports under the blanket title "Pediatric Lead Paint Poisoning in the United States--A Survey with Preliminary Estimates." Under this arrangement, the "parts" of the study would be listed:

Part I      NBS Report # 10499 "The Nature of the Lead Paint Poisoning Hazard"

Part II     NBS Report # 10657 "Data Collection and Assimilation for the Lead Paint Poisoning Model"

Part III    NBS Report # 10653 "Effect of Data Aggregation in Modelling"

Part IV     NBS Report # 10654 "A Model to Estimate the Incidence of Lead Paint Poisoning"

Part V      NBS Report # 10651 "National Estimates of Lead Based Paint Poisoning of Children (Estimated by Standard Metropolitan Statistical Area)"

These papers were intended as interim progress reports covering work done up to the time of publication. Reports describing validation and refinement of the models and outputs as well as analysis of the outputs will be issued subsequently. A summary report encompassing revision of the current ones and those projected above, under one cover, is anticipated.



## ABSTRACT

This report contains outputs from (unvalidated) Models to predict the incidence of pediatric lead poisoning in the United States. Estimates of the children at risk, the children with elevated blood lead levels ( $40 \text{ } \mu\text{g lead}/100 \text{ ml whole blood}$ ), and the immediately hazardous housing are given for each SMSA (Standard Metropolitan Statistical Area) in the United States. In addition to estimates based on the  $40 \text{ } \mu\text{g}/100 \text{ ml}$  cut off level, estimates are calculated based on cutoffs at 50, 60, or 70. Finally, the report includes blood lead level distributions for several cities for which data are available.



NATIONAL ESTIMATES OF LEAD BASED PAINT POISONING OF CHILDREN  
(ESTIMATED BY STANDARD METROPOLITAN STATISTICAL AREA)

This report is devoted to the presentation of estimates by models described in NBS Report #10654, "A Model to Estimate the Incidence of Lead Paint Poisoning," of the number of children with "lead poisoning" in 241 metropolitan areas throughout the country. More precisely, it contains an estimate from each of several models of the number of children up to 6 years old in each SMSA,\* who have blood lead levels exceeding 40 micrograms per 100 milliliters of whole body blood. "National" totals were calculated by summing over the SMSA's and not derived independently.

The reader is cautioned against drawing conclusions from these outputs without reading the report cited above, (and two companion reports concerning the inputs, #10653: Effect of Data Aggregation in Modelling, #10657: Data Collection and Assimilation for the Lead Paint Poisoning Model), because it is impossible to determine confidence levels for the various estimates in the absence of some information concerning the methods of analysis underlying the models and the quality of the data inputs. Such information is too voluminous to reproduce here. In brief, while we believe the estimate to be reliable within a factor of 2, we cannot be more precise until data become available to validate the models.

Nothing underscores the preliminary nature of the "lead poisoning" model and model estimates quite so much as the fact that about 1/3 of the nation's young children live outside of SMSA's. The counts of 68.6%

---

\*A Standard Metropolitan Statistical Area is, essentially, a city with a population of at least 50,000, aggregated with its surrounding suburbs. The Bureau of the Census uses the terms "central city" and "ring" for these components.

TABLE 1

CHILDREN  
6 AND UNDER  
& UNSOUND  
HOUSING  
AT RISK

MODEL 1  
E&L  
CHILDREN  
AT RISK

HAZARDOUS  
HOUSING

SMSA NAME	CHILDREN 6 AND UNDER & UNSOUND HOUSING AT RISK	MODEL 1 E&L	CHILDREN AT RISK	MODEL 1A E&L	HAZARDOUS HOUSING
ABILENE, TEXAS	21•1	2782•	668•	744•	8390•
AKRON, OHIO	13170•	11549•	2772•	2834•	22050•
ALBANY, GEORGIA	83722•	13•8	11548•	1415•	6819•
ALBANY-SCHENECTADY-TROY, NEW YORK	13512•	32•5	4391•	1054•	36103•
ALBUQUERQUE, N. MEXICO	86646•	16•2	14057•	3374•	9486•
ALLENTOWN-BETHLEHEM-FASTON, PA.-N.J.	42271•	12•4	5221•	1278•	19094•
ALTOONA, PENNSYLVANIA	59922•	12•1	7243•	1738•	11932•
AMARILLO, TEXAS	15446•	27•4	4231•	1015•	7291•
ANAHEIM-SANTA ANA-GARDEN GROVE, CALIF.	17758•	15•5	2761•	663•	15437•
ANDERSON, INDIANA	184609•	6•8	12553•	3013•	2626•
ANN ARBOR, MICHIGAN	18112•	23•0	4166•	1000•	9356•
APPLETON-OSHKOSH, WISC.	27735•	13•0	3615•	868•	6700•
ASHEVILLE, NORTH CAROLINA	37201•	15•6	5803•	1393•	4473•
ATLANTA, GEORGIA	16766•	27•2	4557•	1094•	11521•
ATLANTIC CITY, NEW JERSEY	185298•	18•2	33718•	8092•	56149•
AUGUSTA, GEORGIA	19462•	12•9	2516•	604•	8351•
AUSTIN, TEXAS	31834•	26•9	8568•	2056•	17140•
BAKERSFIELD, CALIFORNIA	35431•	19•0	6742•	1618•	12452•
BALTIMORE, MARYLAND	42337•	21•4	9065•	2176•	2513•
BATON ROUGE, LA.	255628•	12•7	32562•	7815•	66179•
BAY CITY, MICHIGAN	38400•	20•2	7771•	1865•	13369•
BEAUMONT-PORT ARTHUR-ORANGE, TEXAS	16338•	18•6	3041•	730•	834•
BILLINGS, MONTANA	38323•	22•2	8506•	2041•	2338•
BILOXI-GULFPORT, MISSISSIPPI	10386•	24•0	2493•	598•	6200•
BINGHAMPTON, NEW YORK	17616•	32•0	5637•	1353•	6564•
BIRMINGHAM, ALABAMA	38473•	14•6	5600•	1344•	1735•
BLOOMINGTON-NORMAL, ILLINOIS	86353•	26•3	22720•	5453•	1406•
BOISE CITY, IDAHO	11489•	25•0	2872•	689•	9712•
BOSTON, MASSACHUSETTS	13834•	19•1	2642•	634•	51251•
BRIDGEPORT, CONN.	316924•	12•3	39098•	9384•	6953•
ARISTOL, CONN.	46076•	10•4	4784•	1148•	790•
BROCKTON, MASSACHUSETTS	8651•	12•3	1064•	1081•	60433•
BROWNSVILLE-HARLINGEN-SAN BENITO, TEXAS	27501•	11•9	3274•	255•	5879•
BRYAN-COLLEGE STATION, TEXAS	21807•	35•2	7685•	1844•	100433•
BUFFALO, NEW YORK	7604•	32•1	2441•	586•	23020•
CANTON, OHIO	163029•	13•4	21859•	5246•	54942•
CEDAR RAPIDS, IOWA	456669•	17•5	7980•	1915•	813•
CHAMPAIGN-URBANA, ILLINOIS	22808•	15•7	3587•	861•	14831•
CHARLESTON, SOUTH CAROLINA	18384•	14•0	2574•	618•	2074•
CHARLESTON, WEST VIRGINIA	43077•	27•8	11979•	2875•	18213•
CHARLOTTE, NORTH CAROLINA	25044•	24•6	6153•	1477•	5296•
CHATTANOOGA, TENN.	53899•	19•4	10456•	2509•	6892•
CHICAGO, ILLINOIS	36526•	25•5	9312•	2235•	5370•
CINCINNATI, OHIO-KY.-IND.	872488•	11•5	100310•	24074•	3647•
CLEVELAND, OHIO	179656•	14•9	26732•	6416•	17227•
COLORADO SPRINGS, COLORADO	250654•	10•6	26540•	6369•	6788•
COLUMBIA, MISSOURI	30281•	13•0	3951•	948•	51169•
COLUMBIA, SOUTH CAROLINA	9096•	23•2	2110•	506•	2425•
COLUMBUS, GEORGIA	38743•	22•7	8799•	2112•	15598•
COLUMBUS, OHIO	31301•	26•8	8377•	2010•	15807•
	116049•	16•9	19633•	4712•	36213•

HAZARDOUS  
HOUSINGMODEL 1A  
EBLCHILDREN  
AT RISKUNsound  
HOUSINGCHILDREN  
6 AND UNDER

## SMSA NAME

CORPUS CHRISTI, TEXAS	40368.	23.1	9309.	2234.
DALLAS, TEXAS	211789.	16.8	35624.	2705.
DAVENPORT-ROCK ISLAND-MOLINE, IOWA	47629.	16.6	8550.	9459.
DAYTON, OHIO	108074.	12.3	7883.	1892.
DECATUR, ILLINOIS	15689.	16.6	13327.	2063.
DENVER, COLORADO	154700.	40.9	2609.	3210.
DES MOINES, IOWA	35607.	19.4	16927.	62640.
DETROIT, MICHIGAN	546190.	10.8	6913.	6566.
DUBUQUE, IOWA	13559.	24.6	59147.	3949.
DULUTH-SUPERIOR, MINN.-WIS.	29551.	19.1	3336.	1852.
DURHAM-NORTH CAROLINA	21903.	21.9	5656.	1794.
EL PASO, TEXAS	52765.	19.2	4797.	14195.
ERIE, PENNSYLVANIA	33774.	15.4	10145.	13890.
EUGENE, OREGON	24747.	17.5	5189.	1001.
EVANSVILLE, IND.-KY.	26835.	19.4	4340.	1461.
FALL RIVER, MASS.-R.I.	17996.	14.0	5217.	1151.
FARGO-MOREHEAD, N.DAK.-MINN.	13984.	16.3	2435.	12404.
FAYETTEVILLE, NORTH CAROLINA	29292.	33.4	5189.	5414.
FITCHBURG-LEOMINSTER, MASS.	12007.	25.3	9784.	16523.
FLINT, MICHIGAN	73001.	14.9	3038.	12127.
FORT LAUDERDALE-HOLLYWOOD, FLORIDA	60748.	7.5	3038.	12201.
FORT SMITH, ARK.-OKLA.	19765.	40.8	729.	9127.
FORT WAYNE, INDIANA	37993.	14.4	10855.	12989.
FORT WORTH, TEXAS	99588.	16.8	4546.	12889.
FRESNO, CALIFORNIA	51778.	21.8	8064.	10494.
GADSDEN, ALABAMA	11203.	38.3	5470.	10494.
GAINESVILLE, FLORIDA	12416.	30.9	16732.	10494.
GALVESTON-TEXAS CITY, TEXAS	21319.	23.0	11272.	10494.
GARY-HAMMOND-EAST CHICAGO, INDIANA	84681.	15.4	13042.	10494.
GRAND RAPIDS, MICHIGAN	72650.	13.5	9822.	10494.
GREAT FALLS, MONTANA	10722.	28.8	4291.	10494.
GREEN BAY, WISCONSIN	23340.	13.5	3837.	10494.
GREENSBORO-WINSTON-SALEM-HIGH POINT, N.C.	73497.	19.8	4988.	10494.
GREENVILLE, SOUTH CAROLINA	37021.	24.9	11313.	10494.
HAMILTON-MIDDLETOWN, OHIO	28127.	14.1	16732.	10494.
HARRISBURG, PENNSYLVANIA	46094.	12.4	13042.	10494.
HARTFORD, CONNECTICUT	81943.	8.8	9236.	10494.
HONOLULU, HAWAII	84918.	21.3	2357.	10494.
HOUSTON, TEXAS	273286.	14.7	3088.	10494.
HUNTINGTON-ASHLAND, W.VA.-KY.-OHIO	29205.	26.5	3143.	10494.
HUNTSVILLE, ALABAMA	32785.	22.1	49531.	10494.
INDIANAPOLIS, INDIANA	145885.	15.0	3487.	10494.
JACKSON, MICHIGAN	18320.	17.4	9236.	10494.
JACKSON, MISSISSIPPI	34632.	23.1	2217.	10494.
JACKSONVILLE, FLORIDA	66225.	20.7	982.	10494.
JERSEY CITY, NEW JERSEY	66577.	15.5	1324.	10494.
JOHNSTOWN, PENNSYLVANIA	28976.	25.1	3487.	10494.
KALAMAZOO, MICHIGAN	24488.	14.5	2628.	10494.
KANSAS CITY, MO.-KANSAS	155548.	15.5	2189.	10494.

HAZARDOUS  
HOUSINGMODEL 1A  
EBLCHILDREN  
AT RISK& UNSOUND  
HOUSINGCHILDREN  
6 AND UNDER

## SMSA NAME

KENOSHA, WISCONSIN	15705.	13.5	2123.	510.
KNOXVILLE, TENNESSEE	45155.	23.9	10776.	2586.
LA CROSSE, WISC.	9422.	24.1	2271.	545.
LAFAYETTE, LA.	16090.	29.9	4811.	1155.
LAFAYETTE-WEST LAFAYETTE, IND.	13086.	22.9	2997.	719.
LAKE CHARLES, LA.	20132.	20.5	4127.	990.
LANCASTER, PENNSYLVANIA	39692.	11.8	4679.	1123.
LANSING, MICHIGAN	50711.	15.4	7821.	1877.
LAREDO, TEXAS	12018.	56.4	6778.	1627.
LAS VEGAS, NEVADA	37812.	8.3	3143.	754.
LAWRENCE-HAVERHILL, MASS.-N.H.	29275.	16.9	4958.	1190.
LAWTON, OKLAHOMA	13585.	21.7	2948.	708.
LEWISTON-AUBURN, MAINE	9143.	25.0	2286.	549.
LEXINGTON, KENTUCKY	21648.	19.6	4249.	4020.
LIMA, OHIO	22761.	19.6	4451.	1068.
LINCOLN, NEBRASKA	18891.	20.0	3776.	906.
LITTLE ROCK-NORTH LITTLE ROCK, ARK.	40663.	21.7	8812.	2115.
LORAIN-ELYRIA, OHIO	36428.	12.7	4621.	1109.
LOS ANGELES-LONG BEACH, CALIF.	839060.	7.3	60901.	14616.
LOUISVILLE, KY.-IND.	103292.	16.4	16890.	4054.
LOWELL, MASS.	31615.	14.4	4550.	1092.
LUBBOCK, TEXAS	23977.	18.8	4512.	4083.
LYNCHBURG, VIRGINIA	14457.	25.8	3737.	897.
MACON, GEORGIA	27130.	29.7	8047.	1931.
MADISON, WISCONSIN	36274.	10.5	3807.	914.
MANCHESTER, NEW HAMPSHIRE	13085.	19.9	2604.	625.
MANSFIELD, OHIO	16624.	23.1	3840.	922.
MCALLEN-PHARR-EDENBURG, TEXAS	28918.	34.3	9919.	2381.
MEMPHIS, TENN.-ARK.	101031.	18.6	18834.	4520.
MERIDEN, CONNECTICUT	68688.	14.9	1023.	246.
MIAMI, FLORIDA	127325.	8.4	10705.	2569.
MIDLAND, TEXAS	8141.	18.5	1506.	361.
MILWAUKEE, WISCONSIN	177587.	9.9	1759.	4224.
MINNEAPOLIS-ST. PAUL, MINN.	244356.	11.4	27886.	6693.
MOBILE, ALABAMA	50299.	27.8	13962.	3351.
MODESTO, CALIF.	24199.	12.8	3097.	743.
MONROE, LA.	15924.	31.8	5067.	1216.
MONTGOMERY, ALABAMA	26002.	27.9	7248.	1739.
MUNCIE, INDIANA	16395.	17.4	2850.	684.
MUSKEGON-MUSKEGON HEIGHTS, MICH.	20879.	16.8	3500.	840.
NASHUA, N.H.	10211.	17.9	1828.	439.
NASHVILLE, TENNESSEE	63669.	20.4	12964.	3111.
NEW BEDFORD, MASS.	16794.	12.0	2018.	484.
NEW BRITAIN, CONNECTICUT	16896.	10.0	1689.	405.
NEW HAVEN, CONNECTICUT	40814.	13.2	5387.	1293.
NEW LONDON-GROTON-NORWICH, CONN.	27844.	16.2	4500.	1080.
NEW ORLEANS, LA.	140338.	21.5	30149.	7236.
NEW YORK, NEW YORK	1316742.	12.6	169107.	40586.
NEWARK, NEW JERSEY	221966.	12.8	2851.	6843.
NEWPORT NEWS-HAMPTON, VA.	38746.	17.8	6901.	1656.

MODEL 1  
EBL

KENOSHA, WISCONSIN	531.	4548.
KNOXVILLE, TENNESSEE	2951.	26891.
LA CROSSE, WISC.	630.	3739.
LAFAYETTE, LA.	1506.	7049.
LAFAYETTE-WEST LAFAYETTE, IND.	1155.	3192.
LAKE CHARLES, LA.	4127.	8910.
LANCASTER, PENNSYLVANIA	990.	1157.
LANSING, MICHIGAN	7821.	1107.
LAREDO, TEXAS	6778.	827.
LAS VEGAS, NEVADA	3143.	9701.
LAWRENCE-HAVERHILL, MASS.-N.H.	754.	3599.
LAWTON, OKLAHOMA	704.	10677.
LEWISTON-AUBURN, MAINE	814.	9915.
LEXINGTON, KENTUCKY	141.	14048.
LIMA, OHIO	1141.	1170.
LINCOLN, NEBRASKA	1218.	5359.
LITTLE ROCK-NORTH LITTLE ROCK, ARK.	4310.	5359.
LORAIN-ELYRIA, OHIO	989.	10098.
LOS ANGELES-LONG BEACH, CALIF.	2434.	16568.
LOUISVILLE, KY.-IND.	1158.	5869.
LOWELL, MASS.	1225.	172039.
LUBBOCK, TEXAS	1441.	36637.
LYNCHBURG, VIRGINIA	12625.	7031.
MACON, GEORGIA	14342.	9279.
MADISON, WISCONSIN	1434.	15961.
MANCHESTER, NEW HAMPSHIRE	1193.	15961.
MANSFIELD, OHIO	1225.	15961.
MCALLEN-PHARR-EDENBURG, TEXAS	1056.	8237.
MEMPHIS, TENN.-ARK.	1931.	3187.
MERIDEN, CONNECTICUT	877.	7054.
MIAMI, FLORIDA	695.	6637.
MIDLAND, TEXAS	1083.	3815.
MILWAUKEE, WISCONSIN	3293.	3187.
MINNEAPOLIS-ST. PAUL, MINN.	5074.	34463.
MOBILE, ALABAMA	256.	2511.
MODESTO, CALIF.	2187.	29337.
MONROE, LA.	361.	4134.
MONTGOMERY, ALABAMA	4174.	3167.
MUNCIE, INDIANA	3351.	52850.
MUSKEGON-MUSKEGON HEIGHTS, MICH.	4174.	25454.
NASHUA, N.H.	747.	6136.
NASHVILLE, TENNESSEE	921.	7785.
NEW BEDFORD, MASS.	463.	6197.
NEW BRITAIN, CONNECTICUT	376.	4029.
NEW HAVEN, CONNECTICUT	1281.	13379.
NEW LONDON-GROTON-NORWICH, CONN.	1177.	8148.
NEW ORLEANS, LA.	8470.	58357.
NEW YORK, NEW YORK	39819.	467876.
NEWARK, NEW JERSEY	6813.	68892.
NEWPORT NEWS-HAMPTON, VA.	1844.	11483.

## SMSA NAME

CHILDREN  
6 AND UNDER& UNSOUND  
HOUSINGCHILDREN  
AT RISKMODEL 1  
EBLHAZARDOUS  
HOUSING

NORFOLK-PORTSMOUTH, VA.	86336.	17.6	15190.	3994.
NORWALK, CONNECTICUT	14300.	10.8	1544.	371.
ODESSA, TEXAS	12194.	21.1	2573.	353.
OGDEN, UTAH	17608.	14.3	605.	717.
OKLAHOMA CITY, OKLAHOMA	78298.	17.7	324.	648.
OMAHA, NEBR.-IOWA	73418.	15.6	2973.	30593.
ORLANDO, FLORIDA	51620.	15.6	8042.	22347.
OWENSBORO, KENTUCKY	10626.	21.4	2274.	2021.
OXNARD-VENTURA, CALIFORNIA	53501.	15.6	8346.	2910.
PATERSON-CLIFTON-PASSAIC, N.J.	150497.	7.5	2003.	9469.
PENSACOLA, FLORIDA	31305.	24.0	11420.	2741.
PEORIA, ILLINOIS	42686.	15.8	8042.	1930.
PETERSBURG-COLONIAL HEIGHTS, VA.	15944.	40.7	2274.	546.
PHILADELPHIA, PA.-N.J.	578867.	10.4	60106.	1557.
PHOENIX, ARIZONA	122301.	15.1	11350.	2724.
PINE BLUFF, ARKANSAS	11669.	51.5	7501.	2139.
PITTSBURGH, PENNSYLVANIA	259899.	16.9	6762.	1724.
PITTSFIELD, MASSACHUSETTS	9703.	17.2	43920.	2085.
PORLAND, MAINE	16732.	12.8	60106.	14425.
PORTLAND, ORE.-WASH.	116027.	14.9	18523.	13645.
PROVIDENCE-PAWTUCKET-WARWICK- R.I.-MAS	108421.	12.3	6010.	4468.
PROVO-OREM, UTAH	20171.	13.1	13360.	4230.
PUEBLO, COLORADO	14206.	24.9	2640.	3156.
RACINE, WISCONSIN	23489.	12.4	2143.	4230.
RALEIGH, N.C.	27887.	23.8	17266.	33224.
READING, PENNSYLVANIA	31977.	12.8	1669.	4212.
RENO, NEVADA	13959.	17.0	4091.	4327.
RICHMOND, VIRGINIA	61277.	13.6	4091.	3738.
ROANOKE, VIRGINIA	20635.	14.1	6641.	510.
ROCHESTER, MINN.	12309.	18.1	2924.	4464.
ROCHESTER, NEW YORK	115769.	10.9	2373.	4230.
ROCKFORD, ILLINOIS	37461.	13.7	8350.	3156.
SACRAMENTO, CALIFORNIA	93667.	11.3	2911.	10907.
SAGINAW, MICHIGAN	32349.	17.6	2228.	10541.
ST. JOSEPH, MO.	10035.	30.6	4091.	10541.
ST. LOUIS, MO.-ILL.	294679.	16.2	6346.	10541.
SALEM, OREGON	20684.	25.6	2640.	10541.
SALINAS-MONTEREY, CALIFORNIA	30012.	6.6	3071.	10541.
SALT LAKE CITY, UTAH	84722.	12.4	47841.	10541.
SAN ANGELO, TEXAS	8234.	22.8	5295.	10541.
SAN ANTONIO, TEXAS	117906.	21.2	1271.	10541.
SAN BERNARDINO-RIVERSIDE-ONTARIO, CALI	142206.	12.4	475.	10541.
SAN DIEGO, CALIFORNIA	156409.	6.7	10486.	10541.
SAN FRANCISCO-OAKLAND, CALIF.	336769.	8.7	11791.	10541.
SAN JOSE, CALIFORNIA	143292.	7.9	24999.	10541.
SANTA BARBARA, CALIFORNIA	30458.	11.0	4222.	10541.
SANTA ROSA, CALIF.	23615.	14.5	3251.	10541.
SAVANNAH, GEORGIA	24035.	25.9	29216.	10541.
SCRANTON, PENNSYLVANIA	23596.	18.4	7035.	10541.
SEATTLE-EVERETT, WASH.	172841.	12.8	2741.	10541.

HAZARDOUS  
HOUSING

MODEL 1  
EBL

CHILDREN  
AT RISK

UNSTABLE  
HOUSING  
6 AND UNDER

SMSA NAME

SMSA NAME	CHILDREN AT RISK	UNSTABLE HOUSING 6 AND UNDER	MODEL 1 EBL	HAZARDOUS HOUSING
SHREVEPORT, LA.	39209.	25.5	2397.	22799.
SIOUX CITY, IOWA-NEB.	14103.	26.2	3698.	9289.
SIOUX FALLS, SOUTH DAKOTA	12029.	20.1	2418.	5245.
SOUTH BEND, INDIANA	33524.	12.4	4146.	9046.
SPokane, WASHINGTON	32863.	14.8	4878.	14465.
SPRINGFIELD, ILLINOIS	19371.	18.3	3555.	9177.
SPRINGFIELD, MO.	17261.	18.7	3232.	8251.
SPRINGFIELD, OHIO	20548.	18.3	3758.	7480.
SPRINGFIELD-CHICOPEE-HOLYOKE, MASS.-CON	61955.	13.2	8153.	1954.
STAMFORD, CONNECTICUT	22249.	8.0	1775.	4395.
STEUBENVILLE-WHEELING, OHIO-W. VA.	18826.	22.4	4222.	1141.
STOCKTON, CALIFORNIA	34507.	18.4	6363.	1527.
SYRACUSE, NEW YORK	83635.	16.7	13987.	3357.
TACOMA, WASHINGTON	48290.	14.9	7187.	1725.
TALLAHASSEE, FLORIDA	12210.	30.7	3748.	900.
TAMPA-ST. PETERSBURG, FLORIDA	99046.	12.9	12773.	2878.
TERRE HAUTE, INDIANA	18648.	26.1	4865.	1168.
TEXARKANA, TEX.-ARKANSAS	12577.	43.0	5408.	1298.
TOLEDO, OHIO-MICH.	88279.	13.1	11607.	2843.
TOPEKA, KANSAS	18978.	18.1	3426.	822.
TRENTON, NEW JERSEY	34820.	10.9	3805.	913.
TUCSON, ARIZONA	41612.	13.3	5554.	1333.
TULSA, OKLAHOMA	57932.	20.6	11924.	2862.
TUSCALOOSA, ALABAMA	12935.	33.2	4297.	1031.
TYLER, TEXAS	111939.	34.5	4119.	989.
UTICA-ROME, NEW YORK	42490.	20.9	8877.	2131.
VALLEJO-NAPA, CALIFORNIA	30425.	17.0	5172.	1241.
VINELAND-MILLVILLE-BRIDGETON, N.J.	16084.	21.2	3410.	818.
WACO, TEXAS	15575.	23.5	3660.	878.
WASHINGTON, D.C.-MD.-VA.	369959.	7.1	26322.	6317.
WATERBURY, CONNECTICUT	26226.	11.5	3008.	722.
WATERLOO, IOWA	16948.	15.9	2700.	694.
WEST PALM BEACH, FLORIDA	36870.	14.4	5295.	1271.
WHEELING, W. VA.-OHIO	19536.	24.8	4841.	1162.
WICHITA, KANSAS	48751.	14.9	7272.	1745.
WILKES-BARRE-HAZZLETTON, PA.	14195.	21.9	3109.	746.
WILMINGTOM, DEL.-N.J.-MD.	34221.	15.0	5141.	1234.
WILMINGTOM, NORTH CAROLINA	64676.	13.0	8408.	2018.
WORCESTER, MASSACHUSETTS	13820.	33.4	4616.	1108.
YORK, PENNSYLVANIA	39622.	13.4	5295.	1271.
YOUNGSTOWN-WARREN, OHIO	40118.	12.4	4966.	1192.
	63191.	15.5	9818.	2356.

TOTAL FOR ALL SMSA'S

17112858.

141

2458171.

24190.

5267587.

of the total population and 68.6% of the children 6 years old and under, acquired recently from Census, are considerably lower than the upward of 80% of total population said to be living in SMSA's according to Census press releases, (or at least the interpretation of newspaper writers), early in 1971.

Proper estimates of EBL incidence must take into account the population outside the SMSA's, and at the very least, further probing into Census data is required. Even for an off-the-cuff revision of the national totals, the rural fraction of this residual child population can hardly be assigned an incidence rate by any process more scientific than divination, from available data, since there are no incidence data available from rural areas. However, survey data available from "small cities" (see Table 4) suggest that incidence rates in such places are probably comparable to rates in metropolitan areas.

The precision of the estimated numbers of children with Elevated Blood Leads (EBL) (as well as the fractions of unsound housing, which are also estimates) should not in any case be construed as being meaningful. The values appear in the "form in which they come out of the computer" and we have not bothered to round them for cosmetic purposes.

Table 2 lists the symbols used in these models.

A brief description of the models used for the estimate in Table 1 is as follows:

Model 1

$$E = K_6 \left( \frac{D}{H} \right) I_0$$

where  $I_0 = .24$ .

Table 2 : SYMBOLS USED IN MODELS 1 AND 2.9

$a_0, a_1, \dots$	parameters estimated by the curve fitting process
D	dilapidated or deteriorating housing units
E	number of children with elevated blood lead levels
H	number of housing units
I	fraction of children with elevated blood lead levels
$K_6$	children 6 years and under
P	total population

In this model  $I_0$  was estimated by averaging tabulated incidence rates from preliminary data from 20 existing screening programs. These programs have for the most part screened children living in neighborhoods with poor housing. If one makes the assumption that the number of children per dwelling unit is the same for poor housing as for all housing, then  $K_6 \left( \frac{D}{H} \right)$  is the number of children 6 years old or less who live in poor housing.

#### Model 2.9

$$I = a_0 \left( \frac{K_6}{P} \right)^{a_1} \left( \frac{D}{H} \right)^{a_2}$$

where  $a_0 = e^{-0.2914}$

$$a_1 = .2967$$

$$a_2 = .2484$$

#### Model 1A

The rate,  $I$ , predicted by Model 2.9 is applied to the estimate of children living in poor housing, in a manner similar to Model 1, that is, the number  $E$ , of children with elevated blood lead levels ( $40 \mu\text{g}/100 \text{ ml}$  or more) is calculated as:

$$E = K_6 \left( \frac{D}{H} \right) I.$$

In other words the two models differ in that the factor  $I$ , the "incidence rate" for high risk children" is constant for all SMSA's in Model 1 and calculated separately for each SMSA in Model 1A.

NOTES ON THE HEADINGS IN TABLE 1

(1) Children 6 and under

Children less than 7 years of age in each SMSA.

(2) % Unsound Housing

Fraction (x 100) of total dwelling units in each SMSA

estimated to be unsound.

(3) Children at Risk

The product of col. 1 and col. 2/100, thus an estimate of the number of children (6 and under) housed in unsound dwelling units in each SMSA, under the assumption that the children are distributed uniformly among the "quality of housing" categories.

(4) Model 1 EBL

An estimate of the children in each SMSA with elevated blood lead levels (greater than ".39 micrograms/100 ml whole blood"):

Column 3 multiplied by the constant rate .24

(5) Model 1A EBL

Estimate as in col 4 but with a rate for each SMSA determined by Model 2.9 replacing the constant .24.

(6) Hazardous Housing

Estimate of the number of dwelling units offering immediate danger, calculated as the fraction of unsound housing times the total housing.

The association of children at risk (by our definition), with children in unsound\* housing is made, because several screening programs have used this criterion for choosing which children to test. In the Congressional Record of October 18, 1971, Congressman Ryan included a paper by Vincent F. Guinee which states that "in 1970 (children) were tested if they lived in an environment that made lead poisoning possible."

Table 3 contains a Model 1 estimate of the number of children with blood lead levels of 40 or more  $\mu\text{g}/100\text{ ml}$ , 50 or more, 60 or more, and 70 or more. These are determined by using as values for  $I_0$  in Model 1 the 1970 rates for New York City which are included as column 2 of Table 4.

The report contains, in addition to outputs from the experimental models, a compilation in Table 4 of survey results from 26 cities identifying the data source for each city and tabulating the number of children screened and percent distributions of children screened for blood lead levels stratified by 10 microgram intervals (i.e., < 10  $\mu\text{g}/100\text{ ml}$ , 10-19  $\mu\text{g}/100\text{ ml}$ , etc.).

---

\*The Census of Housing up till 1960 divided housing into three classes: sound, deteriorating, and dilapidated. Unsound is thus either deteriorating or dilapidated. Census also uses the term "substandard": unsound or missing any plumbing facility.

TABLE 3

CHILDREN  
AND UNDER  
6

ABOVE 40

ABOVE 50

ABOVE 60

ABOVE 70

SMSA NAME	CHILDREN AT RISK
ABILENE, TEXAS	2782.
AKRON, OHIO	113170.
ALBANY, GEORGIA	83722.
ALBANY-SCHENECTADY-TROY, NEW YORK	11548.
ALBUQUERQUE, N. MEXICO	13512.
ALLENTOWN-BETHLEHEM-EASTON, PA.-N.J.	86646.
ALTOONA, PENNSYLVANIA	42271.
AMARILLO, TEXAS	59922.
ANAHEIM-SANTA ANA-GARDEN GROVE, CALIF.	15446.
ANDERSON, INDIANA	17758.
ANN ARBOR, MICHIGAN	184609.
APPLETON-OSHKOSH, WISC.	18112.
ASHEVILLE, NORTH CAROLINA	27735.
ATLANTA, GEORGIA	37201.
ATLANTIC CITY, NEW JERSEY	16766.
AUGUSTA, GEORGIA	185298.
AUSTIN, TEXAS	19462.
BAKERSFIELD, CALIFORNIA	31834.
BALTIMORE, MARYLAND	18400.
BATON ROUGE, LA.	35431.
BAY CITY, MICHIGAN	16338.
BEAUMONT-PORT ARTHUR-ORANGE, TEXAS	42337.
BILLINGS, MONTANA	255628.
BILOXI-GULFPORT, MISSISSIPPI	38400.
BINGHAMPTON, NEW YORK	10386.
BIRMINGHAM, ALABAMA	38473.
BLOOMINGTON-NORMAL, ILLINOIS	86353.
BOISE CITY, IDAHO	11489.
BOSTON, MASSACHUSETTS	13834.
BRIDGEPORT, CONNECTICUT	316924.
BRISTOL, CONN.	46076.
BRICKTON, MASSACHUSETTS	8651.
BROWNSVILLE-HARLINGEN-SAN BENITO, TEXAS	27501.
BRYAN-COLLEGE STATION, TEXAS	21807.
BUFFALO, NEW YORK	7604.
CANTON, OHIO	163029.
CEDAR RAPIDS, IOWA	45669.
CHAMPAIGN-URBANA, ILLINOIS	22808.
CHARLESTON, SOUTH CAROLINA	18384.
CHARLESTON, WEST VIRGINIA	43077.
CHARLOTTE, NORTH CAROLINA	25044.
CHATTANOOGA, TENN.	53899.
CHICAGO, ILLINOIS	36526.
CINCINNATI, OHIO-KY--IND.	179656.
CLEVELAND, OHIO	250654.
COLORADO SPRINGS, COLORADO	30281.
COLUMBIA, MISSOURI	872488.
COLUMBIA, SOUTH CAROLINA	9096.
COLUMBUS, GEORGIA	38743.
COLUMBUS, OHIO	31301.
	116049.
	19633.
	2737.
	2708.
	6019.
	3395.
	3371.
	502.
	2110.
	608.
	2534.
	8377.
	1064.
	2493.

2609.	1182.
CORPUS CHRISTI, TEXAS	2681.
DALLAS, TEXAS	35624.
DAVENPORT-ROCK ISLAND-MOLINE, IOWA	47629.
DAYTON, OHIO	108074.
DECATUR, ILLINOIS	15689.
DENVER, COLORADO	154700.
DES MOINES, IOWA	35607.
DETROIT, MICHIGAN	546190.
DUBUQUE, IOWA	13559.
DULUTH-SUPERIOR, MINN.-WIS.	29551.
DURHAM-NORTH CAROLINA	21903.
EL PASO, TEXAS	52765.
FERIE, PENNSYLVANIA	33774.
EUGENE, OREGON	24747.
EVANSVILLE, IND.-KY.	26835.
FALL RIVER, MASS.-R.I.	17996.
FARGO-MOREHEAD, N. DAK.-MINN.	13984.
FAYETTEVILLE, NORTH CAROLINA	29292.
FITCHBURG-LEOMINSTER, MASS.	12007.
FLINT, MICHIGAN	73001.
FORT LAUDERDALE-HOLLYWOOD, FLORIDA	60748.
FORT SMITH, ARK.-OKLA.	19765.
FORT WAYNE, INDIANA	37993.
FORT WORTH, TEXAS	99588.
FRESNO, CALIFORNIA	51778.
GADDEN, ALABAMA	11203.
GAINESVILLE, FLORIDA	12416.
GALVESTON-TEXAS CITY, TEXAS	21319.
GARY-HAMMOND-EAST CHICAGO, INDIANA	84681.
GRAND RAPIDS, MICHIGAN	72650.
GREAT FALLS, MONTANA	10722.
GREEN BAY, WISCONSIN	23340.
GREENSBORO-WINSTON-SALEM-HIGH POINT, N.C.	73497.
GREENVILLE, SOUTH CAROLINA	37021.
HAMILTON-MIDDLETON, OHIO	28127.
HARRISBURG, PENNSYLVANIA	46094.
HARTFORD, CONNECTICUT	61943.
HONOLULU, HAWAII	7196.
HOUSTON, TEXAS	84918.
HUNTINGTON-ASHLAND, W. VA.-KY.-OHIO	273286.
HUNTSVILLE, ALABAMA	29205.
INDIANAPOLIS, INDIANA	32765.
JACKSON, MICHIGAN	145885.
JACKSON, MISSISSIPPI	18320.
JACKSONVILLE, FLORIDA	34632.
JERSEY CITY, NEW JERSEY	66225.
JOHNSTOWN, PENNSYLVANIA	66577.
KALAMAZOO, MICHIGAN	28976.
KANSAS CITY, MO.-KANSAS	24488.
	155548.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.
	46094.
	61943.
	84918.
	273286.
	29205.
	32765.
	145885.
	18320.
	34632.
	66225.
	21943.
	3184.
	7987.
	13701.
	10348.
	2980.
	2098.
	10222.
	24083.
	6936.
	3059.
	251.
	211789.
	47629.
	108074.
	15689.
	154700.
	35607.
	546190.
	13559.
	29551.
	21903.
	52765.
	33774.
	24747.
	26835.
	17996.
	13984.
	29292.
	12007.
	73001.
	60748.
	19765.
	37993.
	99588.
	51778.
	11203.
	12416.
	21319.
	84681.
	72650.
	10722.
	23340.
	73497.
	37021.
	28127.

## SMSA NAME

CHILDREN  
6 AND UNDER

## ABOVE 40

## ABOVE 50

## ABOVE 60

## ABOVE 70

KENOSHA, WISCONSIN 15705. 2123. 127.  
 KNOXVILLE, TENNESSEE 45155. 10776. 1369.  
 LA CROSSE, WISC. 9422. 2271. 647.  
 LAFAYETTE, LA. 16090. 4811. 136.  
 LAFAYETTE-WEST LAFAYETTE, IND. 13086. 2997. 130.  
 LAKE CHARLES, LA. 20132. 4127. 81.  
 LANCASTER, PENNSYLVANIA 39692. 4679. 611.  
 LANSING, MICHIGAN 50711. 7821. 381.  
 LAREDO, TEXAS 12018. 6778. 180.  
 LAS VEGAS, NEVADA 37812. 3143. 524.  
 LAWRENCE-HAVERHILL, MASS.-N.H. 29275. 4958. 248.  
 LAWTON, OKLAHOMA 13585. 2948. 594.  
 LEWISTON-AUBURN, MAINE 9143. 2286. 2253.  
 LEXINGTON, KENTUCKY 21648. 4249. 190.  
 LIMA, OHIO 22761. 4451. 134.  
 LINCOLN, NEBRASKA 18891. 3776. 630.  
 LITTLE ROCK-NORTH LITTLE ROCK, ARK. 40663. 8812. 281.  
 LORAIN-ELYRIA, OHIO 36428. 4621. 993.  
 LOS ANGELES-LONG BEACH, CALIF. 839060. 60901. 280.  
 LOUISVILLE, KY.-IND. 103292. 16890. 849.  
 LOWELL, MASS. 31615. 4550. 226.  
 LUBBOCK, TEXAS 23977. 4512. 663.  
 LYNCHBURG, VIRGINIA 14457. 3737. 126.  
 MACON, GEORGIA 27130. 8047. 177.  
 MADISON, WISCONSIN 36274. 3807. 119.  
 MANCHESTER, NEW HAMPSHIRE 13085. 2604. 238.  
 MANSFIELD, OHIO 16624. 3840. 119.  
 MCALLEN-PHARR-EDENBURG, TEXAS 28918. 9919. 529.  
 MEMPHIS, TENN.-ARK. 101031. 18834. 120.  
 MERIDEN, CONNECTICUT 6868. 1023. 125.  
 MIAMI, FLORIDA 127325. 10705. 125.  
 MIDLAND, TEXAS 8141. 1506. 115.  
 MILWAUKEE, WISCONSIN 177587. 1759. 102.  
 MINNEAPOLIS-ST. PAUL, MINN. 244356. 27886. 103.  
 MOBILE, ALABAMA 5029. 13962. 103.  
 MODESTO, CALIF. 24199. 3097. 105.  
 MONROE, LA. 15924. 5067. 105.  
 MONTGOMERY, ALABAMA 26002. 7248. 105.  
 MUNCIE, INDIANA 16395. 2850. 105.  
 MUSKEGON-MUSKEGON HEIGHTS, MICH. 20879. 3500. 105.  
 NASHUA, N.H. 10211. 1828. 105.  
 NASHVILLE, TENNESSEE 63669. 12964. 105.  
 NEW BEDFORD, MASS. 16794. 2018. 105.  
 NEW BRITAIN, CONNECTICUT 16896. 1689. 105.  
 NEW HAVEN, CONNECTICUT 40814. 5387. 105.  
 NEW LONDON-GROTON-NORWICH, CONN. 27844. 4500. 105.  
 NEW ORLEANS, LA. 140338. 30149. 105.  
 NEW YORK, NEW YORK 1316742. 169107. 105.  
 NEWARK, NEW JERSEY 221966. 28511. 105.  
 NEWPORT NEWS-HAMPTON, VA. 38746. 1987. 105.

57. 291. 270.  
 291. 1369. 647.  
 2271. 654. 136.  
 16090. 4811. 611.  
 13086. 2997. 289.  
 2997. 863. 180.  
 4127. 1188. 248.  
 39692. 4679. 594.  
 50711. 7821. 2253.  
 12018. 6778. 1952.  
 37812. 3143. 1952.  
 29275. 4958. 290.  
 13585. 2948. 374.  
 9143. 2286. 290.  
 21648. 4249. 407.  
 22761. 4451. 399.  
 18891. 3776. 1428.  
 40663. 8812. 1428.  
 36428. 4621. 1428.  
 839060. 60901. 1428.  
 103292. 16890. 1428.  
 31615. 4550. 1428.  
 23977. 4512. 1428.  
 14457. 3737. 1428.  
 27130. 8047. 1428.  
 36274. 3807. 1428.  
 13085. 2604. 1428.  
 16624. 3840. 1428.  
 28918. 9919. 1428.  
 101031. 18834. 1428.  
 6868. 1023. 1428.  
 127325. 10705. 1428.  
 8141. 1506. 1428.  
 177587. 1759. 1428.  
 244356. 27886. 1428.  
 5029. 13962. 1428.  
 24199. 3097. 1428.  
 15924. 5067. 1428.  
 26002. 7248. 1428.  
 16395. 2850. 1428.  
 20879. 3500. 1428.  
 10211. 1828. 1428.  
 63669. 12964. 1428.  
 16794. 2018. 1428.  
 16896. 1689. 1428.  
 40814. 5387. 1428.  
 27844. 4500. 1428.  
 140338. 30149. 1428.  
 1316742. 169107. 1428.  
 221966. 28511. 1428.  
 38746. 1987. 1428.

## SMSA NAME

CHILDREN  
AT RISK  
6 AND UNDER

## ABOVE 40

## ABOVE 50

## ABOVE 60

## ABOVE 70

NORFOLK-PORTSMOUTH, VA.	86336.	15190.	4375.	1929.	911.
NORWALK, CONNECTICUT	14300.	1544.	445.	196.	93.
ODESSA, TEXAS	12194.	2573.	741.	327.	42.
OGDEN, UTAH	17608.	2522.	726.	320.	69.
OKLAHOMA CITY, OKLAHOMA	78298.	13851.	3989.	1759.	154.
OMAHA, NEBR.-IOWA	73418.	11420.	3289.	1450.	685.
ORLANDO, FLORIDA	51620.	8042.	2316.	1021.	217.
OWENSBORO, KENTUCKY	10626.	2274.	655.	289.	136.
OXNARD-VENTURA, CALIFORNIA	53501.	8346.	2404.	1060.	501.
PATERSON-CLIFTON-PASSAIC, N.J.	150497.	11350.	3269.	1441.	225.
PENSACOLA, FLORIDA	31305.	7501.	2160.	953.	306.
PEORIA, ILLINOIS	42686.	6762.	1947.	859.	450.
PETERSBURG-COLONIAL HEIGHTS, VA.	15944.	6489.	1869.	824.	183.
PHILADELPHIA, PA.-N.J.	578867.	60106.	17311.	7633.	1623.
PHOENIX, ARIZONA	122301.	18523.	5334.	2352.	500.
PINE BLUFF, ARKANSAS	11669.	6010.	1731.	763.	162.
FITCHBURGH, PENNSYLVANIA	259899.	43920.	12649.	5578.	1186.
PITTSFIELD, MASSACHUSETTS	9703.	1669.	481.	212.	45.
PORTLAND, MAINE	16732.	2143.	617.	272.	58.
PORTLAND, ORE.-WASH.	116027.	17266.	4973.	2193.	466.
PROVIDENCE-PAWTUCKET-WARWICK- R.I.-MAS	108421.	13360.	3848.	1697.	361.
PROVO-OREM, UTAH	20171.	2640.	760.	335.	71.
PUEBLO, COLORADO	14206.	3537.	1019.	449.	212.
RACINE, WISCONSIN	23469.	2924.	842.	371.	79.
RALEIGH, N.C.	27887.	6641.	1912.	843.	179.
READING, PENNSYLVANIA	31977.	4091.	1178.	520.	110.
RENO, NEVADA	13959.	2373.	683.	301.	64.
RICHMOND, VIRGINIA	61277.	8350.	2405.	1060.	501.
ROANOKE, VIRGINIA	20635.	2911.	839.	370.	225.
ROCHESTER, MINN.	12309.	2228.	642.	283.	60.
ROCHESTER, NEW YORK	115769.	12668.	3648.	1609.	342.
ROCKFORD, ILLINOIS	37461.	5145.	1482.	653.	309.
SACRAMENTO, CALIFORNIA	93667.	10605.	3054.	1347.	636.
SAGINAW, MICHIGAN	32349.	5687.	1638.	722.	154.
ST. JOSEPH, MO.	10035.	3071.	884.	390.	83.
ST. LOUIS, MO.-ILL.	294679.	47841.	13778.	6076.	1292.
SALEM, OREGON	20684.	5295.	1525.	672.	143.
SALINAS-MONTEREY, CALIFORNIA	30012.	1981.	570.	252.	53.
SALT LAKE CITY, UTAH	84722.	10486.	3020.	1332.	283.
SAN ANGELO, TEXAS	8234.	1877.	541.	238.	51.
SAN ANTONIO, TEXAS	117906.	24999.	7200.	3175.	675.
SAN BERNARDINO-RIVERSIDE-ONTARIO, CALI	142206.	17591.	5066.	2234.	1055.
SAN DIEGO, CALIFORNIA	156409.	13546.	3901.	1720.	366.
SAN FRANCISCO-OAKLAND, CALIF.	336769.	29216.	8414.	1753.	789.
SAN JOSE, CALIFORNIA	143292.	11352.	3270.	1442.	307.
SANTA BARBARA, CALIFORNIA	30458.	3350.	965.	426.	201.
SANTA ROSA, CALIF.	23615.	3424.	986.	435.	92.
SAVANNAH, GEORGIA	24035.	6232.	1795.	791.	168.
SCRANTON, PENNSYLVANIA	23596.	4332.	1248.	550.	117.
SEATTLE-EVEPETT, WASH.	172841.	22114.	6369.	1327.	597.

## SMSA NAME

CHILDREN  
6 AND UNDERCHILDREN  
AT RISK

## ABOVE 40

## ABOVE 50

## ABOVE 70

SMSA NAME	CHILDREN 6 AND UNDER	CHILDREN AT RISK	ABOVE 40	ABOVE 50	ABOVE 70
SHREVEPORT, LA.	39209.	9985.	2876.	1268.	599.
SIOUX CITY, IOWA-NEB.	14103.	3698.	1065.	470.	222.
SIOUX FALLS, SOUTH DAKOTA	12029.	2418.	696.	307.	145.
SOUTH BEND, INDIANA	33524.	4146.	1194.	527.	249.
SPokane, WASHINGTON	32863.	4878.	1405.	619.	293.
SPRINGFIELD, ILLINOIS	19371.	3555.	1024.	451.	213.
SPRINGFIELD, MO.	17261.	3232.	931.	410.	194.
SPRINGFIELD, OHIO	20548.	3758.	1082.	477.	225.
SPRINGFIELD-CHICOOPEE-HOLYOKE, MASS.-CON	61955.	8153.	2348.	1035.	489.
STAMFORD, CONNECTICUT	22249.	1775.	511.	225.	107.
STEUBENVILLE-WEIRTON, OHIO-W.VA.	18826.	4222.	1216.	536.	253.
STOCKTON, CALIFORNIA	34507.	6363.	1833.	808.	382.
SYRACUSE, NEW YORK	83635.	13987.	4028.	1776.	839.
TACOMA, WASHINGTON	48290.	7187.	2070.	913.	431.
TALLAHASSEE, FLORIDA	12210.	3748.	1080.	476.	225.
TAMPA-ST. PETERSBURG, FLORIDA	99046.	12773.	3679.	1622.	766.
TERRE HAUTE, INDIANA	18648.	4865.	1401.	618.	292.
TEXARKANA, TEX.-ARKANSAS	12577.	5408.	1558.	687.	324.
TOLEDO, OHIO-MICH.	88279.	11607.	3343.	1474.	696.
TOPEKA, KANSAS	18978.	3426.	987.	435.	206.
TRENTON, NEW JERSEY	34820.	3805.	1096.	483.	228.
TUCSON, ARIZONA	41612.	5554.	1599.	705.	333.
TULSA, OKLAHOMA	57932.	11924.	3434.	1514.	715.
TUSCALOOSA, ALABAMA	12935.	4297.	1237.	546.	258.
TYLER, TEXAS	11939.	4119.	1186.	523.	247.
UTICA-ROME, NEW YORK	42490.	8877.	2557.	1127.	533.
VALLEJO-NAPA, CALIFORNIA	30425.	5172.	1490.	657.	322.
VINELAND-MILLVILLE-BRIDGETON, N.J.	16084.	3410.	982.	433.	205.
WACO, TEXAS	15575.	3660.	1054.	465.	220.
WASHINGTON, D.C.-MD.-VA.	369959.	26322.	7581.	3343.	1579.
WATERBURY, CONNECTICUT	26226.	3008.	866.	382.	181.
WATERLOO, IOWA	16948.	2700.	778.	343.	162.
WEST PALM BEACH, FLORIDA	36870.	5295.	1525.	672.	318.
WHEELING, W. V.-OHIO	19536.	4841.	1394.	615.	290.
WICHITA, KANSAS	48751.	7272.	2094.	924.	436.
WICHITA FALLS, TEXAS	14195.	3109.	895.	395.	187.
WILKES-BARRE-HAZLETON, PA.	34221.	5141.	1481.	653.	308.
WILMINGTON, DEL.-N.J.-MD.	64676.	8408.	2422.	1068.	504.
WILMINGTTON, NORTH CAROLINA	13820.	4616.	1329.	586.	277.
WORCESTER, MASSACHUSETTS	39622.	5295.	1525.	672.	318.
YORK, PENNSYLVANIA	40118.	4966.	1430.	631.	298.
YOUNGSTOWN-WARREN, OHIO	63191.	9818.	2828.	1247.	589.
<b>TOTAL FOR ALL SMSA'S</b>	<b>17112858.</b>	<b>2458171.</b>	<b>707953.</b>	<b>312188.</b>	<b>147490.</b>

TABLE 4: BLOOD LEAD LEVEL DISTRIBUTIONS

Number Screened	Congressional Record 10/18/71, Article by Cong. Ryan	Guinée Submitted by G. N.Y.	Lead Poisoning Control Bureau, City of N.Y.	"Pediatric Lead Poisoning in Illinois"	Philip R. Fine and	Richard H. Suh	Rock Island, Ill.	E. St. Louis, Ill.	Decatur, Ill.	Joliet, Ill.	Rock Island, Ill.	E. Malone, Ill.	Robbins, Ill.	Harvey, Ill.	Carbondale, Ill.
2,648	84,493	1445	449	670	387	376	793	383	285	298	103	226	264		
Under 10	0.0	.1	17.7	68.7	75.3	87.8	75.7	78.9	88.6	87.4	83.6				
10-19	5.9	6.0	23.0	69.9	75.7										
20-29	20.8	31.5	23.3												
30-39	27.8	33.6	15.2												
40-49	21.0	16.1	11.0	13.4	14.1	13.5	12.7	6.7	13.3	8.1	6.7	9.7	7.1	11.7	
50-59	12.0	6.7	4.5	3.6	8.9	8.8	7.2	2.7	7.9	6.3	2.7	2.9	6.2	3.8	
60-69	5.9	3.3	2.1	2.0	3.1	5.9	2.9	1.9	2.1	2.1	2.0	0.0	1.3	.4	
70-79				1.1	1.7	3.0	1.5	.1	.2	3.5	0.0	0.0	.9	.7	
80-89					.7	1.6	.3	.2	.5	0.0	1.1	0.0	.5	.4	
90-99						.6	.8	.4	0.0	.3	.3	0.0	0.0	.4	0.0
100 & Over							.7	1.2	.3	0.0	0.5	0.0	0.0	0.0	0.0

	Phone - Dr. Irwin Billieck, HUD	Phone - Ebbutt, Lead Potisniting Program Norfolk Health Dept. 11/7/71	Phone - Lead Potisniting Program Norfolk, Va.	Phone - New Haven Lead Potisniting Program New Haven, Conn.	Phone Lin-Fu Public Health Service Hew	"Undue Absorption of Lead Among Children - A New Problem"	D.C. Model Cities Phone - Dudley Anderson Washington, D.C. (1970)	Phone - Rockford, ILL. Rockford, ILL.
Under 1.0	2.0							
10-19	15.0	77.3	76.3	74.7	72.1	68.5	60.8	80.5
20-29	30.8							
30-39	26.7							
40-49	14.7	17.7	8.7	19.7	20.7	16.9	22.5	.8
50-59	6.4		6.8			7.3		2.8
60-69	1.9		3.8	3.5	4.4	6.0	9.1	.8
70-79	.6		1.3					.3
80-89	5.0		1.0	.6	2.1	2.8	1.4	.1
90-99	1.8			.7		7.6	7.6	0.0
100 & Above								.1
Number Screened	3052	1255	1339	665	746	939	1821	1200



