

Asthma Hospital Discharges in Chicago - Racial Disparity

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Introduction

The following brief report contains interpretation and analysis of asthma data from Chicago hospital discharges. Data tables for the summary sections are included in the back of this report.

The purpose of this analysis was to draw conclusions about asthma hospitalizations across a number of factors, such as race, geography, and time, in Chicago.

Data Sources

Illinois Hospital Discharge Data, 1999-2001

The collection of hospital discharge data is not federally mandated. Each state that chooses to collect hospitalization data sets their own standards for collection and management of the information. Hospitals in Illinois were required to report discharge data to the Illinois Health Care Cost Containment Council (IHCCCC) through June 2002, after which the Illinois Department of Public Health (IDPH) commenced the collection of the hospital discharge data. Both administrative bodies have been required to maintain the quality and release of the data. The IDPH has not established release policies at this time and data are not currently available for 2002 to the present.

Records were selected with a principal (first listed) diagnosis code of asthma. Variables used in this analysis from the hospital discharge data file for Chicago are

- year of hospitalization (1999-2001)
- zip code (smallest available area of geographic analysis)
- age
- primary payer of hospitalization



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U.S. Census 2000

Because there is no race or ethnicity information available in hospital discharge data files (in Illinois, race information is not collected for patient-level data) we elected to use zip code as a proxy for race. Zip codes were identified as predominantly one race if there was 67% or greater dominance of one race in a zip code. Using this definition, we identified 27 predominantly one race zip codes (37 were not classified as having one predominant race), 13 predominantly African-American and 14 predominantly white (see the included map). The population of the 27 identified zip codes is approximately 1.35 million, or 47% of the total population of Chicago. Using this proxy for race classification, we compared individual zip codes as well as aggregated zip codes (by race) for asthma hospitalizations.

Analysis

In addition to proxy race, we compared hospital discharge data by age groups (0-17, 18-64, and 65+), by year (1999-2001), and by primary payer for the hospitalization, with an emphasis on public insurers.

Findings

In total, these data represent approximately 55% of all asthma hospitalizations in Chicago from 1999-2001. The overwhelming burden of asthma hospitalizations in these regions was found to be carried by the predominantly African-American zip codes: **85% of the 15,986 asthma hospitalizations from 1999 to 2001** in the 27 identified zip codes. Relative to all of Chicago (total population or all zip codes), the asthma hospitalizations in the predominantly African-American zip codes represent 47% of the total asthma hospitalizations from 1999-2001 (versus about 8% for the predominantly White zip codes). These data do not show year to year variability for asthma hospitalizations between predominantly White and predominantly African-American zip codes (Chart 1).

Over the three-year period only one predominantly White zip code (60606) had a consistently higher asthma hospitalization rate than any of the predominantly African-American zip codes. However this finding is not reliable statistically since there were only 51 asthma hospitalizations in 60606 collectively from 1999-2001.



Over the three-year period, the lowest risk predominantly African-American zip code was more than twice the rate of the highest risk predominantly White zip code (excluding zip code 60606). There was over a 12-fold difference between the highest risk and lowest risk zip codes in the study, with a predominantly African-American zip code having the highest risk and a predominantly White zip code having the lowest risk (Table 3).

Aggregating all asthma hospitalizations by predominant race of zip code, clear differences also exist: 1999-2001 asthma hospitalization rate for African-American zip codes was **4.6 times higher** than predominantly White zip codes, i.e., asthmatics living in predominantly African-American zip codes are 4.6 times more likely to be hospitalized for asthma than asthmatics living in predominantly White zip codes, using total population as the denominator (Table 3). Calculated slightly differently, using estimated asthmatic population in zip code type as exposure population, asthmatics living in predominantly African-American zip codes are approximately **3 times more likely** to be hospitalized for asthma than asthmatics living in predominantly White zip codes. (Estimated asthmatic population was calculated by multiplying the estimated percentage of asthmatics in Chicago for non-Hispanic Whites and non-Hispanic African-Americans, by the total population of each of the two zip code categories.)

Some of the differences between predominantly White and African-American zip codes may be due to a somewhat higher prevalence of asthma in the African-American population than in the White population, but the actual number of cases does not explain differences in the outcome.

Asthma Hospital Discharge Data: Hospitalization Discharge Primary Payer

Asthma poses a high public burden in terms of care and cost. The public has a substantial investment in paying for the care and management of asthma, and it should be reiterated that with proper care and management, asthma hospitalizations are largely preventable. It is estimated from the Chicago BRFSS 2001 data that 5.6% of asthmatics use Medicaid as their primary payer for health insurance, compared to 3.2% of non-asthmatics (3.4% overall in Chicago).

Below, primary payer for asthma hospital discharges is compared between predominantly African-American zip codes and predominantly White zip codes (also see Table 2).



- 60% of asthma hospitalization in predominantly African -American zip codes were paid by public insurance (Medicare or Medicaid) compared to roughly 40% in predominantly White zip codes
- Over the three-year period, 43% of asthma hospitalizations in predominantly African -American zip codes were paid by Medicaid, and an additional 12% were paid by Medicare
- In predominantly White zip codes, 17% of asthma hospitalizations were paid by Medicaid and an additional 23% were paid by Medicare

Summary

- , 85% of the 15,986 asthma hospitalizations from 1999-2001 (in the 27 zip codes selected) occurred in predominantly African -American zip codes.
- , 47% of all asthma hospitalizations in all of Chicago occurred in predominantly African -American zip codes, compared to 8% in predominantly White zip codes.
- , Predominantly African -American zip codes were consistently ranked higher for asthma hospitalization rates from 1999-2001.
- , There was a 12-fold difference in asthma hospitalization rate from the highest risk zip code rate to the lowest risk , with a predominantly African -American zip code having the highest rate and a predominantly White zip code having the lowest.
- , Asthmatic individuals living in predominantly African-American zip codes are at least 3 times more likely to be hospitalized for asthma than asthmatic individuals living in predominantly White zip codes.



, Individuals from predominantly African-American zip codes are more than twice as likely to use Medicaid as the primary payer for asthma hospitalizations than individuals from predominantly White zip codes.

, Despite only 5.6% of asthmatics report that they use Medicaid as their primary payer for health insurance, over 40% of asthma hospitalizations for predominantly black zip codes are paid with Medicaid (compared to 17% of White zip codes).

, Overall for Chicago, approximately 50% of all asthma hospitalizations are paid for by public funds (Medicare and Medicaid).



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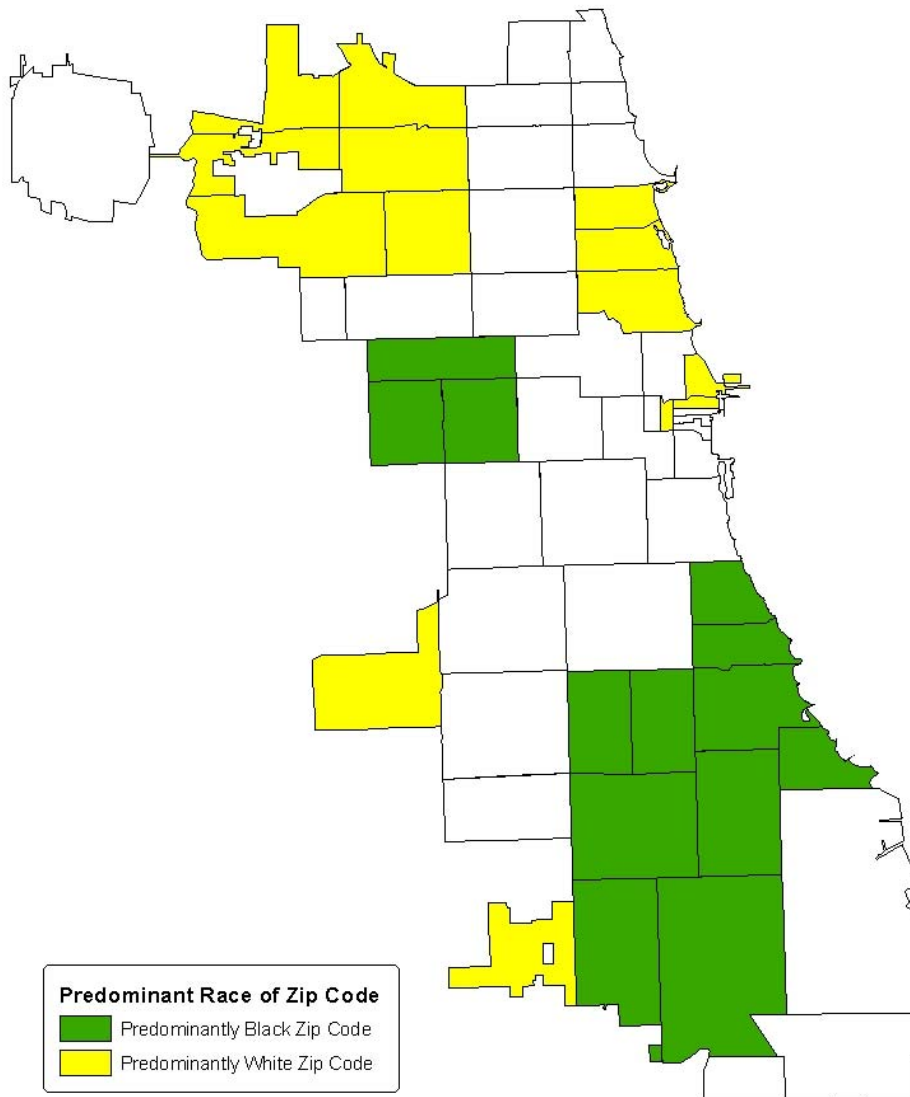


Figure 1 Map of Analysis Zip Codes

Table 1: Asthma Hospitalization Discharges for 27 Selected Chicago Zip Codes, 1999-2001

	Predominantly Black	Predominantly White	Total
1999	4,785	818	5,603
2000	4,802	744	5,546
2001	4,137	700	4,837
Total	13,724	2,262	15,986

*The above table only represents the 27 zip codes identified as predominantly one race

Chart 1: Asthma Hospitalizations by Predominant Race Zip Codes

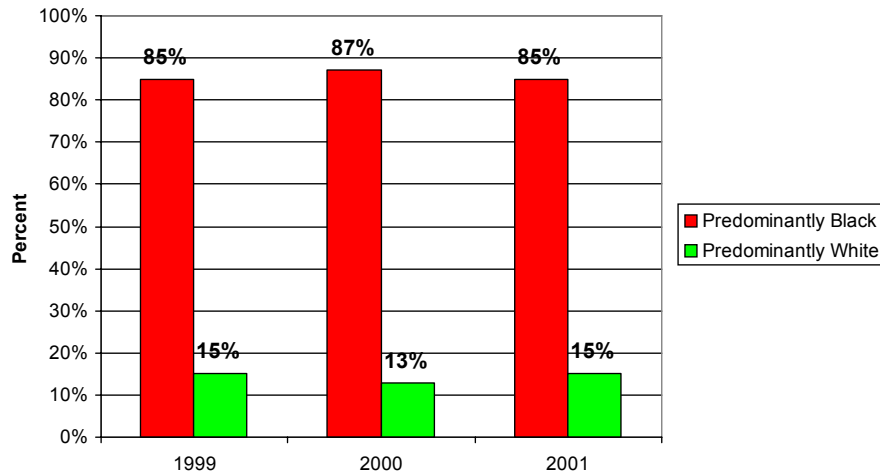


Table 2: Primary Payer by Predominant Race Zip Code

Primary payer	Predominantly Black Zip Code	Predominantly White Zip Code
Medicaid	42.9%	17.5%
Commercial	22.8%	38.9%
Medicare	12.0%	23.5%
Self-pay	11.8%	6.1%
HMO	5.5%	8.8%
Self-Administered	0.2%	1.6%
Other	4.2%	3.1%

Table 3: Asthma Hospitalization Rates for Selected Chicago Zip Codes, 1999-2001

Zip Code	Rate per 100,000	Asthma Cases	Predominant Race
60624 (overall worst rate)	1047.9	1435	Black/ African American
60657 (overall best rate)	81.7	164	White
60643 (best African-American rate)	369.7	583	Black/ African American
60641 (worst white rate)	163.9	363	White
Aggregate African-American rate	591.1	13,724	na
Aggregate white rate	128.4	2,262	na



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