Excerpt from

Neighborhoods and Health:

Building Evidence for Local Policy

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Part 1

Site-Specific Analysis

Section 2

CLEVELAND: USING MEDICAID CLAIMS TO MEASURE CHILDREN'S ACCESS TO PRIMARY CARE

PURPOSE AND APPROACH

This section summarizes the site-specific analysis prepared by the Center on Urban Poverty and Social Change at Case Western Reserve University in Cleveland.[5] It focuses on the relationship between neighborhood conditions and residents' access to primary health care.

Access to health care is obviously recognized as an important determinant of health. It is also suspected that access is generally low for residents of poor neighborhoods, because sufficient facilities and services do not exist in or near those neighborhoods and/or because other barriers (e.g., the lack of health insurance, cultural barriers) prevent them from accessing those that do exist. One noted indication is the tendency of the poor to visit hospital emergency departments to deal with problems that more affluent Americans typically take to their regular family doctor. However, the lack of neighborhood-level indicators of health access has prevented significant research on the issue to this point.

Data Source: Medicaid Files

The Center's staff reasoned that Medicaid claim and encounter records would be a good source of data to shed more light on the issue—data from the state of Ohio's Department of Jobs and Family Services. A large share of all low-income families are enrolled in Medicaid, and the records for each family contain information on their address and on much of the health care they receive.

[5] The study is fully documented in an as yet unpublished report of the Center on Urban Poverty and Social Change Mandel School of Applied Social Sciences, Case Western University: *Neighborhood Health Indicators in Greater Cleveland: The Use of Medicaid Claims to Measure Children's Access to Primary Care*, by Claudia Coulton, Kristen Mikelbank, Katherine Offutt, Engel Polousky and Siran Koroukian. 2002.

The Center has an established reputation with the state, having done a considerable amount of research for state agencies in the past, and it was able to obtain access to the files in time to conduct this analysis within our project's time constraints. The files for the study contained the records for all children from Cuyahoga County who were between birth and 6 years of age between July 1998 and June 1999.

Indicators and Methods

The staff selected two types of indicators that could be created from the files. The first was comprehensive preventative visits (CPVs) to doctors during a child's first year of life. They developed four specific indicators in this category: (1) percentage of newborns with a CPV before 3 months; (2) percentage of infants with no CPV from birth to age 1; (3) percentage of infants with five or more CPVs from birth to age 1; and (4) average number of CPVs for infants from birth to age 1. The second category contained two indicators dealing with visits to hospital emergency departments (EDVs): (1) monthly average percentage of children under 6 with an EDV and (2) annualized number of EDVs per child under 6.

The analysis consisted of relating each of the above indicators at the neighborhood level to a series of other neighborhood measures from the census and other administrative records as maintained in the Center's information system (indicators of age and racial/ethnic composition and family type along with various rates, such as inadequate prenatal treatment, low-birth weight births, child maltreatment, violent crime, poverty, and employment). The staff employed mapping analysis as well as correlation analysis to examine these relationships.

FINDINGS AND IMPLICATIONS

Hypotheses and main findings

The correlation coefficients resulting from this ecological analysis are presented in table 2.1, and maps showing spatial patterns for two of the indicators are presented in figure 2.1. Findings are noted under the four hypotheses posed by the staff.

Table 2.1
Correlation Coefficients: Health Access Indicators with Neighborhood Conditions

	Early initiation of CPV	No CPVs	All CPVs	Average CPVs	Percent with ED visit per month	Annualized ED visits
ECONOMIC INDICATORS						
Poverty rate	-0.07	0.11	-0.16*	-0.18**	0.13**	0.13**
Poverty rate for children under age 6	-0.07	0.09	-0.12	-0.14*	0.19**	0.18**
Employment rate for males age 16 and over	0.08	-0.06	0.1	0.09	-0.08	-0.06
Employment rate for females age 16 and over	0.04	-0.05	0.09	0.11	-0.06	-0.06
RACE/FAMILY STRUCTURE INDICATORS						
Percent white	0.04	-0.05	0.15*	0.09	-0.12**	-0.11*
Percent black	-0.04	0.03	-0.13*	-0.07	0.10*	0.10*
Percent hispanic	0.03	0.13*	-0.12	-0.14*	0.17**	0.16**
Percent of households with children under age 18 that are female-Headed	-0.04	0.09	-0.20**	-0.18**	0.23**	0.22**

Note: CPV is an abbreviation for comprehensive preventative visits.
ED is an abbreviation for emergency department.

** Correlation is significant at the .001 level.

* Correlation is significant at the .05 level.

1. That health care utilization measures would be related to other measures of health and safety. This hypothesis holds, but not strongly or uniformly. The percentage of infants with no CPVs is correlated with the percentage of births with inadequate prenatal care. The percentage of infants receiving CPVs and the average number of CPVs show weak but significant negative correlations with low-birth weight rates, unmarried birth rates, and child maltreatment rates. Indicators reflecting reliance on EDVs are positively correlated with health problem indicators but uncorrelated with measures of safety across tracts. The fact that EDV use correlates positively with the rate of inadequate prenatal care suggests that these types of indicators may be sensitive to a similar problem of shortage of primary care providers.

Figure 2.1: Percent of Children Enrolled in Medicaid Who Had 5 Comprehensive Prenatal Visits in the First Year of Life in Cuyahoga County 1998-99

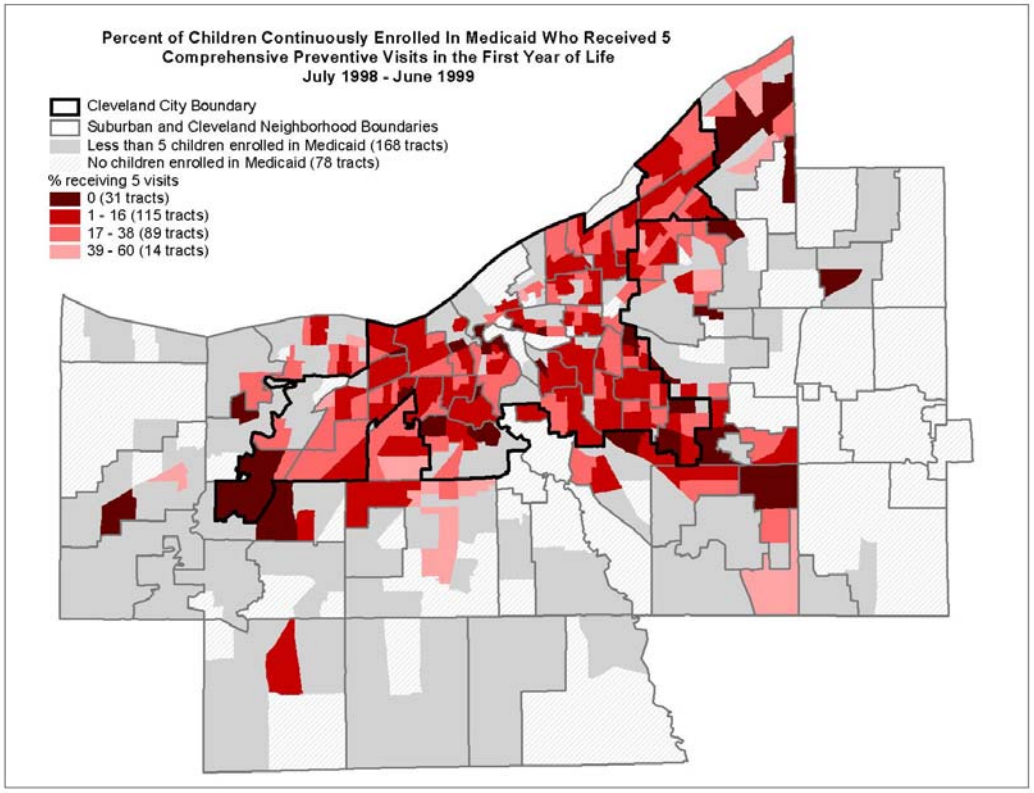
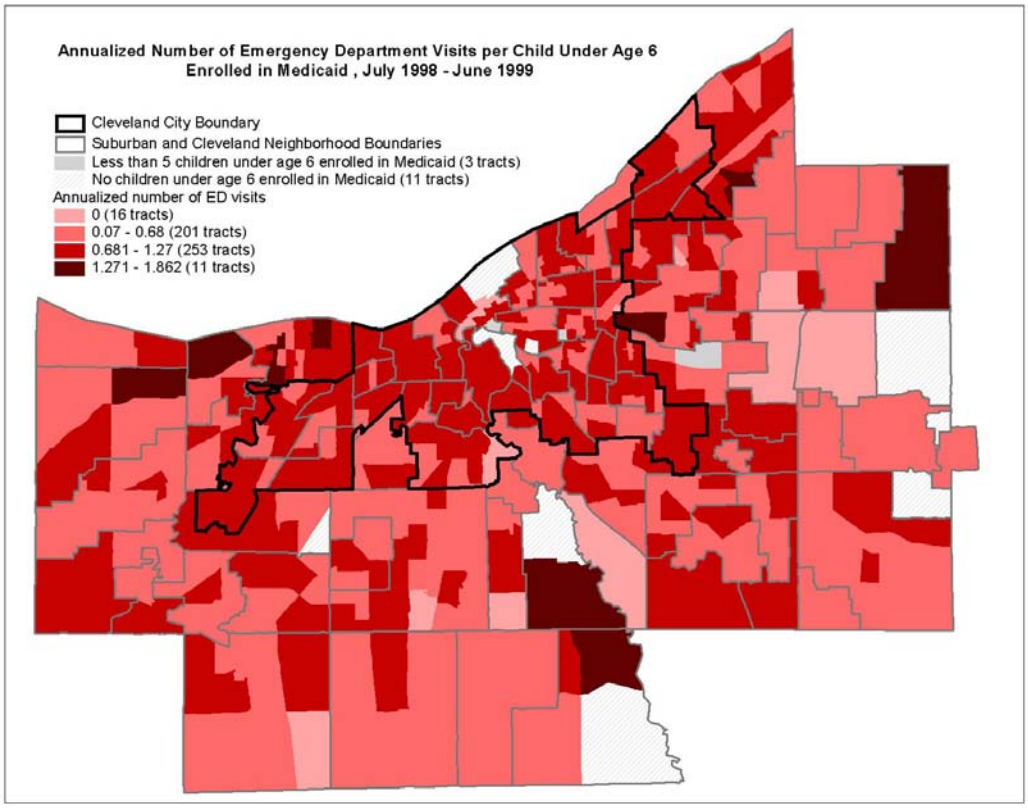


Figure 2.2: Annualized Number of Emergency Department Visits Per Child Under Age 6 Enrolled in Medicaid, July 1998- July 1999



2. That low-income neighborhoods would have lower scores on the new health care access indicators. None of the economic indicators correlate with the rate of newborn CPVs or with the percentage of infants with no CPVs. This suggests that efforts to provide preventive services to residents of poor neighborhoods have been successful. However, the fact that there is a weak negative correlation of neighborhood poverty and receipt of all visits suggests there may be some remaining difficulties in achieving complete access. In contrast, this hypothesis clearly holds for the relationship between EDVs and poverty (although there is no correlation between any of these indicators and employment rates).

3. That there would be relationships between race, ethnicity, and family structure measures and health care access. This hypothesis appears to hold for the most part. None of the indicators correlate with the rate of newborn CPVs. However, census tracts with higher Hispanic populations are more likely to have infants who receive no CPVs during their first year. Tracts with large numbers of African Americans have fewer infants who receive all of their CPVs in the first year. The percentage of African Americans and Hispanics is positively correlated with EDVs for children under 6. The percentage of households with children that are headed by females is negatively correlated with the rate at which infants receive CPVs in their first year and positively correlated with EDV rates.

4. That a neighborhood's distance from primary care sites would lead to poorer performance on the health care access indicators. The Center was unable to get the addresses of all primary care providers in the region from the state to test this hypothesis. However, an alternative approach was possible using the state's listing of tracts identified as "Health Professional Shortage Areas" by comparing the rates on the new indicators that had this shortage designation with the rates in all other tracts.[6] Major differences were not evident in all cases, but a significantly lower share of infants in shortage areas get all five of their CPVs (13.8 percent) than in areas with no shortage (17.2 percent; *t* value = -2.48, $p < .05$). Also, the average number of annual EDVs was higher in shortage areas (0.75) than in areas without shortage (0.66; *t* value = 4.04, $p <. 001$).

Implications

All of the findings were certainly not as expected. The ideal of primary care has been for all children to have a "medical home"—a place where they can get regular preventive or well-child care and can also receive medical treatment for acute or chronic illnesses that are appropriately treated by pediatricians in their clinics and offices. The researchers had initially assumed that CPVs were indicative of access to preventive care, one aspect of primary care.

[6] For a full discussion of the criteria and locations of Health Professional Shortage Areas, see the Health Resources and Services Administration web site at http://bhpr.hrsa.gov/shortage/.

However, they did not have a direct way of measuring access to primary care providers for illnesses.

Instead, the Center chose to measure a negative indicator: the frequency of EDVs. The assumption was that high EDV rates would be a proxy for the lack of access to primary care for illnesses. The Center recognized that some EDVs, especially for trauma or critical conditions, were appropriate, but it has not yet perfected a method for removing the “true emergency” EDVs from the counts.

In an additional analysis, the researchers showed that CPVs and EDVs were not correlated with each other at the census tract level. This suggests that these two types of indicators are measuring different things. It is possible that they are measuring two unrelated aspects of primary care access or that one of them is not an indicator of access but responds to other factors.

The researchers’ assumption, though, is that families have more difficulty getting in to see a primary doctor when their children are ill than for well-child visits. Sick visits might be difficult for several reasons. Families that do not own an automobile may find it difficult to take a sick child to the doctor or clinic during normal business hours. They may need to wait until someone gets off work to drive them and, by that time, only the emergency services are open. Or these families may have a sense that illnesses are urgent and may not be comfortable waiting for an appointment with a primary care provider. Another possibility is that clinics and doctors’ offices that serve these families for their well-child care are overcrowded and cannot readily schedule same-day sick visits, which are often needed for young children who are ill.

Another unexpected finding was that several of the measures of CPV rates were not correlated with poverty or other economic indicators at the neighborhood level. This may reflect the fact that local agencies and the managed care organizations have made a concerted effort to reach out to poor families to ensure that they receive their needed well-child visits. Thus, these indicators do not show any ecological correlations because the usual barriers have been removed. Deeper study (interviews and analysis of other administrative data) would be required to find out whether this is the correct interpretation. Whatever the result, it would seem advisable to monitor these relationships in the future.

Data limitations and potentials

Center staff encountered a number of difficulties in preparing these data for analysis. Extra work was required to avoid double counting where more than one claim was made for an event. Also, a simplifying assumption was needed to avoid excess complexity arising from the fact that children can move several times during their year of birth (it was decided to use the census tract at birth for all of a child's CPVs). Another difficulty was that data could not be provided for tracts with fewer than five children on Medicaid, to protect confidentiality. In addition, data for other tracts had to be removed from the analysis because of the rare events issue discussed earlier in this report—a problem that could be addressed in the future by averaging over several years, assuming the data will continue to be provided.

The Medicaid data also have some obvious coverage limitations. First, these files contain no data on children who are privately insured or are otherwise not enrolled in Medicaid. Nor do they have data on children who were not enrolled for periods of time for various reasons (to address the latter, staff included only children who were continuously enrolled during the year). Also, some events are missed because of services provided by public health clinics and other providers that do not seek reimbursement from Medicaid.

Nonetheless, these data do have a great deal to say about a large population of interest. Given the difficulties, the fact that Center staff were able to edit and analyze these data successfully is important evidence. It certainly suggests that more extensive use could be made of them in Cleveland and that local data intermediaries in other cities might be able to take advantage of them as well. Relevant offices in other states may be able to provide similar data for similarly controlled studies. For future work in Cleveland, the research would be even more valuable if the additional information sought by the Center but not received could be obtained: data on addresses of all Medicaid service providers and on non-EDV visits related to illnesses.

The data clearly fill a void in local knowledge—at present, local officials and advocates have virtually no recurrently provided information on how types and levels of primary health care vary across neighborhoods for low-income populations. Such data would appear extremely useful for program management, policymaking, and public accountability, especially if monitored recurrently.

Community Process

The Early Childhood Initiative (ECI) in Cuyahoga County has chosen as one of its goals a "medical home" for every child under age 6. Its initial focus has been on newborns and their parents. The ECI is very interested in using the indicators in this report as a way of measuring its own progress. It has already succeeded in expanding Medicaid enrollment to virtually all of

the county's uninsured children. The new indicators of access to primary care will allow the ECI to determine whether there are particular neighborhoods that need to be targeted for assistance with access to primary care. Moreover, these indicators can be disaggregated in other ways, such as by age or program status, which will allow ECI to refine its approach. Since the indicators have just been reported at the time of this writing, it will be several months before all of the potential uses become apparent.