

NEIGHBORHOODS AND HEALTH:

Building Evidence for Local Policy

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Neighborhoods and Health:

Building Evidence for Local Policy

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This project was unusual in the degree to which it attempted to integrate quantitative research at the national level with local data assembly and real community processes in several different cities. As such, it required contributions from a sizeable number of professionals.

Most important were the staffs of the five local data intermediaries (partners in the National Neighborhood Indicators Partnership) who both prepared site-specific analyses (which entailed collecting new datasets, analyzing the data, and working to apply the results in their communities) and contributed data and advice to the Urban Institute in the cross-site analysis.

They included Claudia J. Coulton, Kristen Mikelbank, Lisa Nelson, Katherine Offutt, Engel Polousky, and Siran Koroukian of the Center on Urban Poverty and Social Change, Case Western University (Cleveland); Matthew Hamilton and Terri J. Bailey of the Piton Foundation (Denver); Sharon Kandris, Cynthia Cunningham, and Dale Drake of the Polis Center at Indiana University-Purdue University at Indianapolis and Gilbert Liu of the Children's Health Services Research Program in the Department of Pediatrics at Indiana University (Indianapolis); Junious Williams, Matthew Beyers, Yung Ouyang and Keith Prior of the Urban Strategies Council (Oakland); and Katie Murray of the Providence Plan and Peter Simon of the Rhode Island Department of Health (Providence).

At the Urban Institute, Kathryn L.S. Pettit and G. Thomas Kingsley served as co-directors for all aspects of the work. In preparing this report, Pettit developed the analyses of neighborhood health trends and the relationships between health and contextual variables, Kingsley took the lead on the context analysis and in summarizing the site-specific studies, and the two collaborated on all other sections. Claudia J. Coulton contributed all research and writing related to health disparities indices. Jessica Cigna provided superb research support in data assembly, analysis, Geographic Information System work, and report preparation.

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EXECUTIVE SUMMARY

It is increasingly recognized that variations in neighborhood conditions are critical to health outcomes and program options in America. In almost all urban areas, serious health problems are highly concentrated in a fairly small number of distressed neighborhoods, yet only a handful of U.S. cities now have data that allow them to analyze health problems constructively at the neighborhood level.

This research was designed to take advantage of some of the best sources of data on this topic that are now available. It was sponsored by the U.S. Department of Health and Human Services and conducted by the Urban Institute and its local partners from five cities that are a part of the National Neighborhood Indicators Partnership (NNIP)—an organization made up of local intermediaries that have developed multitopic, recurrently updated information systems on neighborhood conditions in their cities.¹

The project had two major purposes: (1) to contribute to expanding the range and usefulness of health indicators available at the neighborhood level in America's localities, and (2) to gain greater understanding of the relationships between characteristics of neighborhoods and health outcomes. The study sites were Cleveland, Denver, Indianapolis, Oakland, and Providence. Project work was divided into two components.

Site-specific analysis entailed assembling and analyzing *new* neighborhood-level indicators pertaining to local health issues in each site and using the data to further local health improvement initiatives. In this component, the local partners took the lead in the work and the Urban Institute provided guidance to them in the process and pulled together cross-site lessons for this report.

¹ NNIP is a collaborative effort by the Urban Institute and local partners in 20 cities to further the development and use of neighborhood information systems in local policy making and community building. The 20 partners are identified in annex A of this report, which also describes the purposes of NNIP, its activities, and its accomplishments in more detail.



Cross-site analysis entailed researching the changing urban context in each of the five sites, examining ecological relationships between metropolitan and neighborhood conditions and health outcomes in a comparable manner across sites, and developing a *neighborhood disparity index*. This work was done by Urban Institute staff, with data and guidance provided by the local partners along the way.

SITE-SPECIFIC ANALYSES

In these studies, the five NNIP partner organizations assembled health-related data that were *new* to them, analyzed relationships with neighborhood conditions, and started using their findings in community dialogues about health issues. All of them were able to acquire new data files, although not always all of the new files they sought, and all completed credible analyses, although not always finding what they expected. Their work has already captured the attention of local officials, community groups, and other stakeholders, and it appears likely that it will influence local decisionmaking.

Cleveland's Center on Urban Poverty and Social Change (Case Western Reserve University) developed neighborhood indicators of child access to primary care using eligibility, claims, and encounter data from Ohio's Medicaid data system. Staff members sought to clarify relationships between neighborhood conditions and children's access to primary care. They found that the use of emergency services for non-emergency conditions was positively correlated with poverty rates, minority concentrations, low-birth-weight rates, and child maltreatment. The likelihood of children having recommended preventive care visits, however, did not drop consistently with rates of neighborhood poverty or other health problems, suggesting that efforts to provide preventive services to poor residents may be achieving some success. This analysis is now being reviewed by Cuyahoga County's Early Childhood Initiative (ECI), which plans future work with the researchers using these and other data to build a system that will allow it to better target program resources and monitor performance.

Denver's Piton Foundation first acquired and examined a number of new datasets with information on the locations of storage tanks, solid waste sites, Superfund sites, and several other environmental conditions. Staff members found that without additional descriptive data they could not create a meaningful index of hazardous conditions from these files, but they were able to usefully map several as potential risks for follow-up monitoring and action by community groups. They also obtained new indicators related to community violence and found strong correlations between poverty



and minority rates on the one hand and violent crime, violence-related school suspensions and expulsions, and child abuse on the other. This work is feeding directly into the city-sponsored Denver Benchmarks process, which seeks to engage residents of all of the city's neighborhoods in monitoring trends as a basis for improvement initiatives.

Indianapolis's Polis Center (Indiana-Purdue University) used spatial analysis to study the relationship between community conditions and obesity in children (data derived from an unusually valuable database on patient conditions, regularly contributed to by a large share of all local health care providers in the city). Staff members found that the frequency of child obesity was strongly associated with neighborhood socioeconomic status, but they did not find high correlations with the measures they had for proximity to exercise opportunities and possible social barriers to physical activity. They expect that more sophisticated indicators for these latter concepts will yield better predictors, and they have begun working with other local groups to develop better measures along these lines. The findings are now under review by the local Alliance for Health Promotion, which will collaborate with the researchers in their search for better data and play a leading role in their application in education campaigns and other program services.

Oakland's Urban Strategies Council collaborated with the Alameda County Public Health Department in work that focused on the relationship between neighborhood conditions and the incidence of tuberculosis. In particular, staff members sought to examine fresh approaches to analyzing the data, applying new techniques developed in the fields of Geographic Information Systems (GIS) and spatial statistics. A problem has been that simply counting the incidence of tuberculosis cases (and other health indicators) for Health Districts, and even for units as small as census tracts, has not been finely grained enough to support efficient spatial targeting of services. The new "kernel density" method the researchers applied depicts disease intensities in the form of contour intervals (like elevations on a topographic map), which are more sensitive for this purpose. Analysis with the method showed strong associations between tuberculosis and poverty rates and other neighborhood characteristics (the immigrant share of the population turned out to be the strongest predictor). Briefings and prevention planning sessions are being set up with the department's Neighborhood Health Teams in areas where the risk of tuberculosis was found to be particularly high, and the Council expects to work on similar studies related to other types of disease in the future.



Providence's civic intermediary, The Providence Plan, undertook analysis to determine the extent of residential mobility among young children and the relationships between mobility, the delivery of child health care services, and other factors. Staff members worked in close coordination with the Rhode Island Department of Health, which gave them access to its KidsNet Databases—records of birth outcomes linked to records on subsequent care for all children born in the state since 1997 who have been continuing residents. Their research showed that, indeed, a significant share of young children move with surprising frequency; that the mothers of these frequent movers are more likely to be women of color, disadvantaged women, and single women; and that distressed neighborhoods are more likely to have high rates of child mobility. Analysis also suggested that frequent mobility was associated with disruptions in health care services (although the effects were not as strong as initially expected). Their earlier research had shown that frequent mobility also had negative effects on school performance. As the next step in this work, the department plans to use “parent consultants” (peers) to have targeted discussions with families that this analysis identified to learn more about why they move so often and raise awareness about the effects. When learnings from these discussions are completed, the department plans to reassess program implications, working in collaboration with housing agencies and advocates.

CROSS-SITE ANALYSIS: THE CHANGING URBAN CONTEXT

Understanding the health trends in the five selected sites requires knowledge of how their social and economic characteristics have been changing and how those trends varied in different types of neighborhoods. The five selected cities do differ from one another in important ways. One is with respect to their regions' population growth in the 1990s. Cleveland and Providence grew slowly (by 2 and 5 percent, respectively), Oakland and Indianapolis were more in the middle range (15–16 percent), and Denver's growth was most rapid by far (30 percent).

Another way the cities differ relates to their racial composition in 2000. The two Midwestern metropolises—Cleveland and Indianapolis—have comparatively large African-American populations (26–28 percent of the total), and numbers in other minority groups are negligible. Denver and Providence exhibit the reverse pattern, with other minorities (predominantly Hispanics) accounting for the largest shares (36 and 39 percent) and small black populations. Oakland stands alone with large shares in both categories; a total minority share of 76 percent (37 percent black plus 39 percent non-



black). The most striking change in the 1990s was the rapid growth of Hispanics in Providence, Oakland, and, in particular, Denver.

In other ways, however, 1990s conditions and trends in these cities were similar to one another and together differed markedly from the dominant scenario of urban change in the 1980s. The 1980s featured the deterioration of neighborhoods in the inner city and a substantial increase in the concentration of urban poverty. It saw the decline of well-paying manufacturing jobs in the cities and the departure of the black middle class from urban ghettos, leaving little in the way of economic opportunity, role models, or supportive institutions for those left behind.

In the 1990s, in contrast, the share of the metropolitan-area poor living in high-poverty neighborhoods (census tracts with poverty rates of 30 percent or more) declined in all five sites (on average, down from 25 percent to 20 percent). Also, recent studies have shown that some key social indicators (e.g., crime rates, teen birthrates) improved substantially in many cities during the later part of the decade, and we find similar trends in other census indicators in this analysis. For example, the share of adults with college degrees went up markedly in all five sites.

More important, conditions in the high-poverty areas themselves generally improved, and gaps between those areas and the other parts of these cities decreased somewhat. In one of the analyses, we look at six indicators of economic and social well-being: unemployment rates, employment rates (employed as percentage of total population over 16), shares of adults without high school diplomas, shares of households receiving public assistance, female-headed shares of all families with children, and poverty rates themselves. The data show that in the 1990s, conditions in high-poverty areas had improved in 28 of 30 possible cases (6 indicators times 5 sites), and the problem gap between high-poverty and other neighborhoods had shrunk in 27 of the 30.²

We should not overemphasize the improvements in the high poverty areas or the reduction of the problem gap between these and other areas. It is most important to note that even after the improvements, conditions remained significantly more problematic in high-poverty areas than other neighborhoods with respect to every

² Among the sites, the high-poverty neighborhoods in Cleveland (Cuyahoga County) evidenced either the worst or next-to-the-worst scores on five of the six measures, and Oakland was worst or next to the worst on four. Denver's high-poverty areas registered the least problematic conditions on five of the six.



indicator in every one of the five sites. For example, those living in high-poverty areas at the end of the decade were still, on average, 3.0 times as likely to be receiving public assistance, 2.1 times as likely to lack a high school degree, and 2.2 times as likely to be unemployed as those living in other parts of these cities. Nonetheless, there has been improvement.

We do not know yet if this positive shift in trends in the high-poverty areas is permanent. It is important to remember that the reference date of the recent decennial census (April 2000) was near the peak of the economic boom of the late 1990s. Circumstances could have deteriorated since then. Nonetheless, compared to the negative assessments that emanated from reviews of trends in American cities a decade earlier, the trends of the 1990s represent very important evidence that improvement is indeed possible.

CROSS-SITE ANALYSIS: HEALTH TRENDS AND STUDY HYPOTHESES

Health Trends

Our review of trends in maternal and mortality indicators in five urban areas yields similarly positive findings, but also comes with some important caveats. As a first step, this analysis examines the trends (again contrasting high-poverty and nonpoor areas) for five key indicators derivable from vital records: teen birthrates, rates of early prenatal care, rates of low birth-weight births, infant mortality rates, and age-adjusted mortality rates.

It is widely understood that health-related problems are generally more severe in high-poverty neighborhoods than in non-poor areas, but our data allow us to go farther and examine variations in the extent of these gaps and how they have shifted over the same time period in several different cities. This analysis goes beyond previous information about general improvements in maternal and infant indicators in urban areas. It quantifies and compares the extent of the improvements between poor and non-poor neighborhoods within cities and between cities. Table 1.1 shows that the news was generally good, with some progress seen in the high-poverty neighborhoods of all the cities. The main findings are as follows:

**Table 1.1: Trends in Birth and Mortality Indicators in High Poverty Tracts,
1990/1992 - 1998/2000**

	Cleveland (Cuyahoga)	Denver	Indiana- polis	Oak- land*	Provi- dence**
Teen births (age 15-19) per 100 females age 15-19					
1990/1992	16	17	19	14	6
1998/2000	10	15	12	8	5
Change in percentage points	-5	-2	-7	-6	-1
Percent of births to women with prenatal care in first trimester					
1990/1992	73	60	59	72	66
1998/2000	77	63	66	85	63
Change in percentage points	4	2	7	13	-3
Percent of births with low birth weight (< 2500 grams)					
1990/1992	15	12	12	11	8
1998/2000	13	11	13	8	9
Change in percentage points	-2	-2	1	-3	1
Age-adjusted death rates per 100,000 population***					
1990/1992	1,276	1,212	1,212	1,158	NA
1998/2000	1,229	1,075	1,282	1,006	NA
Change in rate	-47	-137	71	-151	NA
Infant mortality rates (infant deaths per 1,000 live births)					
1990/1992	19	14	18	8	NA
1998/2000	16	8	13	8	NA
Change in rate	-4	-6	-5	0	NA

Note: High poverty tracts are those with 1990 poverty rates of 30% or higher.

*For mortality indicators, Oakland rates represent 1997/1999.

**Providence change represents 1995/1997 to 1998/2000.

***Age-adjusted death rates are the total deaths per 100,000 population that would have occurred assuming local death rates by age category and the national percentage distribution of population in the same categories.



1. Gaps between high-poverty neighborhoods and others by these indicators were indeed substantial in the 1990s, with problems in high-poverty neighborhoods much more severe for almost all indicators in all cities. However, the extent of the gaps varied. The differences in low-birth-weight and mortality rates were much more pronounced in Cleveland and Indianapolis (where African Americans are the dominant minority) than in the more racially diverse cities. However, for early prenatal care rates and teen birthrates, the disparities in Denver rise to the levels of Cleveland and Indianapolis.

2. In almost all cities, the 1990s saw notable improvements in the maternal and infant health indicators in both the high-poverty and the nonpoor neighborhoods, parallel to the findings about contextual conditions in section 8. In fact, the rates of improvement were generally faster in the high-poverty neighborhoods than in the other parts of these cities. Nonetheless, these changes were not nearly enough to eliminate the gaps between these two types of areas by the end of the decade.

3. Still, there were important variations in the rates of improvement. In some cases, it appears that the change was influenced largely by the city's racial composition. For example, the teen birthrate for African Americans dropped faster than for Hispanics, so high-poverty areas that were predominantly African America, such as in Cleveland, experienced more rapid declines. In other cases, the differences may be explained in part by programmatic efforts. For example, Oakland, which had a highly regarded Healthy Start initiative in the 1990s, experienced a rate of improvement in prenatal care in its high-poverty areas much above those in the other sites.

Study Hypotheses

With a greater understanding from looking at trends in the high-poverty tracts, we moved to bivariate and multivariate testing of our hypothesized relationships among four health outcomes (teen births, early prenatal care rates, low-birth-weight birthrates, and age-adjusted death rates) and contextual conditions at the census tract level. The analysis includes an aggregate relationship of all the census tracts in our five cities, as well as correlations for individual sites. Key findings include the following:

1. Using the bivariate methodology, we find that most of our hypotheses about the relationships between neighborhood and health conditions proved correct, with a few occasions of site differences. Specifically, the correlations confirmed that higher



rates of minority population, lower socioeconomic status, and lower quality housing are correlated with lower early prenatal care rates and higher rates of low-birth-weight births, teen births, and age-adjusted deaths.

2. Two of our hypotheses were not completely verified with the proxy measures we used. First, higher levels of social stressors (measured by crime rates) were significantly related only to higher rates of low birth weight, teen births, and age-adjusted deaths (not to early prenatal care rates). Second, our hypothesis about stronger social networks correlating with lower levels of mortality and better maternal and infant outcomes was confirmed by one set of proxy variables (rates of renter-occupancy, rental vacancy, and mobility), but a second set of indicators in this group (change in total and minority population and rate of home improvement loans) was related to *worse* health outcomes.

3. The multivariate analysis demonstrated that much of the variation among the health indicators is explained by our five independent variables (percentage African American, percentage Hispanic, average family income, percentage not employed, and percentage of population that moved in the past five years). The most predictive model was the one with early prenatal care rates as the dependent variable, though the remaining models also have substantial explanatory power. Of the five census tract conditions in the model, the percentage of population not employed was the variable most highly correlated with three of the health indicators (with early prenatal care rates as the exception).

4. The models also show that a portion of the variation is not explained by the five census tract indicators but by conditions particular to the city and time period specified. For example, Oakland's rate for maternal, infant, and mortality outcomes is consistently better than the model predicts given the contextual conditions in Oakland's census tracts. Finally, we identify which of the trends represent significant changes versus random fluctuations. For example, the results of the model enable us to confirm that the early prenatal care rates in both Denver and Providence have fallen by a statistically significant amount in the recent years—going against positive trends in the United States and the other three cities.



CONCLUSIONS

Perhaps more important than anything else, the findings of this study confirm the premise that motivated it; namely, that neighborhoods do indeed make a difference for health outcomes and programs. Although correlation coefficients did decline in the 1990s in a few cases, patterns of association between health indicators and neighborhood contextual variables remain strong overall. And even though the gaps seem to have diminished over the past decade, the most striking finding is that the health problems of high-poverty neighborhoods remain substantially more serious than those of nonpoor neighborhoods in all cities.

The implications for health programs are critical. Because conditions differ markedly by neighborhood, “standard solutions” applied uniformly across whole cities are unlikely to work and are certain to be wasteful. Targeting the right services to the places that really need them and adjusting delivery strategies in response to neighborhood differences should both enhance payoffs and save a great deal of money. At a time when resources are particularly scarce, public health policy can hardly afford not to take neighborhood variations into account.

We believe that, in its site-specific analyses, this study has also demonstrated some promising and cost-effective ways for local public health agencies and their partner organizations to move in those directions. It is now more feasible from the standpoint of cost and time to design and implement more customized approaches. Three things account for that: the development of large computer-based information systems, technology that has dramatically reduced the cost of manipulating the data, and new institutions and groups of professionals who have learned how apply the data in an efficient and practical manner. These findings should add to the momentum of ongoing efforts at the state and national levels to support capacity building that will spread the implementation of such innovations to a larger share of the nation’s localities.