COUNTY AND ZIP CODE BLOOD-LEAD DATA FOR CHILDREN UNDER SIX YEARS OF AGE TESTING ABOVE TEN MICROGRAMS PER DECILITER IN REGION 5 STATES

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County and Zip Code Blood-Lead Data For Children Under 6 Years Of Age Testing Above 10 Micrograms Per Deciliter (µg/dL) In Region 5 States.

Background

In response to U.S. EPA Administrator Carol Browner's *National Agenda to Protect Children's Health from Environmental Threats*, and President Clinton's *Executive Order to Protect Children from Environmental Health Risks and Safety Risks*, U.S. EPA Region 5 convened its own internal working group to address these concerns in late 1997. This workgroup, known as the "Region 5 Environmental Actions for Children's Health," or "REACH," was established to organize and coordinate activities within the Region and to integrate the norm of children's health protection into the daily fabric of the Agency's culture and process. An early objective of this workgroup has been to set Regional priorities for children's health protection based on identified "zones of elevated contaminant concentrations" and identified "zones of disease" that would enable geographically-targeted outreach and education for primary prevention, and geographically-targeted investigation for environmental intervention and hazard reduction. This effort ultimately envisions a standardized regionwide database of children's health endpoints (including blood-lead poisoning, asthma, cancer, etc.), that can be mapped using Geographic Information System (GIS) tools. This database would show the number of reported cases of these childhood diseases across the six states (IL, IN, MI, MN, OH, WI), and could include a variety of related statistics (e.g., census data, Toxic Release Inventory data, etc.). Such a database might enable, at a glance, one measure of where children's health may be at greater risk across the Region, for what diseases, and the absolute numbers of children affected.

A Pilot Project

As an initial pilot project, REACH decided to focus on childhood blood-lead surveillance data at the county and zip code level. Although no effort to collect this kind of children's health data across the entire Region had ever been attempted before, it was felt that childhood blood-lead surveillance data would be a logical place to begin because all six

states in the Region were known to be collecting such data. If all of the State Health Departments in the Region were found to be collecting the same data in the same manner, and a uniform data set could be achieved, such a milestone might serve at least three programmatic goals and purposes, including; (1) the identification of specific neighborhoods for further environmental source investigation, (2) targeted multimedia enforcement/compliance assistance aimed at reducing known and continuing environmental sources of lead releases in these areas, and (3) the prioritization of communities for primary health prevention activities, including public education and outreach. Beyond these immediate benefits, the creation and maintenance of such a database would also enable the temporal monitoring of changes in children's blood-lead levels throughout the Region and thereby serve as a baseline against which future environmental progress could be measured. Although the pilot project that is the subject of this report achieved neither the uniform data set nor the program goals outlined above, it did nevertheless move Region 5 forward in terms of understanding how to approach this task, both for elevated blood-lead and other children's health endpoints of regionwide interest and concern.

In setting out to inquire whether a uniform regionwide children's blood-lead database would be feasible, REACH initially contacted the U.S. Centers for Disease Control and Prevention (CDC) to find out what statewide data this Federal Agency might already have regarding the prevalence of elevated blood-lead in children. Unfortunately, we learned that the survey data it collects is aggregated only at the national level, and is not available comprehensively state-by-state. Consequently, it quickly became apparent that each of the State Health Departments would need to be contacted individually in order to obtain this information.

After discussing our project plans with State Lead (Pb) Program Managers at a regional forum convened in early 1998, the State programs expressed support for our proposed efforts, pledged their cooperation, and helped us to identify the appropriate contact points in each of their State Health Department's respectively. With this information and encouragement, U.S. EPA Region 5 then wrote to each department in early 1998, formally

requesting that they share their statewide childhood blood-lead screening data with us. Each state was asked to provide data showing its total number of reported cases of children under age 6 with a measured blood-lead level at or above 10 mcg/dL, broken out by county and zip code, for calendar year 1996, if available. If possible, each agency was also asked to provide its data in an electronic format for ease of aggregation and processing. Without full knowledge of the data pool available, we were not able to be any more specific than this in defining and articulating our data quality objectives going in. Fortunately, each of the six State Agency's was willing (with minor adjustments to existing data files in a few cases) to provide us with the requested information. As a result, by early Summer, 1998, U.S. EPA Region 5 was in possession of a regionwide data set for elevated childhood blood-lead for the very first time.

Data Quality Limitations

Although each of the State's was able to respond, it soon became apparent, upon examination of the data, that there were significant differences across the six States in terms of the data being collected and the manner in which it was being reported. Some of the States provided us with supporting descriptive information, while others did not. As a pilot project, we deliberately chose not to pursue metadata from those States that did not otherwise provide it or offer to provide it, based on the reasoning that we did not want our information request to become burdensome to the States. We also reasoned that we could always go back and request additional explanatory information from them at a later time, as needed.

On close inspection, the data was not what we had anticipated. We had assumed that because of the widespread availability of CDC's blood-lead surveillance guidelines, that all State surveillance programs would be operating in the same manner. As is often the case with seminal data collection efforts of this kind, we did encounter some surprises. First, we observed that none of the State programs had been practicing universal or random blood-lead screening, so we were limited to a biased sample right from the outset. Second, Illinois, as an example, included in its data children who had initially tested above elevated levels in

prior years, whereas Wisconsin and Ohio included only new cases diagnosed and reported in 1996 (or 1997) for the first time. Third, salient data gaps in some areas of some States raised our suspicions that these localities may have been recording and reporting the zip code from where a test had been taken rather than the zip code of the child's actual place of residence. Such disparities were also indicated by certain zip codes reportedly having tested more than 100% of the available (under age six) childhood population. Fourth, although we had specifically asked for calendar year 1996 screening data, Wisconsin was only able to provide us with its fiscal year 1996/97 data, and Ohio could only provide the requested data for calendar year 1997. Fifth, another distortion may have occurred because all of the children under age six who were tested in 1996 (and/or 1997) were used in computing the overall screening rates for that year even though all of these children would not normally be tested in any one single year, but rather spread out over a six year testing period (the 1 - 2 year old cohort is the primary target for most screening programs, and the numbers and/or percentages of infants and 3 - 5 year olds tested in any given year might fluctuate randomly). If we had been able to calculate the overall screening rate for the 1 - 2 year old cohort separately, it would probably have yielded a more accurate and useful measure. Sixth, another problem occurred when we attempted to match 1996 or 1997 screening data with census data from 1990 in an effort to estimate screening rates. Because zip code boundaries can change from one year to the next, children may have been counted in the 1990 census inside zip codes completely different from where they were reported to have been screened in 1996, and, these children would have aged over the succeeding six or seven year period to no longer be a part of the 0 - 6 year age cohort of interest. We did attempt to compensate for this by using the estimated population data for 1996, but it is still imprecise. Consequently, we concluded that because of the combined influence of all of these limiting factors, we (1) had not achieved true data comparability across the States within the regionwide data set, (2) had not yet established a solid basis for measuring or mapping either the incidence or prevalence of childhood lead-poisoning by county or zip code, and (3) had not obtained a precise measurement of screening rates (particularly at the zip code level, where the greatest distortion potentially occurred). We did decide, however, that it would

nevertheless be worthwhile to render the data in a Geographic Information System (GIS) format, and to map it by county and zip code, state by state. This would provide us with a set of statewide maps showing the geographic distribution of the reported cases of children with elevated blood lead. Although not reflecting actual incidence or prevalence, the GIS maps would nevertheless provide a useful pointer for where the U.S. EPA might target its efforts to maximize the expected program benefits. The assumption implicit to this reasoning is quite simply that we could accomplish the greatest good by targeting those areas with the greatest known number of lead poisoned children in absolute terms.

With the data in hand, and technical assistance being provided by a visiting Academic Fellow from Oregon State University, a U.S. EPA Region 5 project team proceeded with the development of a series of GIS maps depicting the relative geographic distribution of reported cases of childhood blood-lead poisoning state by state. These maps, prepared in ARCVIEW and copyrighted by the Fellow, are listed and presented in Appendix A. The color scheme consistently chosen for all of the maps is intended to have lighter-to-darker shading representing a better-to-worse situation. U.S. EPA Region 5 also then took the additional step, based upon projections from the available 1990 U.S. Census population estimates, of calculating the number of children living within each county and zip code so that screening rates could be determined to gauge the relative intensity of childhood blood-lead testing throughout the Region. This was made possible by the States having provided us with not only the number of reported cases of elevated blood-leads, but the total number of blood tests performed in each geographic area as well. As a result of this step, the estimated percentage of children screened (tested) by county for the entire Region was computed, and can be found listed in Appendix B. This data is also displayed on special maps which have been included in Appendix A. Estimated screening rates were shown to vary widely from one zip code to the next, ranging from a high of 86% to a low of 0%[1]. This

[1]This number excludes zip codes in Illinois where cases were found to be above 100% as referred to earlier in this paper.

information may be helpful in terms of identifying where greater screening resources and/or efforts are needed. By aggregating all of the screening data reported by the States, we were also able to determine that there were approximately 73,342 reported cases of elevated blood-leads in children under the age of 6 in Region 5 in the 1996/97 timeframe. This is perhaps the most accurate estimate acquired or developed to-date, of the actual magnitude of the childhood lead poisoning problem within this Region, but may still understate the true magnitude of the problem given the low screening rates that were so commonly observed.

Once the maps had been completed, copies were then distributed to the Lead Program Managers in each of the six states for their review and comment. We specifically requested that they check the maps for accuracy to ensure that the data had not been misrepresented in any way. Verbal permission for the U.S. EPA Region 5 to use the data, and the maps, was requested, and granted. For all of their many invaluable contributions, we are grateful to each of these State Agencies for their support. As a final step before releasing this report, U.S. EPA Region 5 also then completed an internal peer review process which resulted in a variety of refinements and improvements to the tables and text.

Conclusion

U.S. EPA Region 5 is committed to working in partnership with the States to further reduce the incidence of childhood lead-poisoning throughout this Region, and to provide for a lead-safe environment. We also look forward to a continuing cooperation with the States, and the State Health Departments in particular, as we pursue the additional goal of developing a regionwide database for the primary children's health endpoints of concern. We consider this report to represent an early but significant milestone along this road, and hope that it will encourage continued efforts in this direction.

Appendix A

Figure 1: Illinois Blood Lead Screening Data By County For 1996

Figure 2: Illinois Blood Lead Screening Percentage By County For 1996

Figure 3: Illinois Blood Lead Screening Data By Zip Code For 1996

Figure 4: Illinois Blood Lead Screening Percentage By Zip Code For 1996

Figure 5: Indiana Blood Lead Screening Data By County For 1996

Figure 6: Indiana Blood Lead Screening Percentage By County For 1996

Figure 7: Indiana Blood Lead Screening Data By Zip Code For 1996

Figure 8: Indiana Blood Lead Screening Percentage By Zip Code For 1996

Figure 9: Michigan Blood Lead Screening Data By County For 1996

Figure 10: Michigan Blood Lead Screening Percentage By County For 1996

Figure 11: Michigan Blood Lead Screening Data By Zip Code For 1996

Figure 12: Michigan Blood Lead Screening Percentage By Zip Code For 1996

Figure 13: Minnesota Blood Lead Screening Data By County For 1996

Figure 14: Minnesota Blood Lead Screening Percentage By County For 1996

Figure 15: Minnesota Blood Lead Screening Data By Zip Code For 1996

Figure 16: Minnesota Blood Lead Screening Percentage By Zip Code For 1996

Figure 17: Ohio Blood Lead Screening Data By County For 1997

Figure 18: Ohio Blood Lead Screening Percentage By County For 1997

Figure 19: Ohio Blood Lead Screening Data By Zip Code For 1997

Figure 20: Ohio Blood Lead Screening Percentage By Zip Code For 1997

Figure 21: Wisconsin Blood Lead Screening Data For Fiscal Year 96/97 By County

Figure 22: Wisconsin Blood Lead Screening Percentage For Fiscal Year 96/97 By County

Figure 23: Wisconsin Blood Lead Screening Data For Fiscal Year 96/97 By Zip Code

Figure 24: Wisconsin Blood Lead Screening Percentage For Fiscal Year 96/97 By Zip

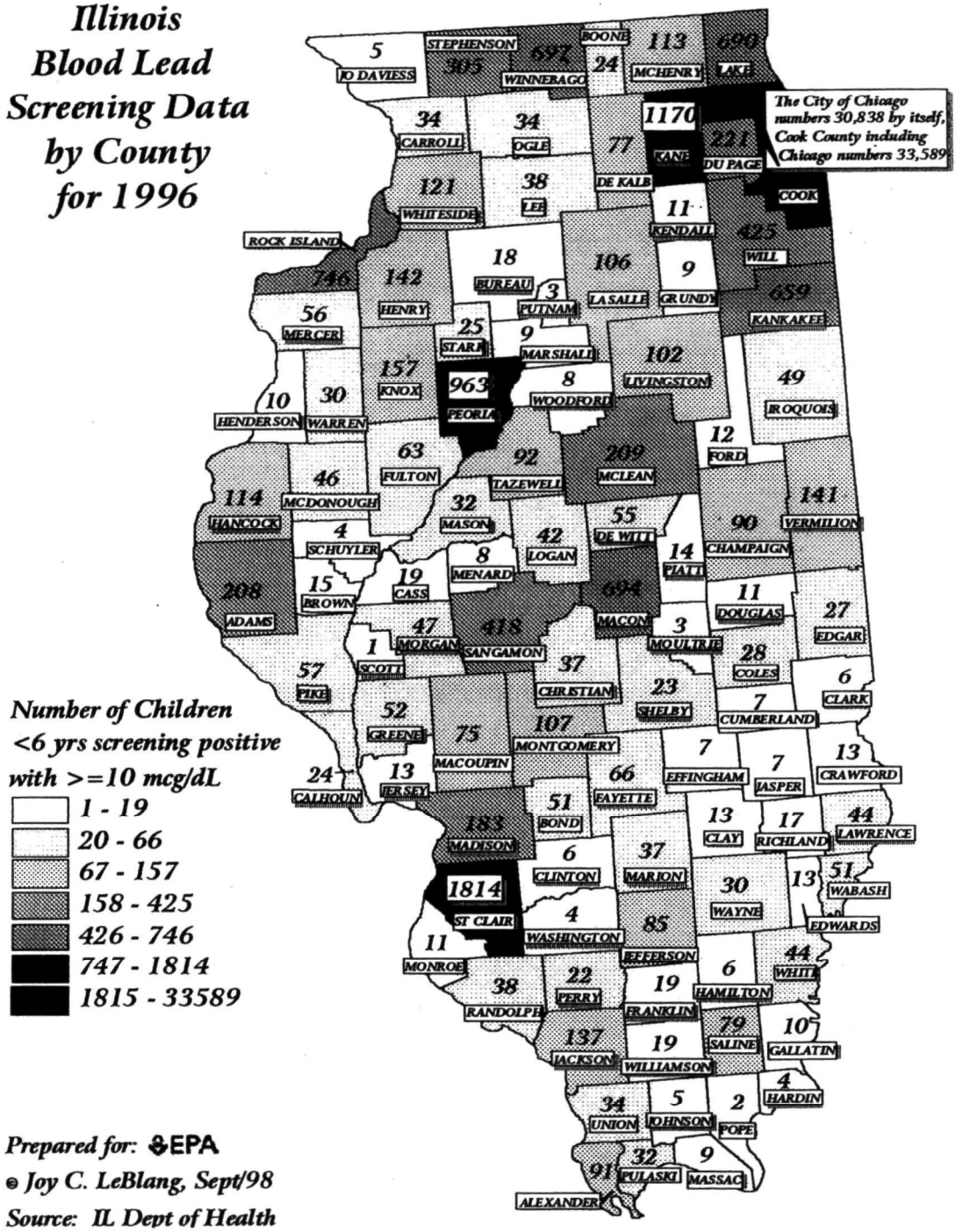
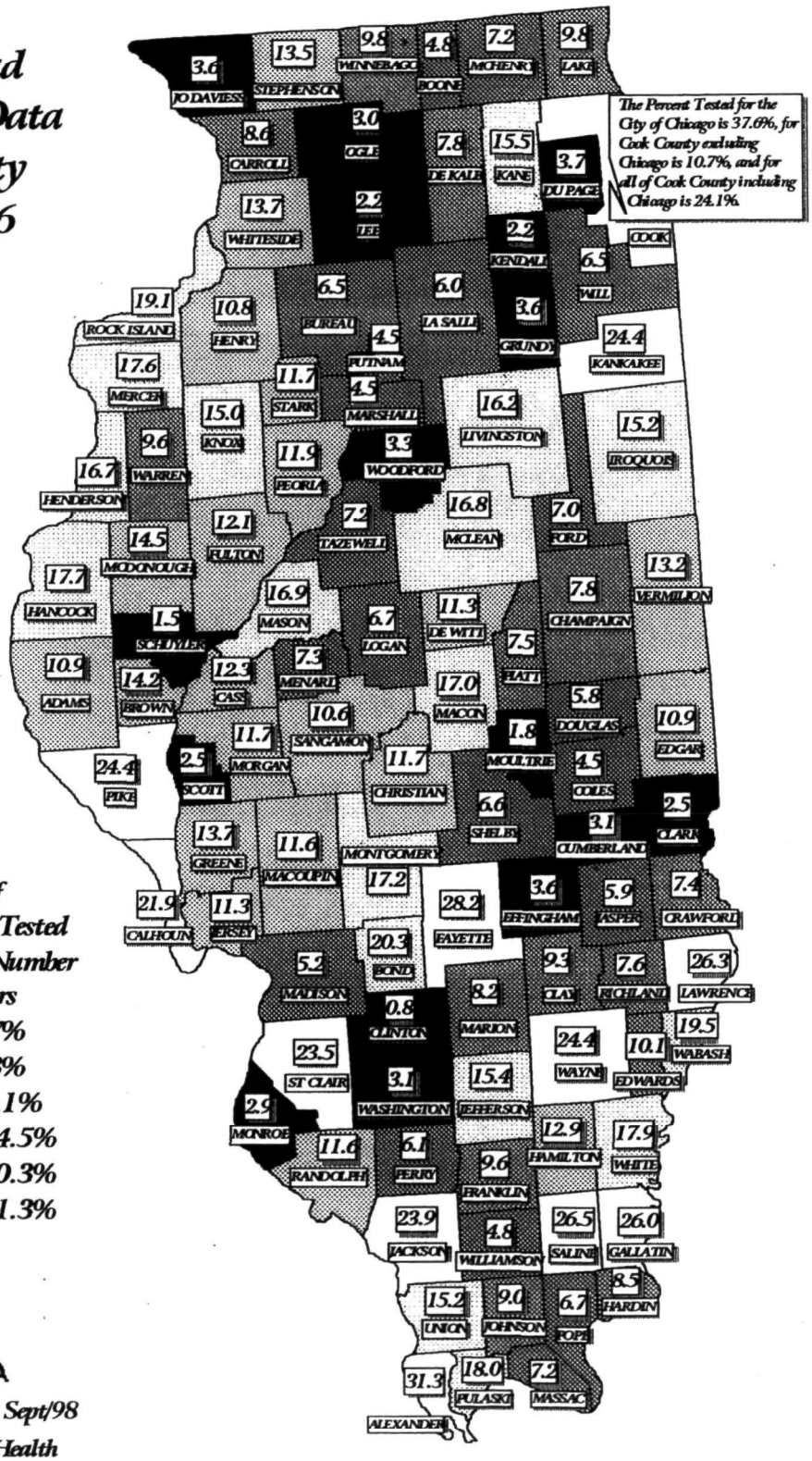

Illinois
Blood Lead
Screening Data
by County
for 1996
The City of Chicago numbers 30,838 by itself, Cook County including Chicago numbers 33,589
Number of Children <6 yrs screening positive with >=10 mcg/dL
1 - 19
20 - 66
67 - 157
158 - 425
426 - 746
747 - 1814
1815 - 33589
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: IL Dept of Health

Figure 1

Illinois Blood Lead Screening Data By County For 1996



The Percentage of Children <6 yrs Tested out of the Total Number of Children <6 yrs

- 0.8% - 3.7%
- 3.8% - 7.3%
- 7.4% - 10.1%
- 10.2% - 14.5%
- 14.6% - 20.3%
- 20.4% - 31.3%

Prepared for: IEPA

© *Joy C. LeBlang on Sept/98*

Source: IL Dept of Health

Figure 2

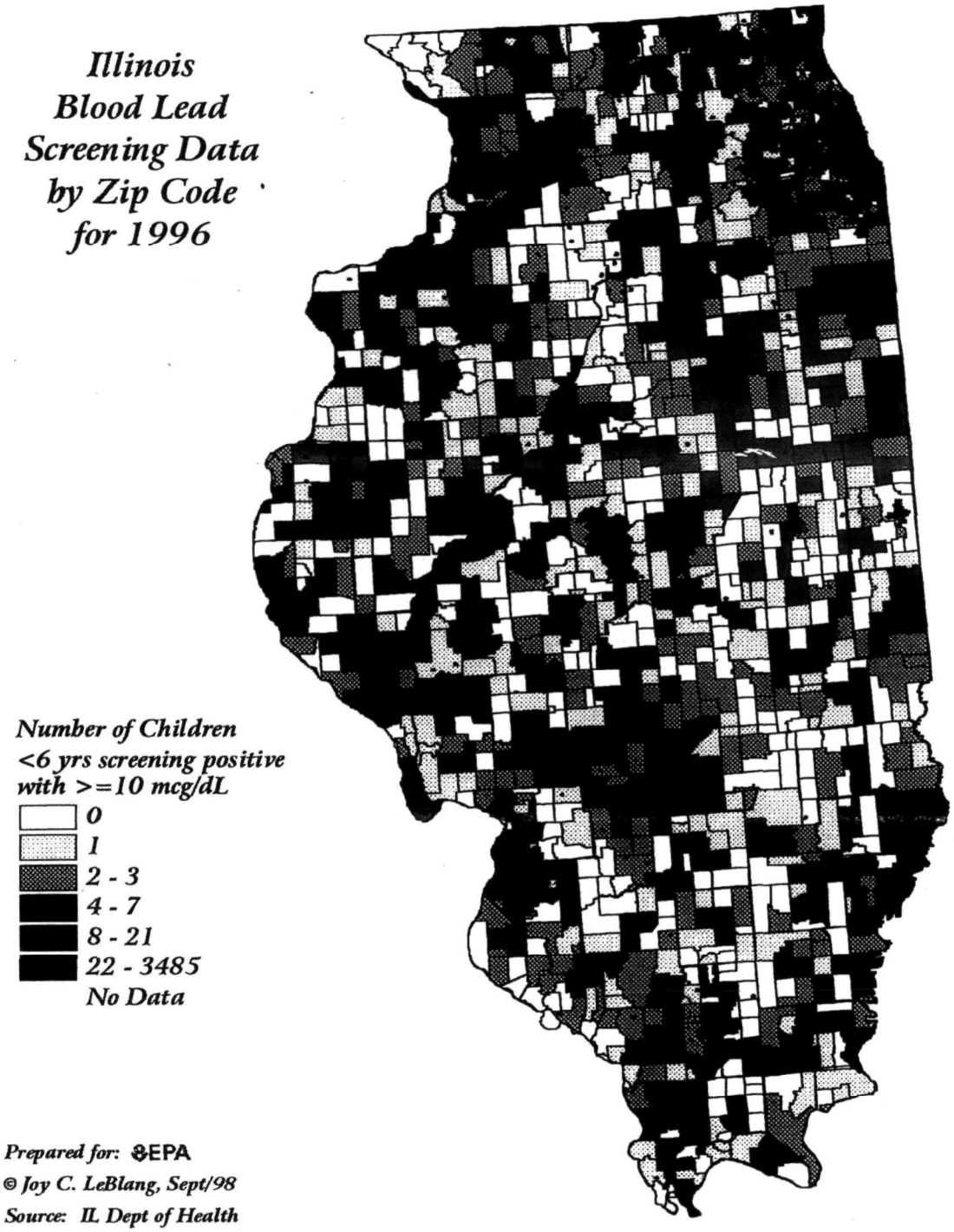

Illinois
Blood Lead
Screening Data
by Zip Code
for 1996
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0
1
2 - 3
4 - 7
8 - 21
22 - 3485
No Data
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: IL Dept of Health

Figure 3

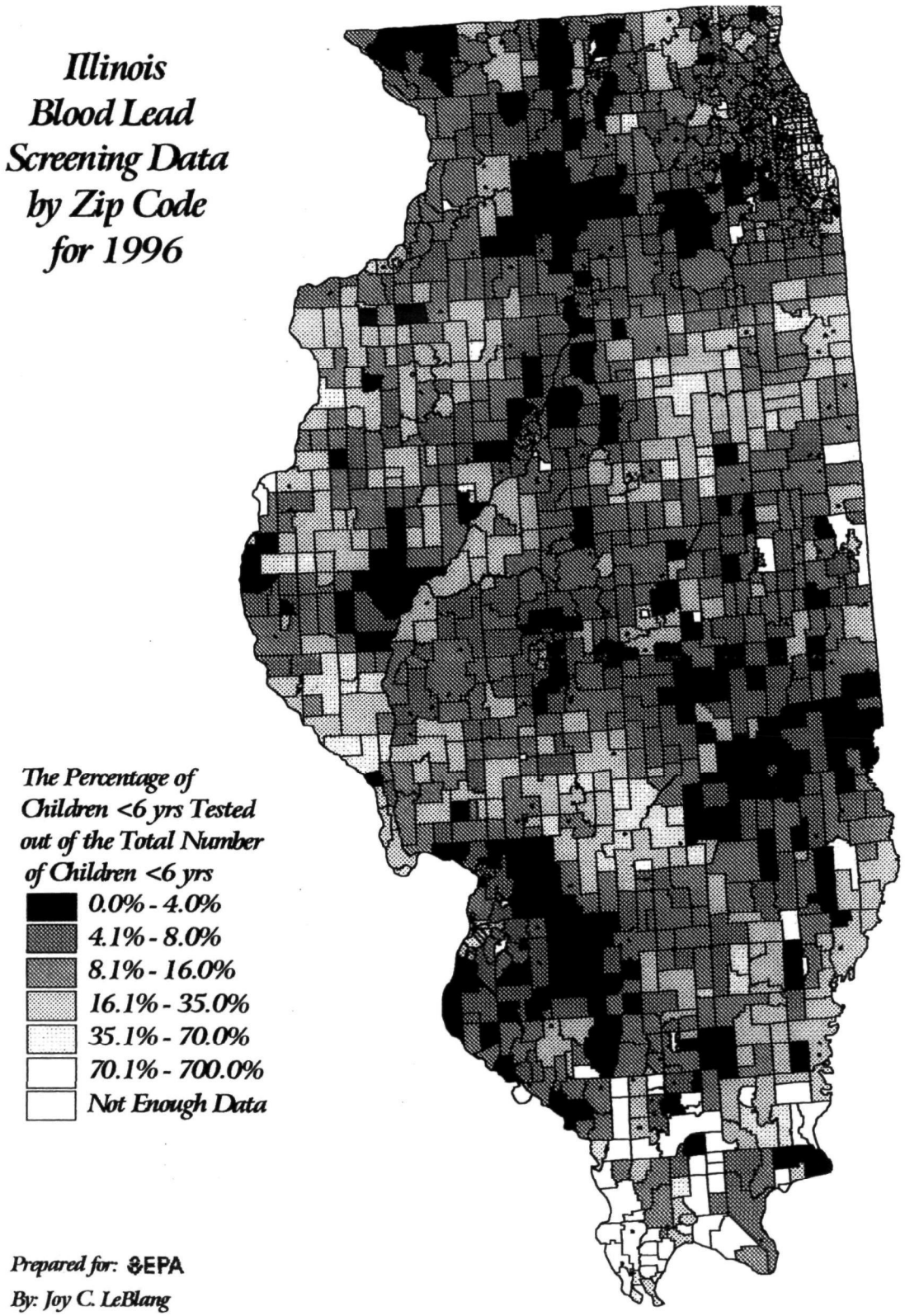

Illinois
Blood Lead
Screening Data
by Zip Code
for 1996
The Percentage of
Children <6 yrs Tested
out of the Total Number
of Children <6 yrs
0.0% - 4.0%
4.1% - 8.0%
8.1% - 16.0%
16.1% - 35.0%
35.1% - 70.0%
70.1% - 700.0%
Not Enough Data
Prepared for: &EPA
By: Joy C. LeBlang
Source: IL Dept of Health

Figure 4

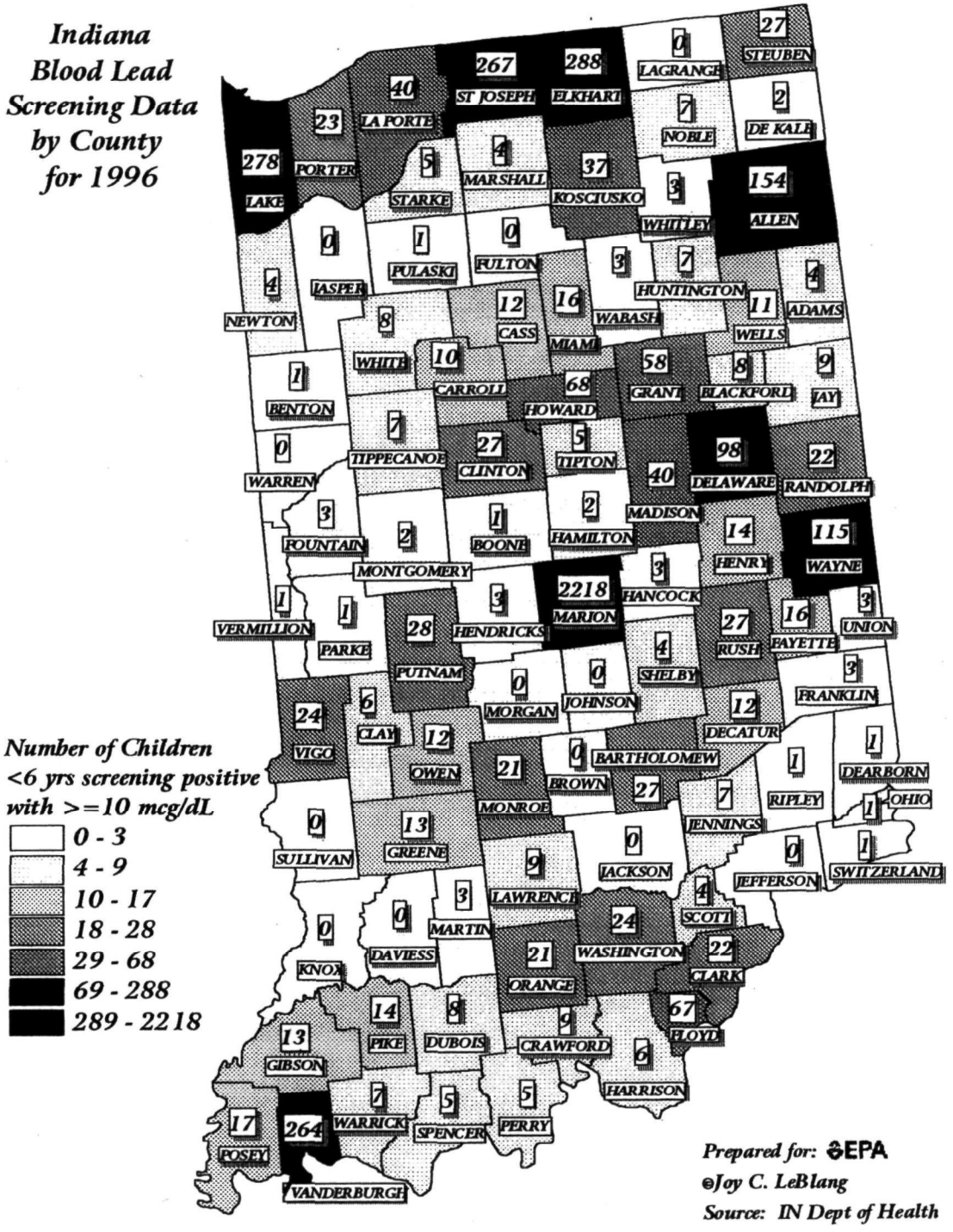
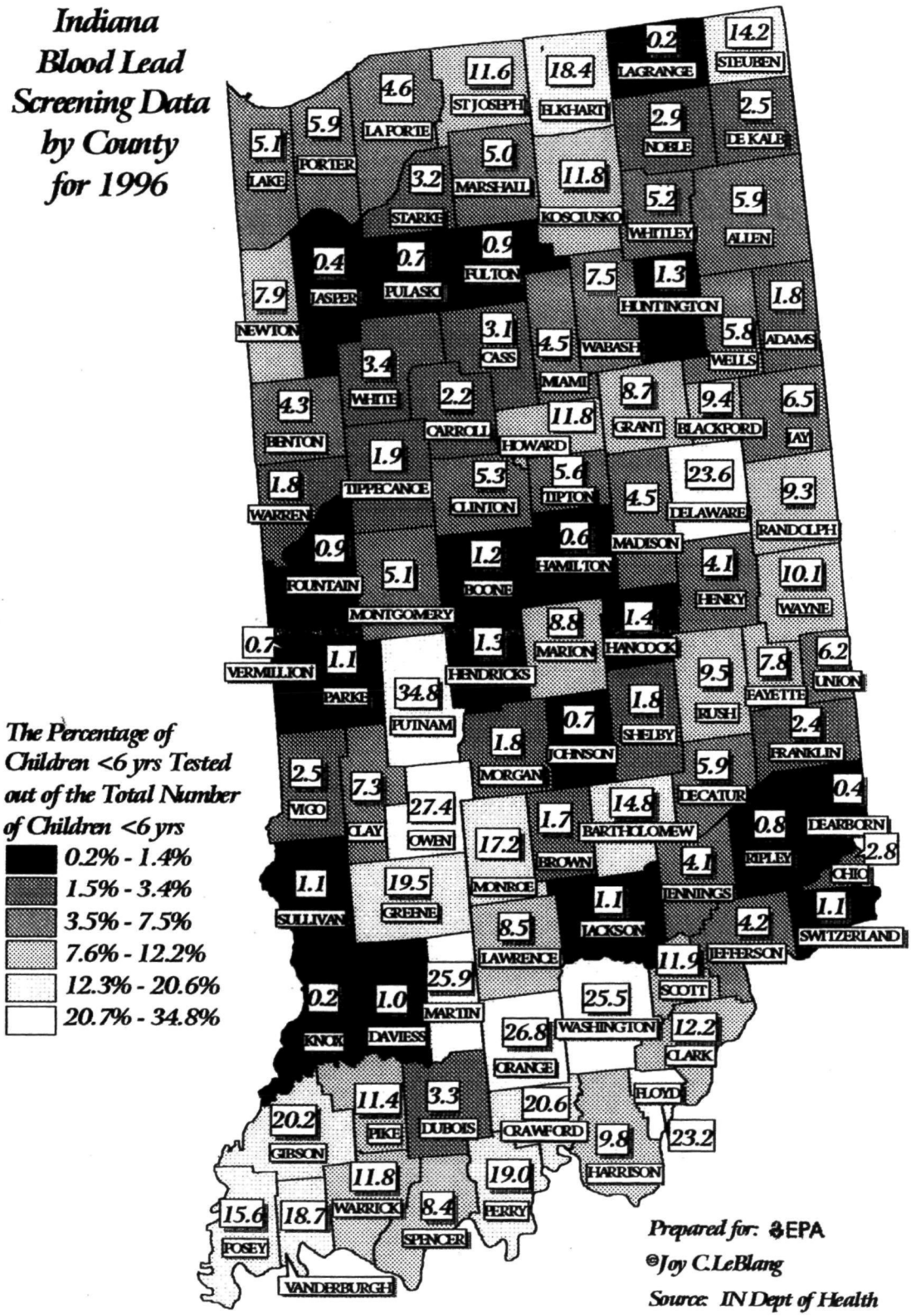

Indiana
Blood Lead
Screening Data
by County
for 1996
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 3
4 - 9
10 - 17
18 - 28
29 - 68
69 - 288
289 - 2218
LAKE 278
PORTER 23
LA PORTE 40
ST JOSEPH 267
ELKHART 288
LAGRANGE 0
STEUBEN 27
NOBLE 7
DE KALB 2
STARKE 5
MARSHALL 4
KOSCIUSKO 37
WHITLEY 3
ALLEN 154
NEWTON 4
JASPER 0
PULASKI 1
FULTON 0
HUNTINGTON 7
ADAMS 4
WABASH 16
WELLS 11
CASS 12
MIAMI 16
WHITE 8
CARROLL 10
GRANT 58
BLACKFORD 8
JAY 9
BENTON 1
HOWARD 68
WARREN 0
TIPPECANOE 7
CLINTON 27
TIPTON 5
DELAWARE 98
RANDOLPH 22
FOUNTAIN 3
MONTGOMERY 2
BOONE 1
HAMILTON 2
MADISON 40
HENRY 14
WAYNE 115
VERMILLION 1
PARKE 1
HENDRICKS 28
MARION 2218
HANCOCK 3
RUSH 27
FAYETTE 16
UNION 3
PUTNAM 28
MORGAN 0
JOHNSON 0
SHELBY 4
FRANKLIN 3
VIGO 24
CLAY 6
OWEN 12
MONROE 21
BROWN 0
BARTHOLOMEW 27
DECATUR 12
RIPLEY 7
DEARBORN 1
OHIO 1
SULLIVAN 0
GREENE 13
LAWRENCE 9
JACKSON 0
JENNINGS 7
JEFFERSON 0
SWITZERLAND 1
KNOX 0
DAVIESS 0
MARTIN 3
ORANGE 21
WASHINGTON 24
SCOTT 4
CLARK 22
GIBSON 13
PIKE 14
DUBOIS 8
CRAWFORD 9
FLOYD 67
HARRISON 6
POSEY 17
VANDERBURGH 264
WARRICK 7
SPENCER 5
PERRY 5
Prepared for: EPA
©Joy C. LeBlang
Source: IN Dept of Health

Figure 5


Indiana
Blood Lead
Screening Data
by County
for 1996
The Percentage of
Children <6 yrs Tested
out of the Total Number
of Children <6 yrs
0.2% - 1.4%
1.5% - 3.4%
3.5% - 7.5%
7.6% - 12.2%
12.3% - 20.6%
20.7% - 34.8%
0.2 LAGRANGE
14.2 STEUBEN
11.6 ST JOSEPH
18.4 ELKHART
4.6 LA PORTE
5.9 PORTER
5.1 LAKE
2.9 NOBLE
2.5 DE KALB
5.0 MARSHALL
3.2 STARKE
11.8 KOSCIUSKO
5.2 WHITLEY
5.9 ALLEN
0.4 JASPER
0.7 PULASKI
0.9 FULTON
7.5 WABASH
1.3 HUNTINGTON
1.8 ADAMS
7.9 NEWTON
3.1 CASS
4.5 MIAMI
5.8 WELLS
3.4 WHITE
2.2 CARROLL
8.7 GRANT
9.4 BLACKFORD
6.5 JAY
4.3 BENTON
11.8 HOWARD
1.9 TIPPECANOE
5.3 CLINTON
5.6 TIPTON
23.6 DELAWARE
9.3 RANDOLPH
1.8 WARREN
0.9 FOUNTAIN
5.1 MONTGOMERY
1.2 BOONE
0.6 HAMILTON
MADISON
4.1 HENRY
10.1 WAYNE
8.8 MARION
1.4 HANCOCK
0.7 VERMILLION
1.1 PARKE
1.3 HENDRICKS
9.5 RUSH
7.8 FAYETTE
6.2 UNION
34.8 PUTNAM
0.7 JOHNSON
1.8 SHELBY
2.4 FRANKLIN
1.8 MORGAN
5.9 DECATUR
2.5 VIGO
7.3 CLAY
27.4 OWEN
14.8 BARTHOLOMEW
0.4 DEARBORN
1.7 BROWN
17.2 MONROE
0.8 RIPLEY
2.8 OHIO
4.1 JENNINGS
1.1 SULLIVAN
19.5 GREENE
1.1 JACKSON
1.1 SWITZERLAND
8.5 LAWRENCE
4.2 JEFFERSON
11.9 SCOTT
25.9 MARTIN
25.5 WASHINGTON
0.2 KNOX
1.0 DAVIESS
26.8 ORANGE
12.2 CLARK
FLOYD
11.4 PIKE
3.3 DUBOIS
20.6 CRAWFORD
20.2 GIBSON
9.8 HARRISON
23.2
11.8 WARRICK
19.0 PERRY
15.6 POSEY
18.7
8.4 SPENCER
VANDERBURGH
Prepared for: EPA
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Source: IN Dept of Health

Figure 6

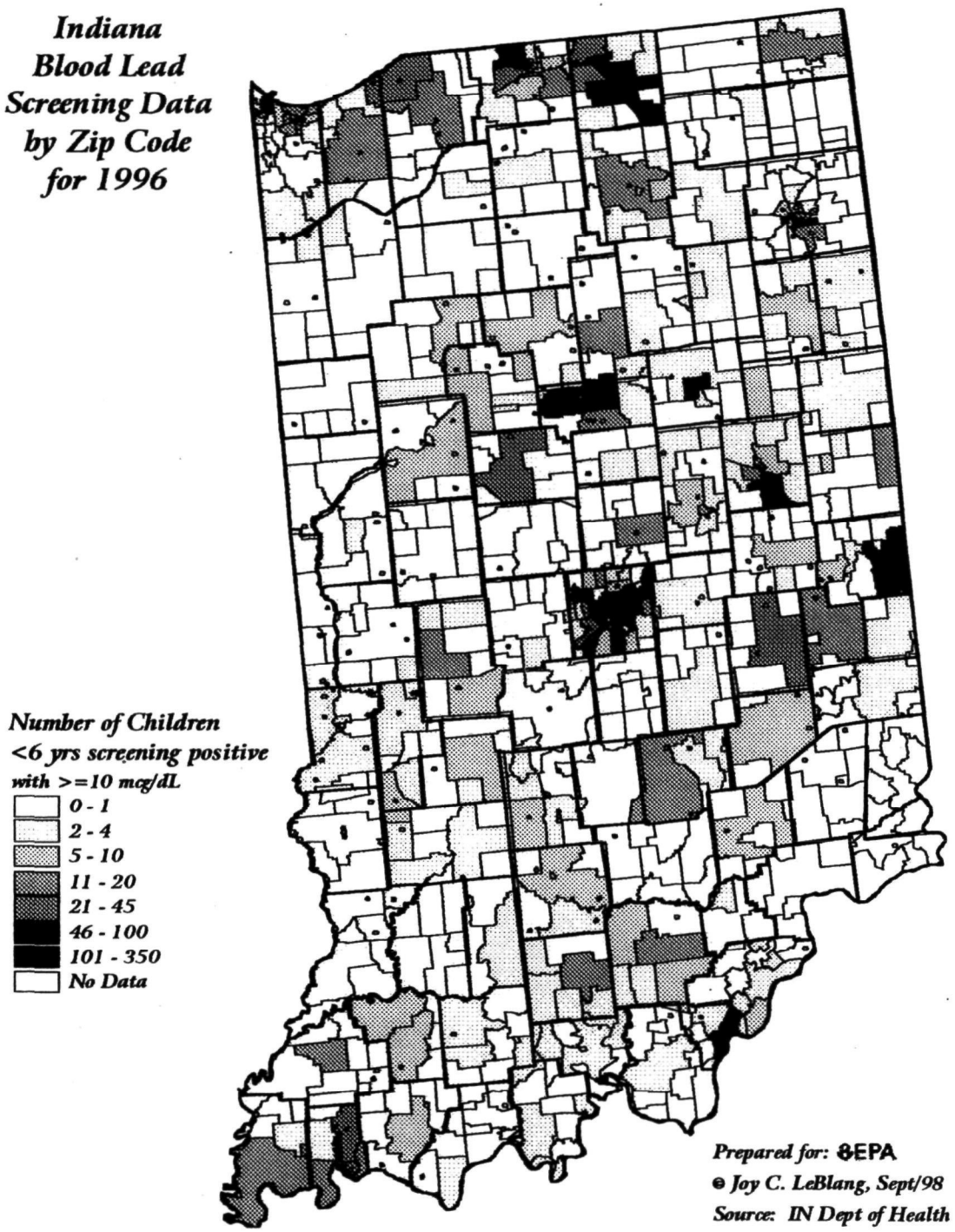

Indiana
Blood Lead
Screening Data
by Zip Code
for 1996
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 1
2 - 4
5 - 10
11 - 20
21 - 45
46 - 100
101 - 350
No Data
Prepared for: 8EPA
© Joy C. LeBlang, Sept/98
Source: IN Dept of Health

Figure 7

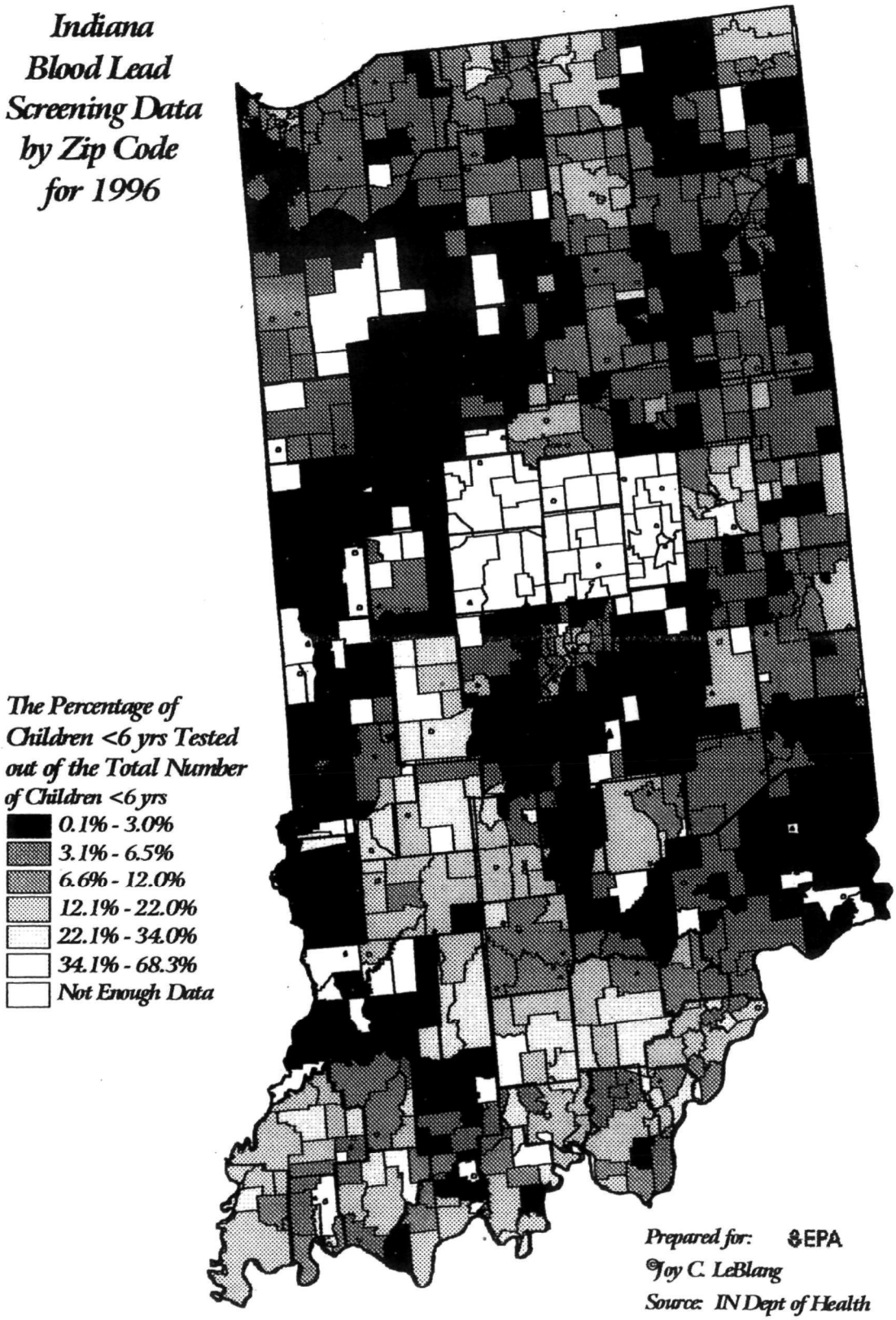

Indiana
Blood Lead
Screening Data
by Zip Code
for 1996
The Percentage of
Children <6 yrs Tested
out of the Total Number
of Children <6 yrs
0.1% - 3.0%
3.1% - 6.5%
6.6% - 12.0%
12.1% - 22.0%
22.1% - 34.0%
34.1% - 68.3%
Not Enough Data
Prepared for: EPA
©Joy C. LeBlang
Source: IN Dept of Health

Figure 8

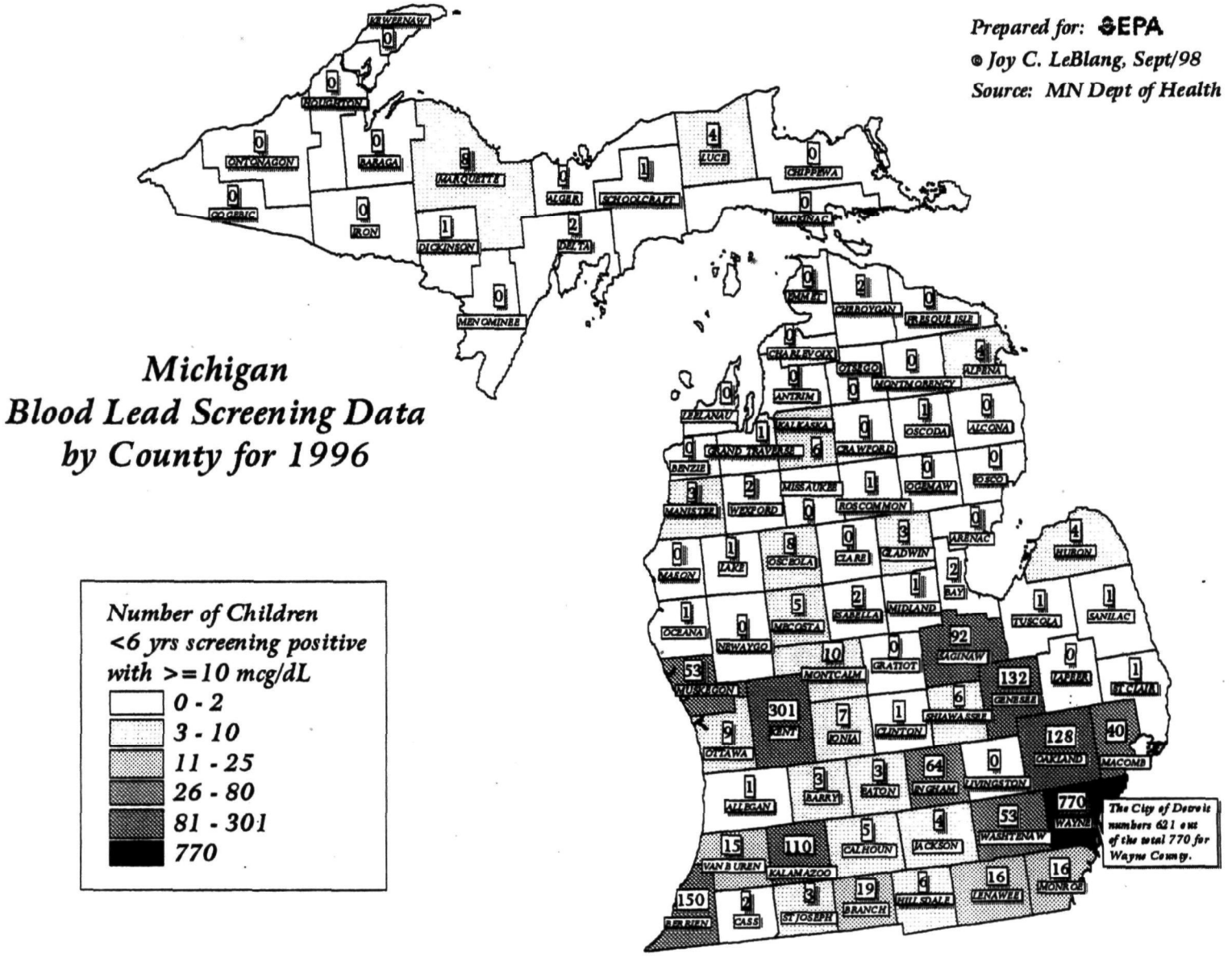

Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: MN Dept of Health
Michigan
Blood Lead Screening Data
by County for 1996
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 2
3 - 10
11 - 25
26 - 80
81 - 301
770
The City of Detroit numbers 621 out of the total 770 for Wayne County.
KEWEENAW 0
HOUGHTON 0
ONTONAGON 0
BARAGA 0
GOGEBIC 0
IRON 0
MARQUETTE 5
DICKINSON 1
MENOMINEE 0
ALGER 0
DELTA 2
SCHOOLCRAFT 1
LUCE 4
CHIPPEWA 0
MACKINAC 0
EMMET 0
CHEBOYGAN 2
PRESQUE ISLE 0
CHARLEVOIX 0
OTSEGO 0
ALPENA 4
ANTRIM 0
MONTMORENCY 0
LEELANAU 0
KALKASKA 1
OSCODA 1
ALCONA 0
GRAND TRAVERSE 0
CRAWFORD 6
BENZIE 0
MISSAUKEE 0
OGEMAW 1
IOSCO 0
MANISTEE 3
WEXFORD 2
ROSCOMMON 0
ARENAC 0
MASON 0
LAKE 1
OSCEOLA 6
CLARE 0
GLADWIN 3
HURON 4
BAY 2
OCEANA 1
NEWAYGO 0
MECOSTA 5
ISABELLA 2
MIDLAND 1
TUSCOLA 1
SANILAC 1
MUSKEGON 53
MONTCALM 10
GRATIOT 0
SAGINAW 92
TAPPAN 0
ST CLAIR 1
OTTAWA 9
KENT 301
IONIA 7
CLINTON 1
SHIAWASSEE 6
GENESEE 132
MACOMB 40
OAKLAND 128
ALLEGAN 1
BARRY 3
EATON 3
INGHAM 64
LIVINGSTON 0
WAYNE 770
WASHTENAW 53
VAN BUREN 15
KALAMAZOO 110
CALHOUN 5
JACKSON 4
BERRIEN 150
CASS 2
ST JOSEPH 3
BRANCH 19
HILLSDALE 6
LENAWEE 16
MONROE 16

Figure 9

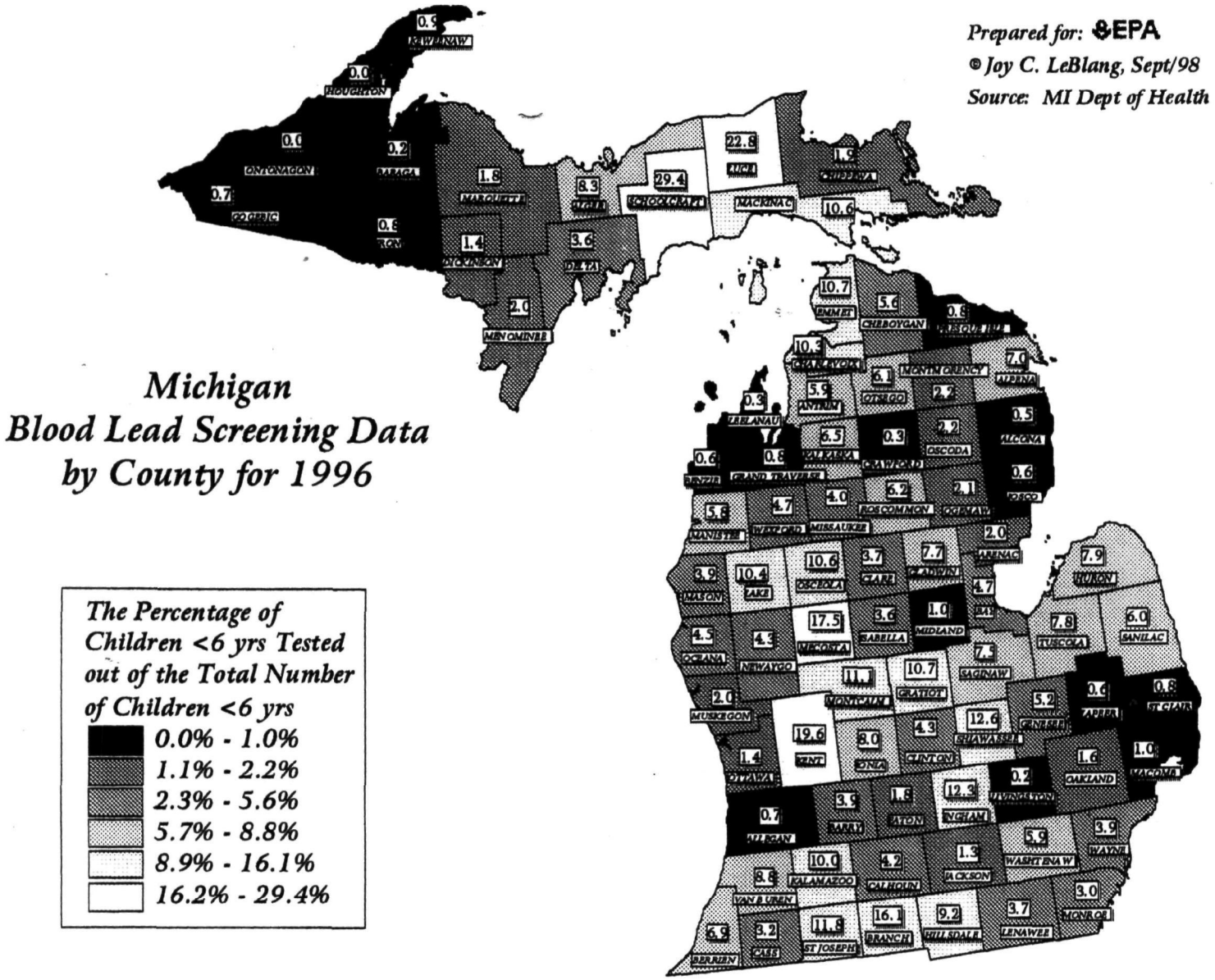

Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: MI Dept of Health
Michigan
Blood Lead Screening Data
by County for 1996
The Percentage of Children <6 yrs Tested out of the Total Number of Children <6 yrs
0.0% - 1.0%
1.1% - 2.2%
2.3% - 5.6%
5.7% - 8.8%
8.9% - 16.1%
16.2% - 29.4%

Figure 10

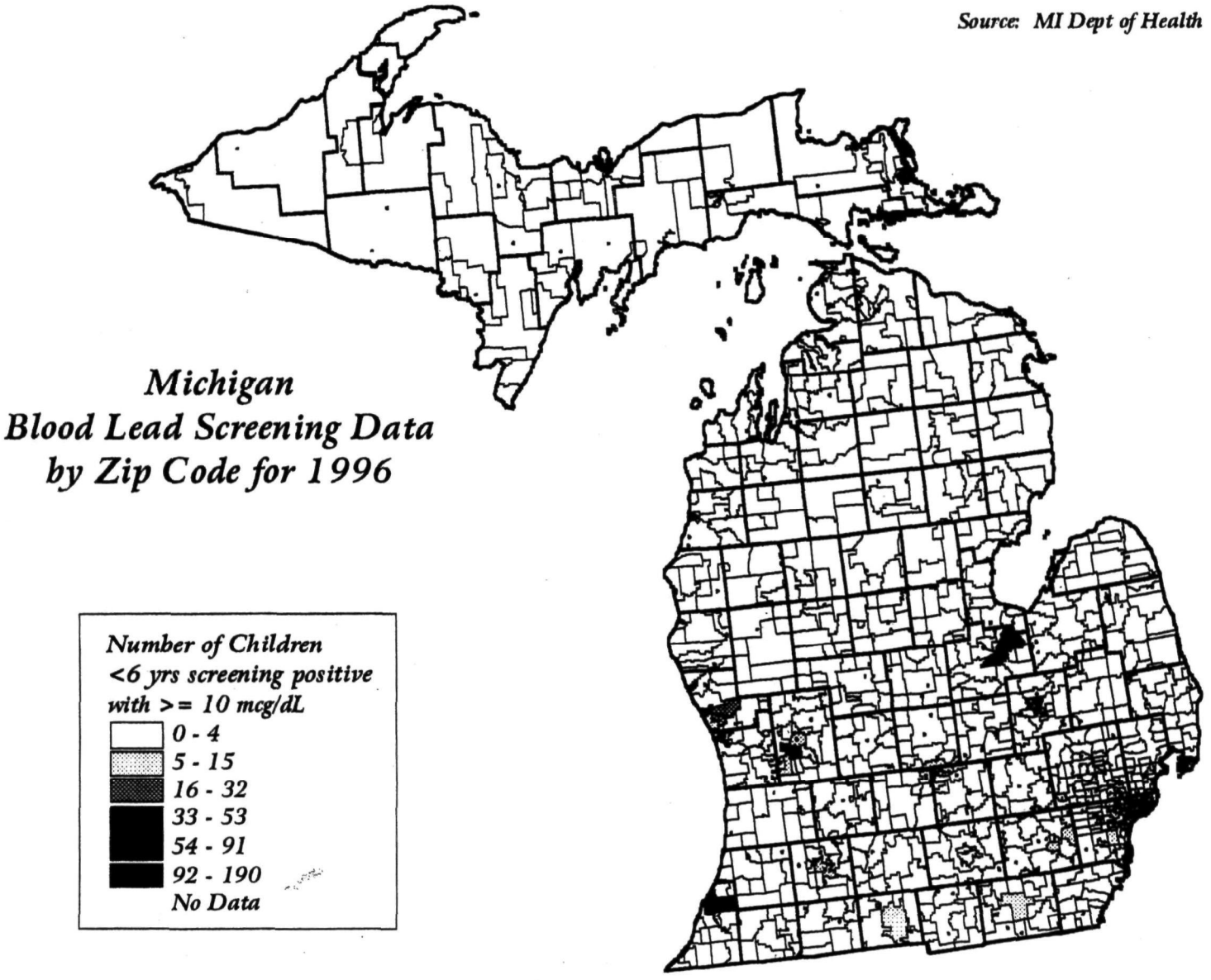

Source: MI Dept of Health
Michigan
Blood Lead Screening Data
by Zip Code for 1996
Number of Children
<6 yrs screening positive
with >= 10 mcg/dL
0 - 4
5 - 15
16 - 32
33 - 53
54 - 91
92 - 190
No Data

Figure 11

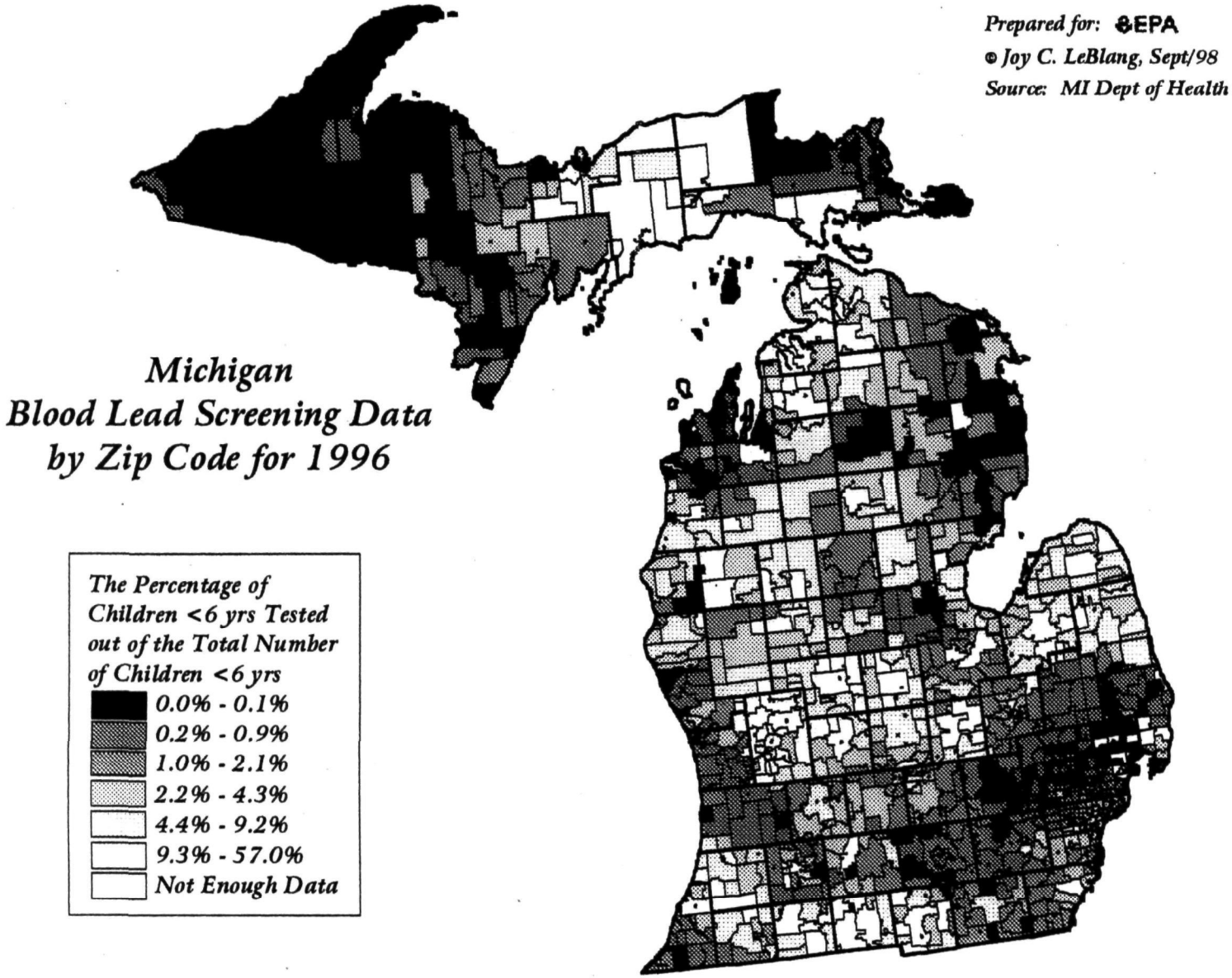
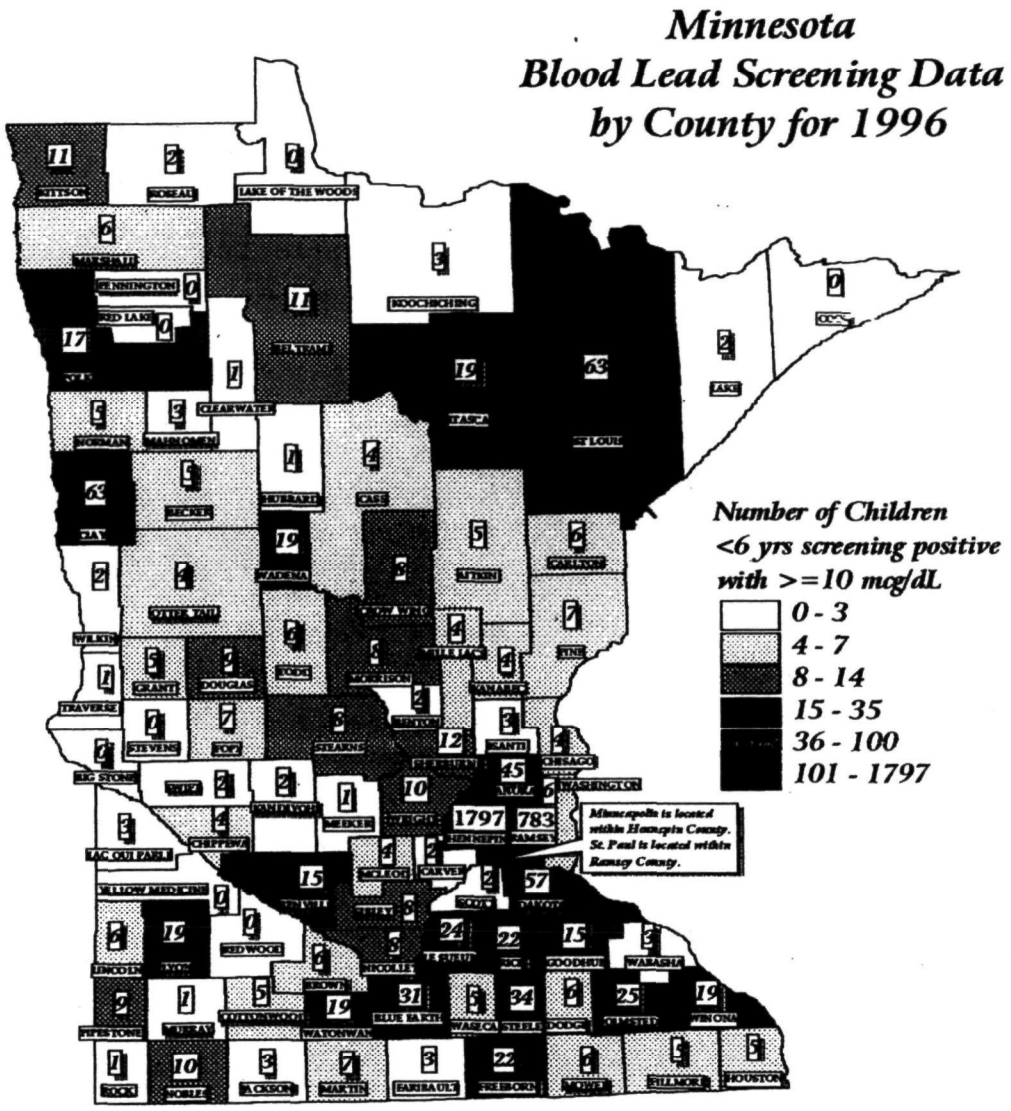

Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: MI Dept of Health
Michigan
Blood Lead Screening Data
by Zip Code for 1996
The Percentage of Children <6 yrs Tested out of the Total Number of Children <6 yrs
0.0% - 0.1%
0.2% - 0.9%
1.0% - 2.1%
2.2% - 4.3%
4.4% - 9.2%
9.3% - 57.0%
Not Enough Data

Figure 12

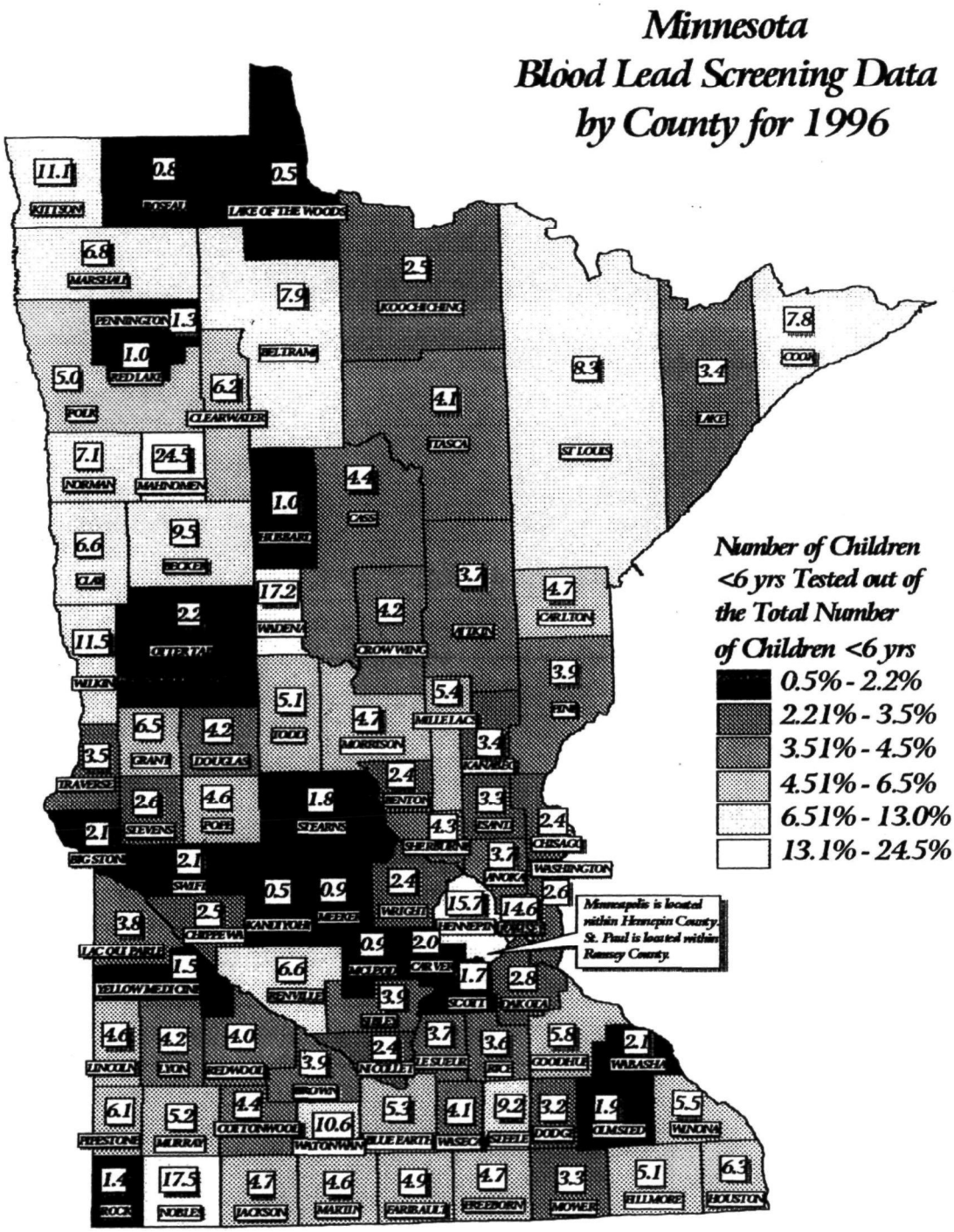


Prepared for: EPA

© Joy C. LeBlang, Sept/98

Source: MN Dept of Health

Figure 13

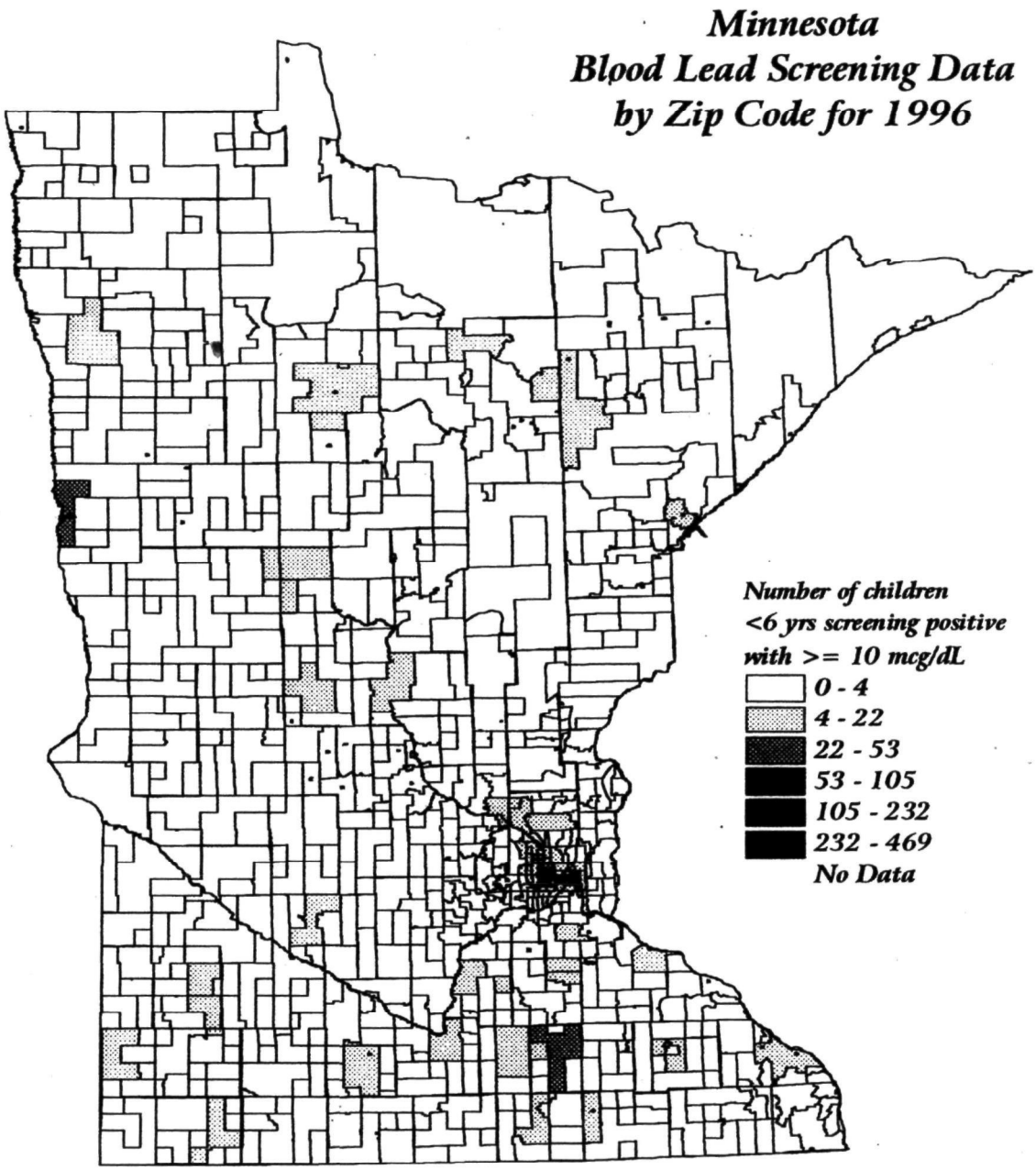


Prepared for: EPA

© *Joy C. LeBlang, Sept/98*

Source: MN Dept of Health

Figure 14



Prepared for: EPA

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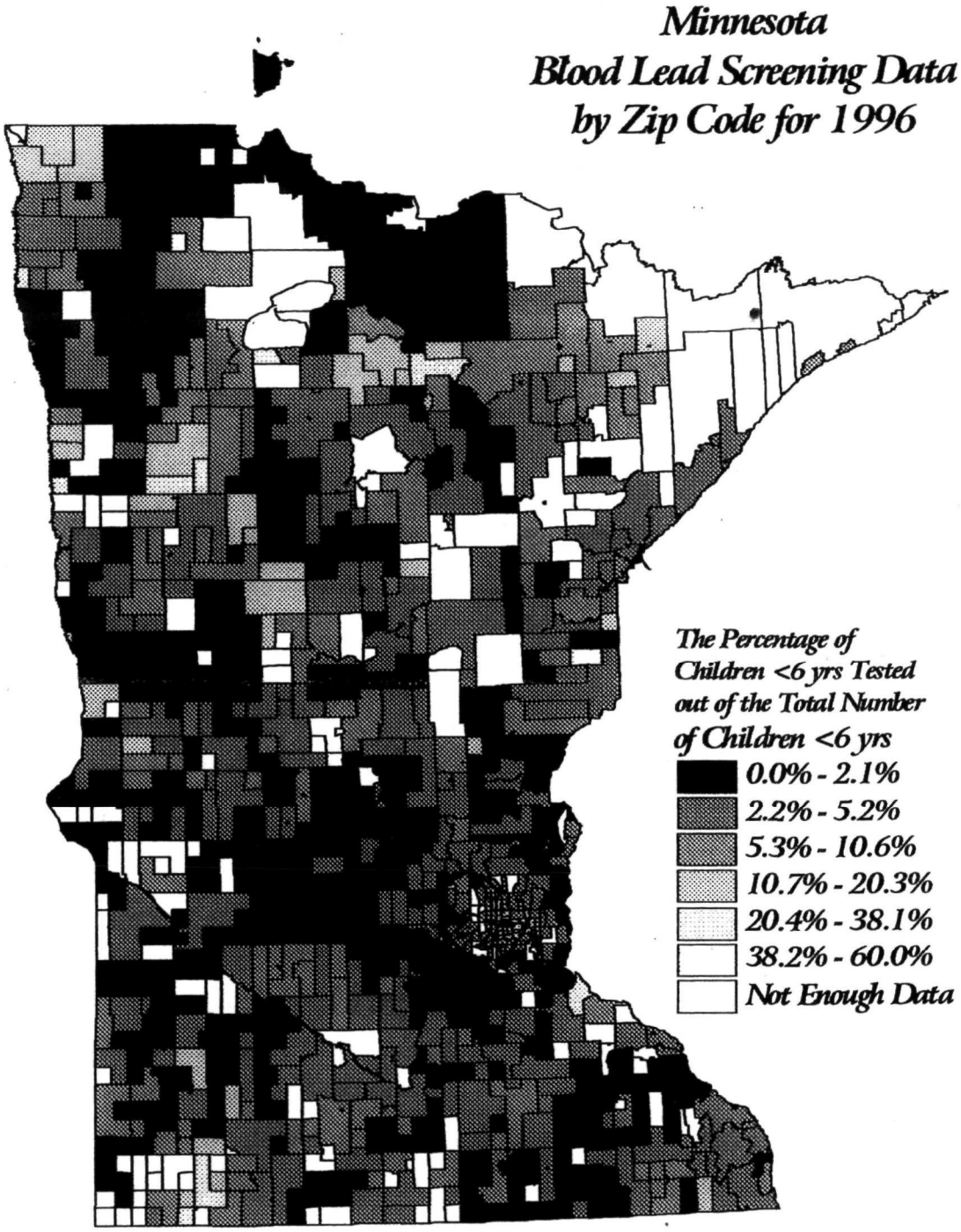
Source: MN Dept of Health

Figure 15



Prepared for: EPA

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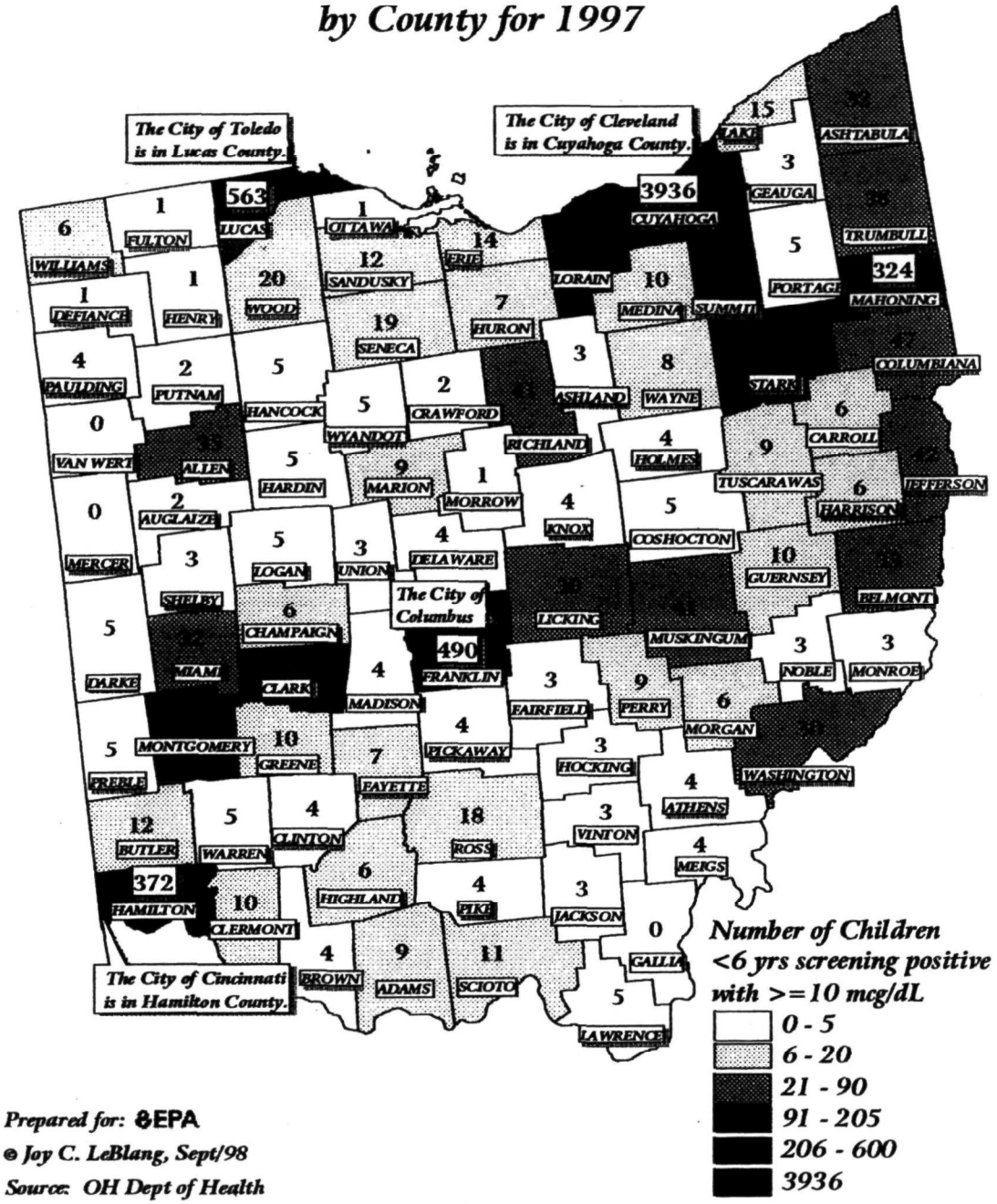
Source: MN Dept of Health

Figure 16

Ohio
Blood Lead Screening Data by County for 1997



Prepared for: USEPA
© *Joy C. LeBlang, Sept/98*
Source: OH Dept of Health

Figure 17

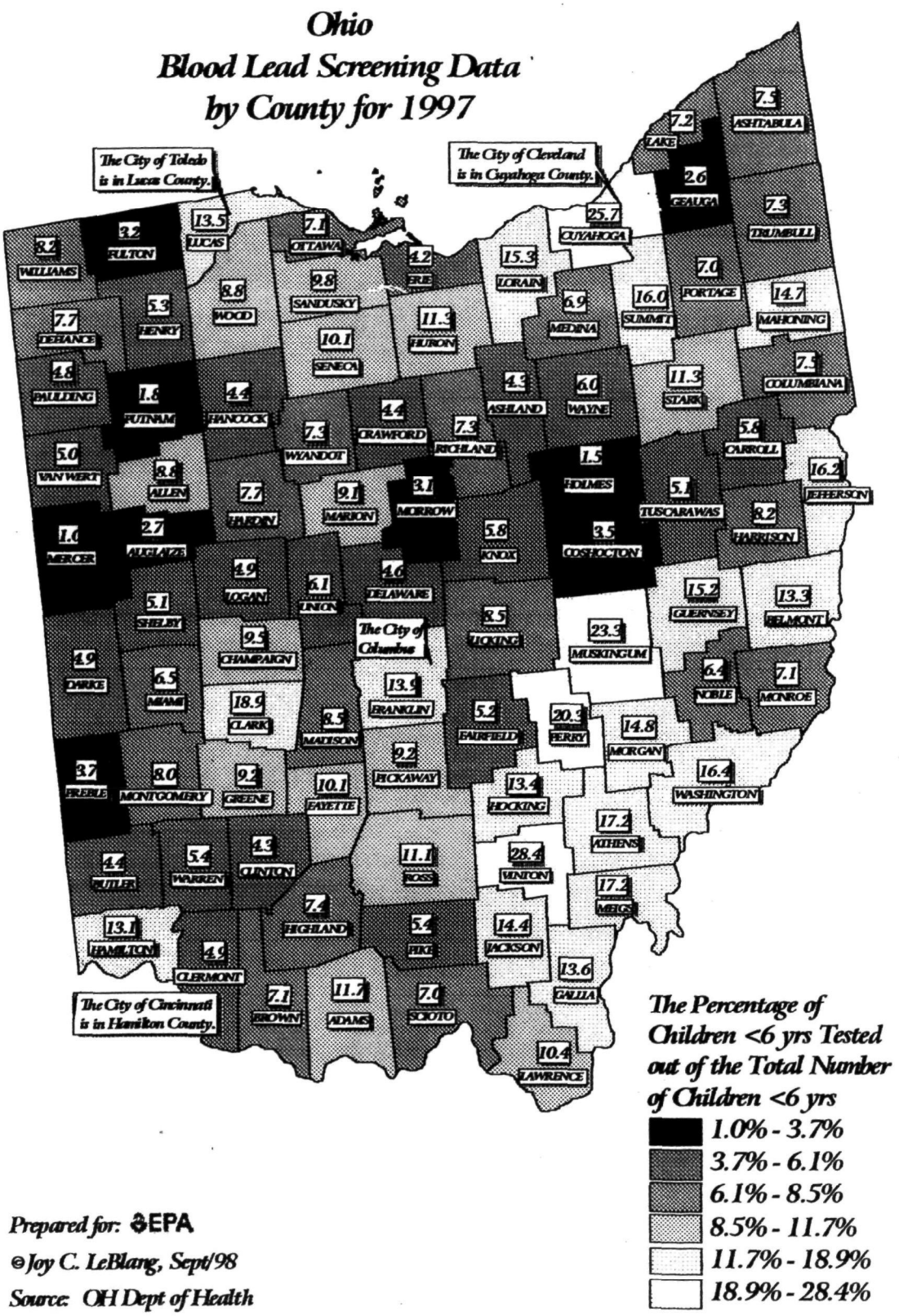

Ohio
Blood Lead Screening Data
by County for 1997
The City of Toledo is in Lucas County.
The City of Cleveland is in Cuyahoga County.
The City of Columbus
The City of Cincinnati is in Hamilton County.
3.2 WILLIAMS
3.2 FULTON
13.5 LUCAS
7.1 OTTAWA
4.2 ERIE
15.3 LORAIN
25.7 CUYAHOGA
7.2 LAKE
2.6 GEAUGA
7.5 ASHTABULA
7.3 TRUMBULL
7.7 DEFIANCE
5.3 HENRY
8.8 WOOD
9.8 SANDUSKY
11.3 HURON
6.9 MEDINA
16.0 SUMMIT
7.0 PORTAGE
14.7 MAHONING
4.8 PAULDING
1.8 PUTNAM
4.4 HANCOCK
10.1 SENECA
4.5 ASHLAND
6.0 WAYNE
11.3 STARK
7.5 COLUMBIANA
5.0 VAN WERT
8.8 ALLEN
7.3 WYANDOT
4.2 CRAWFORD
7.3 RICHLAND
1.5 HOLMES
5.6 CARROLL
16.2 JEFFERSON
1.0 MERCER
2.7 AUGLAIZE
7.7 HURON
9.1 MARION
3.1 MORROW
5.8 KNOX
3.5 COSHOCTON
5.1 TUSCARAWAS
8.2 HARRISON
4.9 LOGAN
6.1 UNION
4.6 DELAWARE
5.1 SHELBY
15.2 GUERNSEY
13.3 BELMONT
9.5 CHAMPAIGN
8.5 LICKING
23.3 MUSKINGUM
4.9 DARKE
6.5 MIAMI
13.9 FRANKLIN
6.4 NOBLE
7.1 MONROE
18.9 CLARK
8.5 MADISON
5.2 FAIRFIELD
20.3 PERRY
14.8 MORGAN
3.7 PREBLE
8.0 MONTGOMERY
9.2 GREENE
10.1 FAYETTE
9.2 PICKAWAY
13.4 HOCKING
16.4 WASHINGTON
17.2 ATHENS
4.4 BUTLER
5.4 WARREN
4.3 CLINTON
11.1 ROSS
28.4 VINTON
17.2 MEIGS
13.1 HAMILTON
4.9 CLERMONT
7.2 HIGHLAND
5.4 PIKE
14.4 JACKSON
13.6 GALLIA
7.1 BROWN
11.7 ADAMS
7.0 SCIOTO
10.4 LAWRENCE
The Percentage of Children <6 yrs Tested out of the Total Number of Children <6 yrs
1.0% - 3.7%
3.7% - 6.1%
6.1% - 8.5%
8.5% - 11.7%
11.7% - 18.9%
18.9% - 28.4%
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: OH Dept of Health

Figure 18

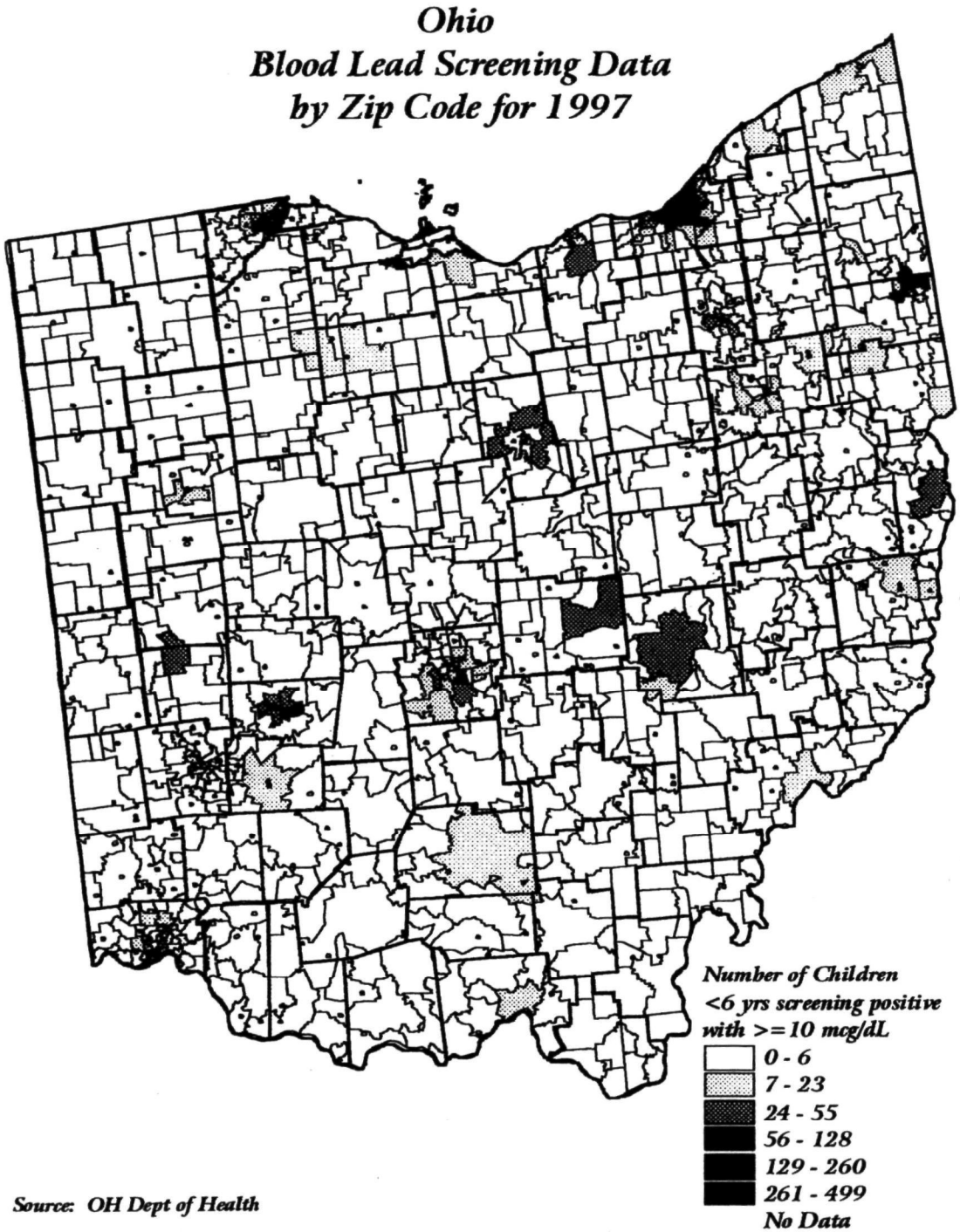

Ohio
Blood Lead Screening Data
by Zip Code for 1997
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 6
7 - 23
24 - 55
56 - 128
129 - 260
261 - 499
No Data
Source: OH Dept of Health

Figure 19

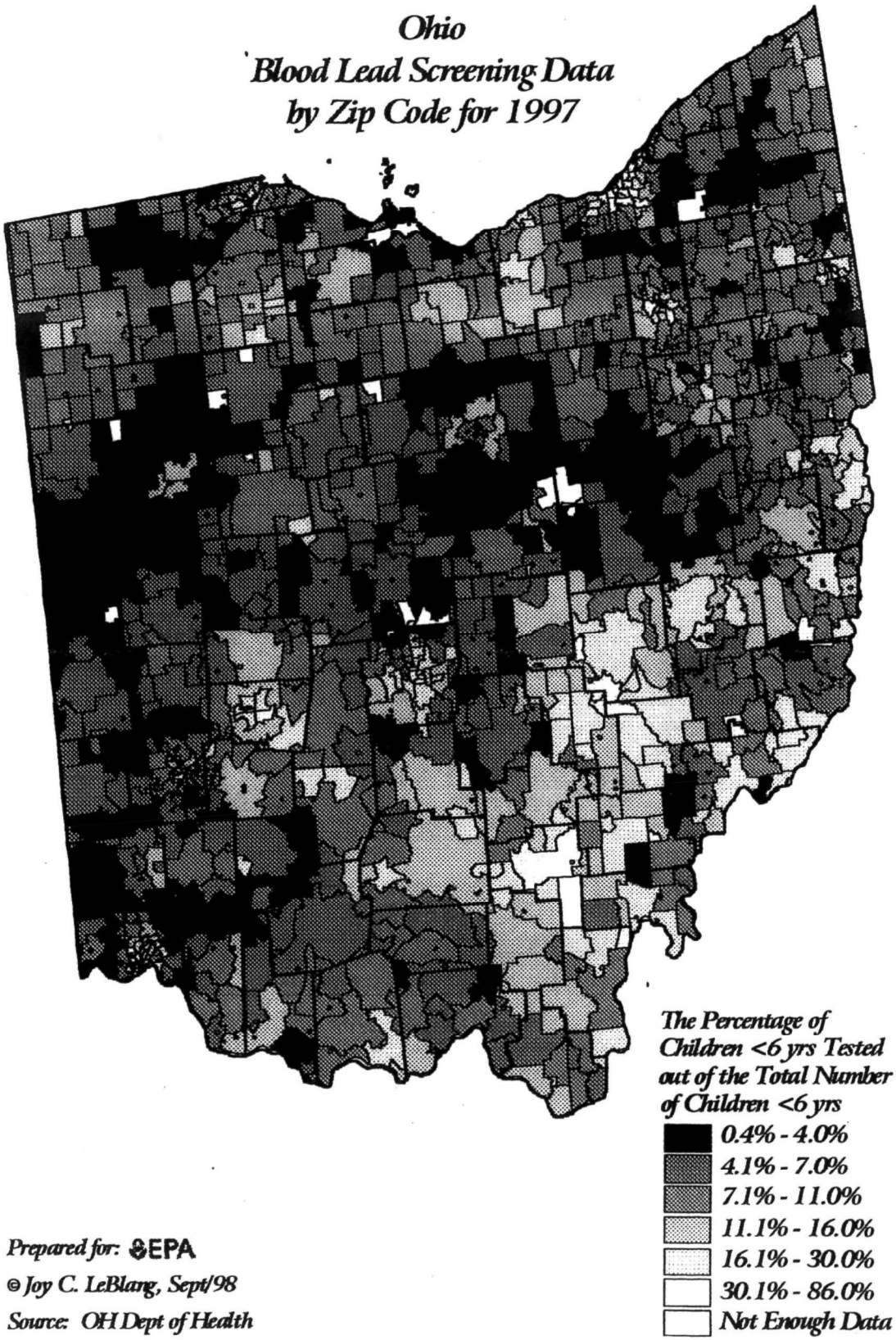

Ohio
Blood Lead Screening Data
by Zip Code for 1997
The Percentage of
Children <6 yrs Tested
out of the Total Number
of Children <6 yrs
0.4% - 4.0%
4.1% - 7.0%
7.1% - 11.0%
11.1% - 16.0%
16.1% - 30.0%
30.1% - 86.0%
Not Enough Data
Prepared for: EPA
© Joy C. LeBlanc, Sept/98
Source: OH Dept of Health

Figure 20

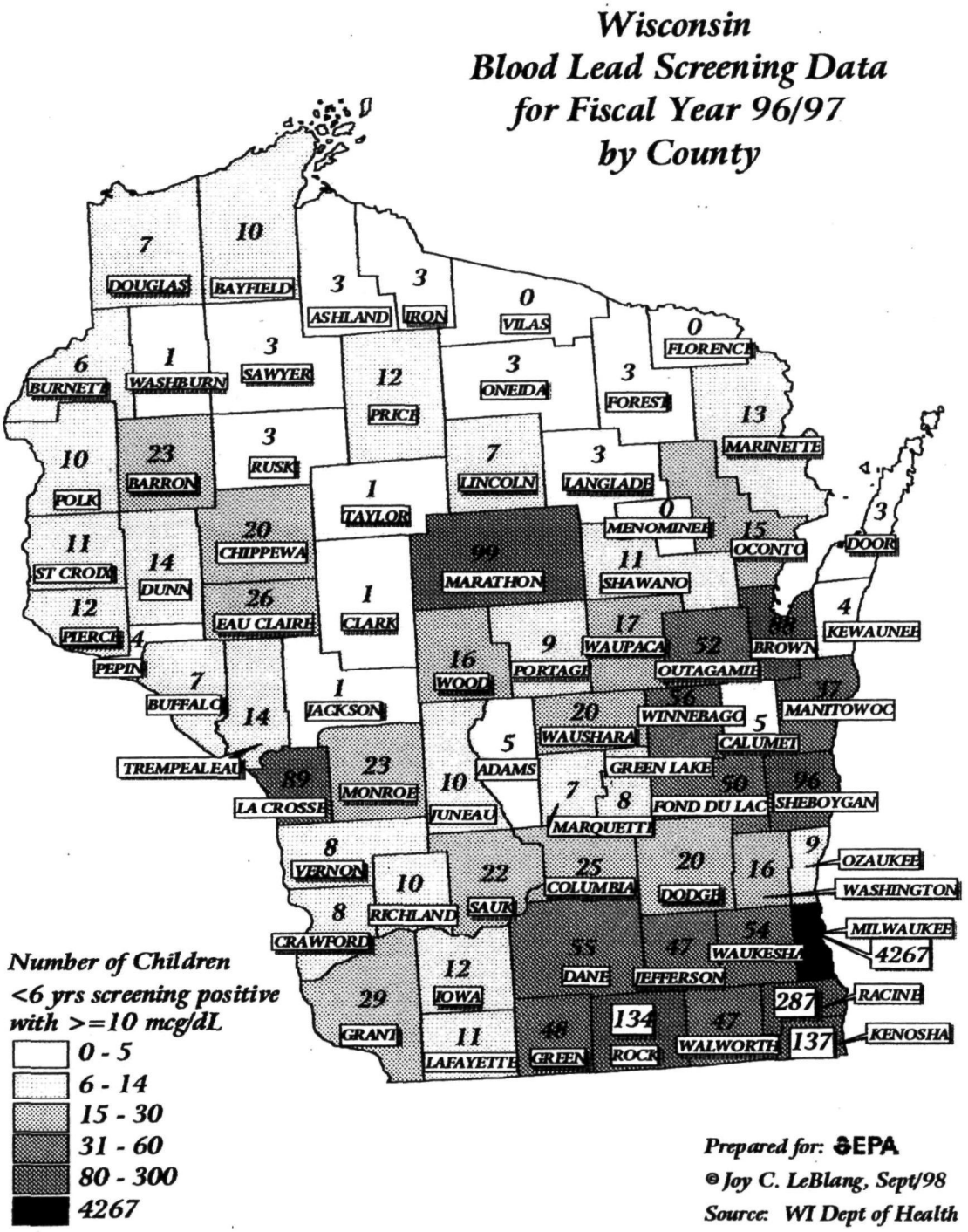

Wisconsin
Blood Lead Screening Data
for Fiscal Year 96/97
by County
7 DOUGLAS
10 BAYFIELD
3 ASHLAND
3 IRON
0 VILAS
0 FLORENCE
6 BURNETT
1 WASHBURN
3 SAWYER
12 PRICE
3 ONEIDA
3 FOREST
13 MARINETTE
10 POLK
23 BARRON
3 RUSK
1 TAYLOR
7 LINCOLN
3 LANGLADE
0 MENOMINEE
15 OCONTO
3 DOOR
11 ST CROIX
14 DUNN
20 CHIPPEWA
99 MARATHON
11 SHAWANO
12 PIERCE
4 PEPIN
26 EAU CLAIRE
1 CLARK
17 WAUPACA
52 OUTAGAMIE
88 BROWN
4 KEWAUNEE
7 BUFFALO
14
1 JACKSON
16 WOOD
9 PORTAGE
20 WAUSHARA
36 WINNEBAGO
5 CALUMET
37 MANITOWOC
TREMPEALEAU
89 LA CROSSE
23 MONROE
10 JUNEAU
5 ADAMS
7 MARQUETTE
GREEN LAKE
8 FOND DU LAC
90
96 SHEBOYGAN
8 VERNON
10 RICHLAND
22 SAUK
25 COLUMBIA
20 DODGE
16
9 OZAUKEE
WASHINGTON
8 CRAWFORD
55 DANE
47 JEFFERSON
54 WAUKESHA
MILWAUKEE
4267
12 IOWA
29 GRANT
11 LAFAYETTE
48 GREEN
134 ROCK
47 WALWORTH
287 RACINE
137 KENOSHA
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 5
6 - 14
15 - 30
31 - 60
80 - 300
4267
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: WI Dept of Health

Figure 21

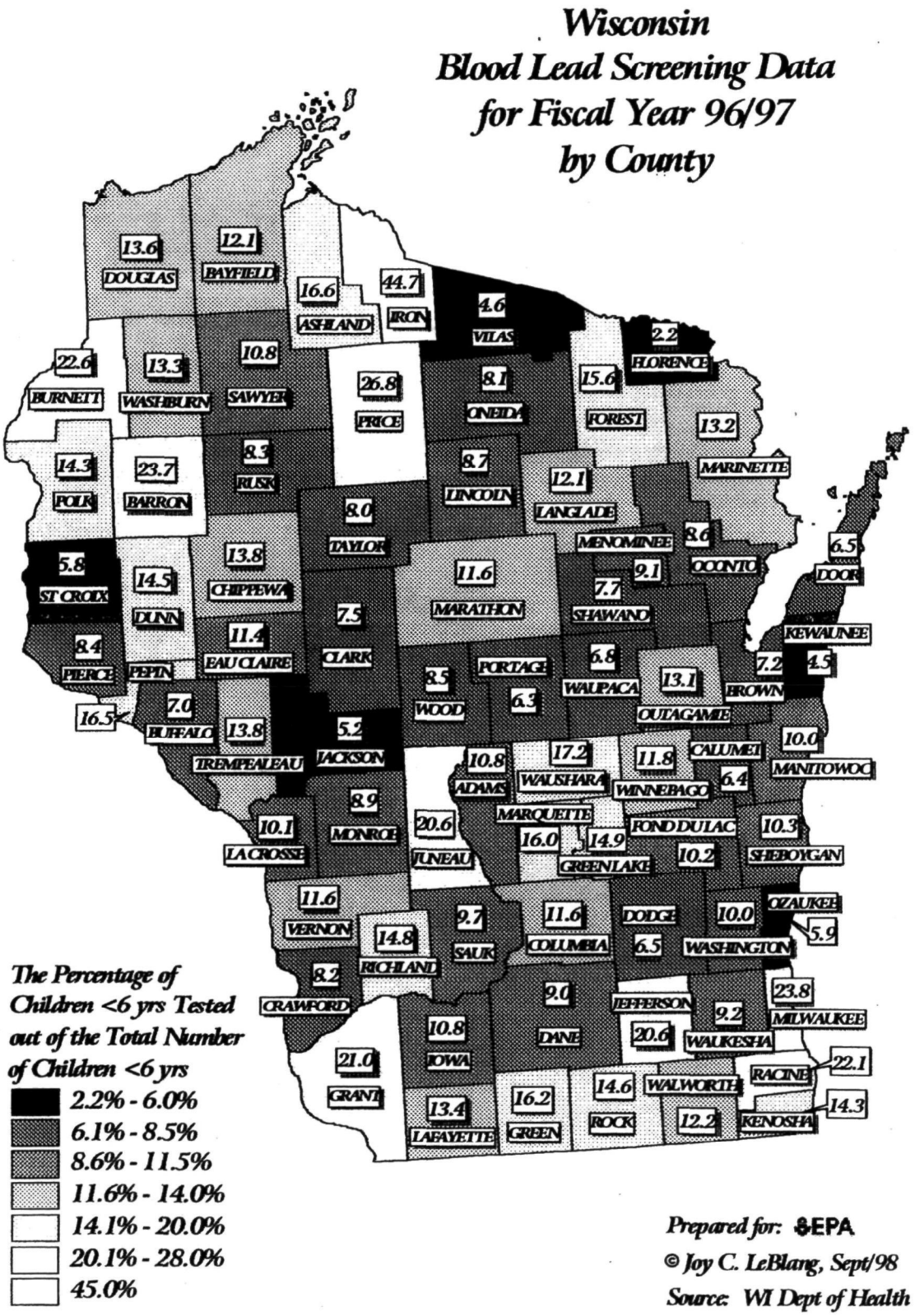

Wisconsin
Blood Lead Screening Data
for Fiscal Year 96/97
by County
13.6 DOUGLAS
12.1 BAYFIELD
16.6 ASHLAND
44.7 IRON
4.6 VILAS
2.2 FLORENCE
22.6 BURNETT
13.3 WASHBURN
10.8 SAWYER
26.8 PRICE
8.1 ONEIDA
15.6 FOREST
13.2 MARINETTE
14.3 POLK
23.7 BARRON
8.3 RUSK
8.7 LINCOLN
12.1 LANGLADE
8.0 TAYLOR
MENOMINEE
8.6 OCONTO
6.5 DOOR
5.8 ST CROIX
14.5 DUNN
13.8 CHIPPEWA
11.6 MARATHON
9.1
7.7 SHAWANO
7.5 CLARK
11.4 EAU CLAIRE
8.4 PIERCE
PEPIN
KEWAUNEE
4.5
7.2
6.8 WAUPACA
13.1 BROWN
PORTAGE
8.5 WOOD
6.3
OUTAGAMIE
16.5
7.0 BUFFALO
13.8 TREMPEALEAU
5.2 JACKSON
10.8 ADAMS
17.2 WAUSHARA
11.8 WINNEBAGO
CALUMET
10.0 MANITOWOC
6.4
8.9 MONROE
20.6 JUNEAU
MARQUETTE
16.0
14.9 GREEN LAKE
FOND DU LAC
10.3 SHEBOYGAN
10.1 LA CROSSE
10.2
11.6 VERNON
9.7 SAUK
11.6 COLUMBIA
DODGE
10.0 OZAUKEE
5.9
14.8 RICHLAND
6.5 WASHINGTON
8.2 CRAWFORD
9.0 DANE
JEFFERSON
23.8 MILWAUKEE
9.2
10.8 IOWA
20.6 WAUKESHA
21.0 GRANT
22.1 RACINE
14.6 WALWORTH
13.4 LAFAYETTE
16.2 GREEN
ROCK
12.2 KENOSHA
14.3
The Percentage of Children <6 yrs Tested out of the Total Number of Children <6 yrs
2.2% - 6.0%
6.1% - 8.5%
8.6% - 11.5%
11.6% - 14.0%
14.1% - 20.0%
20.1% - 28.0%
45.0%
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: WI Dept of Health

Figure 22

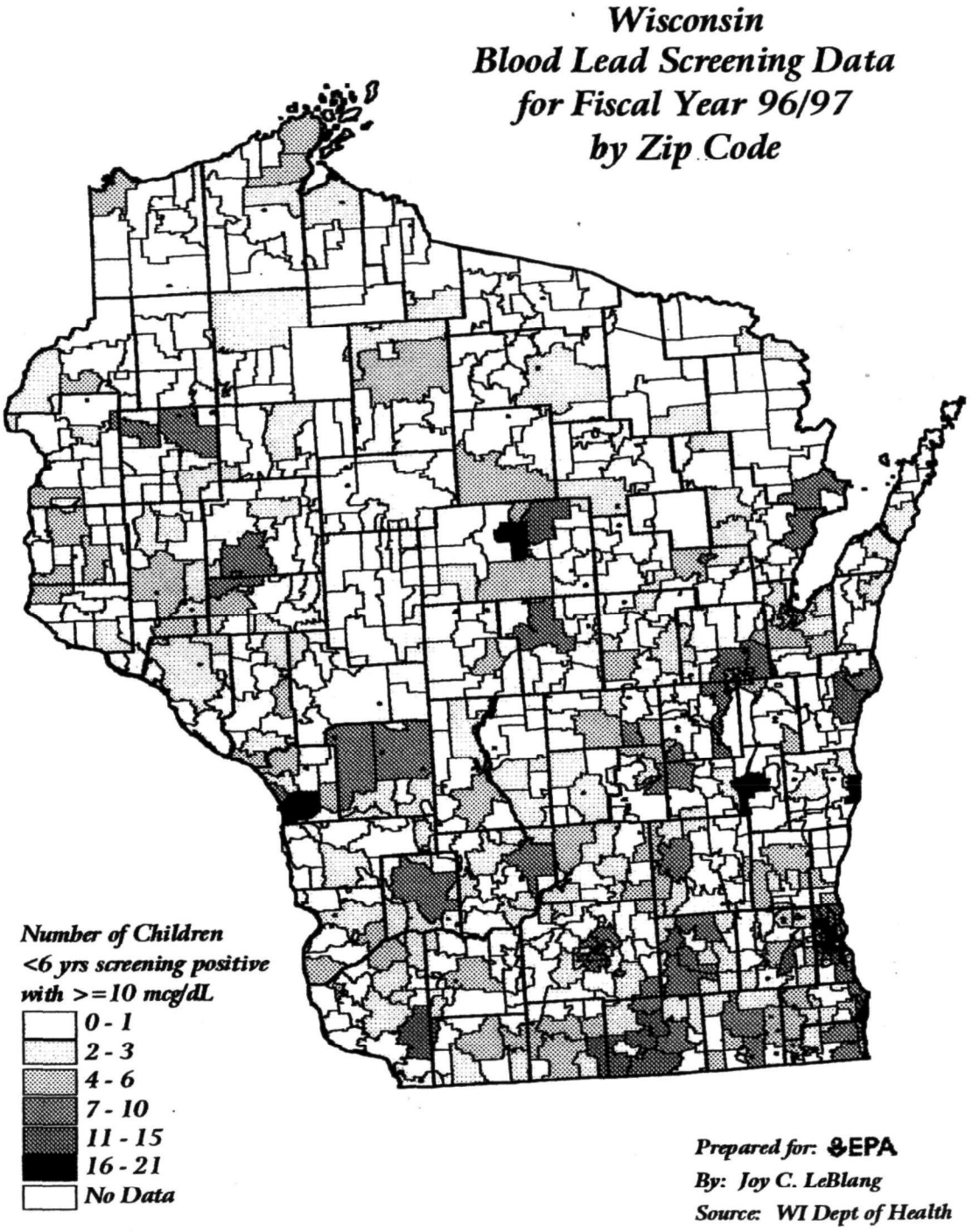

Wisconsin
Blood Lead Screening Data
for Fiscal Year 96/97
by Zip Code
Number of Children
<6 yrs screening positive
with >=10 mcg/dL
0 - 1
2 - 3
4 - 6
7 - 10
11 - 15
16 - 21
No Data
Prepared for: EPA
By: Joy C. LeBlang
Source: WI Dept of Health

Figure 23

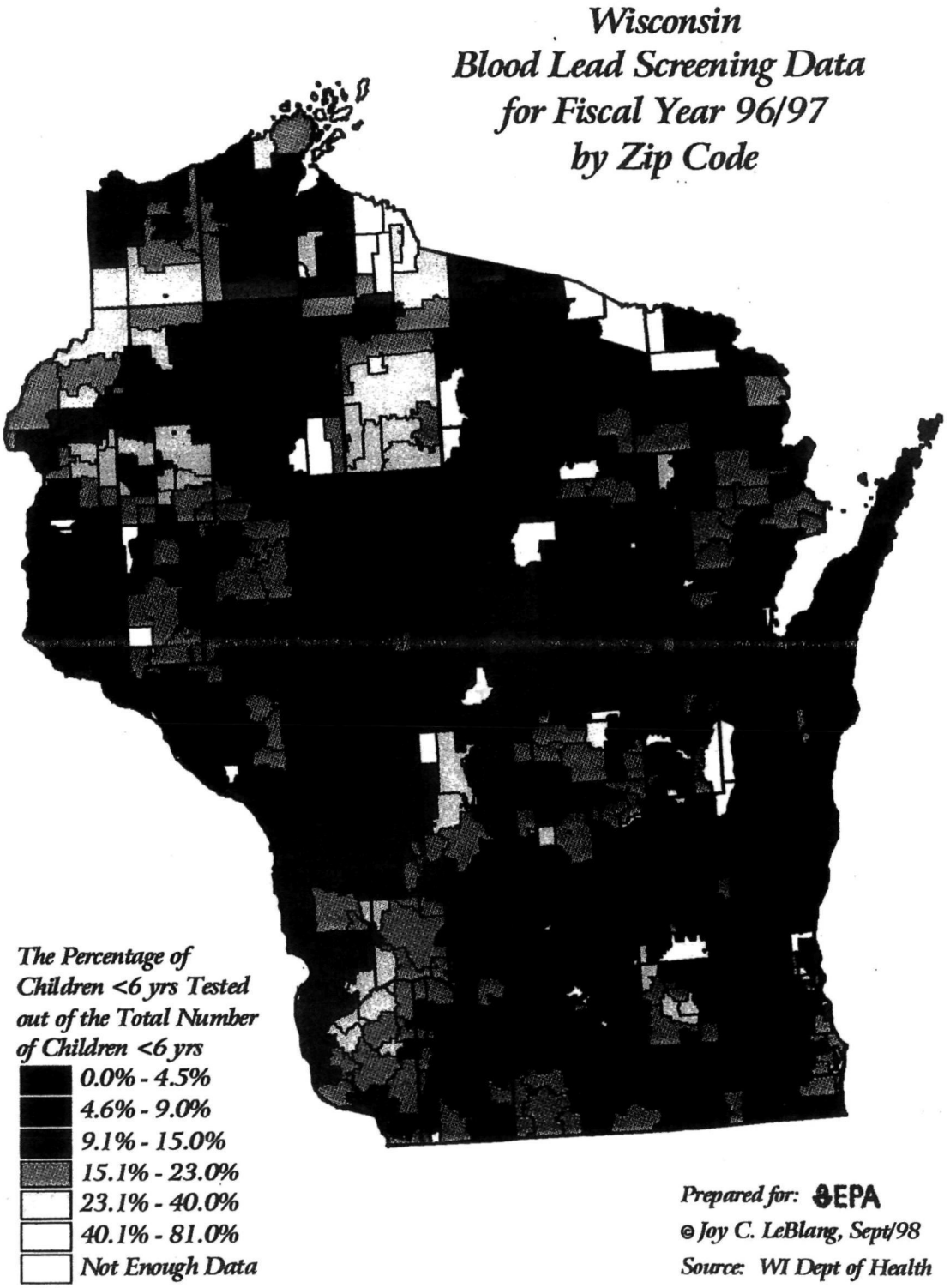

Wisconsin
Blood Lead Screening Data
for Fiscal Year 96/97
by Zip Code
The Percentage of
Children <6 yrs Tested
out of the Total Number
of Children <6 yrs
0.0% - 4.5%
4.6% - 9.0%
9.1% - 15.0%
15.1% - 23.0%
23.1% - 40.0%
40.1% - 81.0%
Not Enough Data
Prepared for: EPA
© Joy C. LeBlang, Sept/98
Source: WI Dept of Health

Figure 24

Appendix B

State	County Name	Tested	Positive	Percent Tested
IL	ADAMS	729	208	10.9
IL	ALEXANDER	365	91	31.3
IL	BOND	291	51	20.3
IL	BOONE	159	24	4.8
IL	BROWN	66	15	14.2
IL	BUREAU	230	18	6.5
IL	CALHOUN	119	24	21.9
IL	CARROLL	131	34	8.6
IL	CASS	153	19	12.3
IL	CHAMPAIGN	1298	90	7.8
IL	CHRISTIAN	400	37	11.7
IL	CLARK	37	6	2.5
IL	CLAY	122	13	9.3
IL	CLINTON	28	6	0.8
IL	COLES	185	28	4.5
IL	COOK	137024	33589	25.6
IL	CRAWFORD	136	13	7.4
IL	CUMBERLAND	36	7	3.1
IL	DE KALB	539	77	7.8
IL	DE WITT	174	55	11.3
IL	DOUGLAS	119	11	5.8
IL	DU PAGE	3304	221	3.7
IL	EDGAR	188	27	10.9
IL	EDWARDS	68	13	10.1
IL	EFFINGHAM	141	7	3.6
IL	FAYETTE	546	66	28.2
IL	FORD	97	12	7
IL	FRANKLIN	329	19	9.6
IL	FULTON	396	63	12.1
IL	GALLATIN	148	10	26
IL	GREENE	215	52	13.7
IL	GRUNDY	121	9	3.6
IL	HAMILTON	97	6	12.9
IL	HANCOCK	349	114	17.7
IL	HARDIN	36	4	8.5
IL	HENDERSON	123	10	16.7
IL	HENRY	535	142	10.8
IL	IROQUOIS	448	49	15.2
IL	JACKSON	1122	137	23.9
IL	JASPER	70	7	5.9
IL	JEFFERSON	591	85	15.4

State	County Name	Tested	Positive	Percent Tested
IL	JERSEY	240	13	11.3
IL	JO DAVIESS	77	5	3.6
IL	JOHNSON	74	5	9
IL	KANE	6115	1170	15.5
IL	KANKAKEE	2598	659	24.4
IL	KENDALL	99	11	2.2
IL	KNOX	741	157	15
IL	LAKE	6031	690	9.8
IL	LA SALLE	620	106	6
IL	LAWRENCE	377	44	26.3
IL	LEE	75	38	2.2
IL	LIVINGSTON	634	102	16.2
IL	LOGAN	190	42	6.7
IL	MCDONOUGH	357	46	14.5
IL	MCHENRY	1600	113	7.2
IL	MCLEAN	2061	209	16.8
IL	MACON	1921	694	17
IL	MACOUPIN	518	75	11.6
IL	MADISON	1329	183	5.2
IL	MARION	341	37	8.2
IL	MARSHALL	51	9	4.5
IL	MASON	251	32	16.9
IL	MASSAC	94	9	7.2
IL	MENARD	80	8	7.3
IL	MERCER	290	56	17.6
IL	MONROE	70	11	2.9
IL	MONTGOMERY	512	107	17.2
IL	MORGAN	386	47	11.7
IL	MOULTRIE	23	3	1.8
IL	OGLE	144	34	3
IL	PEORIA	2169	963	11.9
IL	PERRY	129	22	6.1
IL	PIATT	108	14	7.5
IL	PIKE	393	57	24.4
IL	POPE	20	2	6.7
IL	PULASKI	143	32	18
IL	PUTNAM	27	3	4.5
IL	RANDOLPH	362	38	11.6
IL	RICHLAND	124	17	7.6
IL	ROCK ISLAND	2801	746	19.1
IL	ST CLAIR	6899	1814	23.5
IL	SALINE	625	79	26.5
IL	SANGAMON	1925	418	10.6

State	County Name	Tested	Positive	Percent Tested
IL	SCHUYLER	10	4	1.5
IL	SCOTT	14	1	2.5
IL	SHELBY	142	23	6.6
IL	STARK	70	25	11.7
IL	STEPHENSON	671	305	13.5
IL	TAZEWELL	889	92	7.2
IL	UNION	224	34	15.2
IL	VERMILION	1143	141	13.2
IL	WABASH	250	51	19.5
IL	WARREN	178	30	9.6
IL	WASHINGTON	43	4	3.1
IL	WAYNE	388	30	24.4
IL	WHITE	283	44	17.9
IL	WHITESIDE	821	121	13.7
IL	WILL	2729	425	6.5
IL	WILLIAMSON	255	19	4.8
IL	WINNEBAGO	2652	697	9.8
IL	WOODFORD	109	8	3.3
IN	ADAMS	59	4	1.8
IN	ALLEN	1700	154	5.9
IN	BARTHOLOMEW	809	27	14.8
IN	BENTON	36	1	4.3
IN	BLACKFORD	109	8	9.4
IN	BOONE	42	1	1.2
IN	BROWN	18	0	1.7
IN	CARROLL	35	10	2.2
IN	CASS	96	12	3.1
IN	CLARK	845	22	12.2
IN	CLAY	148	6	7.3
IN	CLINTON	148	27	5.3
IN	CRAWFORD	172	9	20.6
IN	DAVIESS	26	0	1
IN	DEARBORN	13	1	0.4
IN	DECATUR	121	12	5.9
IN	DE KALB	82	2	2.5
IN	DELAWARE	2089	98	23.6
IN	DUBOIS	117	8	3.3
IN	ELKHART	2917	288	18.4
IN	FAYETTE	150	16	7.8
IN	FLOYD	1252	67	23.2
IN	FOUNTAIN	14	3	0.9
IN	FRANKLIN	44	3	2.4
IN	FULTON	14	0	0.9

State	County Name	Tested	Positive	Percent Tested
IN	GIBSON	518	13	20.2
IN	GRANT	502	58	8.7
IN	GREENE	462	13	19.5
IN	HAMILTON	70	2	0.6
IN	HANCOCK	51	3	1.4
IN	HARRISON	259	6	9.8
IN	HENDRICKS	83	3	1.3
IN	HENRY	146	14	4.1
IN	HOWARD	827	68	11.8
IN	HUNTINGTON	42	7	1.3
IN	JACKSON	35	0	1.1
IN	JASPER	8	0	0.4
IN	JAY	118	9	6.5
IN	JEFFERSON	99	0	4.2
IN	JENNINGS	86	7	4.1
IN	JOHNSON	56	0	0.7
IN	KNOX	5	0	0.2
IN	KOSCIUSKO	760	37	11.8
IN	LAGRANGE	8	0	0.2
IN	LAKE	2125	278	5.1
IN	LA PORTE	406	40	4.6
IN	LAWRENCE	295	9	8.5
IN	MADISON	459	40	4.5
IN	MARION	6621	2218	8.8
IN	MARSHALL	203	4	5
IN	MARTIN	223	3	25.9
IN	MIAMI	157	16	4.5
IN	MONROE	1220	21	17.2
IN	MONTGOMERY	149	2	5.1
IN	MORGAN	86	0	1.8
IN	NEWTON	93	4	7.9
IN	NOBLE	106	7	2.9
IN	OHIO	12	1	2.8
IN	ORANGE	413	21	26.8
IN	OWEN	398	12	27.4
IN	PARKE	13	1	1.1
IN	PERRY	282	5	19
IN	PIKE	106	14	11.4
IN	PORTER	622	23	5.9
IN	POSEY	372	17	15.6
IN	PULASKI	8	1	0.7
IN	PUTNAM	773	28	34.8
IN	RANDOLPH	201	22	9.3

State	County Name	Tested	Positive	Percent Tested
IN	RIPLEY	18	1	0.8
IN	RUSH	142	27	9.5
IN	ST JOSEPH	2496	267	11.6
IN	SCOTT	217	4	11.9
IN	SHELBY	65	4	1.8
IN	SPENCER	139	5	8.4
IN	STARKE	64	5	3.2
IN	STEUBEN	342	27	14.2
IN	SULLIVAN	17	0	1.1
IN	SWITZERLAND	7	1	1.1
IN	TIPPECANOE	187	7	1.9
IN	TIPTON	69	5	5.6
IN	UNION	36	3	6.2
IN	VANDERBURGH	2566	264	18.7
IN	VERMILLION	8	1	0.7
IN	VIGO	197	24	2.5
IN	WABASH	215	3	7.5
IN	WARREN	12	0	1.8
IN	WARRICK	450	7	11.8
IN	WASHINGTON	495	24	25.5
IN	WAYNE	577	115	10.1
IN	WELLS	141	11	5.8
IN	WHITE	65	8	3.4
IN	WHITLEY	130	3	5.2
MI	ALCONA	3	0	0.5
MI	ALGER	54	0	8.3
MI	ALLEGAN	60	1	0.7
MI	ALPENA	173	4	7
MI	ANTRIM	90	0	5.9
MI	ARENAC	25	0	2
MI	BARAGA	1	0	0.2
MI	BARRY	177	3	3.9
MI	BAY	449	2	4.7
MI	BENZIE	6	0	0.6
MI	BERRIEN	986	150	6.9
MI	BRANCH	625	19	16.1
MI	CALHOUN	514	5	4.2
MI	CASS	136	2	3.2
MI	CHARLEVOIX	204	0	10.3
MI	CHEBOYGAN	100	2	5.6
MI	CHIPPEWA	52	0	1.9
MI	CLARE	82	0	3.7
MI	CLINTON	226	1	4.3

State	County Name	Tested	Positive	Percent Tested
MI	CRAWFORD	3	0	0.3
MI	DELTA	111	2	3.6
MI	DICKINSON	31	1	1.4
MI	EATON	145	3	1.8
MI	EMMET	245	0	10.7
MI	GENESEE	2102	132	5.2
MI	GLADWIN	142	3	7.7
MI	GOGEBIC	9	0	0.7
MI	GRAND TRAVERSE	50	1	0.8
MI	GRATIOT	351	0	10.7
MI	HILLSDALE	366	6	9.2
MI	HOUGHTON	0	0	0
MI	HURON	234	4	7.9
MI	INGHAM	3047	64	12.3
MI	IONIA	423	7	8
MI	IOSCO	17	0	0.6
MI	IRON	7	0	0.8
MI	ISABELLA	157	2	3.6
MI	JACKSON	171	4	1.3
MI	KALAMAZOO	1942	110	10
MI	KALKASKA	85	6	6.5
MI	KENT	10285	301	19.6
MI	KEWEENAW	1	0	0.9
MI	LAKE	72	1	10.4
MI	LAPEER	43	0	0.6
MI	LEELANAU	4	0	0.3
MI	LENAWEE	302	16	3.7
MI	LIVINGSTON	22	0	0.2
MI	LUCE	105	4	22.8
MI	MACKINAC	98	0	10.6
MI	MACOMB	588	40	1
MI	MANISTEE	96	3	5.8
MI	MARQUETTE	109	8	1.8
MI	MASON	85	0	3.9
MI	MECOSTA	483	5	17.5
MI	MENOMINEE	39	0	2
MI	MIDLAND	65	1	1
MI	MISSAUKEE	46	0	4
MI	MONROE	373	16	3
MI	MONTCALM	554	10	11.1
MI	MONTMORENCY	14	0	2.2
MI	MUSKEGON	309	53	2

State	County Name	Tested	Positive	Percent Tested
MI	NEWAYGO	164	0	4.3
MI	OAKLAND	1506	128	1.6
MI	OCEANA	98	1	4.5
MI	OGEMAW	33	0	2.1
MI	ONTONAGON	0	0	0
MI	OSCEOLA	195	8	10.6
MI	OSCODA	14	1	2.2
MI	OTSEGO	104	0	6.1
MI	OTTAWA	274	9	1.4
MI	PRESQUE ISLE	8	0	0.8
MI	ROSCOMMON	81	1	6.2
MI	SAGINAW	1473	92	7.5
MI	ST CLAIR	111	1	0.8
MI	ST JOSEPH	666	3	11.8
MI	SANILAC	216	1	6
MI	SCHOOLCRAFT	186	1	29.4
MI	SHIAWASSEE	779	6	12.6
MI	TUSCOLA	381	1	7.8
MI	VAN BUREN	583	15	8.8
MI	WASHTENAW	1351	53	5.9
MI	WAYNE	7926	770	3.9
MI	WEXFORD	118	2	4.7
MN	AITKIN	31	5	3.7
MN	ANOKA	944	45	3.7
MN	BECKER	239	5	9.5
MN	BELTRAMI	280	11	7.9
MN	BENTON	75	2	2.4
MN	BIG STONE	11	0	2.1
MN	BLUE EARTH	222	31	5.3
MN	BROWN	94	6	3.9
MN	CARLTON	118	6	4.7
MN	CARVER	111	2	2
MN	CASS	85	4	4.4
MN	CHIPPEWA	29	4	2.5
MN	CHISAGO	73	4	2.4
MN	CLAY	281	63	6.6
MN	CLEARWATER	44	1	6.2
MN	COOK	24	0	7.8
MN	COTTONWOOD	43	5	4.4
MN	CROW WING	162	8	4.2
MN	DAKOTA	849	57	2.8
MN	DODGE	52	6	3.2
MN	DOUGLAS	103	9	4.2

State	County Name	Tested	Positive	Percent Tested
MN	FARIBAULT	64	3	4.9
MN	FILLMORE	98	5	5.1
MN	FREEBORN	132	22	4.7
MN	GOODHUE	217	15	5.8
MN	GRANT	31	5	6.5
MN	HENNEPIN	14412	1797	15.7
MN	HOUSTON	112	5	6.3
MN	HUBBARD	13	1	1
MN	ISANTI	83	3	3.3
MN	ITASCA	136	19	4.1
MN	JACKSON	46	3	4.7
MN	KANABEC	40	4	3.4
MN	KANDIYOHI	19	2	0.5
MN	KITTSON	54	11	11.1
MN	KOOCHICHING	32	3	2.5
MN	LAC QUI PARLE	28	3	3.8
MN	LAKE	26	2	3.4
MN	LAKE OF THE WOODS	2	0	0.5
MN	LE SUEUR	84	24	3.7
MN	LINCOLN	21	6	4.6
MN	LYON	90	19	4.2
MN	MCLEOD	30	4	0.9
MN	MAHNOMEN	106	3	24.5
MN	MARSHALL	63	6	6.8
MN	MARTIN	90	7	4.6
MN	MEEKER	18	1	0.9
MN	MILLE LACS	95	4	5.4
MN	MORRISON	145	8	4.7
MN	MOWER	100	6	3.3
MN	MURRAY	42	1	5.2
MN	NICOLLET	60	8	2.4
MN	NOBLES	295	10	17.5
MN	NORMAN	42	5	7.1
MN	OLMSTED	208	25	1.9
MN	OTTER TAIL	92	4	2.2
MN	PENNINGTON	14	0	1.3
MN	PINE	69	7	3.9
MN	PIPESTONE	59	9	6.1
MN	POLK	147	17	5
MN	POPE	43	7	4.6
MN	RAMSEY	6781	783	14.6
MN	RED LAKE	4	0	1

State	County Name	Tested	Positive	Percent Tested
MN	REDWOOD	63	0	4
MN	RENVILLE	108	15	6.6
MN	RICE	152	22	3.6
MN	ROCK	12	1	1.4
MN	ROSEAU	13	2	0.8
MN	ST LOUIS	1240	63	8.3
MN	SCOTT	115	2	1.7
MN	SHERBURNE	191	12	4.3
MN	SIBLEY	50	8	3.9
MN	STEARNS	198	8	1.8
MN	STEELE	271	34	9.2
MN	STEVENS	20	0	2.6
MN	SWIFT	18	2	2.1
MN	TODD	105	6	5.1
MN	TRAVERSE	13	1	3.5
MN	WABASHA	39	3	2.1
MN	WADENA	202	19	17.2
MN	WASECA	66	5	4.1
MN	WASHINGTON	389	6	2.6
MN	WATONWAN	118	19	10.6
MN	WILKIN	80	2	11.5
MN	WINONA	214	19	5.5
MN	WRIGHT	184	10	2.4
MN	YELLOW MEDICINE	15	0	1.5
OH	ADAMS	258	9	11.7
OH	ALLEN	879	35	8.8
OH	ASHLAND	175	3	4.3
OH	ASHTABULA	656	32	7.5
OH	ATHENS	671	4	17.2
OH	AUGLAIZE	119	2	2.7
OH	BELMONT	678	33	13.3
OH	BROWN	225	4	7.1
OH	BUTLER	1137	12	4.4
OH	CARROLL	129	6	5.8
OH	CHAMPAIGN	288	6	9.5
OH	CLARK	2344	201	18.9
OH	CLERMONT	751	10	4.9
OH	CLINTON	131	4	4.3
OH	COLUMBIANA	684	47	7.5
OH	COSHOCTON	111	5	3.5
OH	CRAWFORD	184	2	4.4
OH	CUYAHOGA	30879	3936	25.7

State	County Name	Tested	Positive	Percent Tested
OH	DARKE	229	5	4.9
OH	DEFIANCE	281	1	7.7
OH	DELAWARE	285	4	4.6
OH	ERIE	272	14	4.2
OH	FAIRFIELD	447	3	5.2
OH	FAYETTE	231	7	10.1
OH	FRANKLIN	12168	490	13.9
OH	FULTON	115	1	3.2
OH	GALLIA	353	0	13.6
OH	GEAUGA	196	3	2.6
OH	GREENE	1018	10	9.2
OH	GUERNSEY	518	10	15.2
OH	HAMILTON	10685	372	13.1
OH	HANCOCK	262	5	4.4
OH	HARDIN	194	5	7.7
OH	HARRISON	95	6	8.2
OH	HENRY	146	1	5.3
OH	HIGHLAND	235	6	7.4
OH	HOCKING	289	3	13.4
OH	HOLMES	64	4	1.5
OH	HURON	620	7	11.3
OH	JACKSON	371	3	14.4
OH	JEFFERSON	904	42	16.2
OH	KNOX	214	4	5.8
OH	LAKE	1291	15	7.2
OH	LAWRENCE	537	5	10.4
OH	LICKING	948	30	8.5
OH	LOGAN	184	5	4.9
OH	LORAIN	3687	109	15.3
OH	LUCAS	5822	563	13.5
OH	MADISON	261	4	8.5
OH	MAHONING	3118	324	14.7
OH	MARION	526	9	9.1
OH	MEDINA	750	10	6.9
OH	MEIGS	323	4	17.2
OH	MERCER	40	0	1.0
OH	MIAMI	515	32	6.5
OH	MONROE	83	3	7.1
OH	MONTGOMERY	4045	108	8.0
OH	MORGAN	186	6	14.8
OH	MORROW	76	1	3.1
OH	MUSKINGUM	1679	41	23.3
OH	NOBLE	68	3	6.4

State	County Name	Tested	Positive	Percent Tested
OH	OTTAWA	212	1	7.1
OH	PAULDING	94	4	4.8
OH	PERRY	583	9	20.3
OH	PICKAWAY	362	4	9.2
OH	PIKE	113	4	5.4
OH	PORTAGE	798	5	7.0
OH	PREBLE	129	5	3.7
OH	PUTNAM	63	2	1.8
OH	RICHLAND	783	41	7.3
OH	ROSS	595	18	11.1
OH	SANDUSKY	558	12	9.8
OH	SCIOTO	456	11	7.0
OH	SENECA	529	19	10.1
OH	SHELBY	227	3	5.1
OH	STARK	3443	97	11.3
OH	SUMMIT	6922	180	16.0
OH	TRUMBULL	1383	38	7.3
OH	TUSCARAWAS	360	9	5.1
OH	UNION	170	3	6.1
OH	VAN WERT	135	0	5.0
OH	VINTON	262	3	28.4
OH	WARREN	570	5	5.4
OH	WASHINGTON	802	30	16.4
OH	WAYNE	578	8	6.0
OH	WILLIAMS	289	6	8.2
OH	WOOD	778	20	8.8
OH	WYANDOT	144	5	7.3
WI	ADAMS	115	5	10.8
WI	ASHLAND	239	3	16.6
WI	BARRON	854	23	23.7
WI	BAYFIELD	147	10	12.1
WI	BROWN	1313	88	7.2
WI	BUFFALO	83	7	7.0
WI	BURNETT	221	6	22.6
WI	CALUMET	223	5	6.4
WI	CHIPPEWA	693	20	13.8
WI	CLARK	220	1	7.5
WI	COLUMBIA	462	25	11.6
WI	CRAWFORD	123	8	8.2
WI	DANE	2777	55	9.0
WI	DODGE	437	20	6.5
WI	DOOR	137	3	6.5
WI	DOUGLAS	463	7	13.6

State	County Name	Tested	Positive	Percent Tested
WI	DUNN	418	14	14.5
WI	EAU CLAIRE	829	26	11.4
WI	FLORENCE	9	0	2.2
WI	FOND DU LAC	791	50	10.2
WI	FOREST	124	3	15.6
WI	GRANT	868	29	21.0
WI	GREEN	427	48	16.2
WI	GREEN LAKE	217	8	14.9
WI	IOWA	206	12	10.8
WI	IRON	169	3	44.7
WI	JACKSON	73	1	5.2
WI	JEFFERSON	1183	47	20.6
WI	JUNEAU	388	10	20.6
WI	KENOSHA	1736	137	14.3
WI	KEWAUNEE	78	4	4.5
WI	LA CROSSE	849	89	10.1
WI	LAFAYETTE	200	11	13.4
WI	LANGLADE	202	3	12.1
WI	LINCOLN	192	7	8.7
WI	MANITOWOC	694	37	10.0
WI	MARATHON	1250	99	11.6
WI	MARINETTE	452	13	13.2
WI	MARQUETTE	143	7	16.0
WI	MENOMINEE	54	0	9.1
WI	MILWAUKEE	21505	4267	23.8
WI	MONROE	316	23	8.9
WI	OCONTO	227	15	8.6
WI	ONEIDA	200	3	8.1
WI	OUTAGAMIE	1808	52	13.1
WI	OZAUKEE	388	9	5.9
WI	PEPIN	103	4	16.5
WI	PIERCE	243	12	8.4
WI	POLK	454	10	14.3
WI	PORTAGE	329	9	6.3
WI	PRICE	340	12	26.8
WI	RACINE	3658	287	22.1
WI	RICHLAND	235	10	14.8
WI	ROCK	1898	134	14.6
WI	RUSK	108	3	8.3
WI	ST CROIX	293	11	5.8
WI	SAUK	414	22	9.7
WI	SAWYER	130	3	10.8
WI	SHAWANO	244	11	7.7

State	County Name	Tested	Positive	Percent Tested
WI	SHEBOYGAN	924	96	10.3
WI	TAYLOR	148	1	8.0
WI	TREMPEALEAU	293	14	13.8
WI	VERNON	265	8	11.6
WI	VILAS	60	0	4.6
WI	WALWORTH	744	47	12.2
WI	WASHBURN	153	1	13.3
WI	WASHINGTON	876	16	10.0
WI	WAUKESHA	2507	54	9.2
WI	WAUPACA	269	17	6.8
WI	WAUSHARA	269	20	17.2
WI	WINNEBAGO	1405	56	11.8
WI	WOOD	574	16	8.5