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Neighborhoods and Health:

Building Evidence for Local Policy

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Annexes

Annex A

THE NATIONAL NEIGHBORHOOD INDICATORS PARTNERSHIP

Institutions in only a handful of U.S. cities have developed the capacity to address the information needs of America's cities effectively. Twenty of them (see list at the end of this annex) have joined with the Urban Institute to form the National Neighborhood Indicators Partnership (NNIP)—a collaborative effort whose mission is to advance the development and use of local neighborhood information systems. Five features distinguish the NNIP partners:

FEATURES OF NNIP'S LOCAL PARTNERS

Integrated, recurrently updated, neighborhood information systems. All of the NNIP local partners have built advanced Geographic Information Systems with integrated, recurrently updated information on neighborhood conditions in their cities—a capacity that did not exist in any U.S. city a decade ago. This breakthrough became possible because (1) most administrative records of government agencies (for example, on crimes or births) are now computerized; and (2) inexpensive GIS software now exists that can match the thousands of addresses in these records to point locations, and then add up area totals for small geographic areas (such as blocks or census tracts),

The indicators in these systems cover topics such as births, deaths, crime, health status, educational performance, public assistance, and property conditions. Operating under long-term data-sharing agreements with the public agencies that create the base records, the partners recurrently obtain new data (annually or more frequently in some cases), integrate them into their systems, and make them available to a variety of users for a variety of purposes. Their accomplishment demonstrates that, while never easy, it is quite possible today to overcome the past resistance of major public agencies to sharing their data in this way.[45]

[45]NNIP has developed a handbook that explains the histories, philosophies, and operating methods and techniques of the original NNIP partners—see Kingsley (1999).

Action agendas and democratizing information. The way NNIP partners use their information is even more innovative. Their core mission is to support *action agendas* that will facilitate change (not just to create data and research for their own sake), and they use data as the basis for forming collaborations among stakeholders toward that end. Their focus is on improving conditions in distressed neighborhoods. Their operating philosophies are captured by the phrase *democratizing information*. They see their role as getting useful and reliable information into the hands of relevant local leaders and other actors (at the community and city-wide levels) and helping those actors use it to change things for the better. Their work has already had important practical benefits and, as their data and techniques improve, they offer the potential of yet more substantial payoffs for the effectiveness of local governance and civil society.

Benefits of a "one-stop shop." One of their most attractive features is the way they work as a *one-stop shop.* What happens today in most cities is extremely inefficient. Most community groups and service providers now recognize the need for data, to prepare winning grant applications if not to prepare more effective plans. Some city representatives we have interviewed describe the scene as one of a large number of local players constantly "falling all over each other," all spending a great deal of time and effort trying to assemble the woefully inadequate data that are presently available, but with none of them able to take on the task of building an adequate system on their own. Assigning that task to one intermediary (individual institution or partnership) and getting an adequate system built will of course entail some cost, but it is almost sure to represent a net savings in relation to the resources so many local groups are now spending on data with such unsatisfying results. And this is to say nothing of the substantial benefit that should be realized with all users having access to much richer and higher quality data than have been available in the past.

Unbiased intermediaries, focusing on the public interest over the long term. Another feature is important in this regard. Most NNIP partners are independent nonprofits. Because they are outside of government and sponsored by community foundations or other institutions whose missions are to support civic improvement over the long term, they are not seen as being aligned with any short-term political interests. This has put them in a position to earn and maintain the trust of a broad range of local stakeholders (including the many agencies that recurrently provide them with data). They make extra efforts to keep that trust: rigorously checking and cleaning data, maintaining strict protocols to protect confidentiality, and guiding users to avoid misapplications and misinterpretation. A basis for their work has been their ability to convince the data providers in their cities that all are better off by sharing data (through an unbiased intermediary) than by keeping it to themselves.

Becoming locally self-sustaining. The NNIP partners are also characterized by their pragmatism. Technical advances have allowed them to dramatically reduce the costs of data assembly, analysis, and communication. And, while they never charge neighborhood groups for their services, they bring in income to cover part of their operating costs by providing information and research to other users who are able to pay for it. Operating costs are modest. While several received funding from national foundations to get started, all either are or have definite potential to become locally self-sustaining over the long term, through a mix of fee income and general support from local businesses and foundations.

THE WORK OF THE PARTNERSHIP

NNIP was formed in 1995, with six original local partners and the Urban Institute acting as coordinator. After a reconnaissance and planning phase during that year, it began implementing its work, with funding primarily from the Annie E. Casey and Rockefeller Foundations.

NNIP operates as a *learning community*. Its benefits stem primarily from semi-annual partnership meetings at which the partners share stories of their recent experiences and accomplishments and discuss current problems in their work. The direct meetings are supplemented by one-on-one follow-up conversations. These interactions are the basis for subsequent work (by partners and Urban Institute staff) in developing guidebooks and other tools for use by others, conducting cross-site analyses, and using what they have learned as a base for helping others develop capacity in this field. The activities of NNIP can be grouped in two categories.

> *Developing tools and other products*: (1) a variety of tools (guidebooks and other products that document methods and techniques); (2) cross-site analyses of local conditions than enhance our understanding of neighborhood change nationally; (3) the regular updating of established national databases, with subsets made available to all partners.

An active program to disseminate what is being learned: (1) an electronic mailing list and web site, http://www.urban.org/nnip (with tools and reports that can be downloaded); (2) semi-annual partnership meetings; (3) NNIP conferences for broader audiences; (4) frequent presentations to interested groups around the country; and, to a limited extent so far, (5) direct technical assistance to help groups in new cities get started in building NNIP-type capacities.

NNIP Products, Tools, and Data Systems

1. Tool building. Because they are the most experienced practitioners in this field, we believe the participants in NNIP are uniquely well-equipped to prepare materials that will help others develop similar skills and to advance the state of the art. In this activity, NNIP has worked to develop and field test a variety of tools: databases, how-to handbooks, training curricula, web sites, reports, and other products. The approach has entailed work in three topical areas: (1) building databases as tools for community collaboration and action; (2) building community capacity to use data effectively; and (3) building indicators of neighborhood health and change. So far, 14 products have resulted from this work—listed in the Publications section of the web site.

2. Cross-site studies. The NNIP partners have always used their data in support of better policymaking in their own cities and metropolitan areas. NNIP's ability to assemble the partners' data in one place (see discussion of the National Neighborhood Data System below) and examine how the dynamics of neighborhood change vary across cities can offer important insights for national policy.

Two NNIP studies exemplify the potential. The first, Turner, Rubin, and Delair (1999), examined contrasts between the spatial distributions of vulnerable welfare recipients and of entry-level job openings in five NNIP metropolitan areas (modeled on the Cleveland study in the *Stories* publication on the web site). This work was the first to show that, beneath a veneer of similarity, the welfare-to-work challenges in different cities are markedly different in scope and character. The second study is described in this report.

In addition, a cross-site work that did not involve data analysis has become one of NNIP's best-selling publications: *Stories: Using Information in Community Building and Local Policy,* a compendium of 28 brief case studies on successful applications of neighborhood data by community and city-wide groups to achieve practical objectives.

3. Building the National Neighborhood Data System and analyzing neighborhood change. The system has two components. The first contains a core set of comparable census tract-level indicators, covering the 1990–2000 period, drawn from the systems of the local partners. The second integrates information from seven national data sets, mostly at the census tract level, for all parts of the country. In the 1990s, this component was used to create a set of metropolitan profiles for the 100 largest metropolitan areas and to develop a series of neighborhood profiles in cities chosen by the Casey and Rockefeller Foundations.

In 2002, NNIP incorporated 2000 census data in the form of the Urban Institute's new Neighborhood Change Data Base (NCDB). This is the only dataset that contains nationwide tract-level data from each census from 1970 through 2000 with consistently defined tract boundaries and variable definitions (work sponsored by the Rockefeller Foundation).

As new data files are added to the national system (or updates made to existing files), subsets are created for each of the partner's metropolitan areas and sent to them. The system has also been used to prepare data starters' kits (compilations of data from all of the Component 2 files) for new cities that are trying to develop NNIP-type capacities. Starters' kits (data and documentation on compact disc) have been prepared for Baltimore, Camden, Des Moines, Hartford, San Antonio, and Washington, D.C.

DISSEMINATION: FACILITATING AWARENESS AND LEARNING

1. NNIP News and the NNIP web site. NNIP operates NNIP News, an electronic mailing list that has grown rapidly since its initiation. It is designed to keep interested individuals up to date on innovations in the field and to provide opportunities for interaction. Urban Institute staff members regularly submit news items and summaries of new developments, and practitioners submit questions or issues for collegial input and response. The mailing list has proven to be a valuable tool for obtaining advice rapidly and connecting practitioners involved in similar work. The number of subscribers has grown to 394.

Through its web site, http://www.urban.org/nnip, NNIP provides information on neighborhood data systems, neighborhood indicators, and the work of the various partners (all NNIP tools and reports can be downloaded from this site). The web site serves as a clearinghouse for information about neighborhood indicators and a point of contact for those interested in connecting with other practitioners engaged in similar work.

The web site was expanded in 2002 by incorporating a much more frequent series of news entries in its "What's New" section, and by adding a new section called "Neighborhood Change in Urban America," which includes information about the Neighborhood Change Database and the results of research using that database.

2. Semi-annual partnership meetings. NNIP members meet at least twice a year, most often in Washington, D.C., at the Urban Institute. These meetings include updates on the work of the various partners, special presentations on topics of common interest or developments in the field, and discussion of NNIP's joint projects and future agendas.

3. NNIP conferences for broader audiences. NNIP has convened three special conferences for practitioners and others interested in neighborhood indicators and their

application. In October 1998, in collaboration with the National Community Building Network, NNIP convened a conference on neighborhood indicators in community building (135 participants, including NNIP partners, practitioners working on fledgling indicator systems in 11 other cities, and representatives of national agencies and interest groups). In July 2000, with support from the Annie E. Casey Foundation, NNIP organized a conference attended by 130 participants on new information technologies, including GIS and other software (similar types of participants but with representatives from 40 cities). In November 2001, NNIP (jointly with the Urban Institute Neighborhood Jobs Initiative project) convened a conference that focused on conducting community surveys (90 participants).

4. Presentations to interested groups. Urban Institute and NNIP staff frequently make presentations on NNIP--how it works, its implications, and its potentials--to national and regional conferences of groups interested in community building, local policymaking, and social indicators. A total of 57 such presentations have been made since the start of 1997; an average of 9 per year, 14 of them in 2002.

5. Direct technical assistance. Both Urban Institute and NNIP partner staffs have provided direct technical assistance (TA) to help groups in new cities get started in building NNIP-type capacities. TA topics have included setting up a new institution for these purposes, the technical aspects of developing a data warehouse, designing and applying indicators, and conducting community surveys.

The provision of this assistance has been limited by availability of funds, the time constraints of partners, and the match of practitioner needs with partners' expertise. However, since NNIP began, on-site TA has been provided to groups in seven cities: Baltimore; Camden, New Jersey; Des Moines; Hartford; Miami; Philadelphia; and Washington, D.C. In addition, one-time presentations have been made to interested groups in six others: Battle Creek, Grand Rapids, Kansas City, Louisville, New Orleans, and San Antonio.

NNIP LOCAL PARTNERS

Atlanta: Office of Data and Policy Analysis (DAPA), Georgia Institute of Technology (http://www.arch.gatech.edu/~dapa)
Baltimore: Baltimore Neighborhood Indicators Alliance (BNIA) (http://www.bnia.org)
Boston: The Boston Foundation and the Metropolitan Area Planning Council (http://www.tbf.org)
Camden, NJ: CamConnect, (http://www.camconnect.org)
Chattanooga: Southeast Tennessee Neighborhood Information Service (SETNIS), a project of the Community Council and University of Tennessee at Chattanooga (http://www.researchcouncil.net)
Cleveland: Center on Urban Poverty and Social Change, Case Western Reserve University (http://www.povertycenter.cwru.edu)
Denver: The Piton Foundation (http://www.piton.org)
Des Moines: Human Services Planning Alliance (affiliated with the United Way) (http://www.humanservicesplanningalliance.org)
Indianapolis: Social and Vulnerability Indicators Project (SAVI), a project of the United Way Community Service Council and the Polis Center (http://www.savi.org)
Los Angeles: Neighborhood Knowledge Los Angeles (NKLA), Advanced Policy Institute at the University of California Los Angeles (http://nkla.sppsr.ucla.edu)
Louisville: Community Data Center (a project of the Community Resource Network, affiliated with the United Way) (http://www.crnky.org)
Miami: Community Services Planning Center of South Florida, Florida Department of Children and Families (http://www.state.fl.us/cf_web/district11)
Milwaukee: The Nonprofit Center (http://www.execpc.com/~npcm/)
New Orleans: Greater New Orleans Community Data Center (affiliated with the United Way of Greater New Orleans) (http://www.gnocdc.org/)
Oakland: The Urban Strategies Council (http://www.urbanstrategies.org)
Philadelphia: The Reinvestment Fund (http://www.trfund.com)
Providence: The Providence Plan (http://www.providenceplan.org)
Sacramento: Community Services Planning Council (http://www.communitycouncil.org)
Seattle: Epidemiology, Planning and Evaluation Unit (EPE) Public Health—Seattle and King County (http://www.metrokc.gov/health)
Washington, D.C.: DC Agenda (http://www.dcagenda.org)

Annex B

DISPARITY INDICES

Health inequalities are of growing concern because they suggest that the advantages of good health are not equally available to everyone. Despite policies that promote public health and access to health care, health status measures show profound differences across groups. Health disparities have been clearly evident when members of racial and ethnic minorities are compared with the white population (Keppel, Pearcy, and Wagener 2002). The reduction in health disparities was one of the overarching goals of Healthy People 2000.

Another manifestation of health disparities that has not received as much public attention is place-based inequality. Studies have shown that the health of residents of certain disadvantaged neighborhoods is generally worse than the population as a whole (Geronimus 1996; Robert 1998; Roberts 1997). There are many possible explanations for these geographic patterns. Many cities are racially segregated, and segregation has been linked to poor health (Jackson et al. 2000). Moreover, poor housing, unsafe streets, and environmental contaminants might lower health status in some neighborhoods. The socioeconomic status of one's neighbors also has been suggested to have an indirect effect on health through various social influence processes (Robert 1998). Another potential factor is that some neighborhoods may be geographically situated so as make access to health care difficult. Although the causes of neighborhood health disparities are complex, there is growing concern about spatial inequalities and interest in explicitly addressing them.

If communities are to strive to reduce place-based disparities, they will need methods to determine where and to what degree such neighborhood health inequalities exist. At this point, no agreed-upon definitions or techniques are in place. Ideal methods would allow metropolitan areas to be compared on the degree to which they have neighborhood disparities. They would also allow those neighborhoods with extremely poor health to be identified. In this section, we first describe three approaches to quantifying neighborhood disparities on selected health indicators and test them using neighborhood indicators data from the five cities. After the technical description of the measures, we review the strengths and limitations of each method in revealing place-based inequality.

Methodology

The data for this analysis are four health indicators measured at the census tract level in each city. The health indicators chosen were age-adjusted death rates, teen birth rates, percentage of newborns whose mothers received prenatal care in the first trimester of pregnancy, and percentage of low-birth weight births. For each census tract, four years of data are used to achieve greater reliability. The data sources and methods used to calculate each of these indicators are described in section 2. These indicator data were used to calculate three measures of disparities among census tracts. The first technique described, the *composite disparity index,* produces a single score for a city on a particular health indicator. The next two types of indices identify the tracts that exceed a defined threshold of the health indicator based on the overall city rate.

Composite Disparity Index

The *composite disparity index* is a summary measure of the differences among the census tracts on their rates on a health indicator. It is an index of the amount of inequality among census tracts in the city. The index will be high when the indicator rates for tracts vary greatly from the overall rate of the city. This index captures extremes of both good health and poor health. The numerator of the index is the mean deviation.

The method of calculating the composite index draws upon the index of disparity for race described by Keppel and others (2002). The mean deviation was calculated by getting the absolute value for the difference in the rate of each tract and the overall rate for the city. Then all the differences were summed and divided by the number of tracts. The mean deviation was then divided by the city rate to create the index. Specifically,

$$\text{Composite Index} = \frac{\Sigma \left| X_{ij} - X_{.j} \right| / N_{ij}}{X_{.j}}$$

where X_{ij} is the rate on an indicator for tract i in city j, $X_{.j}$ is the rate on an indicator for city j, N_{ij} is the number of census tracts in the city.

Extreme Distribution Count

Extreme distribution count is a method that counts the number of census tracts at the upper end of the distribution on a selected indicator. The percentage of a city's tracts that are in the high end of the distribution will be high if the distribution is skewed at the end of the scale (or at the low end if the indicator is in the other direction). The mean of the tracts plus 1 (or 2)

standard deviation is the definition of high in this case. The notion of using the mean and standard deviation to identify neighborhoods of concern is consistent with the approach taken by Kasarda (1993) to identify disadvantaged neighborhoods.

The calculation simply compares the rate on the indicator of each tract with the mean plus one standard deviation for the whole city. The mean in this instance can be calculated either as the weighted mean of all of the tracts or as the rate for the whole city. The number of tracts that exceed this threshold is counted. The percentage of tracts that have extremely poor health is calculated by dividing the count by the total number of tracts in the city. This exercise is repeated using a two standard deviation threshold as well. In the case of percentage of births with first trimester care, we subtracted the standard deviation in order to examine the low end of the distribution.

Relative Threshold Count

Relative threshold count counts the number of census tracts that exceed twice the median for tracts in the city. The percentage of a city's tracts that are above this threshold is calculated to standardize for city size. An argument can be made for using the median rather than the mean plus standard deviation as a threshold (Hughes 1989). By definition, if the indicator is normally distributed, some tracts will exceed the mean plus one or even two standard deviations. This is due to the fact that as the variation in an indicator decreases, the standard deviation decreases. However, if an indicator is normally distributed, about two-thirds of the tracts should fall between plus or minus one standard deviation and about 95 percent should fall between plus or minus two standard deviations. Thus, some will exceed the threshold even as the gap narrows. Yet it is possible that no tract will exceed twice the median if there are no terribly unhealthy neighborhoods in the city. In other words, the use of the median is "distribution free." Thus, in a relatively geographically egalitarian city, the count of extreme tracts based on the median would be zero, while the small standard deviation in such a city could result in some fairly healthy tracts exceeding the threshold of the mean plus one or two standard deviations.

The calculation is simply a count of the number of tracts in which the rate is more than twice the median. In the case of a positive indicator, such as percentage with prenatal care, half of the median is used as the threshold. The percentage of the tracts exceeding the median is the count divided by the number of tracts in the city.

Results

Table B.1 displays the composite disparity index. For most indicators, the cities had similar index values both early and late in the 1990s. However, there are some notable

exceptions, such as the decline in death rate and teen childbearing disparity in Cuyahoga County. It can also be seen that several of the cities have greater disparity on some, but not all, indicators. Nevertheless, each city shows a fairly high degree of disparity on at least one indicator.

Table B.1
Composite Disparity Index for Health Indicators by City

	Age-adjusted death rate		Teen birth rate		Pct. prenatal care in first trimester		Pct. low birth weight	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Cleveland/Cuyahoga County	79.4	34.6	138.8	89.0	46.1	46.4	11.7	12.3
Denver	47.9	45.0	73.6	66.6	51.7	43.1	34.5	34.0
Indianapolis/Marion County	28.9	29.1	68.7	60.4	31.8	32.9	13.3	11.5
Oakland	73.5	45.9	157.2	112.2	49.6	38.8	12.1	7.3
Providence	n/a	n/a	n/a	90.3	n/a	25.7	n/a	11.7

Note: Although data were only available for the cities of Oakland and Providence, this analysis used the rates of Alameda County and Providence County as the reference points.

Tables B.2a and B.2b display the number and percentage of disparate tracts using the mean plus one and two standard deviation criteria. There is considerable variability across the cities on this measure. It can be seen, though, that very few tracts exceed the 2 standard deviation threshold, while more tracts exceed the 1 standard deviation threshold. Using this method, the most severe disparities are on the prenatal care indicator. This is in contrast to the composite disparity index, on which teen birth rate shows the highest score. The count of tracts above the mean plus one standard deviation also ranks the cities differently on inequality than does the composite score.

Table B.2a: Number and Percent of Tracts Exceeding the "Extreme Distribution Threshold" for Selected Health Indicators by City

	Number of tracts	Mean and one standard deviation							
		Age -adjusted deaths		Teen birth rate		Pct. prenatal care in first trimester		Pct. low birth weight	
		1990-94	1995-99	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Number of tracts									
Cleveland/Cuyahoga County	499	2	8	6	77	92	110	85	51
Denver	181	17	17	18	25	60	72	6	17
Indianapolis/Marion County	204	41	39	34	33	37	39	36	27
Oakland	107	1	1	1	1	19	20	19	13
Providence	37	NA	NA	NA	6	NA	5	NA	4
As percent of all tracts									
Cleveland/Cuyahoga County		0.4	1.6	1.2	15.4	18.4	22.0	17.0	10.2
Denver		9.4	9.4	9.9	13.8	33.1	39.8	3.3	9.4
Indianapolis/Marion County		20.1	19.1	16.7	16.2	18.1	19.1	17.6	13.2
Oakland		0.9	0.9	0.9	0.9	17.8	18.7	17.8	12.1
Providence		NA	NA	NA	16.2	NA	13.5	NA	10.8

Table B.2b: Number and Percent of Tracts Exceeding the "Extreme Distribution Threshold" for Selected Health Indicators by City

	Mean and Two Standard Deviations							
	Age -adjusted death rate		Teen birth rate		Pct. prenatal care in first trimester		Pct. low birth weight	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Number of tracts								
Cleveland/Cuyahoga County	2	2	6	17	14	23	15	10
Denver	4	6	5	3	39	41	3	6
Indianapolis/Marion County	2	5	7	8	6	3	6	5
Oakland	1	1	1	1	3	3	3	4
Providence	NA	NA	NA	1	NA	0	NA	1
As percent of all tracts								
Cleveland/Cuyahoga County	0.4	0.4	1.2	3.4	2.8	4.6	3.0	2.0
Denver	2.2	3.3	2.8	1.7	21.5	22.7	1.7	3.3
Indianapolis/Marion County	1.0	2.5	3.4	3.9	2.9	1.5	2.9	2.5
Oakland	0.9	0.9	0.9	0.9	2.8	2.8	2.8	3.7
Providence	NA	NA	NA	2.7	NA	0.0	NA	2.7

Table B.3 presents a similar count, but twice the median is used to establish the threshold. This method generally identifies a greater number of tracts as exceeding the threshold. Cleveland, in particular, stands out as having a greater percentage of tracts that are classified as extreme according to this method. In fact, the rank order of the cities changes depending upon whether a median or mean plus standard deviation criterion is used.

Table B.3
Number and Percent of Tracts Exceeding the " Relative" Threshold for Selected Health Indicators by City

	Number of tracts	Twice the median							
		Age -adjusted death rate		Teen birth rate		Pct. prenatal care in first trimester		Pct. low birth weight	
		1990-94	1995-99	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Number of tracts									
Cleveland/Cuyahoga County	499	15	8	162	153	7	13	64	42
Denver	181	3	1	26	17	38	41	6	0
Indianapolis/Marion County	204	1	1	40	23	1	1	3	6
Oakland	107	4	4	7	4	2	2	1	2
Providence	37	NA	NA	NA	0	NA	0	NA	1
As percent of all tracts									
Cleveland/Cuyahoga County		3.0	1.6	32.5	30.7	1.4	2.6	12.8	8.4
Denver		1.7	0.6	14.4	9.4	21.0	22.7	3.3	0.0
Indianapolis/Marion County		0.5	0.5	19.6	11.3	0.5	0.5	1.5	2.9
Oakland		3.7	3.7	6.5	3.7	1.9	1.9	0.9	1.9
Providence		NA	NA	NA	0.0	NA	0.0	NA	2.7

Table B.4 shows how the cities are ranked on each indicator according to the three indices. For each of the indicators, the composite index shows a rather different ranking than do the two counts of extreme tracts based on either medians or mean plus standard deviation criteria.

Table B.4
City Disparity Rankings on Selected Health Indicators by Ranking Method

Age-adjusted death rate	Composite Disparity Index		Mean and one standard deviation		Twice the median	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Cleveland/Cuyahoga Cnty	4	2	1	2	3	3
Denver	2	3	3	3	2	2
Indianapolis/Marion County	1	1	4	4	1	1
Oakland	3	4	2	1	4	4
Providence	n/a	n/a	n/a	n/a	n/a	n/a

Teen birth rate	Composite Disparity Index		Mean and one standard deviation		Twice the median	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Cleveland/Cuyahoga Cnty	3	3	2	3	4	5
Denver	2	2	3	2	2	3
Indianapolis/Marion County	1	1	4	4	3	4
Oakland	4	5	1	1	1	2
Providence	n/a	4	n/a	5	n/a	1

Pct. low birth weight	Composite Disparity Index		Mean and one standard deviation		Twice the median	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Cleveland/Cuyahoga Cnty	2	5	2	2	4	5
Denver	4	4	1	1	3	1
Indianapolis/Marion County	1	2	3	5	2	4
Oakland	3	3	4	4	1	2
Providence	n/a	1	n/a	3	n/a	3

Pct. prenatal care in first trimester	Composite Disparity Index		Mean and one standard deviation		Twice the median	
	1990-94	1995-99	1990-94	1995-99	1990-94	1995-99
Cleveland/Cuyahoga Cnty	1	4	3	4	2	4
Denver	4	5	4	5	4	5
Indianapolis/Marion County	3	2	2	3	1	2
Oakland	2	1	1	2	3	3
Providence	n/a	3	n/a	1	n/a	1

Discussion

The measures of health disparity differ from one another in several ways. Because the composite indicator provides a single score for the city, it can be used to compare among cities or compare a city with itself over time to see whether it is becoming less unequal. The other two methods identify specific neighborhoods that exceed a threshold of poor health. The number of such neighborhoods can be useful information to the city for planning health programs and determining how to target health resources. The percentage of such neighborhoods is a useful measure to compare cities with one another or to compare a region of changing size over time. Because the three approaches to measurement differ, it is possible for a city to display inequality on the composite index but to have no tracts that exceed the threshold for disparity in the other two indices. It is also conceivable that a city could have a few tracts with extremely poor health, but if the vast majority of tracts were quite similar on an indicator, the composite index would have a relatively low value.

An important limitation of any of these indices, though, is that they are influenced by the geographic boundaries of the metropolitan area used in the analysis. In this study, the central city or central county is used. If, instead, the entire metropolitan region had been analyzed, the results would have been different. Moreover, some of our geographic areas contain affluent suburbs, while others do not. For example, for the Cleveland study, we had access to data for the entirety of Cuyahoga County, in which Cleveland is located. The county contains many suburban municipalities, including some of the most affluent neighborhoods in the state. The analysis for Providence, though, focuses only on the city of Providence and does not include affluent suburban neighborhoods. In general, if the designated region is more economically homogenous, the disparities will seem less pronounced. This is due to the fact that the mean, median, or rate for the region is used as the basis for calculating the indices. If most of the census tracts are close to this measure of central tendency, the disparities will be small. Even if the overall health of the region is poor, there will be little inequality because all tracts are similarly poor in their health. Thus, researchers and planners making comparisons must carefully consider the choice of the regional as well as neighborhood boundaries.

A feature of all of these indices that should be noted is that they derive their reference point from within the city/county itself. For example, the *extreme distribution count* uses the rate on the indicator for the whole city/county in the calculation. An alternative would be to use a national rate in this calculation. If a national rate were used, the disparity for neighborhoods in the city would be relative to the nation. Such a count would not only reflect differences across the city but differences between the city and the nation on health indicators. National rates are available for many health indicators, especially those based on birth and death certificates. However, if a national rate is used it is important to be sure that the local indicators are being calculated using a similar methodology.

Despite these ambiguities and limitations, there is value in attempting to measure inequality and identify neighborhoods in which health indicators are extremely poor. The existence of neighborhood health inequality points to the need to examine the factors that may be responsible for such patterns. It also raises important questions about whether health care resources are being distributed in a fair and effective manner. Information about health disparities can be used to mobilize the community to address these conditions and monitor their progress.

Annex C

SUPPLEMENTARY TABLES

Table C.1: Sources for Local Analysis

City	Health data source
Cleveland, OH	Ohio Department of Health
Denver, CO	Denver County Department of Public Health and Environment
Indianapolis, IN	Marion County Health and Hospital Corporation
Oakland, CA	Alameda County Public Health Department
Providence, RI	Rhode Island Department of Health

City	Crime data source
Cleveland, OH	Cleveland Police Department and Cuyahoga County Regional Information System
Denver, CO	Denver Police Department
Indianapolis, IN	Indianapolis Police Department
Providence, RI	Providence Police Department

Tables C.2 – C.30 are available in a separate file in Excel format.