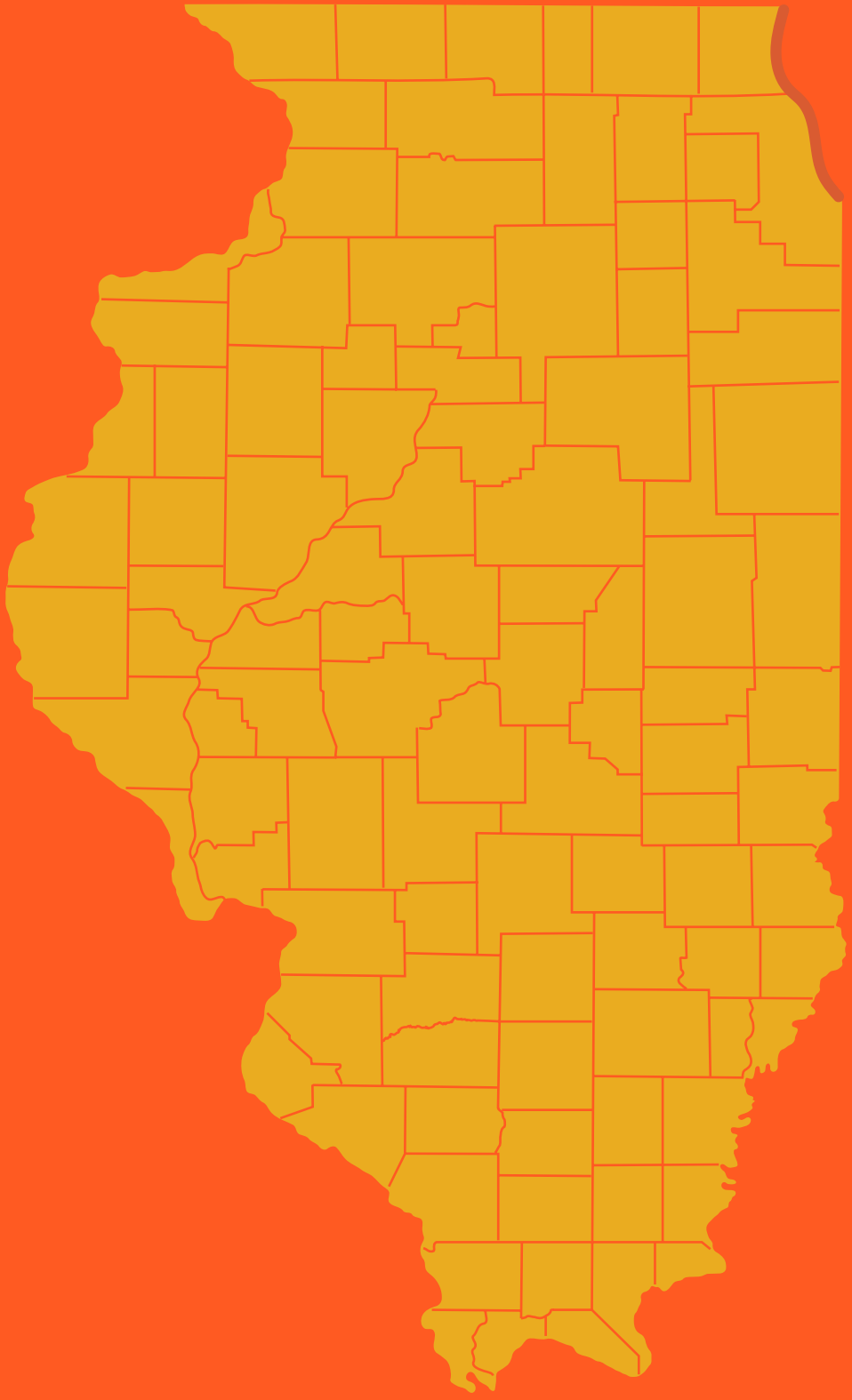

Transformation Data & Community Needs Report

HTC
Healthcare Transformation Collaboratives

CHICAGO-WEST

October 2022

This report was prepared by the University of Illinois at Chicago School of Public Health and Institute for Healthcare Delivery Design for the Illinois Department of Healthcare and Family Services. This report details the findings and methods for a study we conducted to understand health outcomes and community needs in socially vulnerable areas in the State of Illinois.

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Contents

Executive Summary

Healthcare policies enacted during the past decade incentivize healthcare systems receiving public funding to be more accountable for health outcomes in the communities that they serve. These policies are reflected in many forms, including triennial community needs assessments, value-based care models, accountable care organizations, and integrated health home models of care, among others. In spite of these efforts to change the status quo, poor health outcomes and health inequities persist, especially in communities with underlying social vulnerabilities. This reality suggests the need for a new approach.

In recognition of this need, the Illinois Department of Healthcare and Family Services (HFS) in 2019 initiated a healthcare transformation program with the goal of providing healthcare systems and other health-related organizations with financial assistance to transform services and care models to better meet communities' unmet needs. HFS engaged the Institute for Healthcare Delivery Design and the School of Public Health at the University of Illinois at Chicago (UIC) to develop an approach to measure health needs in Illinois communities with high rates of social vulnerability and to use that data to direct transformation funding to reduce existing health disparities and improve the health of Illinoisans. The approach developed by the UIC team combines analysis of Medicaid hospital utilization data for specific areas of the state with input from community members who were primarily, but not exclusively, publicly insured, gathered during in-depth conversations conducted by community-based organization partners to give a fuller picture of communities' wants and needs.

Community input combined with data analysis converged around a set of disease groups and conditions driving hospitalizations, each of them frequent, resource intensive, and contributing to poor health outcomes—and for which hospital-level care can be avoided with outpatient care, coordination of treatment, and community-based supports. These key disease groups and conditions are:

- mental illness, in particular bipolar and depressive disorders
- substance use disorders, especially alcohol and opioid use disorders
- a subset of "ambulatory care sensitive conditions" or ACSCs: hypertensive diseases, diabetes, chronic obstructive pulmonary disease (COPD)/asthma, and heart disease

By definition, ACSCs are health conditions for which either good outpatient care can potentially prevent the need for hospitalization or early intervention can prevent complications and progression to more severe disease. The same can be said for substance use disorders and bipolar and depressive disorders.

Access to quality primary and specialty care is critical to decreasing hospital-level care for ACSCs, mental illnesses and substance use disorders. However, as this report highlights, there's a lack of access to this care for vulnerable populations. Often, this lack of access is driven by social, economic, and other "social-determinant-of-health" barriers

that people face in achieving health (for example, lack of access to transportation; lack of access to affordable, healthy food; unemployment; community violence). In other words, this is a problem that sits within both the healthcare system and within the social fabric of communities.

Creating a middle ground in which hospitals and communities work together to achieve better health outcomes can become the basis for transformation that enables and sustains healthier lives. More specifically, this report's findings suggest that transformation efforts concentrate on building and strengthening linkages between clinical care and community-based needs and services. In other words, transformation should focus on "clinic-community linkages" that provide primary and secondary care plus community-based wraparound services to help people manage chronic illnesses, mental illnesses, and substance use disorders and reduce social-determinant-of-health barriers to care and treatment. **Improving health outcomes for these diseases and conditions can be achieved only if social determinants of health are addressed as part of healthcare delivery.**

Clinic-community linkages leverage the treatment expertise of healthcare systems, the on-the-ground knowledge of community-based organizations, and the trust that residents have in those organizations to support a more active approach to chronic disease management. In addition, clinic-community linkages can be a way to restore trust in the healthcare system in socially vulnerable communities and hold the promise of increasing engagement in healthcare over time. If healthcare systems and communities can adopt these new ways of engaging with one another, the current healthcare delivery paradigm will shift from siloed and transactional to relationship-based and collaborative.

The data in this report is intended as a resource for hospitals, legislators, community-based organizations, and other key stakeholders to help them focus, prioritize, and plan efforts to address and more effectively manage the most frequent and resource-intensive diseases and conditions in a culturally competent manner and to produce better, more sustainable health outcomes that are equitable and just.

The UIC research team completed a series of analyses to establish the recommendations in this report as follows:

1: Identified areas in Illinois with the greatest concentration of social vulnerability to health inequities and poor health outcomes

2: Examined the most frequent and resource-intensive diseases driving Medicaid enrollee hospitalizations in 5 of these socially vulnerable areas and discovered a set of disease groups and conditions for which access to quality outpatient care can prevent the need for hospitalization

3: Engaged community members from socially vulnerable areas in conversations and identified barriers to outpatient care, disease prevention, and treatment adherence

4: Synthesized findings from the data analyses and the community conversations to define transformation opportunities for stimulating outpatient care access and reducing the social barriers to care and treatment

Detailed findings from each of these analyses follow, with particular attention on findings for West Chicago.

Detailed Findings

1: Identified areas in Illinois with the greatest concentration of social vulnerability to health inequities and poor health outcomes

The Center for Disease Control's Social Vulnerability Index combines a number of factors such as poverty, lack of access to transportation, and crowded housing into an overall measure of vulnerability by census tract. Areas with higher levels of social vulnerability are more susceptible to health problems. This measure was a key index used in this study to determine the areas of Illinois with the highest levels of social vulnerability, areas susceptible to health inequities.

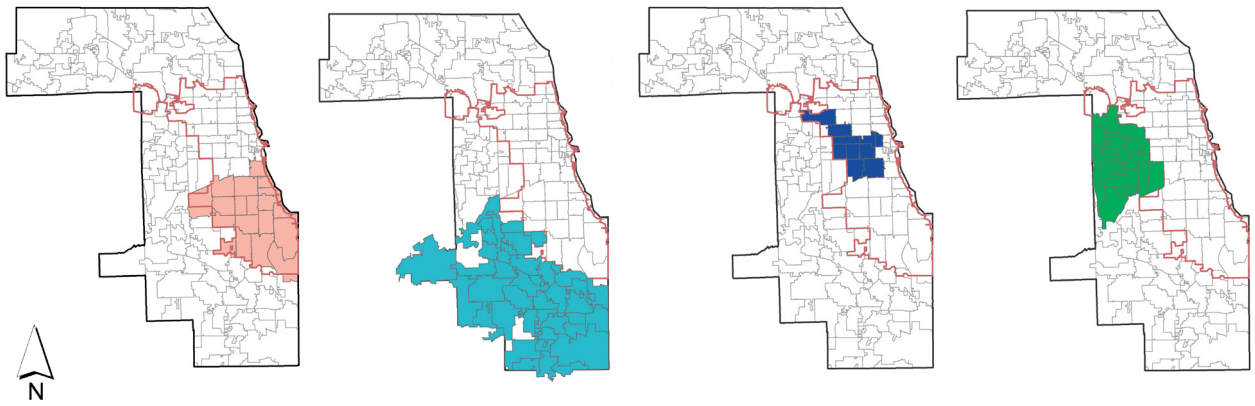
To identify Illinois areas with high social vulnerability and high susceptibility to health inequities, counties were analyzed individually and, where applicable, in combination, corresponding to Illinois metropolitan and micropolitan statistical areas designated by the U.S. Office of Management and Budget (OMB) (1). Population density, U.S. census-derived indicators of social vulnerability and socioeconomic distress, demographic factors, and history guided the selection of the study areas analyzed for this report. Racially and ethnically diverse population centers are often characterized by marked social and economic contrasts causally associated with health inequities by race and place (2–4). "Place stratification"—in which institutional factors (for example, structural racism) prevent minorities, especially black and brown Americans, from using their socioeconomic means to access communities with greater resources and opportunities—has been implicated in these inequities (5, 6). Significant health gaps also exist between rural and urban residents in Illinois. These include higher rates of smoking and obesity-related health problems, overdose deaths, and being uninsured (7). Decreased spatial accessibility to healthcare providers and services in rural areas only exacerbates vulnerability to the health inequities as a consequence of geography.

Research for this project focused on 9 of the most socially vulnerable areas in Illinois:

- 4 areas within Cook County—the South Side of Chicago (South Chicago), the West Side of Chicago (West Chicago), South Cook County (South Cook), and West Cook County (West Cook)
- 5 areas outside of Cook County—the Danville Metropolitan Statistical Area (Danville), the East St. Louis Metropolitan Statistical Area (East St. Louis), the Marion Health Region, the Peoria Metropolitan Statistical Area (Peoria), and the Rockford Metropolitan Statistical Area (Rockford)

This report contains data findings from the 4 socially vulnerable areas in Cook County (see Figure 1), with particular attention on findings for West Chicago, and contains community-input findings from West Chicago.

Figure 1: Study Areas with Zip Code Boundaries and Zip Code Table



Data Source: https://www.census.gov/cgi-bin/geo/shapefiles ; Coordinate System: NAD_1983_StatePlane_Illinois_East_FIPS_1201_Feet

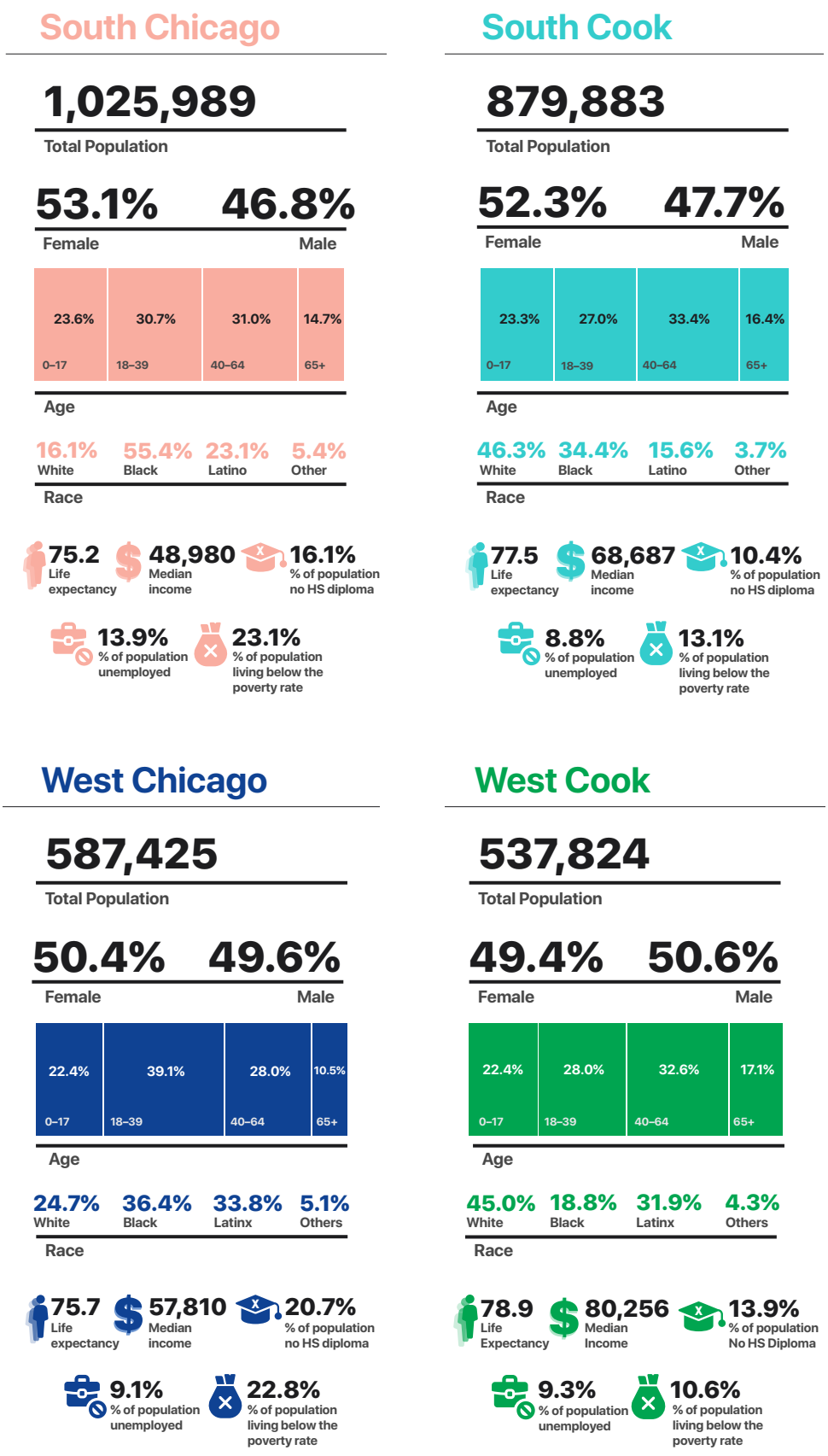
South Chicago Zip Codes (19)				
60609	60619	60629	60636	60652
60615	60620	60631	60638	60653
60616	60621	60632	60643	60655
60617	60628	60633	60649	

South Cook Zip Codes (44)				
60406	60429	60456	60466	60478
60409	60430	60457	60467	60480
60411	60438	60458	60469	60482
60415	60439	60459	60471	60487
60419	60443	60461	60472	60501
60422	60445	60462	60473	60803
60425	60452	60463	60475	60805
60426	60453	60464	60476	60827
60428	60455	60465	60477	

West Chicago Zip Codes (10)				
60608	60622	60624	60639	60644
60612	60623	60634	60642	60651

West Cook Zip Codes (27)				
60104	60155	60171	60402	60707
60130	60160	60176	60513	60804
60131	60162	60301	60525	60546
60141	60163	60302	60526	
60153	60164	60304	60534	
60154	60165	60305	60558	

Figure 2: Demographic Traits of Study Areas[1]



[1]Total population figures listed here are estimates.

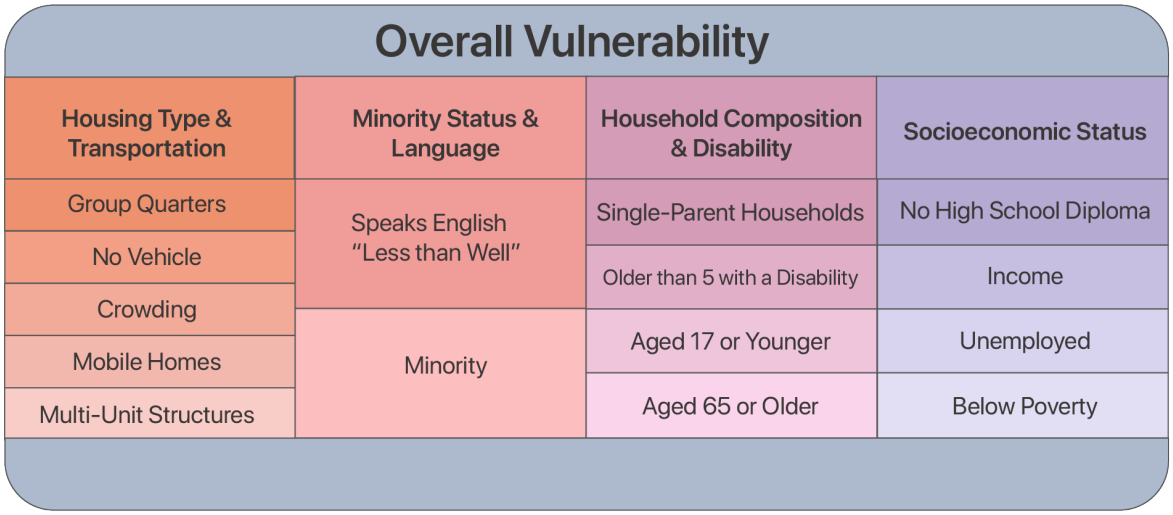
Data Source: U.S. Census Bureau American Community Survey Subject Tables 5-Year estimates, 2019. Tables S0101, B0101B, B0101C, B0101D, B0101E, B0101H, and B0101I, https://www.census.gov/acs/www/data/data-tables-and-tools/subject-tables/

The process used to identify areas in Illinois with high social vulnerability is as follows:

1. *Geographical areas defined:* 3 types of geographical areas were defined for the analysis: metropolitan statistical areas (MSA[1]), micropolitan statistical areas (µSA[2]), and counties that were neither. In Illinois, MSAs are usually composed of multiple counties, whereas µSAs are typically a single county. Included as an area is the Marion Health Region, which consists of MSAs, µSAs and freestanding counties. See Table 1.

2. *Social vulnerability measured:* Social Vulnerability Index (SVI) percentile rankings for all Illinois counties were obtained from the U.S. Centers for Disease Control and Prevention (CDC) (8, 9). Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health, such as natural or human-caused disasters and disease outbreaks (10). The CDC's Social Vulnerability Index (CDC-SVI) uses 15 U.S. census-derived social factor variables, including poverty, lack of vehicle access, and crowded housing, and groups them into 4 related themes: socioeconomic status, household composition, race/ethnicity/language, and housing/transportation (see Figure 3). Since the county-level CDC-SVI percentiles are standardized to the state, "scores" for individual counties ranged from 0 to 100.

Figure 3: Social Vulnerability Index Themes and Variables. 5-Year Estimaes from the American Community Survey (ACS), 2014–2018



[1]An MSA is a geographical region with a relatively high population density at its core and close economic ties throughout the area. It is composed of one or more counties (or equivalents) anchored by an urban center of at least 10,000 people plus adjacent counties that are socioeconomically tied to the urban center by commuting and employment.

[2]A uSA generally has fewer than 50,000 people.

For MSAs and μSAs composed of more than one county, the CDC-SVI percentile score for the entire geography was calculated based on the population-weighted average of the state-standardized CDC-SVI percentile ranks for the component counties.

Note: The Marion Health Region, one of the 7 Illinois Department of Public Health (IDPH) Regions, is located in the south/southeast section of the state (11). The Marion Health Region includes all 3 types of geographies (MSAs, μSAs, and freestanding counties), and, in contrast to the other 6 health regions, the SVI percentile scores of nearly all of its counties were above average. This is a particularly rural area of the state and, when analyzed individually at the MSA, μSA, or county level, doesn't reflect the widespread social vulnerabilities in this area. However, when analyzed collectively, in this case using IDPH's definition of this region, it can more effectively be recognized for the level of social vulnerability that exists here.

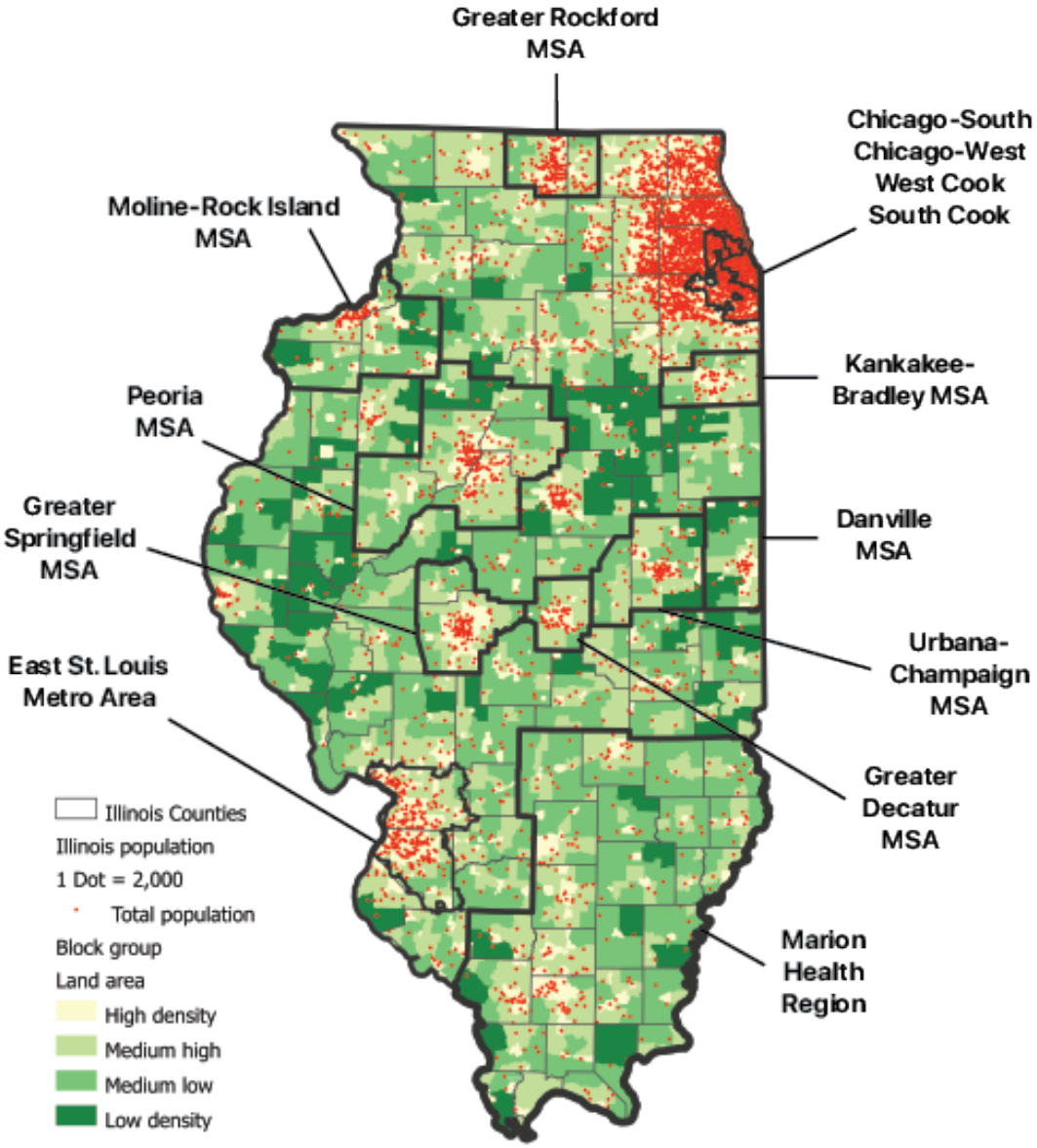
3. *Geographical areas ranked based on CDC-SVI percentile scores:* Geographical areas were ranked based on CDC-SVI percentile scores. Areas with scores >50 ("above average") [n = 35] were designated as potential priority locations (see Figure 4).

4. *Most socially vulnerable areas identified using zip code–level data:* Last, CDC-SVI percentile scores at the zip code level—where available—were used to help identify areas within counties and counties within statistical areas that were driving above average scores in geographical areas (see the last column in Table 1). Zip codes in each geographical area that were designated by the state as being disproportionately impacted by the economic effects of COVID-19 ("disproportionately impacted areas" or [DIAs]) (12) were also identified (see bolded zip codes in the last column of Table 1).

The findings in this report are organized around the socially vulnerable areas in Cook County: South Chicago, South Cook, West Chicago, and West Cook.

(Separate reports have been complied for the following socially vulnerable areas in Illinois: Danville, East St. Louis, the Marion Health Region, Peoria, and Rockford.)

Figure 4: Areas in Illinois[1] with Above Average (> 50th Percentile) Social Vulnerability Index Scores



[1] This map does not include 6 micropolitan Illinois areas that have above average Social Vulnerability Scores. These areas are contained in Table 1.

Table 1: Statewide Scan of Areas in Illinois with Above Average (>50th Percentile) Social Vulnerability Scores

1. Whole or Partial Metropolitan Statistical Areas (MSA) [8]

Areas with CDC Social Vulnerability Index Percentile Score > 50[1]	*Pop. Count*[2]	*CDC-SVI%-tile Score*[3]	*Percentile Score-Driving County, City, or Other Geography [SVI score]*	*Pop. Count*[2]	*Sample of Zip Codes w/ SVI Score > 754*[4] *("most vulnerable")*
Danville [Vermillion CTY]	75,758	98.0			**61832**
Bradley-Kankakee [Kankakee CTY]	109,862	91.1			60901, 60950, 60958
Rockford	336,116	88.1	Winnebago Cty [93.1]	282,572	61101, 61102, 61103
Chicago–South	1,026,829	87.6			**60621, 60636, 60637**
Chicago–West	590,175	83.5			**60623, 60624, 60644**
Decatur [Macon CTY]	104,009	78.2	Decatur, IL [77.5]	85,381	**62522, 62523, 62526**
Moline-Rock Island [Rock Island CTY]	206,229	69.0	Rock Island, IL [86.0]	141,879	**61201, 61443**
Springfield [Sangamon CTY]	197,661	60.4			62701, 62702, 62703
East St. Louis Metro[5]	522,652	58.8	East St. Louis [93.6]	55,995	**62201, 62203, 62204**
West Cook	529,407	58.0			**60104, 60153, 60804**
South Cook	895,830	56.6			**60472, 60501, 60827**
Champaign-Urbana [Champaign CTY]	209,448	53.5			**61801, 61820**
Peoria	400,561	50.1	Fulton, Cty [82.2], Peoria, Cty [77.2]	55,995	62201, 62203, 62204
Total	5,256,685				

2. Micropolitan Statistical Areas (μSA) [6]

Macomb, IL [McDonough CTY]	29,682	72.2			–
Freeport, IL [Stephenson CTY]	44,498	68.3			**61032**
Pontiac, IL [Livingston CTY]	35,648	62.4			–
Jacksonville, IL	38,609	61.2	Morgan Cty [67.3]	33,658	–
Galesburg, IL [Knox CTY]	51,453	60.2	Galesburg, IL [74.7]	33,964	**61401**
Charleston–Mattoon, IL	61,387	59.7	Coles Cty [66.3]	50,621	–
Total	261,277				

Table 1 Continued

3. Marion Health Region

Areas with CDC Social Vulnerability Index Percentile Score > 50[1]	*Pop. Count*[2]	*CDC-SVI%-tile Score*[3]	*Percentile Score-Driving County, City, or Other Geography [SVI score]*	*Pop. Count*[2]	*Sample of Zip Codes w/ SVI Score > 75*[4] *("most vulnerable")*
Statistical areas [5]					
Mount Vernon, IL µSA [Jefferson CTY]	37,684	97.0			**62846, 62864, 62872**
Centralia, IL µSA [Marion CTY]	37,205	95.1			**62801, 62882**
Cape Girardeau, MO-IL MSA [Alexander CTY]	5,761	94.9			62914
Paducah, KY-IL µSA [Massac CTY][6]	13,772	94.1			–
Carbondale-Marion MSA	136,764	72.9	Jackson [87.1]	58,551	**62901, 62902, 62903**
Other Marion Health Region Counties [15]					
Saline	23,491	99.0			62930, 62946
Lawrence	15,678	96.0			62460, 62466
Union	16,653	92.1			**62906**
Pulaski	5,335	85.2			–
Perry	20,916	84.2			–
Clay	13,184	83.2			62879
Franklin	38,469	86.1			–
Fayette	21,336	79.2			–
White	13,537	74.3			–
Gallatin	4,828	72.3			62934, 62954, 62984
Hardin	3,821	71.3			62919, 62931, 62947
Richland	15,513	65.4			–
Wayne	16,215	64.4			62885, 62886
Pope	4,177	56.4			–
Crawford	18,667	51.5			–
Total	463,006				

[1]CDC-SVI: https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

[2]American Community Survey 2014–2018 5-Year Estimates: https://data.census.gov/cedsci/all?d=ACS%205-Year%20Estimates%20Detailed%20Tables

[3]From CDC based on 2018 estimates: https://www.atsdr.cdc.gov/placeandhealth/svi/data_documentation_download.html

[4]Zip-code level SVI scores were sourced from Covid-19 Healthcare Coalition/Mitre: https://c19hcc.org/resource/vulnerable-population

[5]St. Clair and Madison Counties

[6]Highest zip code = 62960, Metropolis (pop. ~ 11,250)

Last, a bolded zip code means that is also designated as being a disproportionately impacted area (DIA) due to COVID-19 by the Illinois Department of Commerce and Economic Opportunity: https://www2.illinois.gov/dceo/SmallBizAssistance/Pages/C19DisadvantagedBusGrants-test.aspx

2: Examined the most frequent and resource-intensive diseases driving Medicaid enrollee hospitalizations in the study areas and discovered a set of disease groups and conditions for which access to quality outpatient care can prevent the need for hospitalization

Once the areas of Illinois with the highest SVI scores were determined, the next step was to develop a true understanding of health outcomes for the most vulnerable population in each area. To measure health outcomes across study areas, FY2019 and FY2020 Medicaid patient-level utilization data was analyzed. (Note: the FY2020 data contains data from March to June 2020, the initial 3 months of the COVID-19 pandemic.)

Three data sets were analyzed: an "institutional" data set, a "noninstitutional" data set, and a "recipient file" data set. The institutional data set contained Medicaid recipients' healthcare encounters (inpatient admissions, outpatient visits, and ED visits) at hospital/medical center systems. Key fields in this data set included the following:

- hospital system provider name (system in which the healthcare encounter occurred)
- zip code of hospital system provider (where the encounter occurred)
- recipient ID
- recipient zip code (indicating home address of recipient)
- service type (inpatient, outpatient, or renal)
- ER indication (indicates if the encounter is an emergency room visit)
- admission and discharge dates
- ICD-10 code and description (principal diagnosis for the encounter)
- Diagnosis related group (DRG) code

The noninstitutional data contained Medicaid recipients' outpatient visits to independent healthcare providers. Key fields in this data set included the following:

- provider type and description
- category of service and description
- provider zip code
- recipient ID
- recipient zip code (indicating home address of recipient)
- behavioral health indication (indicates if encounter is for behavioral health)
- service date
- ICD-10 code and description (principal diagnosis for the encounter)

(Note: FY2019 and FY2020 noninstitutional data was not available for analysis due to technical issues related to data size. See the "Limitations and Opportunities for Future Research" section of this report for more details as well as information about additional data-analysis constraints.)

The recipient file data set contained demographic data for Medicaid recipients in each study area, specifically sex, date of birth, and race data by unique recipient ID. (Note: Age at time of encounter was derived from recipient date of birth.)

The insitutional and recipient data sets represent hospitalization and ED visit encounters for FY2019 and FY2020 for all Medicaid recipients living within the zip codes of areas defined in this study

(specifically, all recipients with home zip codes within the study areas). In other words, the data track hospital and ED utilization by Medicaid recipients living in the study areas, regardless of where that care took place.

Key to analyzing the data was categorizing International Classification of Diseases, Clinical Modification (ICD-10-CM) codes, the principal diagnosis for a healthcare encounter. To bucket these diagnosis codes into analytic categories, the data analysis team used the Centers for Medicare & Medicaid Services' (CMS) 2020 ICD-10-CM Tabular List of Diseases and Injuries (https://www.cms.gov/Medicare/Coding/ICD10/Downloads/2020-Coding-Guidelines.pdf). This structured list of diagnosis codes is divided into 21 chapters based on body system or condition. Each chapter contains disease or injury blocks and the ICD-10 codes that make up those blocks (so the hierarchy is ICD-10 code > block > chapter). The chapters of the CMS ICD-10-CM Tabular List of Diseases and Injuries are as follows:

Chapter Number and Title	*ICD-10 Code Range*
1 Certain infectious and parasitic diseases	A00–B99
2 Neoplasms	C00–D49
3 Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	D50–D89
4 Endocrine, nutritional, and metabolic diseases	E00–E89
5 Mental, behavioral, and neurodevelopmental disorders	F01–F99
6 Diseases of the nervous system	G00–G99
7 Diseases of the eye and adnexa	H00–H59
8 Diseases of the ear and mastoid process	H60–H95
9 Diseases of the circulatory system	I00–I99
10 Diseases of the respiratory system	J00–J99
11 Diseases of the digestive system	K00–K95
12 Diseases of the skin and subcutaneous tissue	L00–L99
13 Diseases of the musculoskeletal system and connective tissue	M00–M99
14 Diseases of the genitourinary system	N00–N99
15 Pregnancy, childbirth, and the puerperium	O00–O9A
16 Certain conditions originating in the perinatal period	P00–P96
17 Congenital malformations, deformations, and chromosomal abnormalities	Q00–Q99
18 Symptoms, signs, and abnormal clinical and laboratory findings, not elsewhere classified	R00–R99
19 Injury, poisoning, and other consequences of external causes	S00–T88
20 External causes of morbidity	V00–Y99
21 Factors influencing health status and contact with health services (includes the diagnoses codes for live-born infants)	Z00–Z99

Initial Analyses

After getting to know the data sets via review of fields and variables, running histograms of variables, and doing basic data cleaning and new data creation (for example, patient age at time of the patient encounter), the data analytics team produced an initial set of descriptive statistics.

For the institutional data set, these initial analyses included looking at the distribution of healthcare encounters by demographic data (inpatient hospitalizations and ED visits by race, age, and sex by study area) and market share of hospitals receiving Medicaid patients by study area (see Appendix A for graphs of this data).

Initial analyses also included looking at the distribution of health outcomes, specifically the frequency distribution of chapters and blocks for inpatient hospitalizations. These analyses provided a basic picture of utilization and health outcomes.

Across FY2019 and FY2020, healthcare encounters related to childbirth (Chapters 21 and 15) were the most frequent driver of hospital utilization. The vast majority of these childbirth encounters were normal or relatively uncomplicated. Following childbirth, the next most frequent hospital-level encounters included mental disorders, circulatory diseases, and respiratory diseases (Chapters 5, 9 and 10). See Figure 5.

Figure 6 displays the most frequent blocks. Three of the most frequent hospitalization blocks in West Chicago, for both FY2019 and FY2020, are related to pregnancy or childbirth: maternal care related to the fetus and amniotic cavity and possible delivery problems; complications of labor and delivery; and, in 2020, other obstetric conditions, not elswhere classified. These blocks point to complications related to pregnancy, childbirth, or postpartum. However, frequency distributions of the ICD-10 codes that make up these disease blocks show that most complications are mild and not preventable and are often, in fact, common issues related to childbirth. For example, in West Chicago, one of the top complications is first and second degree perineal lacerations during delivery, a common, treatable occurrence during childbirth (see Figure 7).

Otherwise, the top most frequent hospitalization blocks for West Cook are mood [affective] disorders; schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders; mental and behavioral disorders due to psychoactive substance use; other bacterial diseases (in particular, sepsis); and, in 2019, hypertensive diseases.

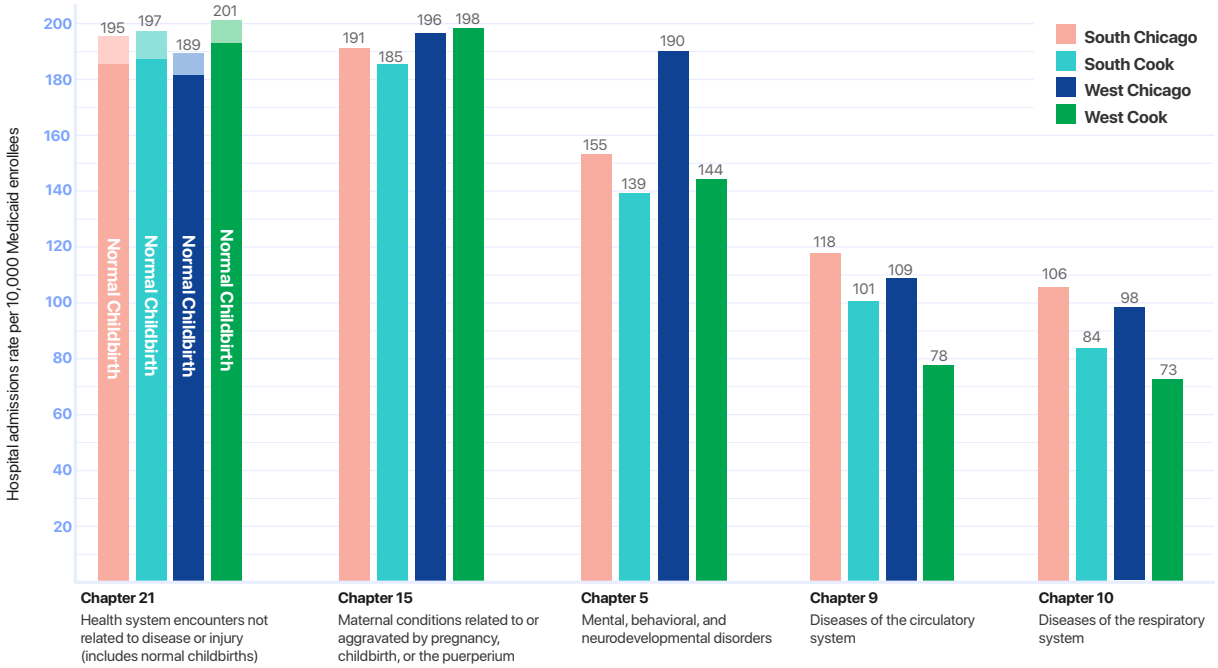
Pairing Frequency and Readmission Data

To provide a more detailed understanding of health outcomes, hospitalization frequency data was paired with readmission rates, with readmission rates being a measure of "resource intensiveness."

Readmission was defined for each patient per disease block based on the total number of inpatient admissions. To calculate readmissions for a disease block, the data analytics team subtracted one from each patient's total number of admissions within that disease block during the year. So, if a patient in a particular disease block had only one admission, the number of readmissions was 0. An average readmission rate was calculated for each disease block and represents the average number of

Figure 5: Top 5 Most Frequent Inpatient Hospitalization Chapters by Study Area
(Frequency expressed as rate per 10,000 Medicaid enrollees)

2019



2020

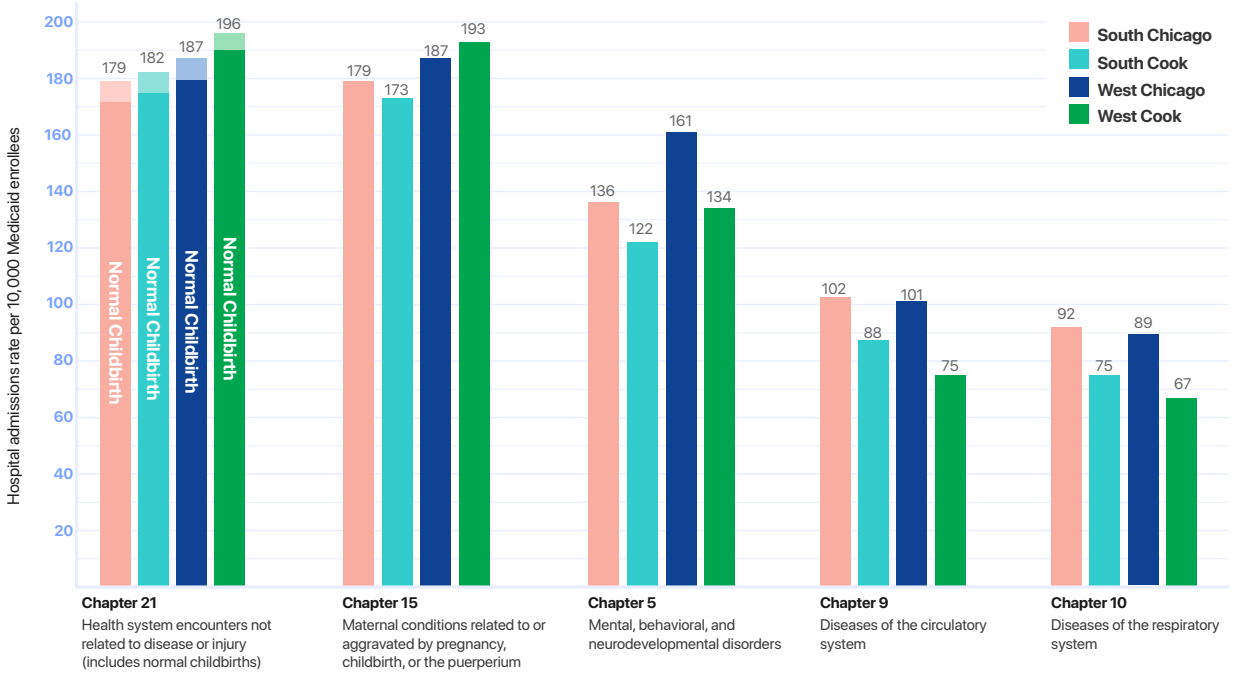
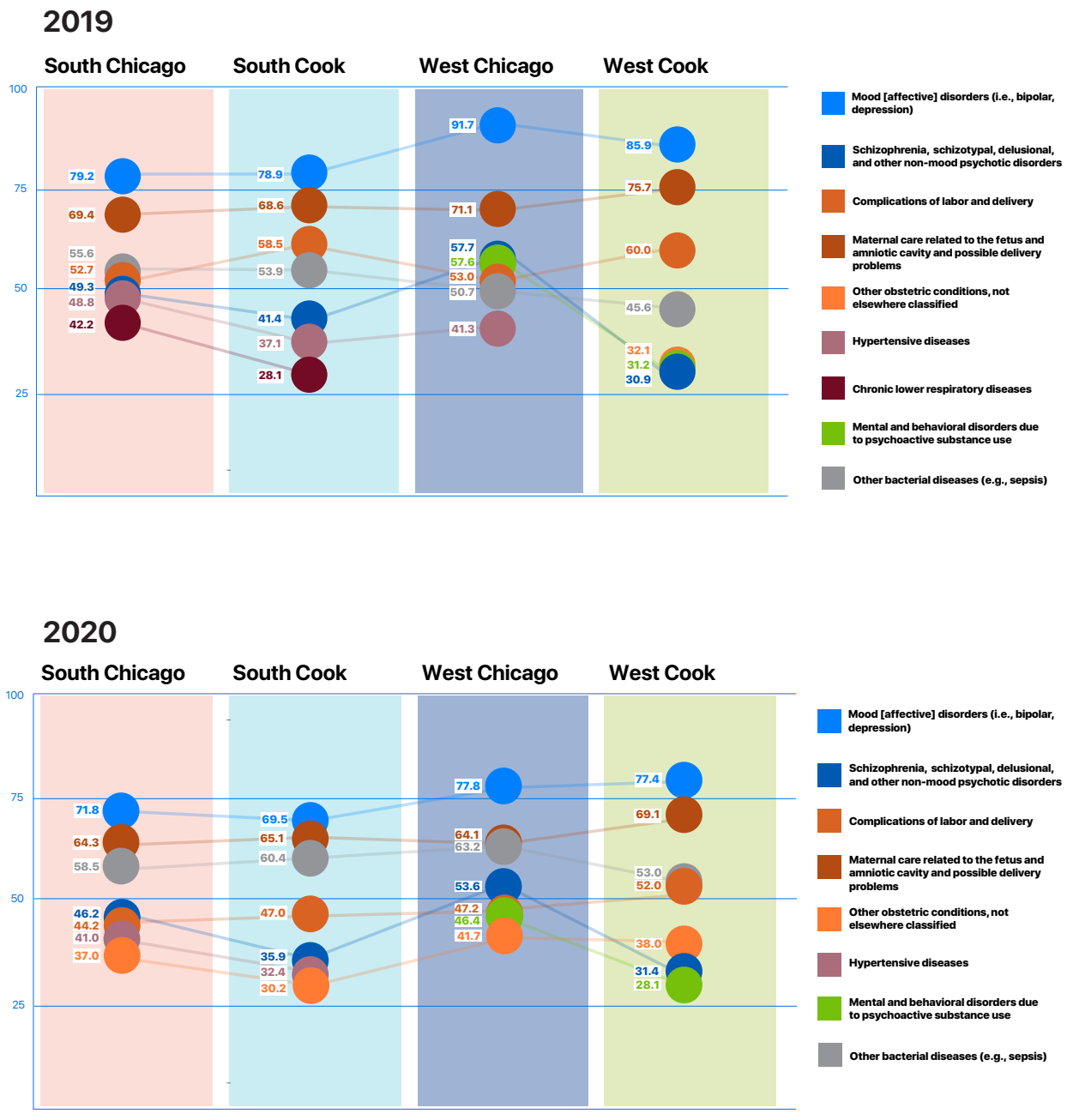
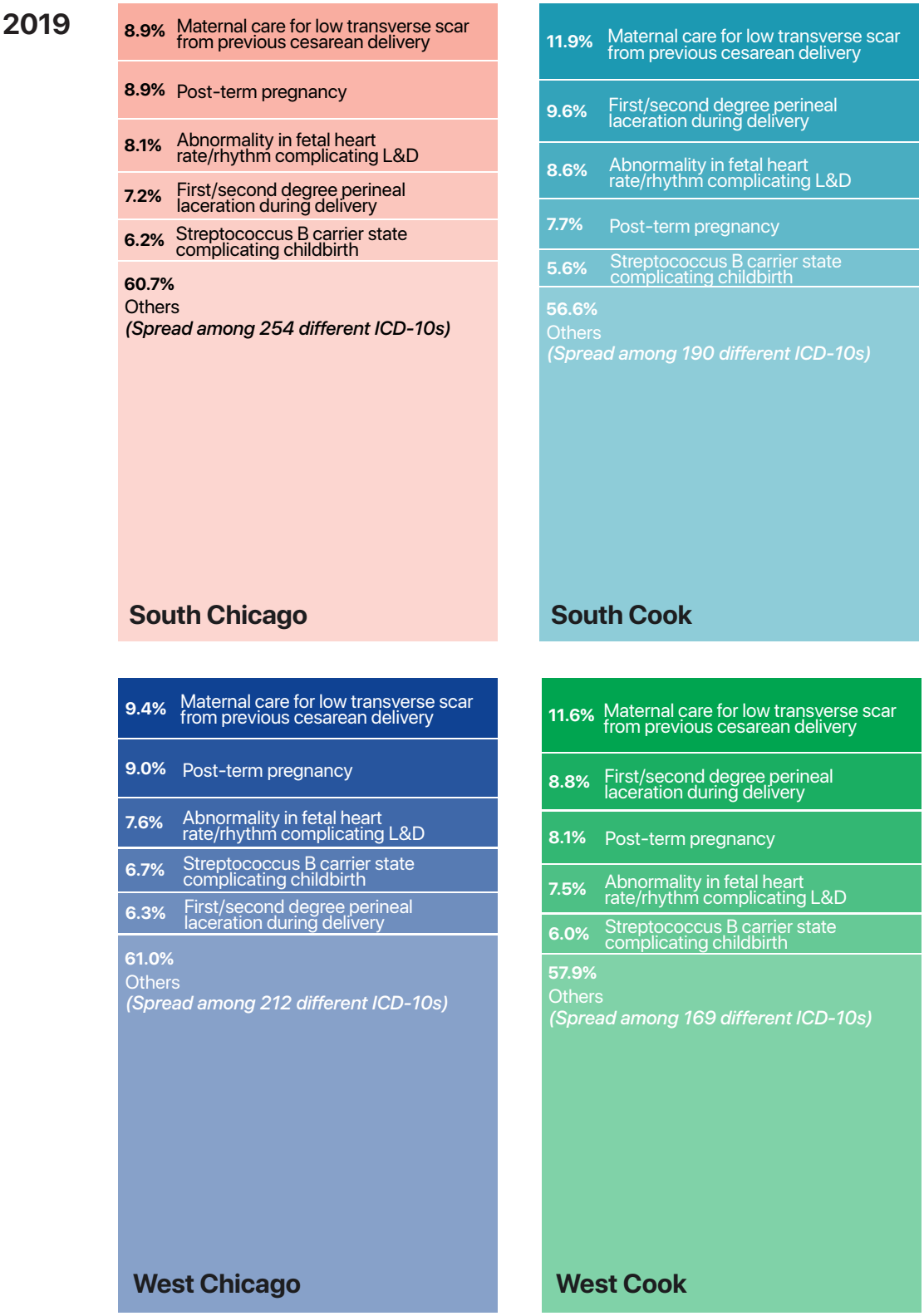


Figure 6: Top 7 Most Frequent Inpatient Hospitalization Blocks[1] by Study Area
(Frequency expressed as rate per 10,000 Medicaid enrollees)



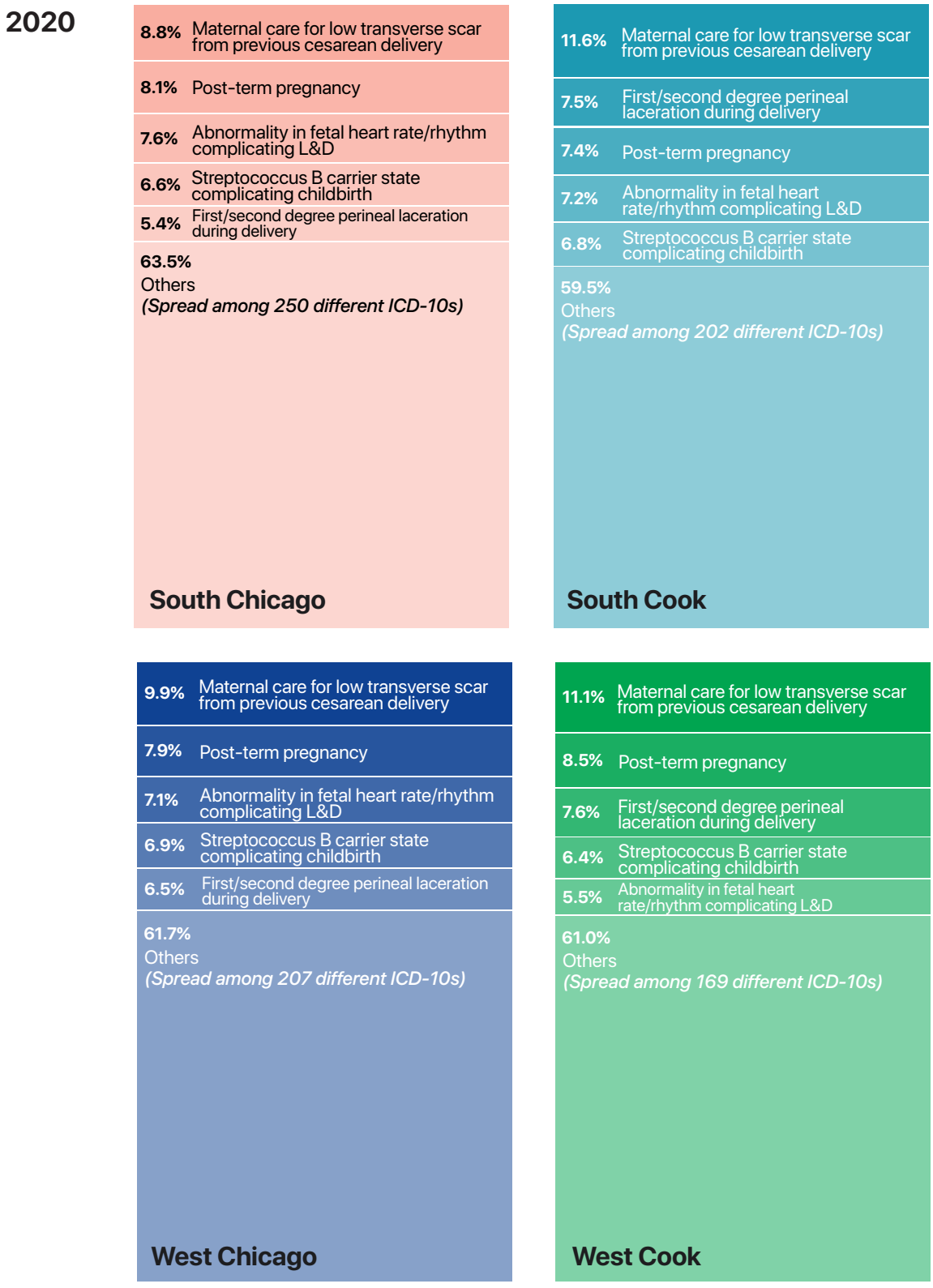
[1]These figures do not include Chapter 21 blocks, which include blocks for normal childbirth.

Figure 7: Distribution of ICD-10s of Top Childbirth Complications Blocks[1] by Study Area



[1]The charts here contain ICD-10s from the top pregrancy, labor and delivery, and post-partum complication blocks across all 5 areas: complications of labor and delivery; maternal care related to the fetus and amniotic cavity; and other obstetric conditions, not elseshere classified.
Note: L&D = labor and delivery.

Figure 7 Continued



[1]The charts here contain ICD-10s from the top pregrancy, labor and delivery, and post-partum complication blocks across all 5 areas: complications of labor and delivery; maternal care related to the fetus and amniotic cavity; and other obstetric conditions, not elseshere classified.
Note: L&D = labor and delivery.

readmissions among all patients per disease block per year.

Readmission rates were cross-tabulated with frequency rates by disease block in each study area. Isolating the top sixth ("sextile") disease blocks for both measures produces a view of the most frequent and resource-intensive disease blocks in each area (see Tables 2a and 2b).

Most Frequent and Resource-Intensive Diseases and Conditions

In Tables 2a and 2b, a clear pattern emerges. The 3 groups comprising the most frequent and resource-intensive hospitalizations, in West Chicago and in other areas, are mental illnesses, substance use disorders, and a third group organized around a set of chronic illnesses identified as "ambulatory care sensitive conditions" (ACSCs).

By definition, ACSCs are health conditions for which good outpatient care can potentially prevent the need for hospitalization or early intervention can prevent complications and progression to more severe disease (13).

The same can be said for mood [affective] disorders (made up mostly of bipolar and depressive disorders; see Figure 8) and mental and behavioral disorders due to psychoactive substance use (primarily alcohol and opioid use disorders; see Figure 9).

Given this, these frequent, resource-intensive and outpatient-treatable disease groups and conditions became the focus of the research:

- mood [affective] disorders (in particular, bipolar and depressive disorders)
- mental and behavioral disorders due to psychoactive substance use disorders (in particular, alcohol and opioid use disorders)
- ACSCs (in particular, hypertension, asthma/COPD, diabetes, and heart diseases such as congestive heart failure)

Outpatient Care Rates Prior and Subsequent to Hospital-Level Care

A previous analysis of FY2018 outpatient utilization data shows that *outpatient care prior to or subsequent to hospital-level care for these disease groups and conditions is proportionally low*, indicating that many patients who were hospitalized for these diseases or disorders did not engage in outpatient care to manage their conditions (see Figures 10–12).

(Note: All outpatient encounters were used for this analysis, whether related to the hospitalization diagnosis or not. Thus, the results presented in Figures 10–12 can be considered a conservatively generous estimate of outpatient care for those with selected and preventable inpatient admissions or ED visits. Additionally, the outpatient care analysis presented here is for FY2018. Technical issues related to data file size prevented access to, and analysis of, FY2019 and FY2020 outpatient data.)

The low rates of outpatient care observed prior to and following hospitalizations and ED visits motivate an interest in improved care for these disease groups and conditions, but it is possible to more directly link hospital use to the lack of preventive care in West Chicago and the other study areas. ACSCs are a group of conditions identified by the Agency for Healthcare Research and Quality (AHRQ) as indicators of the accessibility, quality, and efficiency of the healthcare

Table 2a: FY2019 Disease Blocks in the Top Sextile[1] for Both Frequency Rate and Average Hospital Readmission Score[2] (Ranked by Product of Frequency Rate and Readmission Score)

■ Mental Illnesses ■ Substance Use Disorders ■ ASCSs

South Chicago	South Cook	West Chicago	West Cook
1. Schizophrenia, schizotypal disorders	1. Schizophrenia, schizotypal disorders	1. Schizophrenia, schizotypal disorders	1. Schizophrenia, schizotypal disorders
2. Mood affective disorders (bipolar, depression)	2. Mood affective disorders (bipolar, depression)	2. Mood affective disorders (bipolar, depression)	2. Mood affective disorders (bipolar, depression)
3. Hemolytic anemias	3. Hemolytic anemias	3. Hemolytic anemias	3. Psychoactive substance use disorders (alcohol, opioids)
4. Hypertensive diseases	4. Psychoactive substance use disorders (alcohol, opioids)	4. Psychoactive substance use disorders (alcohol, opioids)	4. Other bacterial diseases (sepsis)
5. Psychoactive substance use disorders (alcohol, opioids)	5. Hypertensive diseases	5. Hypertensive diseases	5. Other diseases of the respiratory system
6. Chronic lower respiratory diseases (asthma, COPD)	6. Diabetes mellitus	6. Other diseases of the respiratory system	6. Hypertensive diseases
7. Other diseases of the respiratory system	7. Other diseases of the respiratory system	7. Diabetes mellitus	7. Diseases of liver
8. Diabetes mellitus	8. Complications of surgical/ medical care	8. Chronic lower respiratory diseases (asthma, COPD)	8. Diabetes mellitus
9. Complications of surgical/ medical care	9. Cerebrovascular diseases	9. Complications of surgical/ medical care	9. Complications of surgical/ medical care
10. Cerebrovascular diseases	10. Disorders of gall-bladder, biliary tract, and pancreas	10. Cerebrovascular diseases	10. Disorders of gall-bladder, biliary tract, and pancreas
11. Disorders of gall-bladder, biliary tract, and pancreas	11. Diseases of liver	11. Diseases of liver	11. Cerebrovascular diseases
12. Metabolic disorders		12. Other forms of heart disease	12. Episodic and paroxysmal disorders
		13. Episodic and paroxysmal disorders	
		14. Disorders of gall-bladder, biliary tract, and pancreas	
		15. Metabolic disorders	

[1] Sextile refers to the top sixth of the disease blocks found in the 2020 ICD-10-CM Tabular List of Diseases and Injuries for both frequency and early readmission, representing ~16.67% of all the disease blocks.
[2] This analysis excludes Chapter 21 of the ICD-10-CM Tabular List of Diseases and Injuries which contains encounters with the healthcare system not related to injury or disease, including encounters for normal newborns.

Table 2b: FY2020 Disease Blocks in the Top Sextile[1] for Both Frequency Rate and Average Hospital Readmission Score[2] (Ranked by Product of Frequency Rate and Readmission Score)

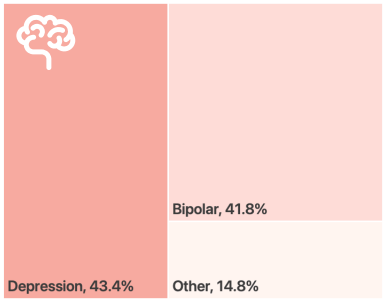
■ Mental Illnesses ■ Substance Use Disorders ■ ASCSs

South Chicago	South Cook	West Chicago	West Cook
1. Schizophrenia, schizotypal disorders	1. Schizophrenia, schizotypal disorders	1. Schizophrenia, schizotypal disorders	1. Mood affective disorders (bipolar, depression)
2. Mood affective disorders (bipolar, depression)	2. Mood affective disorders (bipolar, depression)	2. Mood affective disorders (bipolar, depression)	2. Schizophrenia, schizotypal disorders
3. Hemolytic anemias	3. Hemolytic anemias	3. Hemolytic anemias	3. Hemolytic anemias
4. Hypertensive diseases	4. Hypertensive diseases	4. Hypertensive diseases	4. Hypertensive diseases
5. Diabetes mellitus	5. Psychoactive substance use disorders (alcohol, opioids)	5. Diabetes mellitus	5. Psychoactive substance use disorders (alcohol, opioids)
6. Psychoactive substance use disorders (alcohol, opioids)	6. Other diseases of the respiratory system	6. Psychoactive substance use disorders (alcohol, opioids)	6. Diabetes mellitus
7. Other diseases of the respiratory system	7. Diabetes mellitus	7. Other diseases of the respiratory system	7. Other diseases of the respiratory system
8. Chronic lower respiratory diseases (asthma, COPD)	8. Chronic lower respiratory diseases (asthma, COPD)	8. Complications of surgical/ medical care	8. Cerebrovascular diseases
9. Cerebrovascular diseases	9. Cerebrovascular diseases	9. Cerebrovascular diseases	9. Complications of surgical/ medical care
10. Complications of surgical/ medical care	10. Diseases of liver	10. Diseases of liver	10. Diseases of liver
11. Diseases of liver	11. Complications of surgical/ medical care		
12. Disorders of gall-bladder, biliary tract, and pancreas			

[1] Sextile refers to the top sixth of the disease blocks found in the 2020 ICD-10-CM Tabular List of Diseases and Injuries for both frequency and early readmission, representing ~16.67% of all the disease blocks.
[2] This analysis excludes Chapter 21 of the ICD-10-CM Tabular List of Diseases and Injuries which contains encounters with the healthcare system not related to injury or disease, including encounters for normal newborns.

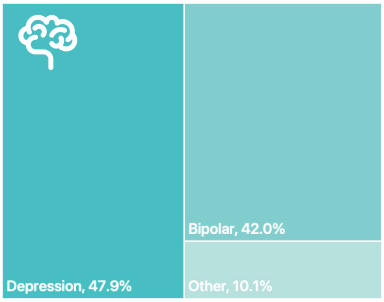
Figure 8: Proportion of Inpatient Hospitalizations for Depressive Disorders, Bipolar Disorders, and Other ICD-10s[1] within the Mood [Affective] Disorders Block across Study Areas

2019



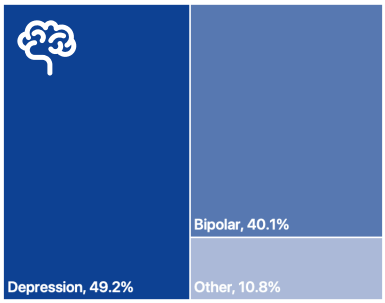
South Chicago

8.5% of inpatient hospitalizations are for mood [affective] disorders



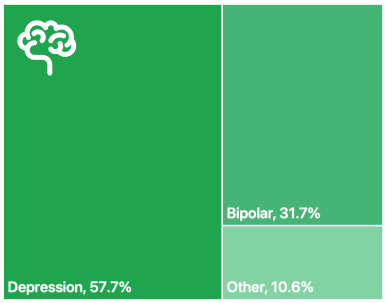
South Cook

9.3% of inpatient hospitalizations are for mood [affective] disorders



West Chicago

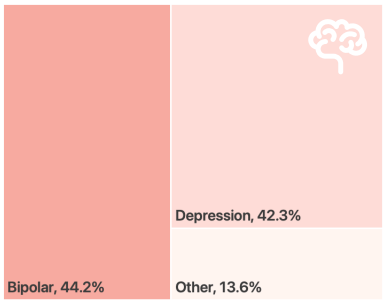
9.8% of inpatient hospitalizations are for mood [affective] disorders



West Cook

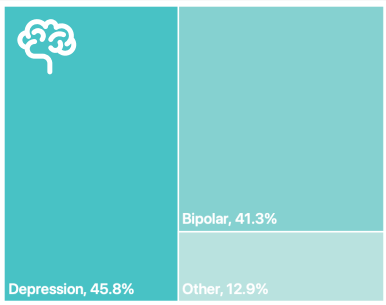
10.7% of inpatient hospitalizations are for mood [affective] disorders

2020



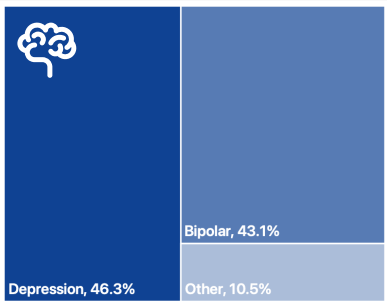
South Chicago

8.8% of inpatient hospitalizations are for mood [affective] disorders



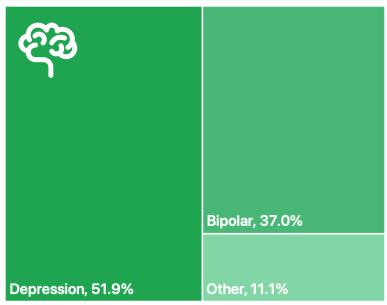
South Cook

9.6% of inpatient hospitalizations are for mood [affective] disorders



West Chicago

9.2% of inpatient hospitalizations are for mood [affective] disorders



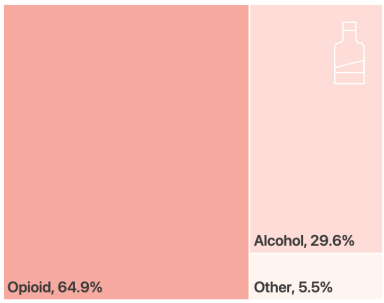
West Cook

11.0% of inpatient hospitalizations are for mood [affective] disorders

[1] Depression in this figure includes all "depressive disorder" ICD-10 codes in the mood [affective] disorders block. Bipolar includes all ICD-10 codes labeled "bipolar." The "other" category includes ICD-10 codes for conditions such as cyclothymic disorder, dysthymic disorder, manic episodes with and without psychotic symptoms, persistent mood [affective] disorders, and unspecified mood [affective] disorders.

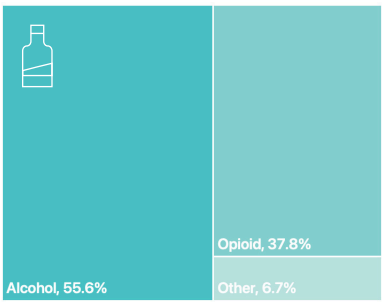
Figure 9: Proportion of Hospitalizations for Alcohol Use Disorders, Opioid Use Disorders, and Other ICD-10s within the Psychoactive Substance Use Disorders Block across Study Areas

2019



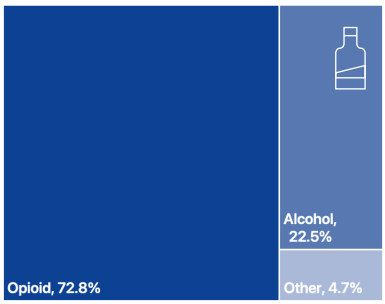
South Chicago

3.6% of inpatient hospitalizations are for psychoactive substance use disorders



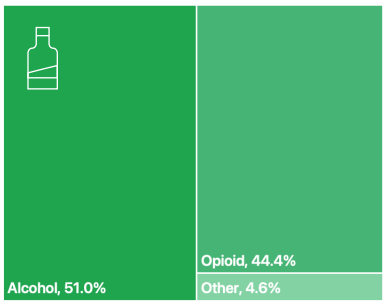
South Cook

2.9% of inpatient hospitalizations are for psychoactive substance use disorders



West Chicago

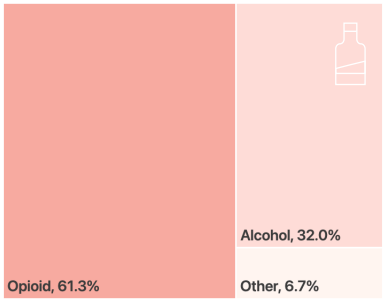
5.7% of inpatient hospitalizations are for psychoactive substance use disorders



West Cook

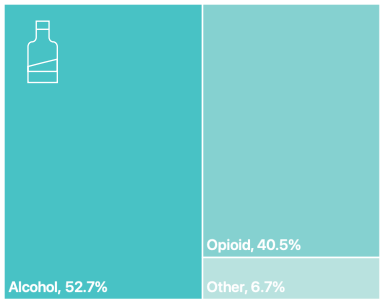
4.1% of inpatient hospitalizations are for psychoactive substance use disorders

2020



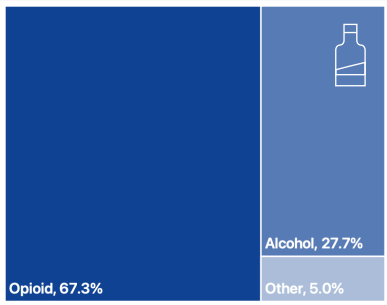
South Chicago

3.1% of inpatient hospitalizations are for psychoactive substance use disorders



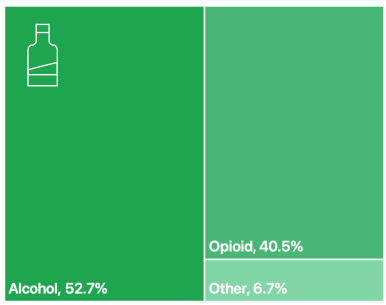
South Cook

2.9% of inpatient hospitalizations are for mood [affective] disorders



West Chicago

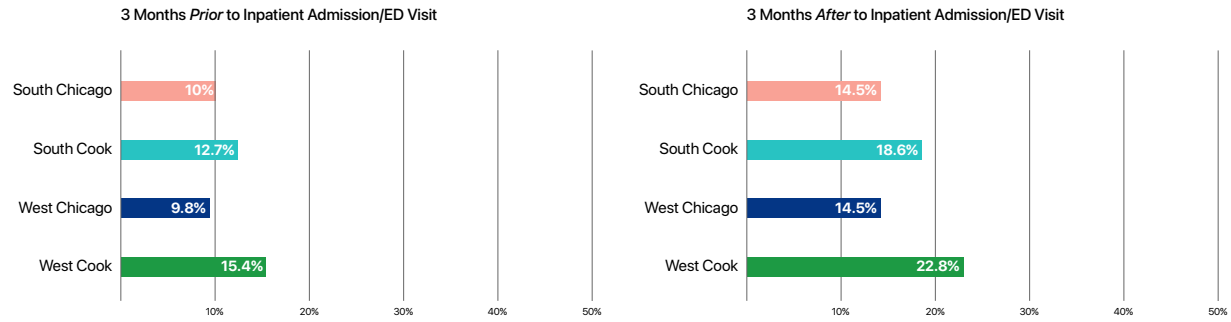
4.7% of inpatient hospitalizations are for psychoactive substance use disorders



West Cook

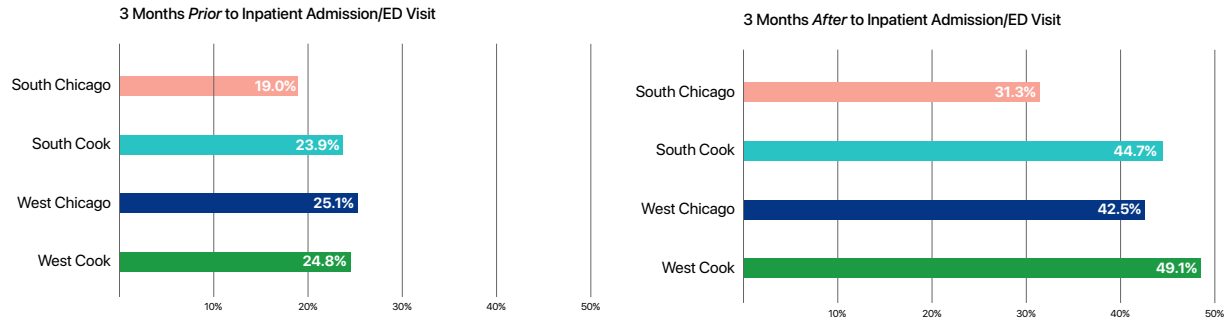
3.9% of inpatient hospitalizations are for psychoactive substance use disorders

Figure 10: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for Mental Disorders, 2018



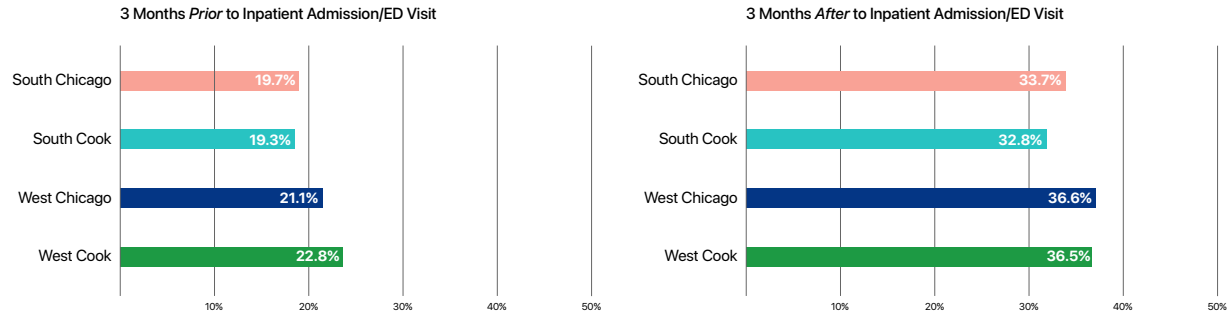
Included in this analysis are all of the ICD-10 principal diagnosis codes from Chapter 5 of the CMS Tabular List of Diseases and Injuries, excluding ICD-10s for substance use disorders.

Figure 11: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for Psychoactive Substance Use Disorders, 2018



Included in this analysis are all of the ICD-10 principal diagnosis codes from Chapter 5 of the CMS Tabular List of Diseases and Injuries, for the "Mental and behavioral disorders due to psychoactive substance use" disease block.

Figure 12: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for ACSCs, 2018



Included in this analysis are all of the ICD-10 principal diagnosis codes categorized as Ambulatory Care Sensitive Conditions by the Agency for Healthcare Research and Quality.

Note: To look for outpatient care evidence prior to hospital-level care, patients who had an initial hospitalization or ED visit for mental disorders, substance use disorders or ACSCs in the last 3 quarters of FY2018 (10/01/2017 to 06/30/2018) were identified. The proportion of these patients who had outpatient care encounters within 3 months *prior* to their hospital admission date or ED visit was then tabulated.

ecosystem in an area (16). Hospitalization rates for ACSCs are, in fact, an *established* metric for evaluating population access to care. Prior research has established that communities with poor access to outpatient care have higher rates of hospitalization for chronic illnesses and that improving this access is an effective way to reduce hospitalization rates for ACSCs (17). Furthermore, ACSCs and mental disorders are linked: Patients with coexisting mental disorders are 2 to 5 times more likely to be admitted to EDs for ACSCs (18–22).

AHRQ developed Preventative Quality Indicators (PQIs), measures based on ACSC hospital inpatient discharge data and designed to identify outpatient care quality and access issues, including appropriate follow-up care after hospital discharge. These widely used benchmarks for healthcare accessibility and quality are based on a subset of the ACSC codes for hospital admissions in the John Billings algorithm (23). Specifically, PQIs use data from hospital discharges to identify admissions that might have been avoided through access to high-quality outpatient care. In other words, while PQIs are based on hospital inpatient data, they provide insight into the quality of the healthcare ecosystem *outside* hospitals and in the community by measuring preventable complications that occur in a given population (in a community or region) (24).

The PQIs consist of the following 11 disease-specific ACSCs, which are measured as rates of admission to the hospital:

- diabetes mellitus, short-term complications admission rate
- diabetes mellitus, long-term complications admission rate
- uncontrolled diabetes mellitus admission rate
- chronic obstructive pulmonary disease or asthma, older adults (40+) admission rate
- hypertension admission rate
- congestive heart failure admission rate
- dehydration admission rate
- bacterial pneumonia admission rate
- urinary tract infection admission rate
- asthma, younger adults (18–39) admission rate
- rate of lower extremity amputation among patients with diabetes

Each of the above disease admission rates is its own PQI. AHRQ compiles these measures into *composite* PQIs as follows:

- PQI 90 Composite combines hospital admission rates for both acute and chronic PQIs
- PQI 91 Acute Composite is a composite indicator of acute, episodic admission rates and consists of the following admission rates:
    - bacterial pneumonia
    - urinary tract Infection
- PQI 92 Chronic Composite is a composite indicator of chronic disease admission rates and consists of the following admission rates:
    - diabetes Mellitus, short-term complications
    - diabetes mellitus, long-term complications
    - COPD or asthma, older adults (40+)
    - hypertension
    - congestive heart failure
    - dehydration
    - uncontrolled diabetes mellitus
    - asthma, younger adults (18–39)
    - rate of lower extremity amputation among patients with diabetes

- PQI 93 Diabetes Composite is a composite indicator of diabetes admission rates and consists of the following admission rates:
    - diabetes mellitus, short-term complications
    - diabetes mellitus, long-term complications
    - uncontrolled diabetes mellitus

AHRQ publishes national benchmarks for PQIs. Age-adjusted admission rates for composite PQIs in West Chicago outpace national benchmarks (see Figure 13).

Results of multivariate logistic regressions show that, in West Chicago, Black adults age 40 and over are most associated with hospitalizations for ACSCs, in general. Women, Asian/Pacific Islanders and adults age 40 and over are associated with acute ACSC hospitalizations and Black adults age 40 and over are most associated with chronic ACSC hospitalizations. And, finally, men age 40–74 are associated with diabetes-related hospitalizations in West Chicago.(See Table 3.)

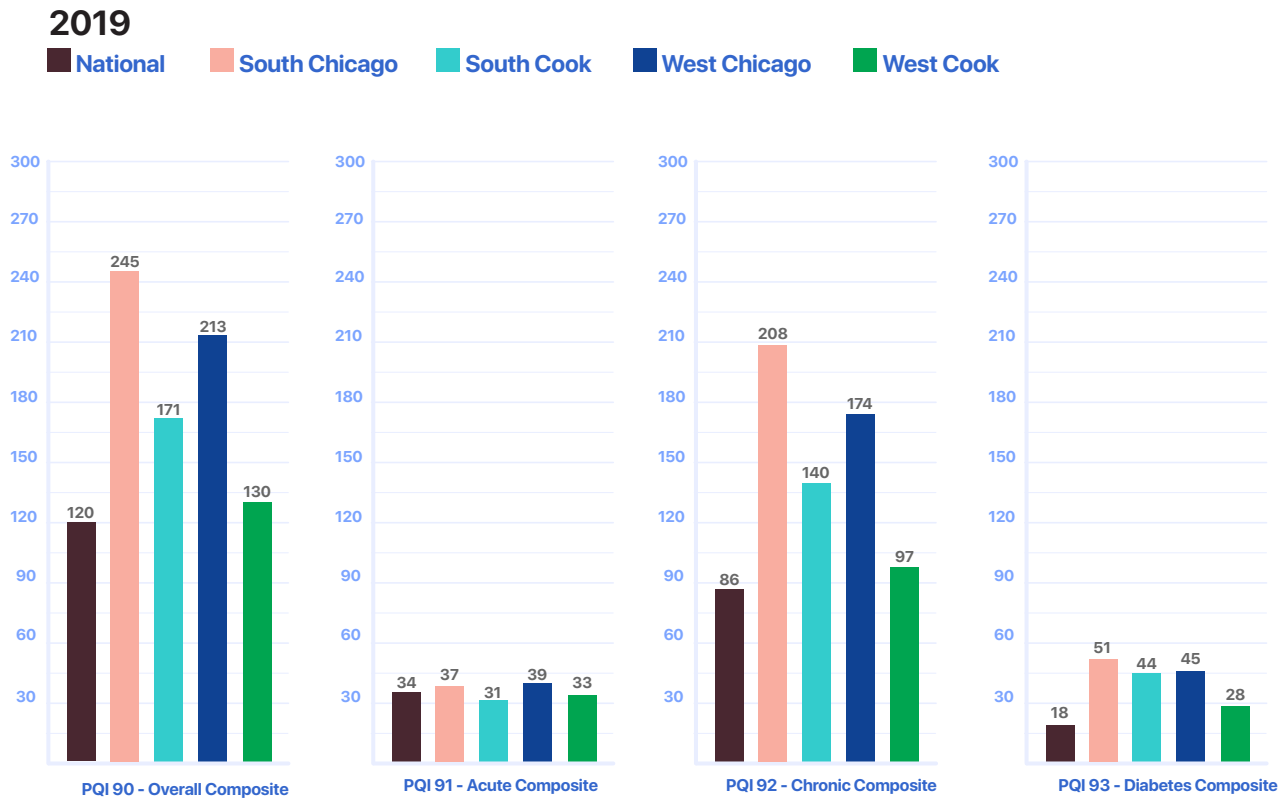
While not formally part of the definition of ACSCs or the related PQIs, bipolar disorder, depressive disorders, and alcohol and opiod use disorders are all outpatient-treatable. These disorders account for the majority of disorders within the mood [affective] disorders block and the psychoactive substance abuse disorder block.

Results of multivariate logistic regressions show that, in West Chicago, there's an association between hospitalizations for depression and two age groups: teens age 12–19 and adults age 35–64. Middle age adults, age 35–64, are associated with hospitalizations for both alcohol use disorder and opioid use disorder. No associations are evident for bipolar disorder hospitalizations in West Chicago. (See Tables 4–7.)

The data paint a clear picture: Medicaid enrollees have poor access to outpatient care and higher levels of prevention-sensitive hospitalizations in all study areas. This is particularly true for the Medicaid population in West Chicago, given the area's high rates of hospitalizations for ACSCs. Improving accessibility to quality primary and specialty care (including behavioral healthcare and detection of ACSCs and mental health comorbidities) will be critical to decreasing hospital admissions for ACSCs as well as hospitalizations for mood affective and substance use disorders.

(Note: Rates of hospitalization for ACSCs are being analyzed to provide an indication of healthcare delivery gaps in a population defined by a geography—in this case, the selected study areas. In Figure 13, these rates are compared against *national* PQIs rates which are made up of discharge data from the general population. These benchmarks are being used to gauge, directionally, the state of the healthcare ecosystem in each study area. Data upgrades are needed to create additional benchmarks, such as national PQI rates by insurance status [for example, Medicaid vs. private] or Illinois PQI rates, statewide and by insurance status. See the "Data Limitations and Opportunities for Future Research" section for more information.)

Figure 13: Composite Preventative Quality Indicators (PQIs 90, 91, 92, and 93) Hospital Admission Rates per 10,000 Medicaid Recipients, Age-Adjusted, by Study Area with National Benchmarks for the General Population as Reference



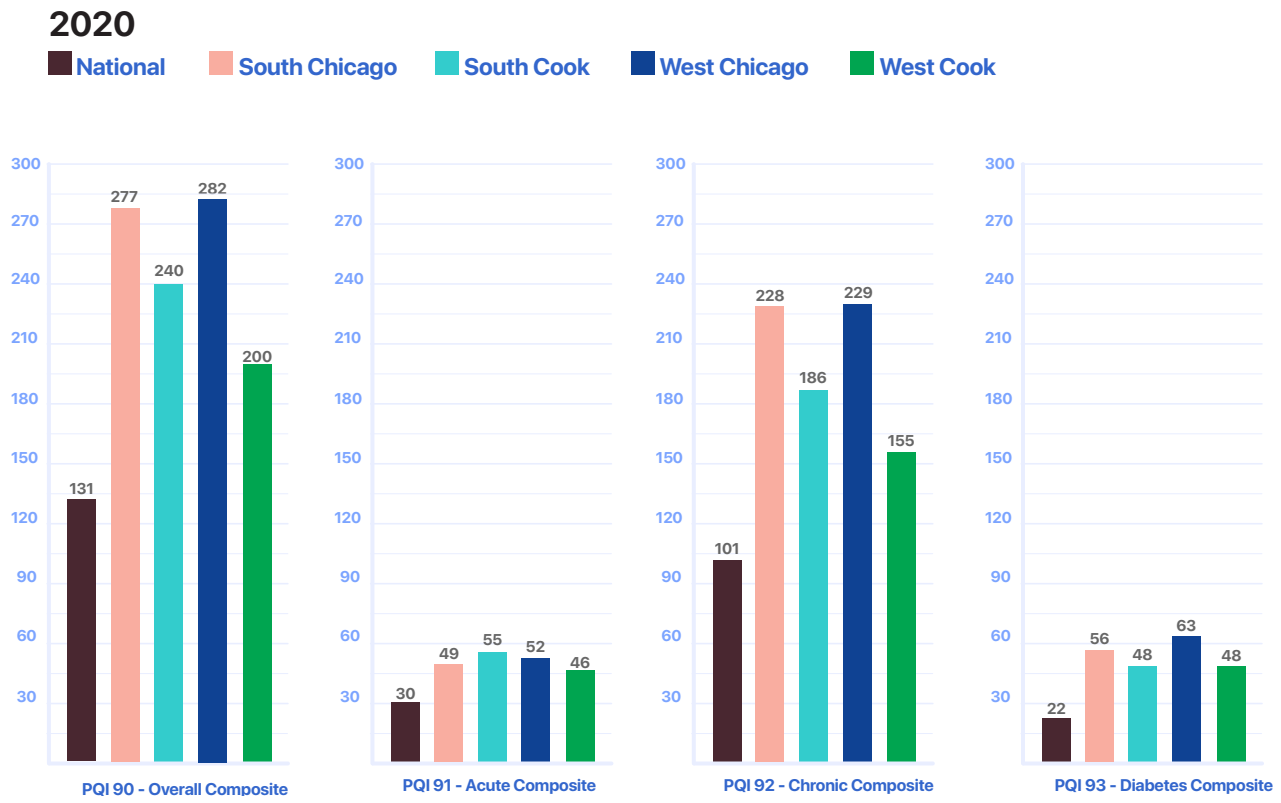


Table 3: Population Characteristics Associated with Composite PQIs in West Chicago (FY2019 and FY2020 Data Combined)

Note: Variables highlighted in red are statistically associated with the PQI, meaning the odds ratio and the confidence level lower limit are ≥ 1 and the p-value is <0.05.

PQI 90_Overall Composite			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.25	2.94	3.59	<.0001
65-74	18-39	5.03	4.42	5.72	<.0001
75 or older	18-39	5.01	4.36	5.75	<.0001
RACE					
AmerIN/AN	White	1.19	0.50	2.86	0.70
Asian/PI	White	1.26	0.95	1.69	0.11
Black	White	1.41	1.27	1.56	<.0001
Other/UNK	White	1.22	1.08	1.39	0.0021
SEX					
Male	Female	0.99	0.92	1.07	0.80

PQI 91_Acute Composite			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.75	2.19	3.44	<.0001
65-74	18-39	4.82	3.67	6.33	<.0001
75 or older	18-39	5.99	4.56	7.87	<.0001
RACE					
AmerIN/AN	White	0.86	0.12	6.33	0.88
Asian/PI	White	1.84	1.16	2.94	0.01
Black	White	1.02	0.84	1.24	0.87
Other/UNK	White	0.93	0.71	1.22	0.61
SEX					
Female	Male	1.30	1.10	1.52	0.00

Table 3 Continued

PQI 92_Chronic Composite			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.25	2.91	3.63	<.0001
65-74	18-39	4.74	4.11	5.46	<.0001
75 or older	18-39	4.37	3.75	5.11	<.0001
RACE					
AmerIN/AN	White	1.33	0.52	3.41	0.56
Asian/PI	White	1.04	0.74	1.46	0.81
Black	White	1.52	1.36	1.70	<.0001
Other/UNK	White	1.30	1.13	1.50	0.0002
SEX					
Male	Female	1.05	0.97	1.14	0.20

PQI 93_Diabetes Composite			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	1.21	1.02	1.44	0.026
65-74	18-39	1.64	1.28	2.09	<.0001
75 or older	18-39	0.88	0.62	1.23	0.44
RACE					
AmerIN/AN	White	0.77	0.11	5.67	0.80
Asian/PI	White	1.03	0.55	1.93	0.93
Black	White	1.09	0.90	1.32	0.39
Other/UNK	White	1.41	1.11	1.78	0.0044
SEX					
Male	Female	1.34	1.15	1.56	0.0002

In the tables above, AmerIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, Other/UNK = Other/Unknown

Table 4: Population Characteristics Associated with Depression-Related Hospitalizations in West Chicago (FY2019 and FY2020 Data Combined)

Note: Variables highlighted in red are statistically associated with the PQI, meaning the odds ratio and the confidence level lower limit are ≥ 1 and the p-value is <0.05.

DEPRESSION_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	2.08	1.77	2.46	<0.001
15 to 19.9	25 to 34.9	2.2	1.92	2.53	<0.001
20 to 24.9	25 to 34.9	1	0.85	1.19	0.95
35 to 44.9	25 to 34.9	1.28	1.11	1.48	<0.001
45 to 64.9	25 to 34.9	1.54	1.36	1.73	<0.001
>65	25 to 34.9	0.61	0.51	0.73	<0.001
RACE					
AmericanIN/AN	White	0.6	0.26	1.34	0.21
Asian/PI	White	0.62	0.44	0.87	<0.01
Black	White	0.61	0.56	0.67	<0.001
Other/Unknown	White	0.82	0.74	0.91	<0.001
SEX					
Female	Male	0.95	0.88	1.03	0.91

Table 5: Population Characteristics Associated with Bipolar Disorder Hospitalizations in West Chicago (FY2019 and FY2020 Data Combined)

Bipolar_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.27	0.18	0.40	<0.001
15 to 19.9	25 to 34.9	0.59	0.47	0.75	<0.001
20 to 24.9	25 to 34.9	0.76	0.61	0.94	<0.05
35 to 44.9	25 to 34.9	0.93	0.78	1.10	0.38
45 to 64.9	25 to 34.9	0.92	0.80	1.07	0.27
>65	25 to 34.9	0.19	0.13	0.26	<0.001
RACE					
AmericanIN/AN	White	0.45	0.11	1.82	0.26
Asian/PI	White	0.51	0.29	0.91	<0.05
Black	White	0.82	0.72	0.93	<0.01
Other/Unknown	White	0.71	0.59		<0.001
SEX					
Female	Male	0.52	0.06	0.58	<0.001

In the tables above, AmericanIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, Other/UNK = Other/Unknown

Table 6: Population Characteristics Associated with Alcohol Use Disorder Hospitalizations in West Chicago (FY2019 and FY2020 Data Combined)

Note: Variables highlighted in red are statistically associated with the PQI, meaning the odds ratio and the confidence level lower limit are ≥ 1 and the p-value is <0.05.

AUD_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.023	0.00	INF	0.95
15 to 19.9	25 to 34.9	0.21	0.02	0.15	<0.001
20 to 24.9	25 to 34.9	0.45	0.11	0.36	<0.001
35 to 44.9	25 to 34.9	1.63	2.01	3.07	<0.001
45 to 64.9	25 to 34.9	1.31	5.21	7.47	<0.001
>65	25 to 34.9	0.43	0.78	1.36	0.84
RACE					
AmericanIN/AN	White	0.72	0.15	2.45	0.47
Asian/PI	White	0.24	0.06	0.45	<0.001
Black	White	0.83	1.59	2.05	<0.001
Other/Unknown	White	0.72	0.69	1.03	0.1
SEX					
Female	Male	0.23	0.30	0.37	<0.001

Table 7: Population Characteristics Associated with Opioid Use Disorder Hospitalizations in West Chicago (FY2019 and FY2020 Data Combined)

OUD_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0	0.01	0.09	<0.001
15 to 19.9	25 to 34.9	0.048	0.14	0.30	<0.001
20 to 24.9	25 to 34.9	0.2	0.34	0.61	<0.001
35 to 44.9	25 to 34.9	2.49	1.37	1.93	<0.001
45 to 64.9	25 to 34.9	6.24	1.13	1.53	<0.001
>65	25 to 34.9	1.03	0.33	0.55	<0.001
RACE					
AmericanIN/AN	White	0.6	0.23	2.27	0.57
Asian/PI	White	0.17	0.11	0.53	<0.001
Black	White	1.81	0.73	0.95	<0.01
Other/Unknown	White	0.84	0.59	0.87	<0.001
SEX					
Female	Male	0.33	0.21	0.26	0.94

In the tables above, AmericanIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, Other/UNK = Other/Unknown, AUD = Alcohol Use Disorder, and OUD = Opioid Use Disorder

3: Engaged community members from socially vulnerable areas in conversations and identified barriers to outpatient care, disease prevention, and treatment adherence

The findings above demonstrate a lack of access to outpatient care for the most frequent and resource-intensive conditions in West Chicago. Recognizing that healthcare data can reveal what is happening, but not explain why, a parallel qualitative study was conducted to understand people's lived experience of the healthcare system.

In the fall of 2020, 15 community-input sessions were held with 60 residents in West Chicago (see Figure 12). Community residents were recruited from the most distressed zip codes in West Chicago as follows:

- 60612 (East Garfield Park Area)
- 60623 (Little Village and North Lawndale Areas)
- 60624 (West Garfield Park Area)
- 60644 (Austin Area)
- 60651 (Humboldt Park Area)

(See Appendix C for information on how these zip codes were selected.)

During community-input sessions, residents engaged in structured conversations to understand challenges that they face across a simple "healthcare journey" consisting of: staying healthy; recognizing a healthcare need and deciding to get care; arranging and getting to care; receiving care; and managing a condition over time (for those with ongoing health issues).

Community residents spoke of multiple barriers (or social determinants) that they face at each point in the healthcare journey. *These community-identified barriers vividly demonstrate the "why" behind the low rates of outpatient-care engagement and high rates of hospitalization for key diseases identified in the quantitative data.* Table 8 lists these barriers.

Social-determinant-of-health barriers voiced by West Chicago community members include the following:

- Knowledge and information barriers
- Economic barriers
- Healthcare service barriers
- Sociocultural barriers
- Environmental barriers
- COVID-19-related barriers

A summary of findings for each type of social-determinant barrier follows. Before moving on to these findings, it's important to note the cumulative impact that these barriers have on residents in communities with high social vulnerability. When people decide to seek care, they make an implicit cost-benefit analysis, trading off time, money and trouble against the value they expect to gain from care. The barriers voiced by community residents tip the balance toward the costs of seeking care and away from the value of getting healthcare. In other words, resident stories about healthcare barriers demonstrate that the cost-benefit calculus applied in deciding whether to seek care would produce a substantially different result if these residents resided in areas with lower social vulnerability.

Figure 12: Tally of Community-input Participants in West Chicago

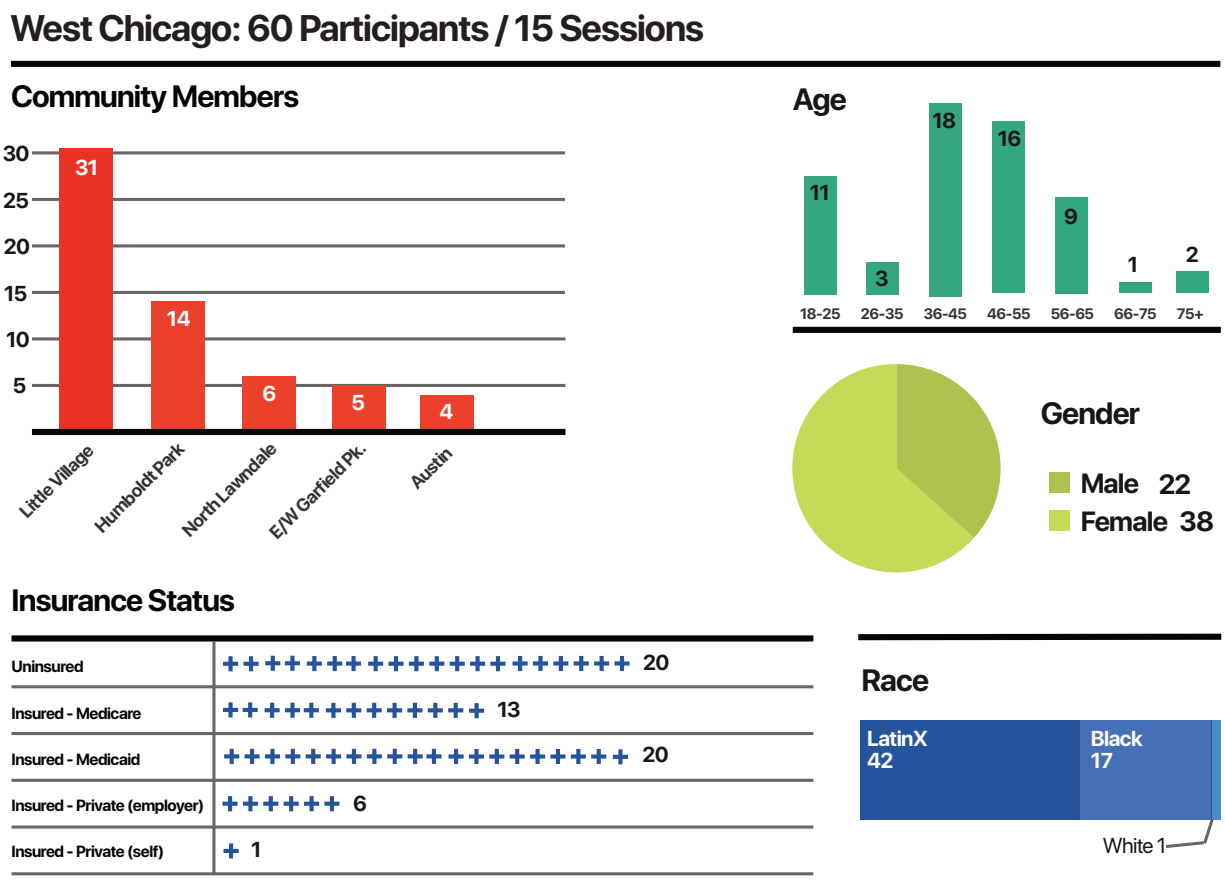


Table 8: Community-Defined Barriers to Staying Healthy and Accessing Care

BARRIERS BY SOCIAL DETERMINANTS OF HEALTH	Staying healthy	Recognizing a health need and deciding to get care	Arranging and getting to care	Getting care (point of service)	Managing the condition in daily life
Knowledge & Information (i.e., health literacy barriers – the lack of awareness, information and skills needed to care for one's health and navigate health services)	• Lack of factual and trustworthy health information	• Lack of knowledge of signs and symptoms of prevalent health conditions • Lack of knowledge of what is covered or not covered in insurance plan • Fear about getting healthcare as a result of the lack of knowledge or information (i.e., fear due to unknown costs involved, fear of bad diagnoses, etc.)	• Lack of awareness of healthcare services within community • Lack of awareness of where to seek care that fits one's needs	• Difficulty understanding technical medical terms and physician instructions	• Difficulty applying physician instructions to personal circumstances • Lack of knowledge of local resources to help manage condition
Economic (i.e., inability to access activities, programs, and services due to the associated costs)	• Lack of time for self-care (i.e., exercise, preparing healthy food, preventative care, etc.) • Inability to afford healthy food • Unemployment or economic instability • Housing instability	• Inability to afford health insurance • Inability to afford out-of-pocket care costs (e.g., co-pays) • Inability to afford time off work to seek care	• Lack of insurance or under-insured • Inability to afford transportation	• Inability to afford out-of-pocket care costs (for example, co-pays)	• Inability to afford treatment (e.g., medication, equipment, supplies, etc.)
Healthcare Service (i.e., barriers that impede equitable access to, and engagement with, healthcare services)	• Lack of preventive screening or programming in the community	• Previous negative healthcare experience • Fear of going to healthcare facilities due to COVID-19	• Poor quality of local healthcare facilities (self-reported) • Long wait times for appointments • Scarcity of local healthcare facilities (lack of, or limited options due what health insurance is accepted) • COVID-19 closures or reduced appointments	• Long wait times at the point of care • Service quality disparities • "Transactional" experiences with providers (e.g., short facetime, bias towards medication, etc.) • Lack of trained, culturally competent providers • Discrimination due to race, socio-economic status or insurance status (i.e., having Medicaid for insurance) • Care that doesn't fit cultural context (e.g., language and behavioral norms)	• Lack of consistent healthcare support to help manage condition over time
Socio-Cultural (i.e., individual or collective attitudes and beliefs that impact one's ability to maintain health and engage in healthcare)	• Culturally ingrained food and cooking habits	• Hesitancy to seek care (due to historic healthcare system mistrust, cultural issues, immigration status, fear of doctors, stigma, or previous bad experience) • Concealing health issues from family and friends			• Social isolation (lacking a support system) • Strain on social support system (i.e., emotional, physical, economic)
Environmental (i.e., resource, service, context and infrastructure obstacles in the community that limit one's ability to maintain health and engage in healthcare)	• Lack of resources (i.e., food, recreation, transportation, walking infrastructure, etc.) • Poor air quality due to local polluters • Presence of unhealthy foods • Prevalence of drugs and alcohol in communities • Exposure to ongoing crime, street violence, domestic abuse, neglect and/or discrimination		• Insufficient transportation options		• Lack of resources (i.e., food, recreation, transportation, walking infrastructure, etc.) • Poor air quality due to local polluters • Presence of unhealthy foods • Prevalence of drugs and alcohol in communities • Exposure to ongoing crime, street violence, domestic abuse, neglect and/or discrimination

Note: Community residents spoke of structural inequities such as resource access (including healthcare access), the quality of local resources, generational disinvestment, unethical scientific experimentation, racism, and discrimination based on socioeconomic status as significant contributors to health in their communities. Community residents described these inequities as a cause of chronic stress, cycles of violence, mistrust of the healthcare establishment, health disparities, and the lack of economic and educational opportunities.

Knowledge and Information Barriers

Knowledge and information barriers, also known as health literacy barriers, include the lack of awareness, information, and skills needed to care for one's health and navigate health services. Residents in West Chicago and the other study areas described a range of knowledge and information barriers to achieving and maintaining health. They spoke of:

- lacking knowledge, tools, and time needed to lead a healthy lifestyle
- lacking trusted sources of health information
- not knowing signs and symptoms of medical conditions
- confusion about health insurance coverage for needed services
- not knowing where to find services to meet a health need
- challenges integrating provider recommendations into lifestyle

The lack of trusted and accurate health knowledge and information often results in fear and delay of care. Residents talked about this absence of trust as a reason to avoid care and expressed related fears: the fear of bad diagnoses, fear about the costs of care and treatment, and fear associated with contracting COVID-19 at the offices of healthcare providers.

Community members' suggestions for how to address health information and health service navigation barriers, included pairing preventive health information with community-based programs to teach the skills needed to shift behavior and offer social support, health fairs, healthy cooking classes, farmers markets, and exercise programs offered through local schools, community centers, and the park district. In addition, residents recommended that messaging about available health resources be culturally tailored to communities and appropriate channels identified to ensure reach and penetration.

On lack of health prevention information

"[For prevention,] we need to have information and there is hardly any information in our language. Whatever is available, it's very little and not accessible to everyone in our community. [For example, information that] diabetes can be prevented, even if it runs in families, information that you can prevent it with exercise and eating healthier."

Little Village resident
(West Chicago)
Female, 56–65 years old

On lack of knowledge on how to eat healthy

"In Humboldt Park, there should be a store where they sell healthy food and where there are people who you can talk to, people who give you instructions on what is better to eat because there are many people who don't know how to eat right."

Humboldt Park resident
(West Chicago)
Male, 46–55 years old

Photo by Oc Gonzalez on Unsplash

Economic Barriers

Economic barriers are defined as the inability to access activities, programs, and services—both prevention and intervention—due to the associated costs. Residents of West Chicago and other community areas spoke of economic barriers impacting residents' ability to stay healthy and afford needed care and treatment. Residents from all study areas identified key economic barriers to health, including:

- unemployment and underemployment
- lack of insurance or inadequate insurance
- cost of co-pays
- cost of medication
- cost of healthy food
- cost of transportation
- cost of fitness membership and other wellness programs

Community residents described having to make hard choices between rent, food, transportation and healthcare costs. Across the Latinx and Black communities in West Chicago, residents also described a lack of time to seek care, including preventive care, due to low-wage hourly jobs and lack of insurance due to unemployment or underemployment.

On lack of time for self-care

"For me, it's poverty. It's the main reason people cannot take care of themselves. They have to work, work, work, and the salaries are minimum. There isn't enough time to work to pay the bills and have time to go to the doctor."

Little Village resident
(West Chicago)
Female, 46–55 years old

On lack of insurance and delaying care

"I have a friend and she had no insurance. She didn't go to the doctor until she got really sick. It got to the point that she was on dialysis and they couldn't even keep her at where she was getting her dialysis treatment, because she didn't have insurance."

Austin resident
(West Chicago),
Female, 26–35 years old

Healthcare Service Barriers

Healthcare service barriers impede equitable access to, and engagement with, healthcare services. Access barriers include lack of preventive services for staying healthy; lack of local outpatient facilities for arranging, accessing, and getting care; and lack of healthcare service support to manage a condition over time. Residents across study areas also spoke of experiencing "transactional" care—care not attuned to cultural context or not meeting their individual, personal needs.

In terms of access barriers, residents of West Chicago and the other study areas spoke of a scarcity of community-based healthcare facilities and services, due to an actual lack of local facilities, a lack of local facilities that take residents' type of health insurance or low awareness of local facilities and services. A lack of services delivered in ways that are culturally and linguistically relevant to the community was also a barrier to accessing care. Finally, several residents also described shifting from employer-provided insurance to public insurance due to job layoffs, some associated with the COVID-19 pandemic, and as a result, not being able to see a provider who they had seen in the past. Such changes forced some to seek care outside of the community and others to delay care.

On scarcity of local healthcare facilities

"My son has issues and I have to take him to a psychiatrist. I can't take him to one in Humboldt Park. I'm sent to other places out in the suburbs because there aren't any resources here in Humboldt Park."

Humboldt Park resident
(West Chicago)
Male, 36–45 years old

On lack of local facilities that accept public health insurance

"Speaking for myself, I have depression. . . . I haven't had medication for a year and a half because it's hard to find doctors who will take the medical card who aren't really far away."

Humboldt Park resident
(West Chicago)
Female, 56–65 years old

Photo by Brown Planet Productions for the UIC Transformation Project

Photo by Brown Planet Productions for the UIC Transformation Project

In terms of "transactional" care experiences, community residents—in particular, those with chronic conditions, including mental illness and substance use disorders—expressed a disconnect between the care they expected to receive and the actual care delivered by a provider. Community residents expected to have time with providers to ask questions, talk about options for care, and get help that fit within their circumstances (for example, medications covered by insurance and treatment suggestions that fit their financial and homelife realities). Instead, many residents experienced very different encounters with the healthcare system. Dissatisfaction with provider interactions included: little time spent with providers to ask questions and understand the information being conveyed, being provided with a prescription but not addressing options or available resources to help manage a condition, and feeling like being treated as a number and not a person. In other words, many community residents expected relationship-based care with healthcare providers but instead experienced care that was impersonal and transactional. A number of residents noted that repeated negative encounters with the healthcare system influenced their decisions to not engage with it at all.

On lack of timely care and short face time with a provider

"People are on a waitlist for months to get an appointment for mental health services. I took my friend to her appointment and, after months of waiting, do you know how long they gave her? Fifteen minutes. Fifteen minutes for this person to talk. How are you going to talk about your problems in fifteen minutes?"

Little Village resident
(West Chicago)
Female, 46–55 years old

On impersonal care

"My psych doctor went into adolescent psychiatry so I was transferred to another psych doctor. I was just handed over to her. She didn't really read my background or get to know me. I was interested in trying a new medication for my bipolar that I saw on TV. I mentioned it to her and her attitude was like, 'you're gonna take what I tell you to take.' I didn't like that. I want to be included in conversations about what I take and what goes into my body."

Humboldt Park resident
(West Chicago)
Female, 46–55 years old

Table 7 outlines the dimensions of a relationship-based care experience from the perspective of community residents in contrast to the transactional encounters they experience.

Table 7: The Desired Shift from Transactional Care to Relationship-Based Care from a Resident Lens

	Transactional care (status quo)	Relationship-based care (desired)
Logistics / administrative	I often need to wait months before I am able to get in for an appointment.	I expect to be able to schedule an appointment when I have a health care need.
Waiting room experience	Due to providers running behind schedule, I often need to wait to be seen.	I expect my time to be valued and for the office to run on time.
Patient-provider relationship	When my appointment lasts 15 minutes, and then I am pushed out the door, I feel like a number.	I expect my doctor to seek to understand and invest in my whole [bio-psycho-social] person.
Decision making	My doctor tells me what to do based on what he/she thinks is best for me.	I expect to take an active role in making decisions about my body and health.
Care plan	When the doctor rushes to a prescription, it feels like a band-aid solution. My insurance doesn't cover the prescription given. The doctor recommends that I cook healthy meals each night. I am managing multiple jobs and young children. I need fast, convenient options. The doctor recommends I go outside for walks but it isn't safe in my neighborhood and a fitness membership is expensive.	I expect my doctor to seek to understand the root cause of my symptoms. I expect care recommendations that fit my insurance and life circumstances.

For community residents, transactional care also meant care that doesn't fit a person's cultural context. In fact, culturally competent and representative care providers was a consistently expressed need across community conversations. Residents want providers who understand their cultural and behavioral norms. This is especially true in regards to behavioral healthcare in the Black communities in West Chicago. Latinx residents of West Chicago and described disappointing care experiences when Spanish interpreters were not available to communicate with the provider.

On lack of trained, culturally competent providers

"In our neighborhoods, there's not enough doctors and therapists. And then, when they are available, they're generally white people who we can't relate to and they can't see us for who we are. We feel like we are being experimented with. I want to be treated by someone with the same complexion as me. I feel like they can understand me better. We just don't have a lack of Black doctors, especially here on the West side."

East Garfield Park resident
(West Chicago)
Male, 46–55 years old

On care that doesn't fit cultural context

"I found it's really hard to navigate the system because of language. The workers don't speak Spanish. Or sometimes they would provide an interpreter but the interpreter wasn't helpful."

Little Village resident
(West Chicago)
Female, 46–55 years old

Sociocultural Barriers

Sociocultural barriers are individual or collective attitudes and beliefs that impact a person's ability to stay healthy and engage in healthcare. Sociocultural barriers impact staying healthy, recognizing a health need and deciding to get care, and managing a health condition in daily life. Key sociocultural barriers include ingrained eating and cooking habits, hesitancy to seek care due to sociocultural beliefs, and issues related to social support systems.

Ingrained eating and cooking habits impeded residents' ability to stay healthy and to care for chronic diet-related diseases, but residents find these habits hard to change because food is a critical piece of social connectivity and comfort.

On culturally ingrained food habits

"Our parents didn't teach us to eat vegetables, they just taught us about basic food like fried pork chops, white rice and beans."

Humboldt Park resident
(West Chicago)
Male, 46–55 years old

Hesitancy to seek healthcare was a top issue in West Chicago and that hesitancy took many forms. Many community residents spoke of being socialized in their families not to seek medical care. Some residents described their families passing down beliefs in home remedies and prayer over medical intervention. Similarly, cultural beliefs in both the Black and Latinx communities about men needing to be self-reliant contribute to males not seeking care. Unethical scientific experimentation on the Black community in the past casts a long shadow and continues to fuel mistrust of the medical establishment as that mistrust is passed down through families, generation-to-generation.

Immigration status is another issue that makes residents hesitant to seek care. Recruiting for community input via street outreach in Latinx communities in West Chicago led to a sample of undocumented, uninsured residents in Little Village and Humboldt Park. Without a social security number, these residents are unable to access public or private insurance. Several residents described delaying care until the last moment possible due to fear of making contact with the system and exposing their immigration status.

Finally, social stigma around mental illness makes residents in West Chicago hesitant to seek behavioral healthcare, with residents being acculturated to hide mental health issues rather than reach out to get help for them.

On hesitancy to seek care, a learned behavior

"Personally, I struggle taking care of myself because it wasn't emphasized to me growing up. [For example,] we didn't go to doctors when I was growing up. So now, I'm not good about making doctor appointments. I don't go to a doctor until there's something wrong."

East Garfield Park resident
(West Chicago)
Male, 46–55 years old

On lack of insurance due to immigration status

"Because many of the people who live in Little Village are [undocumented] immigrants, we don't have access to health insurance so it's hard to get services. When we have pain, we endure it and never realize what's wrong until it's advanced and throughout the whole body."

Little Village resident
(West Chicago)
Female, 36–45 years old

On hesitancy to seek behavioral healthcare due to stigma

"A lot of people who come from Mexico have the idea in their head, 'Oh no, if I go to a psychologist or a counselor, people are going to say that I'm crazy.' They don't allow others to help."

Little Village resident
(West Chicago)
Female, 36–45 years old

"In the Black community and in my household, I was always told: 'What goes on in the house, stays in this house.' And sometimes that's not good. We need mental health services. There is a perception that getting therapy means that you are acting white."

West Garfield Park resident
(West Chicago)
Male, 56–65 years old

Photo by Fred Kearney on Unsplash

Issues related to social support systems was also top-of-mind for many residents in West Chicago. Residents spoke of the emotional, physical, and economic strain that chronic illnesses put can put on individuals as well as on their family and friends. Caregiving becomes an additional job that can be part driver, counselor, advocate, care coordinator, cook, translator, and nurse. These additional responsibilities can become a source of stress that in turn can affect the caregiver's health. Chronically ill residents without strong support systems spoke of social isolation as well as delayed care due to lack of logistic and emotional support. COVID-19 has exacerbated both the strain on support systems and social isolation.

On the strain on caregivers

"Sometimes, my mom doesn't want to accept that she is going through cancer. It frustrates me and sometimes I end up being angry with her. On top of that, I haven't had a job going on 5 months [due to the pandemic]. So I'm feeling a lot of stress."

Little Village resident
(West Chicago)
Female, 46–55 years old

On the strain on caregivers

"I put blood, sweat and tears into my son's recovery. And I think I was working his recovery harder than he was."

Humboldt Park resident
(West Chicago)
Female, 46–55 years old

Environmental Barriers

Environmental barriers are resource, service, context, and infrastructure obstacles in the community that limit one's ability to maintain health. Environmental barriers mentioned by residents across all community-input sessions include: living in a resource desert (food, recreation, green space, transportation, healthcare facilities, etc.), the presence of unhealthy food options in communities, prevalence of drugs and alcohol in the community, poor air quality and exposure to ongoing crime, street violence, domestic abuse, neglect, and discrimination.

Of particular concern in West Chicago, among both Latinx and Black residents, was the impact of gang violence on their communities. Repeated exposure to street violence was described as a prevalent, negative impact on mental health and human development, neighborhood safety, and a sense of community cohesion. To counter this violence, residents want workforce development and violence prevention programs in addition to programs and services to help residents cope, such as trauma-informed counseling and healthcare.

On street violence and traumatic stress

"I have two friends who saw people getting shot in front of their house. It's been a lot of anxiety which they are still going through two years later. They had to leave Little Village with their families to start a healing process."

Little Village resident
(West Chicago)
Male, 18–25 years old

On fear of crime

"We don't feel safe, especially as women, in this neighborhood. So you can't go out walking or running. This area is really unsafe. . . . I open the door to get some air and destress but then it's back inside. We need things to be safer here."

LIttle Village resident
(West Chicago)
Female, 36–45 years old

On prevalence of drugs in the community

"Drugs are everywhere. . . . You walk down the street and there are clouds of smoke. You see the guys on the corner when you go to the grocery store. In terms of prevention, it's h ard when that's what you see all the time."

West Garfield Park resident
(West Chicago)
Male, 46–55 years old

On pollution from exhaust from vehicles

"Asthma is a big problem in my neighborhood. . . . And all the buses and trucks and all the exhaust doesn't help. We need to start ticketing people with broken exhaust pipes."

West Garfield Park resident
(West Chicago)
Male, 66–75 years old

COVID-19 Exacerbated Barriers to Health and Healthcare

The COVID-19 pandemic has heightened barriers to staying healthy and accessing care and contributed to increased violence, addiction, mental health issues, and difficulty managing chronic conditions.

Community residents saw impacts of COVID-19 in:

- unemployment and the sudden loss of insurance
- isolation exacerbating mental health issues
- suspension of in-person 12-step programs
- postponement of needed care for fear of going into healthcare facilities
- friction with telehealth, due to lack of equipment, internet access, technical knowledge, or dissatisfaction with past telehealth appointments
- Stress and depression as a result of losing friends and family members to the virus

In addition, several residents described the closure of local pharmacies in the aftermath of George Floyd's death and the subsequent social unrest which prevented them from obtaining medications to manage chronic conditions.

(See Appendix C for additional information about the community input gathered in West Chicago including information on the community organization that conducted the input sessions, the approach to recruiting community residents, the discussion guide and the format of the community-input sessions.)

Photo by National Cancer Institute on Unsplash

4: Synthesized findings from the data analyses and the community conversations to define transformation opportunities for stimulating outpatient care access and reducing the social barriers to care and treatment

What emerges from the combination of the analysis of hospital utilization data and the inventory of concerns expressed by residents in community conversations is strong indication of a need to improve accessibility to quality primary, specialty, and behavioral healthcare and, in parallel, to address the social-determinant-of-health barriers that make it difficult to prevent disease, access care, and adhere to treatment. Doing so will require healthcare systems in West Chicago to reach out beyond the walls of their hospitals and into communities. It will also require community residents and organizations in West Chicago to become more engaged in health and healthcare. In other words, the effort will entail finding a middle ground where healthcare systems and communities work together to prevent disease and promote outpatient care engagement.

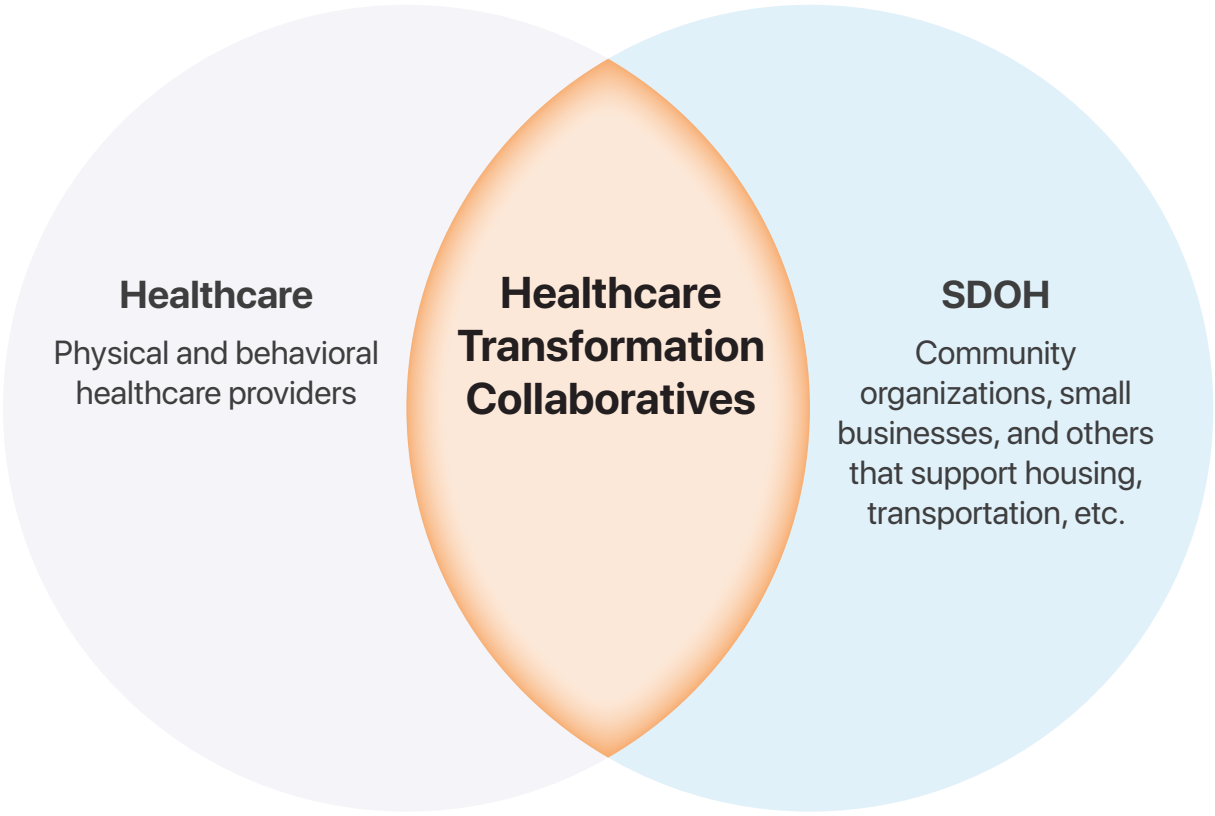
To this end, the combined analysis suggests that transformation efforts need to concentrate on *clinic-community linkages* that provide primary and secondary care and community-based wraparound services to help people manage chronic illnesses, mental illnesses, and substance use disorders. Clinic-community linkages leverage the treatment expertise of healthcare systems, the on-the-ground knowledge of community-based organizations, and the trust that residents have in those organizations to support an active approach to chronic disease management, restore trust in the healthcare system in socially vulnerable communities, and increase engagement in healthcare.

Based on the accumulated evidence gathered through this analysis, the report suggests that transformation initiatives should be guided by the following objectives:

1. *Incentivize clinic-community linkages* in order to address physical health, behavioral health, and social needs in a coordinated, accessible fashion within communities.
2. *Promote collaborative care models* for chronic illnesses, including mental illnesses and substance use disorders (for example, health homes and coordinated care models).
3. *Build capacity* for clinic-community linkages and collaborative, relationship-based care models.
4. *Promote care engagement* via awareness of services and navigation support.
5. *Continuously groom clinic-community linkage services* to reduce and eliminate barriers to care.

HFS' Healthcare Transformation Collaboratives project is designed to incentivize these clinic-community linkages (see Figure 15). Over time, investments in these linkages will address the need for access to services where people live, work, and play and, ultimately, will help drive greater health in communities.

Figure 15


Healthcare
Physical and behavioral healthcare providers
Healthcare Transformation Collaboratives
SDOH
Community organizations, small businesses, and others that support housing, transportation, etc.

Limitations and Opportunities for Future Research

The analyses in this report demonstrate an imperative need to expand access to outpatient care and, in parallel, reduce the barriers to that care (that is, address the social determinants that make it difficult to access that care), in particular for bipolar disorders, depressive disorders, substance use disorders, and key ACSCs (hypertension, diabetes, asthma/COPD, and heart disease). However, some limitations related to the data and community input affected the execution of this research, and these limitations are described in this section.

Data Limitations

Limited Variables Available in Noninstitutional Data

The data obtained under the data-use agreement (see Appendix A) includes:

- institutional data that consists of inpatient admissions, outpatient visits, and ED visits in hospital/medical center systems
- noninstitutional data that consists of outpatient visits to independent healthcare providers
- a recipient data file that contains date of birth, sex, race, and zip code information for Medicaid enrollees in each study area

The lack of specificity in the noninstitutional data impaired what analysis could achieve. For example, providers are classified broadly as "physicians" or "nurse practitioners" with no further specialty-based classifications available in the data. Also, some provider addresses are billing addresses, which may differ from service-providing addresses. Although some addresses were confirmed as service-providing ones, others could not be verified. In upcoming years, HFS is scheduled to move to an improved and expanded database that will contain deeper data on provider types, locations, and diagnoses. Improved data will allow more detailed analyses of outpatient utilization trends and the relationship between hospital-level care and outpatient utilization.

In addition, technical issues related to file size and other delays prevented analysis of FY2019 and FY2020 noninstitutional data for compiling updated figures for outpatient care before and after hospitalization for mental disorders, substance use disorders, and ACSCs.

Limited Patient-Level Demographic Data

The Medicaid institutional data set contains patient-level healthcare encounter data. For each encounter, the data contain the following key fields: the patient's unique recipientID code, the patient's admission and discharge dates, diagnosis (ICD-10 code), and whether the encounter was for an ED visit, an inpatient hospital admission, renal

visit, or an outpatient service encounter. In a related recipient table, joined by the "recipientID" code, the data contained the following fields for each patient: date of birth, sex, race, and zip code. The data on race is limited because the collection of race data is not required. As a result, race is listed as "unknown" in approximately 20% of the records. In addition, segmentation and analysis by ethnicity was not possible since information on ethnicity is not in the data. Detailed patient-level data would allow analyses to better determine those patient populations most closely associated with negative outcomes and help inform targeted interventions.

Need for Patient-Level Social-Determinant-of-Health Data

The absence of patient-level information on social, cultural, and economic characteristics, health-related behaviors, and other social-determinant-of-health characteristics is another constraint. Its absence limits understanding how specific aspects of the patient's lived experience drive the observed health outcomes. Associating patient-level utilization and other health outcome data with patient-level social-determinant-of-health factors would provide insight into what specific factors drive negative (and positive) health outcomes and where to focus interventions. It is recommended that the State of Illinois invest in mechanisms that allow the association of patient-level Medicaid utilization data with patient-level social-determinant-of-health data.

Need for Hyper-Local Neighborhood Social-Determinant-of-Health Data

Local neighborhood data on social determinants of health would help contextualize patient-level healthcare utilization and health outcomes and provide insight into structural barriers to good health and health-related quality of life. Having such hyper-local data would strengthen the State's ability to identify social-determinant-of-health drivers of disparities in healthcare utilization and inequities in health outcomes across populations. It is recommended that the State invest in mechanisms that allow the association of hyper-local social-determinant-of-health data with patient-level utilization and health outcome data.

Need for Patient-Level Comorbidity Data

Information on the presence of other health conditions at the time of a clinical encounter would help take case mix into account when comparing patients and patient populations with respect to healthcare utilization and health outcomes. Limitations in data access to secondary diagnoses prevented analyses related to comorbidities.

Lack of Maternal-Child Health Outcomes Assessment

This report does not assess maternal-child health outcomes, which are known to be disparate in Illinois and a priority for HFS. Using HFS-provided data, a preliminary analysis of key adverse pregnancy outcomes (such as stillbirth and premature birth) was conducted. However, analyses were thwarted by important data limitations:

- There's no infant-to-mother record linkage in the data. The lack of linkage from infant-to-mother records presented the additional challenge of determining an appropriate denominator for birth outcomes (for example, the total number of births).
- Prenatal care visits were not identifiable in the provided outpatient data. This meant that even if rates of adverse maternal-

child health outcomes could have been estimated, it would still not have been possible to trace associations of these outcomes back to inadequate prenatal care.

The effects of these data limitations were such that attempts to assess rates of premature birth and stillbirths across these study areas yielded implausibly low numbers of adverse events and rates that were orders of magnitude lower than published national rates. The data team was unable to ascertain whether these estimates had been distorted by missing data, coding errors, or other data problems in the count of adverse outcomes or total births. In the end, these data concerns led to the decision to not include analyses of maternal-child health in this report. With enhanced data sets and a methodology for connecting mother with babies in the data, a future assessment of poor outcomes in pregnancy, and with newborns, could be done.

Unavailability of Hospitalization Data by Insurance Status for PQI Comparison Rates

We analyzed Medicaid utilization data for ACSCs as an indicator of healthcare delivery gaps in selected study areas. For ACSC PQIs, we compared study area PQI rates for Medicaid enrollee hospitalizations with national PQI rates for the general population. This analysis was informative and indicative of healthcare delivery gaps in the study areas. However, additional benchmarks are needed for comparison—specifically, national PQI rates for Medicaid recipients, Illinois PQI rates, and Illinois Medicaid PQI rates. .

Community-Input Limitations

COVID-19

Community-input sessions were planned to be in-person, starting in late spring of 2020. The arrival of COVID-19 that spring delayed these sessions and required they be conducted remotely. To reduce barriers to participating remotely, sessions were held via telephone using a WebEx conference-call number. It is not known what impact the telephone format had on the feedback. However, the anonymity afforded by telephone conference calls may have enabled participants to express themselves more freely than in in-person sessions.

Moderation Challenges

Guided by an equity-driven approach, community-based organizations were hired to recruit and moderate the community-input sessions. Community organizations provided staff to serve as moderators. The UIC research team briefed moderators on the topics to be covered during the sessions. Moderators came to the work with different skill levels and experience. The UIC team provided additional moderation training, as needed, to help community organization staff host conversations. Virtual, voice-only moderation prevents moderators from being able to pick up on visual cues and read body language and can make it challenging to orchestrate conversational flow. To support moderators with these challenges, a UIC researcher offered real-time prompts via WebEx chat during the sessions to help guide the conversation.

Convenience Sampling Used to Recruit Community Members for Input Sessions

To leverage community partners' networks of readily available existing relationships, a convenience sampling approach was taken

to recruit participants for sessions. This approach had the advantage of engaging the community organizations' existing relationships with community members to recruit participants and establish a level of trust with them. A key limitation of convenience sampling is the possibility of underrepresentation of people who are not part of the community partner's network. This situation presents limitations on making generalizations about community residents as a whole.

Limited Minutes on Public Phones

Several seniors who receive their phone plans through public aid were unable to participate due to the limited allocation of minutes on their phone plans.

Opportunities for Future Research

Despite the data and community-input limitations explained here, there are meaningful and conclusive analyses in this report that highlight very important issues. Furthermore, the analyses contained in this report can serve as benchmarks for measuring outcomes of transformation interventions. These benchmarks can also be used to assess the impact wrought by COVID-19, hospital closures, and other changes in healthcare delivery systems.

Appendices

Appendix A:
Approach to Analyzing Medicaid Utilization Data

About Medicaid Utilization Data

The team tasked with udating data analyses from the report published in February 2021 focused on FY2019-2020 Medicaid patient-level utilization data. Patient-level utilization data was obtained from the Illinois Department of Healthcare and Family Service (HFS) under a data-use agreement (DUA) executed jointly by HFS and University of Illinois Chicago (UIC) legal counsels. Data was stored in a secure server. To further protect the data, access to that server was limited to a small number of selected members of the research team, each of whom completed required security training. Information flow in and out of the server was further severely restricted by IT technology.

Under the DUA, the team received 3 data sets: institutional data, noninstitutional data, and a "recipient file."

Institutional Utilization Data (FY2019 and FY2020)
This data set contained Medicaid recipients' healthcare encounters (inpatient admissions, outpatient visits, and emergency department [ED] visits) at hospital/medical center systems. Key fields in this data set included the following:

- hospital system provider name (system in which the healthcare encounter occurred)
- zip code of hospital system provider (where the healthcare encounter occurred)
- recipient ID (unique Medicaid recipient code)
- recipient zip code (indicating home address of recipient)
- service type (inpatient, outpatient, or renal)
- ER indication (indicates if the encounter is a visit to the emergency room of the institution; variables for this are "ER visit" and "other")
- admission date
- discharge date
- ICD-10 code and description (principal diagnosis for the encounter)
- diagnosis related group (DRG) code

Noninstitutional Utilization Data
(FY2018 only; data for FY2019 and FY2020 not available due to file size)
The noninstitutional data contained Medicaid recipients' outpatient visits to independent healthcare providers. Key fields in this data set included the following:

- provider type and description
- category of service and description
- provider zip code
- recipient ID (unique Medicaid recipient code)
- recipient zip code (indicating home address of recipient)

- behavioral health indication (indicates if the encounter is for behavioral healthcare)
- service date
- ICD-10 code and description (principal diagnosis for the encounter)

Recipient File Data
This data set contained sex, date of birth, and race data for unique recipient IDs. A couple of notes about recipient data:

- Race data does not include ethnicity, so mentions of "white" as race include Latinx.
- Age at time of encounter was derived from recipient date of birth.

The FY2019 and FY2020 institutional data file and recipient file represent all inpatient hospitalization encounters in these fiscal years for all Medicaid recipients living in the zip codes of the areas defined in this study (specifically, all recipients with home zip codes within the study areas)—in other words, the data track inpatient hospital utilization by Medicaid recipients living in the study areas, regardless of where that care took place.

Approach to Medicaid Utilization Data Analysis

Non-Prescriptive Approach to Data Analysis

At no point during this research did HFS direct an analytic framework that the UIC team should follow, or identify questions or hypotheses the research team must pursue. The research team worked in complete independence and reported results and findings to HFS as they became available.

Data-First, Data-Driven Analysis Approach

Most analyses are hypotheses driven, in the sense that they begin with specific questions and hypotheses and then analyses are framed broadly to address those questions. In contrast, this project was predominantly data driven. The team approached the data analytics in this project with no previously formed hypothesis. Using this "data-first" (rather than question-first) approach, the team let the data analytics bring up the questions and topics of interest. The team then used further data analytics to gain insight into these questions and topics. It bears noting that the statistical results reported here are mostly descriptive rather than inferential.

Analytics Approach: Descriptive Statistics, Bivariate Associations, and Logistic Regressions

Descriptive statistics is the primary analytics approach used for this study. Aggregated summaries provided in this report are expressed as percentages, rates, averages, medians, and such. For example, since the data may include multiple encounters for one Medicaid recipient (for example, multiple visits to a healthcare provider, ED visits, and/or inpatient hospital stays) for one health condition, a numerator for the rate could be the number of encounters (which counts multiple encounters of a single patient) or the number of unique recipients. Similarly, the denominator to calculate the rate could be the overall population in the region or the number of Medicaid enrollees in the region. Each such calculation in the analyses was done after careful consideration of all these aspects by subject-area scholars.

Descriptive statistics: After getting to know the data sets by reviewing the fields and variables, running histograms of variables, and doing basic data cleaning and new data creation (for example, patient age at time of the patient encounter), the data analytics team produced an initial set of descriptive statistics. For the institutional data set, initial analyses included looking at the distribution of demographic data and the distribution of healthcare encounters by hospitals. Figures 16 to 22 exhibit the charts for the following analyses:

- for inpatient hospitalizations, distribution of ages, sex, and races of patients by study area (excluding Chapter 21 data)
- for ED visits, distribution of ages, sex, and races of patients by study area (excluding Chapter 21 data)
- market share of hospitals receiving Medicaid patients by study area

Other descriptive statistics, such as frequency distributions of disease chapters and blocks, are found in the "Detailed Findings" section of this report.

Bivariate associations: The data analytics team also investigated bivariate associations, such as associations between health conditions (that is, principal diagnosis codes represented by chapter, block, or ICD-10 code) and localities (zip codes and study areas). More specifically, the team compared rates, percentages, averages, and medians across zip codes, age groups, race and study areas. Included in the "Detailed Findings" section of this report are the key bivariate associations that drove insights about the utilization data: inpatient admission diagnosis blocks by resource intensiveness defined by hospital readmission.

Logistic regressions: While primary association studies were based on descriptive subgroup or stratified analysis, the data analytics team also performed a limited set of advanced inferential statistical analysis using bivariable and multivariable regression analyses. Most important, regression analyses were used to understand Medicaid patients' demographic characteristics most associated with diseases of interest: bipolar and depressive disorders, alcohol and opioid use disorders, and ACSC PQIs.

This task required first singling out those patients with a principal diagnosis of the key disease groups and conditions (1 vs. 0) in the utilization data for any type of encounter (inpatient hospitalization, ED visit, or outpatient visit). For example, if a patient had at least one depressive disorder diagnosis, the outcome variable for the depressive disorder was flagged as 1. If the patient had 2 or more depressive disorder diagnoses, the outcome of the depressive disorder was still flagged as 1. The same process was followed for the other key diseases. Patients with multiple diagnoses were included in more than one logistic regression. For example, if a patient had both a bipolar and a depressive disorder diagnosis, that patient was included in logistic regressions for both conditions. The covariate for the logistic regression included all demographic covariates available in the data, these being age, race, sex, and study area.

Figure 16: Inpatient Hospitalizations—Distribution of Ages of Patients by Study Area

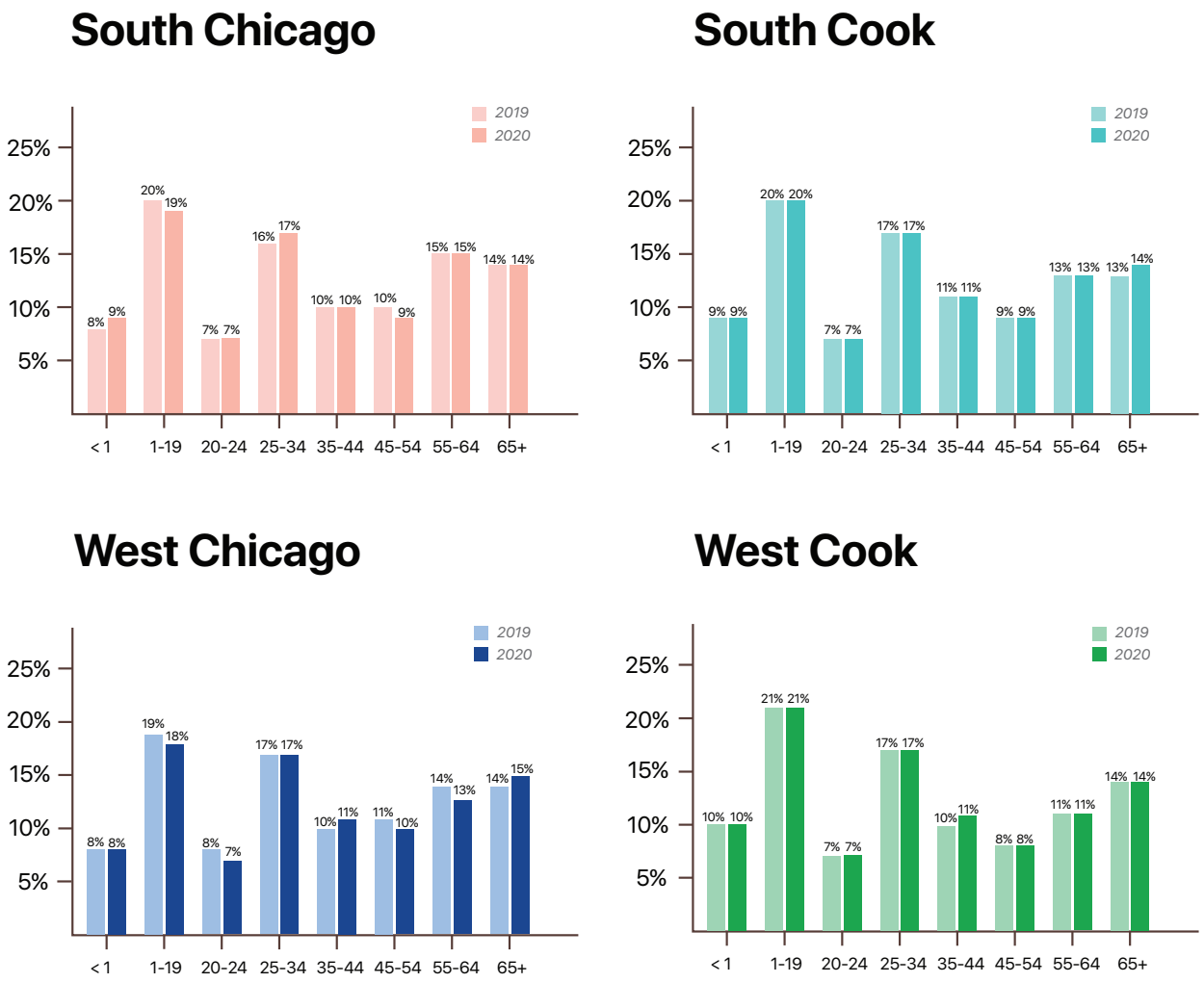


Figure 17: Inpatient Hospitalizations—Distribution of Sex of Patients by Study Area

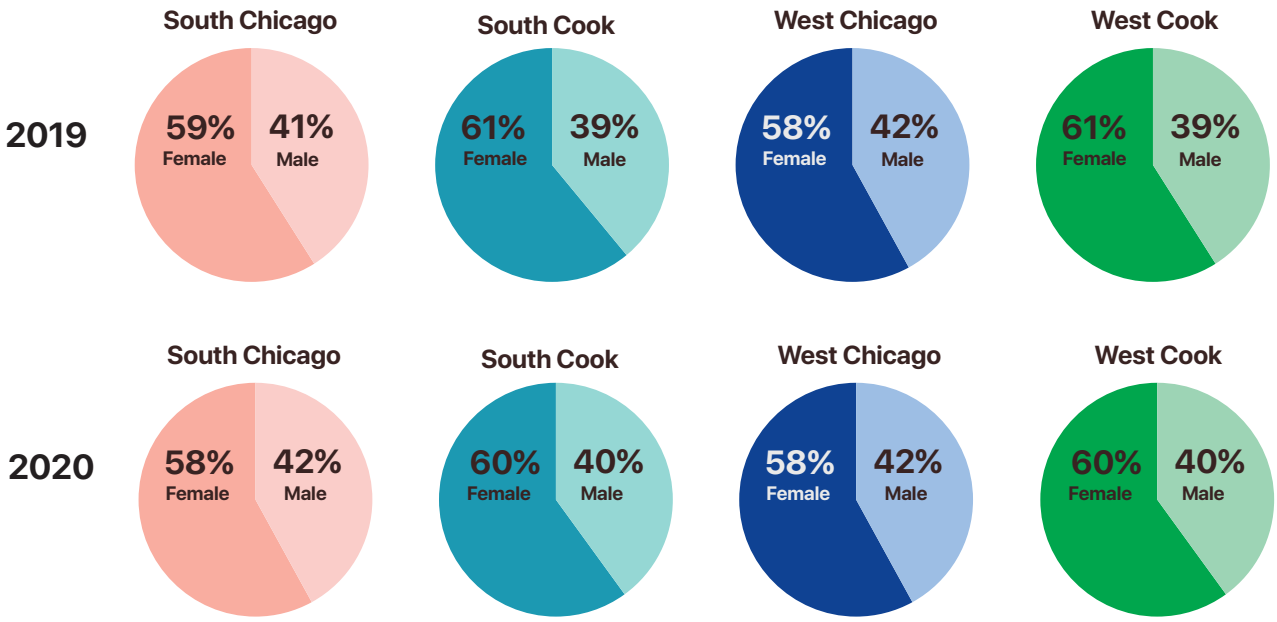


Figure 18: Inpatient Hospitalizations—Distribution of Races of Patients by Study Area

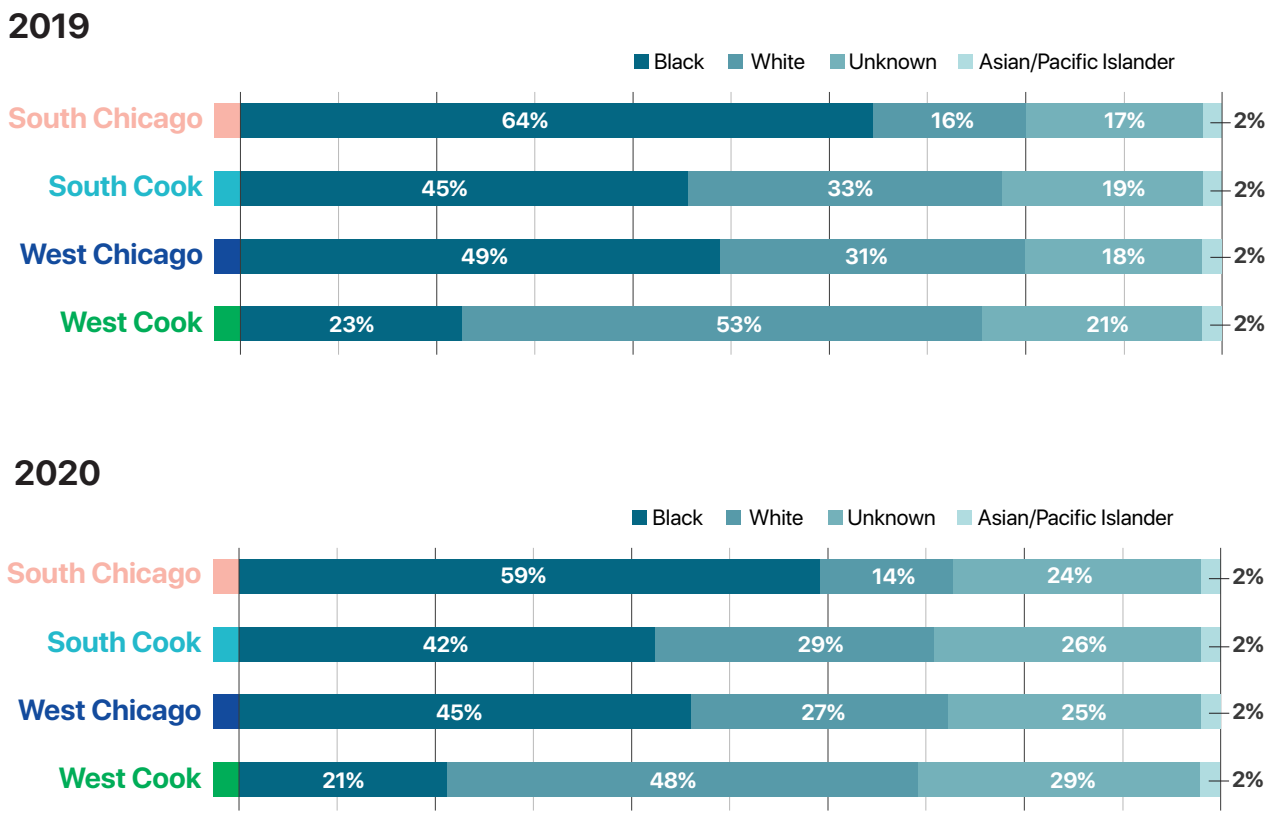


Figure 19: Emergency Department Visits—Distribution of Ages of Patients by Study Area

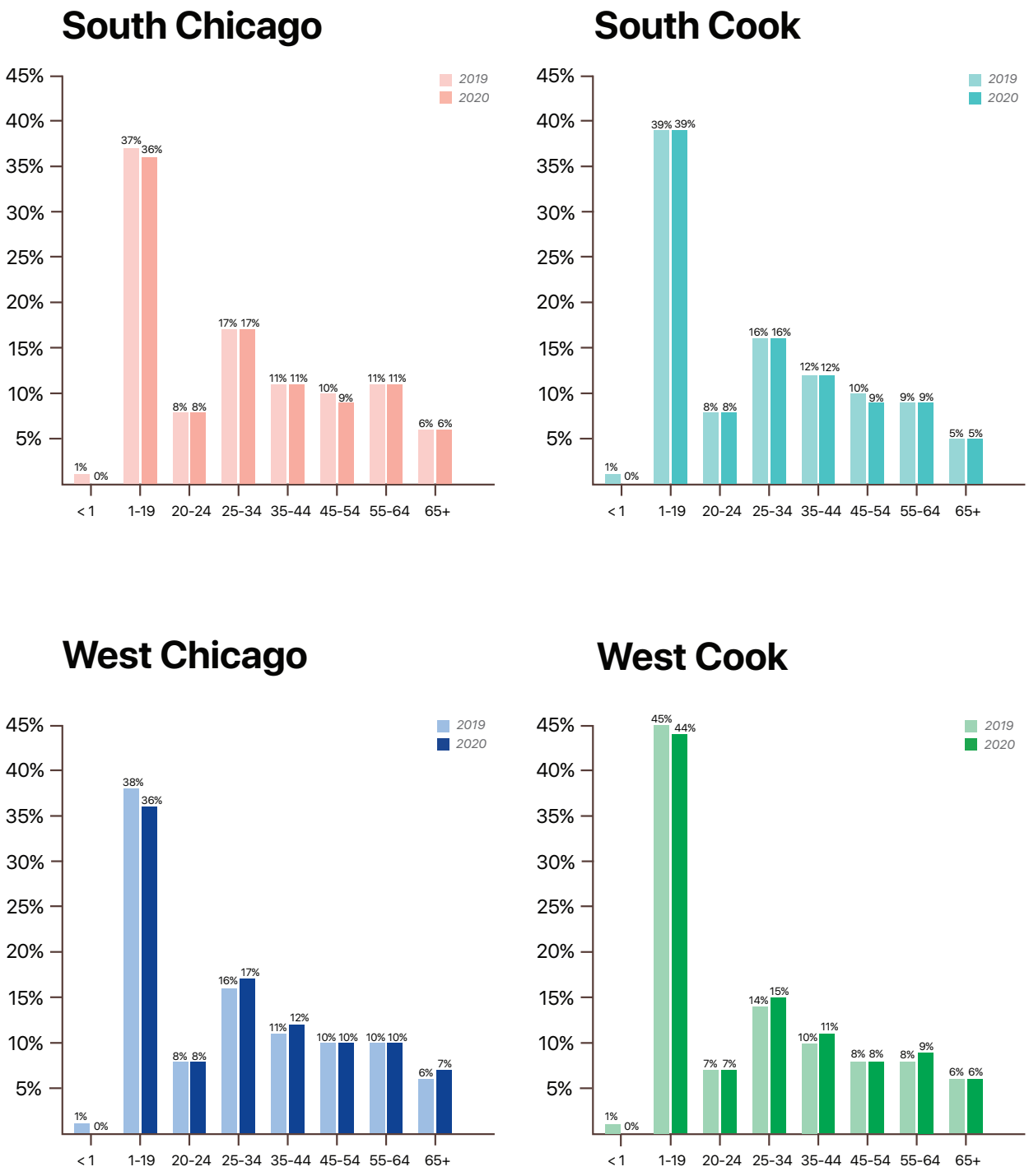


Figure 20: Emergency Department Visits—Distribution of Sex of Patients by Study Area

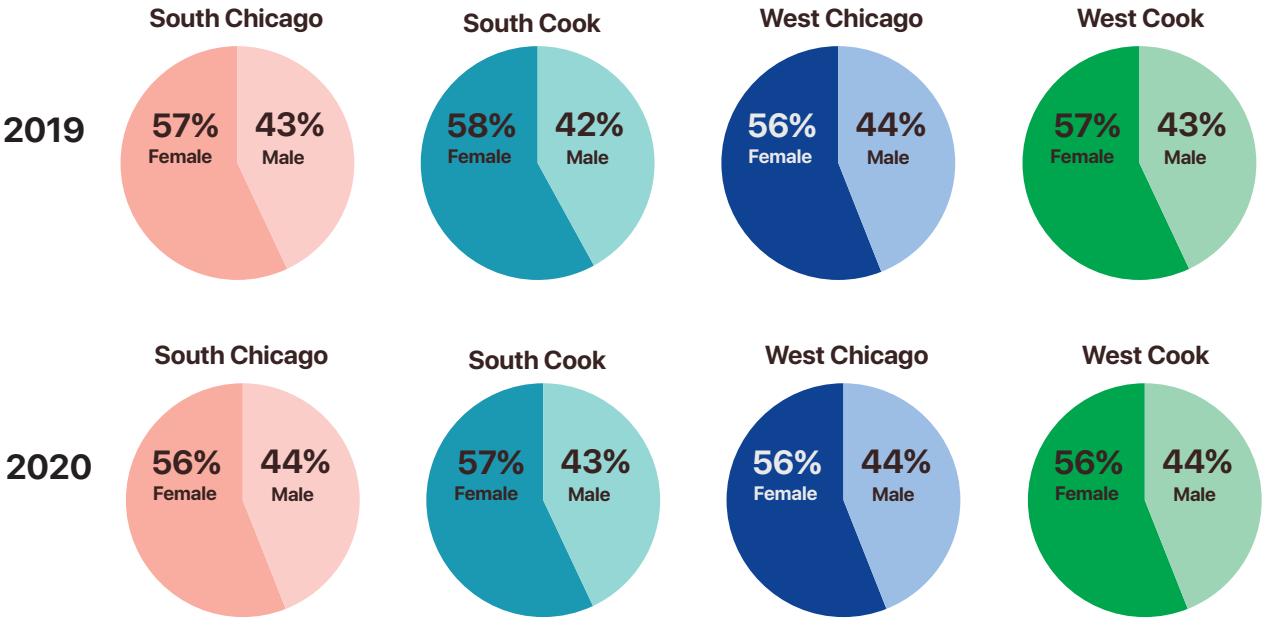


Figure 21: Emergency Department Visits—Distribution of Races of Patients by Study Area

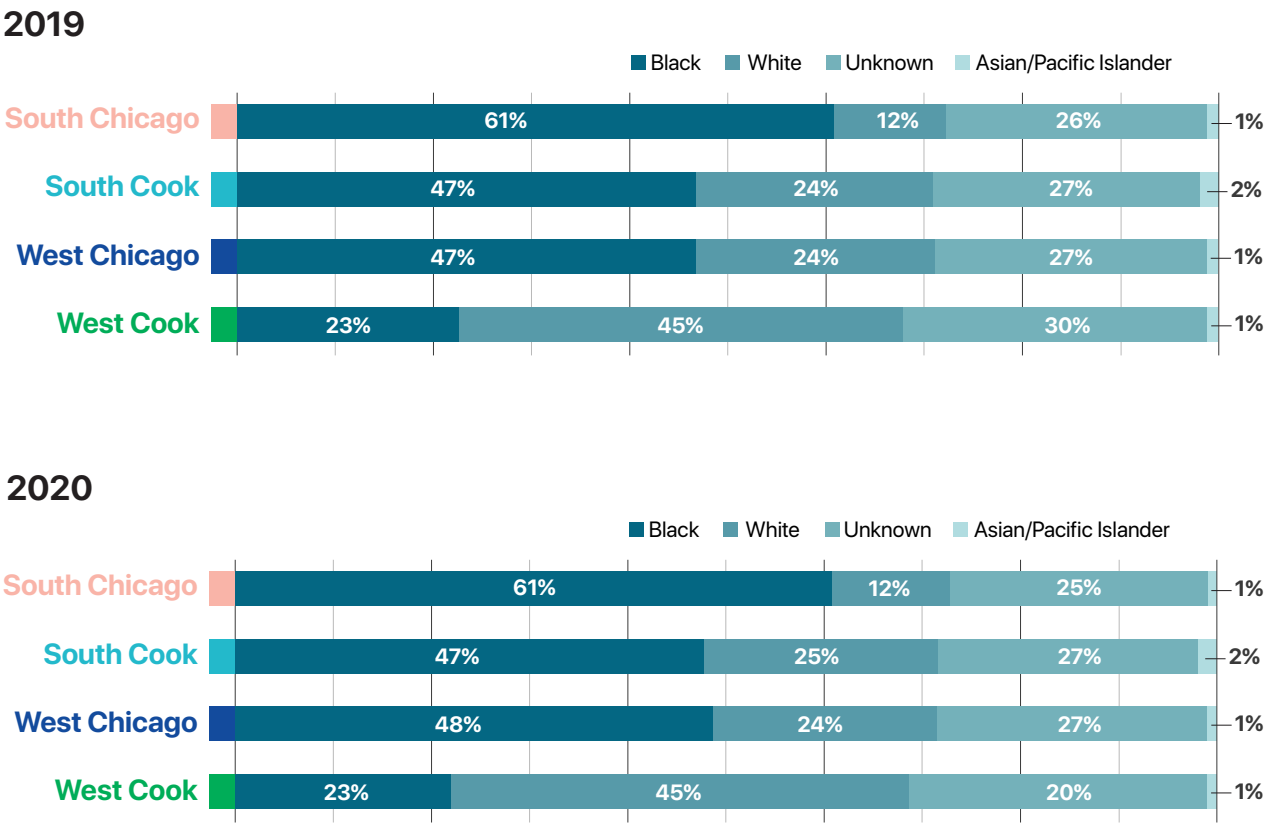
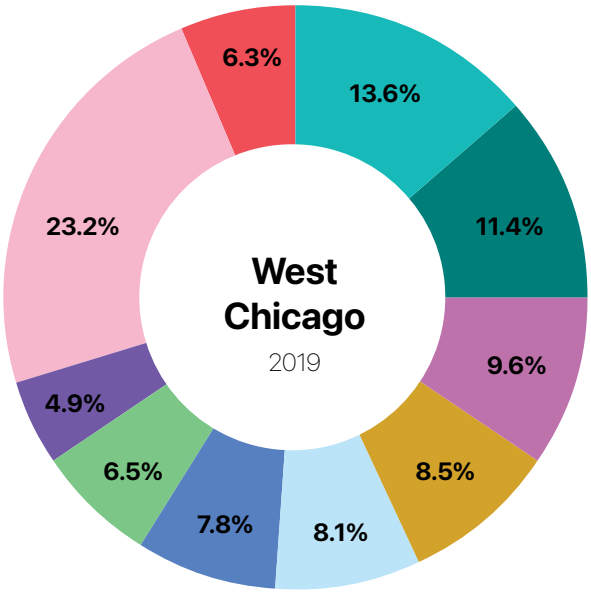


Figure 22: Estimated share of West Chicago Medicaid Enrollees Admitted to the Hospital
(Share of hospitals receiving Medicaid enrollees who live in the West Chicago study area as patients for FY2019 and FY2020)



Presence
St. Mary of Nazareth (83%) and other Presence hospitals

Rush
Rush University Medical Center (69%), Oak Park Hospital (23%), and other Rush hospitals

University of Illinois
University of Illinois Hospital

Mercyhealth
Pipeline West Suburban Medical Center (96%) and 1 other hospital

Sinai
Mt. Sinai (60%), Sinai Children's Hospital (11%), and other Sinai hospitals

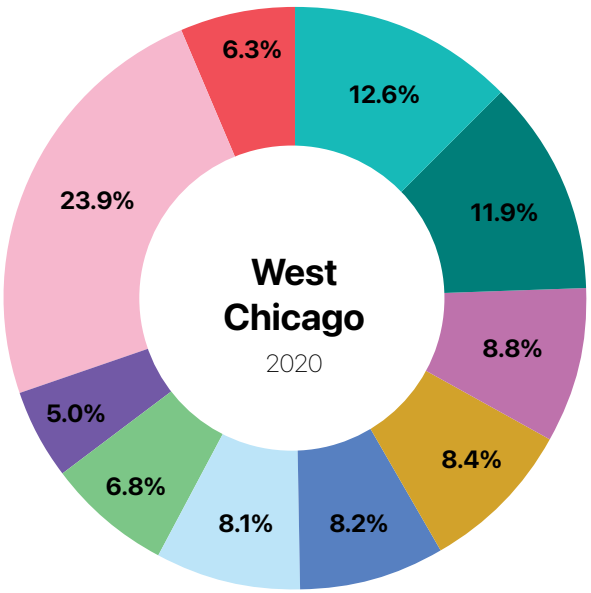
Northwestern
Ann and Robert Lurie Children's Hospital (60%), Northwestern Memorial Hospital (38%), and other Northwestern hospitals

Cook County Health
JH Stroger Hospital (97%) and 1 other hospital

St. Anthony's-Chicago
St. Anthony's-Chicago

Other hospital systems, each 1-4.9%

Other hospital systems, each <1%



Presence
St. Mary of Nazareth (82%) and other Presence hospitals

Rush
Rush University Medical Center (66%), Oak Park Hospital (27%), and other Rush hospitals

University of Illinois
University of Illinois Hospital

Mercyhealth
Pipeline West Suburban Medical Center (96%) and 1 other hospital

Northwestern
Ann and Robert Lurie Children's Hospital (58%), Northwestern Memorial Hospital (39%), and other Northwestern hospitals

Sinai
Mt. Sinai (83%), Sinai Children's Hospital (10%), and other Sinai hospitals

Cook County Health
JH Stroger Hospital (98%) and 1 other hospital

St. Anthony's-Chicago
St. Anthony's-Chicago

Other hospital systems, each 1-4.9%

Other hospital systems, each <1%

Appendix B:
Additional Analyses for Select Disease Groups and Conditions

Bipolar, Depressive, Opioid Use and Alcohol Use Disorders

After identifying the key disease groups and conditions (mental illnesses, psychoactive substance use disorders, and ACSCs), the data analytics team conducted additional analyses to develop a fuller understanding of these conditions.

For mental illness analyses, the research team focused on bipolar and depressive disorders for 2 reasons. First, these disorders represented the bulk of the mood [affective] disorders block, which was the most frequent and resource intensive of the disease blocks in the hospital utilization data. Second, these disorders are responsive to outpatient care treatment that can keep people out of the hospital.

For psychoactive substance use disorder analyses, the research team focused on opioid use disorder (OUD) and alcohol use disorders (AUD), since they represented the majority of the disorders in the psychoactive substance use disorders block and are outpatient-treatable.

Multivariate logistic regressions were performed to determine the population characteristics most associated with patients with bipolar, depressive, opioid use and alcohol use disorders. Tables 10–13 contain the results of the logistic regressions for these disorders. Variables highlighted in red represent a population characteristic statistically associated with the diagnosis (meaning the odds ratio and confidence level lower limit are ≥1 and the p-value is <0.05).

(Note: In the logistic regression tables that follow, AmericanIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, Other/UNK = Other/Unknown, AUD = Alcohol Use Disorder, and OUD = Opioid Use Disorder.)

Summary of Population Characteristics Most Associated with Patients with Bipolar Disorders

While no particular characteristic is statistically associated with bipolar disorders, low odds ratios of adults over 65 years in age in most areas indicate that being this age is likely a protective factor in terms of bipolar disorders.

Table 10: Population Characteristics Associated with Bipolar Disorder Patients (FY2019 and FY2020 Data Combined)

Bipolar_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.62	0.477	0.805	<0.001
15 to 19.9	25 to 34.9	1	0.838	1.180	0.96
20 to 24.9	25 to 34.9	0.82	0.686	0.970	0.05
35 to 44.9	25 to 34.9	0.92	0.793	1.057	0.22
45 to 64.9	25 to 34.9	0.84	0.749	0.951	0.01
>65	25 to 34.9	0.21	0.163	0.279	<0.001
RACE					
AmericanIN/AN	White	1.02	0.451	2.300	0.96
Asian/PI	White	0.28	0.147	0.522	<0.001
Black	White	0.98	0.862	1.113	0.75
Other/Unknown	White	0.59	0.490	0.701	<0.001
SEX					
Female	Male	0.53	0.482	0.577	<0.001

Bipolar_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.77	0.58	1.02	0.63
15 to 19.9	25 to 34.9	1.17	0.96	1.41	0.11
20 to 24.9	25 to 34.9	1.07	0.88	1.31	0.5
35 to 44.9	25 to 34.9	0.79	0.66	0.95	0.05
45 to 64.9	25 to 34.9	0.57	0.48	0.67	<0.001
>65	25 to 34.9	0.13	0.09	0.21	<0.001
RACE					
AmericanIN/AN	White	0.18	0.03	1.32	0.09
Asian/PI	White	0.38	0.21	0.69	<0.01
Black	White	0.72	0.63	0.82	<0.001
Other/Unknown	White	0.52	0.44	0.63	<0.001
SEX					
Female	Male	0.51	0.45	0.57	<0.001

Table 10 Continued

Bipolar_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.27	0.18	0.40	<0.001
15 to 19.9	25 to 34.9	0.59	0.47	0.75	<0.001
20 to 24.9	25 to 34.9	0.76	0.61	0.94	<0.05
35 to 44.9	25 to 34.9	0.93	0.78	1.10	0.38
45 to 64.9	25 to 34.9	0.92	0.80	1.07	0.27
>65	25 to 34.9	0.19	0.13	0.26	<0.001
RACE					
AmericanIN/AN	White	0.45	0.11	1.82	0.26
Asian/PI	White	0.51	0.29	0.91	<0.05
Black	White	0.82	0.72	0.93	<0.01
Other/Unknown	White	0.71	0.59		<0.001
SEX					
Female	Male	0.52	0.06	0.58	<0.001

Bipolar_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.64	0.45	0.91	0.05
15 to 19.9	25 to 34.9	0.93	0.72	1.21	0.59
20 to 24.9	25 to 34.9	0.8	0.60	1.07	0.13
35 to 44.9	25 to 34.9	0.98	0.78	1.24	0.87
45 to 64.9	25 to 34.9	0.63	0.50	0.78	<0.001
>65	25 to 34.9	0.12	0.07	0.20	<0.001
RACE					
AmericanIN/AN	White	0.66	0.16	2.68	0.56
Asian/PI	White	0.57	0.25	1.28	0.17
Black	White	0.96	0.80	1.15	0.65
Other/Unknown	White	0.72	0.58	0.88	<0.01
SEX					
Female	Male	0.54	0.46	0.63	<0.001

Summary of Population Characteristics Most Associated with Patients with Depressive Disorders

- Teenagers, age 12–19 in all areas
- Young adults, age 20–24 in South Cook
- Adults, age 35–65 in South and West Chicago

Table 11: Population Characteristics Associated with Depressive Disorder Patients (FY2019 and FY2020 Data Combined)

DEPRESSION_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	2.93	2.546	3.372	<0.001
15 to 19.9	25 to 34.9	2.67	2.370	3.010	<0.001
20 to 24.9	25 to 34.9	-1.1	0.956	1.270	0.17
35 to 44.9	25 to 34.9	1.24	1.090	1.400	<0.001
45 to 64.9	25 to 34.9	1.25	1.127	1.390	<0.001
>65	25 to 34.9	0.54	0.453	0.641	<0.001
RACE					
AmericanIN/AN	White	1.13	0.643	1.970	0.67
Asian/PI	White	0.35	0.240	0.515	<0.001
Black	White	0.72	0.659	0.789	<0.001
Other/Unknown	White	0.71	0.633	0.787	<0.001
SEX					
Female	Male	1.06	0.989	1.130	0.09

DEPRESSION_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	2.28	1.89	2.75	<0.001
15 to 19.9	25 to 34.9	2.57	2.21	3.00	<0.001
20 to 24.9	25 to 34.9	1.4	1.17	1.67	<0.001
35 to 44.9	25 to 34.9	1.1	0.93	1.29	0.26
45 to 64.9	25 to 34.9	0.94	0.82	1.09	0.43
>65	25 to 34.9	0.27	0.20	0.37	<0.001
RACE					
AmericanIN/AN	White	0.66	0.29	1.49	0.31
Asian/PI	White	0.38	0.24	0.61	<0.001
Black	White	0.58	0.52	0.64	<0.001
Other/Unknown	White	0.63	0.55	0.71	<0.001
SEX					
Female	Male	0.86	0.78	0.94	<0.001

Table 11 Continued

DEPRESSION_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	2.08	1.77	2.46	<0.001
15 to 19.9	25 to 34.9	2.2	1.92	2.53	<0.001
20 to 24.9	25 to 34.9	1	0.85	1.19	0.95
35 to 44.9	25 to 34.9	1.28	1.11	1.48	<0.001
45 to 64.9	25 to 34.9	1.54	1.36	1.73	<0.001
>65	25 to 34.9	0.61	0.51	0.73	<0.001
RACE					
AmericanIN/AN	White	0.6	0.26	1.34	0.21
Asian/PI	White	0.62	0.44	0.87	<0.01
Black	White	0.61	0.56	0.67	<0.001
Other/Unknown	White	0.82	0.74	0.91	<0.001
SEX					
Female	Male	0.95	0.88	1.03	0.91

DEPRESSION_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	2.94	2.45	3.53	<0.001
15 to 19.9	25 to 34.9	3	2.56	3.52	<0.001
20 to 24.9	25 to 34.9	1.11	0.90	1.37	0.33
35 to 44.9	25 to 34.9	1.13	0.94	1.37	0.17
45 to 64.9	25 to 34.9	1.08	0.92	1.27	0.34
>65	25 to 34.9	0.24	0.17	0.33	<0.001
RACE					
AmericanIN/AN	White	1.7	0.92	3.15	0.09
Asian/PI	White	0.57	0.33	0.97	0.05*
Black	White	0.74	0.65	0.84	<0.001
Other/Unknown	White	0.96	0.85	1.07	0.43
SEX					
Female	Male	1.06	0.96	1.17	0.21

Summary of Population Characteristics Most Associated with Patients with Opioid Use Disorder

- Adults age 35–65 in South and West Chicago
- Older adults over age 65 in South Chicago
- Black people in South Chicago and West Cook

Table 12: Population Characteristics Associated with Opioid Disorder Patients (FY2019 and FY2020 Data Combined)

OUD_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.9
15 to 19.9	25 to 34.9	0.02	0.00	0.14	<0.001
20 to 24.9	25 to 34.9	0.18	0.09	0.35	<0.001
35 to 44.9	25 to 34.9	2.05	1.62	2.60	<0.001
45 to 64.9	25 to 34.9	6.44	5.32	7.80	<0.001
>65	25 to 34.9	1.69	1.31	2.20	<0.001
RACE					
AmericanIN/AN	White	1.5	0.61	3.69	0.38
Asian/PI	White	0.12	0.05	0.33	<0.001
Black	White	1.33	1.14	1.56	<0.001
Other/Unknown	White	0.68	0.53	0.88	0.01
SEX					
Female	Male	0.34	0.31	0.38	<0.001

OUD_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.029	0.00	0.21	<0.001
15 to 19.9	25 to 34.9	0.015	0.00	0.11	<0.001
20 to 24.9	25 to 34.9	0.44	0.28	0.70	<0.001
35 to 44.9	25 to 34.9	1.21	0.92	1.57	0.16
45 to 64.9	25 to 34.9	1.08	0.86	1.37	0.49
>65	25 to 34.9	0.11	0.05	0.24	<0.001
RACE					
AmericanIN/AN	White	0.41	0.06	2.91	0.36
Asian/PI	White	0.22	0.07	0.69	<0.001
Black	White	0.54	0.45	0.66	<0.01
Other/Unknown	White	0.36	0.25	0.51	<0.001
SEX					
Female	Male	0.21	0.17	0.25	<0.001

Table 12 Continued

OUD_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0	0.01	0.09	<0.001
15 to 19.9	25 to 34.9	0.048	0.14	0.30	<0.001
20 to 24.9	25 to 34.9	0.2	0.34	0.61	<0.001
35 to 44.9	25 to 34.9	2.49	1.37	1.93	<0.001
45 to 64.9	25 to 34.9	6.24	1.13	1.53	<0.001
>65	25 to 34.9	1.03	0.33	0.55	<0.001
RACE					
AmericanIN/AN	White	0.6	0.23	2.27	0.57
Asian/PI	White	0.17	0.11	0.53	<0.001
Black	White	1.81	0.73	0.95	<0.01
Other/Unknown	White	0.84	0.59	0.87	<0.001
SEX					
Female	Male	0.33	0.21	0.26	0.94

OUD_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.028	0.00	0.20	<0.001
15 to 19.9	25 to 34.9	0.032	0.01	0.13	<0.001
20 to 24.9	25 to 34.9	0.26	0.14	0.49	<0.001
35 to 44.9	25 to 34.9	1.02	0.74	1.39	0.92
45 to 64.9	25 to 34.9	1.35	1.05	1.74	0.05
>65	25 to 34.9	0.11	0.05	0.24	<0.001
RACE					
AmericanIN/AN	White	0	0.00	Inf	0.99
Asian/PI	White	0.17	0.02	1.20	0.05
Black	White	1.56	1.26	1.92	<0.001
Other/Unknown	White	0.59	0.41	0.84	<0.01
SEX					
Female	Male	0.23	0.18	0.28	<0.001

Summary of Population Characteristics Most Associated with Patients with Alcohol Use Disorder

- Adults age 35–65 in South Chicago, West Chicago, and South Cook
- Adults age 35–44 in West Cook

Table 13: Population Characteristics Associated with Alcohol Use Disorder Patients (FY2019 and FY2020 Data Combined)

AUD_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.087	0.046	0.164	<0.001
15 to 19.9	25 to 34.9	0.25	0.186	0.340	<0.001
20 to 24.9	25 to 34.9	0.48	0.378	0.612	<0.001
35 to 44.9	25 to 34.9	1.46	1.267	1.687	<0.001
45 to 64.9	25 to 34.9	1.53	1.357	1.728	<0.001
>65	25 to 34.9	0.51	0.409	0.624	<0.001
RACE					
AmericanIN/AN	White	0.78	0.318	1.898	0.57
Asian/PI	White	0.21	0.111	0.392	<0.001
Black	White	0.86	0.760	0.976	0.05
Other/Unknown	White	0.72	0.599	0.864	<0.001
SEX					
Female	Male	0.29	0.263	0.318	<0.001

AUD_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.028	0.01	0.11	<0.001
15 to 19.9	25 to 34.9	0.17	0.11	0.27	<0.001
20 to 24.9	25 to 34.9	0.42	0.30	0.58	<0.001
35 to 44.9	25 to 34.9	1.34	1.12	1.61	<0.01
45 to 64.9	25 to 34.9	1.25	1.06	1.46	<0.01
>65	25 to 34.9	0.036	0.26	0.50	<0.001
RACE					
AmericanIN/AN	White	0.79	0.29	2.15	0.63
Asian/PI	White	0.17	0.07	0.41	<0.001
Black	White	0.6	0.53	0.69	<0.001
Other/Unknown	White	0.45	0.36	0.57	<0.001
SEX					
Female	Male	0.29	0.26	0.33	<0.001

Table 13 Continued

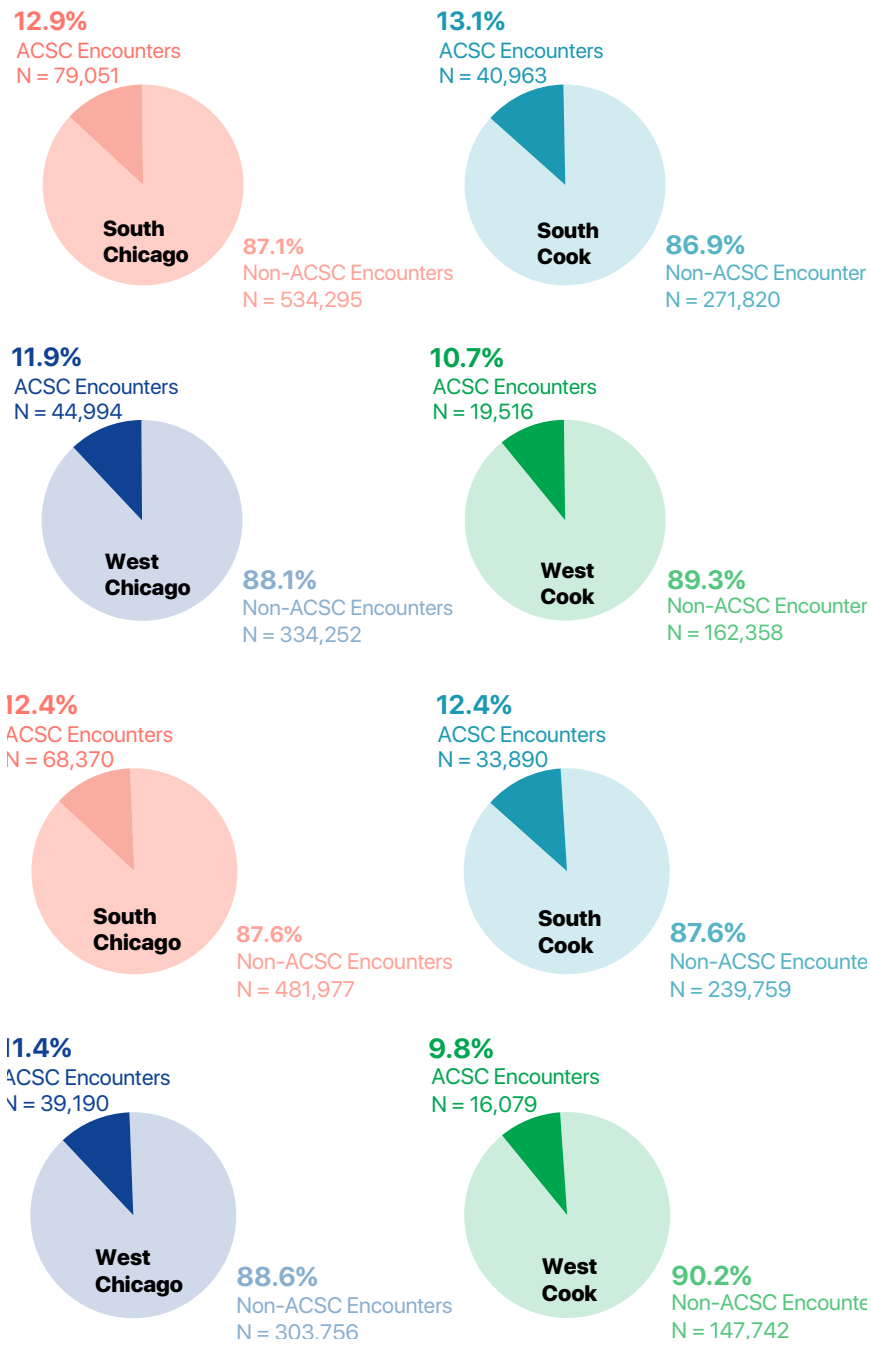
AUD_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.023	0.00	INF	0.95
15 to 19.9	25 to 34.9	0.21	0.02	0.15	<0.001
20 to 24.9	25 to 34.9	0.45	0.11	0.36	<0.001
35 to 44.9	25 to 34.9	1.63	2.01	3.07	<0.001
45 to 64.9	25 to 34.9	1.31	5.21	7.47	<0.001
>65	25 to 34.9	0.43	0.78	1.36	0.84
RACE					
AmericanIN/AN	White	0.72	0.15	2.45	0.47
Asian/PI	White	0.24	0.06	0.45	<0.001
Black	White	0.83	1.59	2.05	<0.001
Other/Unknown	White	0.72	0.69	1.03	0.1
SEX					
Female	Male	0.23	0.30	0.37	<0.001

AUD_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
12 to 14.9	25 to 34.9	0.014	0.00	0.10	<0.001
15 to 19.9	25 to 34.9	0.27	0.18	0.40	<0.001
20 to 24.9	25 to 34.9	0.6	0.42	0.86	<0.01
35 to 44.9	25 to 34.9	1.34	1.05	1.70	0.05
45 to 64.9	25 to 34.9	1.1	0.89	1.37	0.36
>65	25 to 34.9	0.23	0.15	0.35	<0.001
RACE					
AmericanIN/AN	White	0.32	0.04	2.33	0.26
Asian/PI	White	0.42	0.17	1.02	0.05
Black	White	0.72	0.60	0.87	<0.001
Other/Unknown	White	0.83	0.66	1.03	0.88
SEX					
Female	Male	0.22	0.19	0.26	<0.001

Ambulatory Care Sensitive Conditions

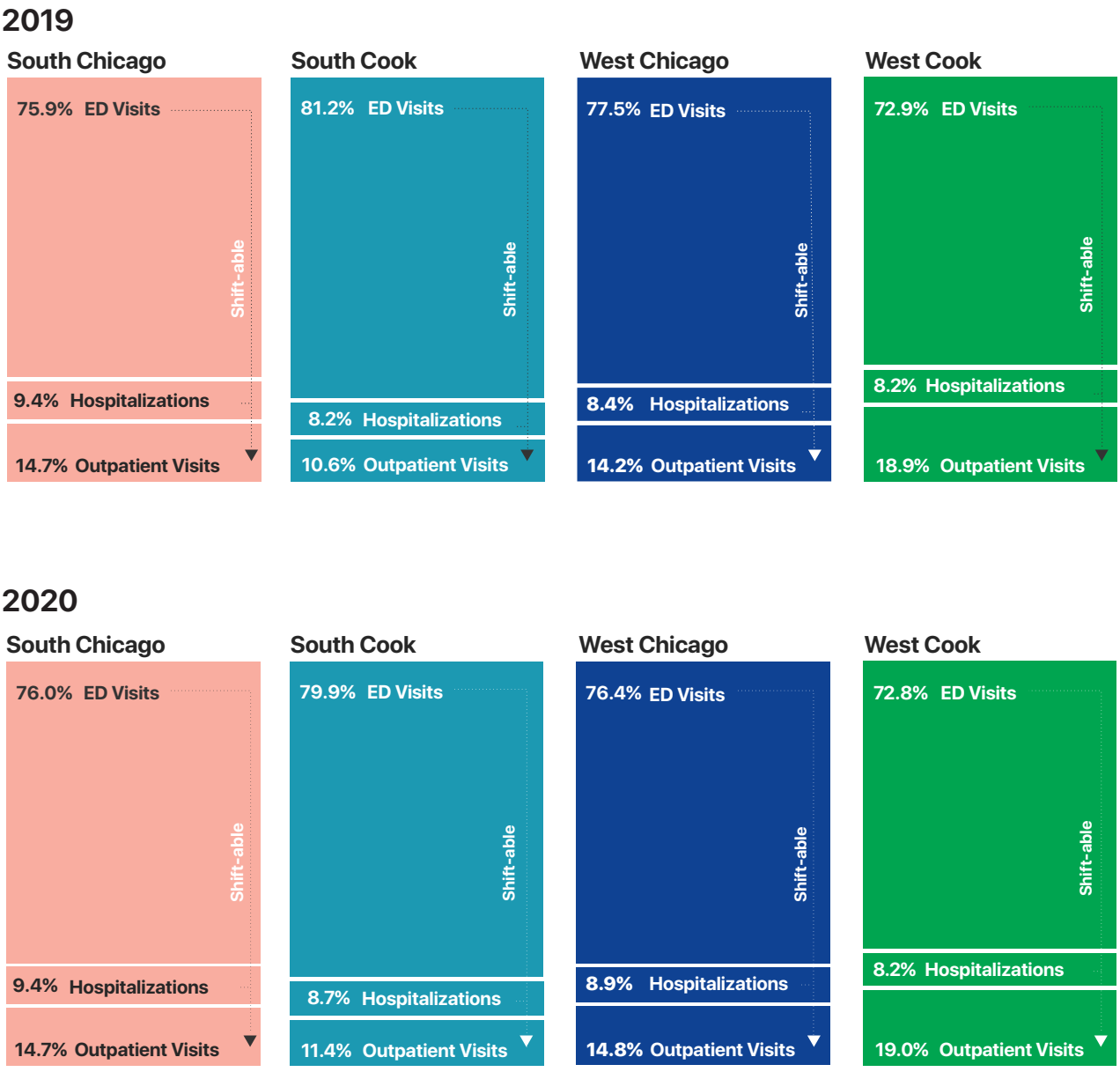
ACSCs, which are health conditions for which good outpatient care can potentially prevent the need for hospitalization or early intervention can prevent complications or more severe disease (25) and they are some of the most frequent and resource-intensive conditions in the FY2019 and FY2020 Medicaid institutional data. In fact, ACSCs account for approximately 10–17% of all care encounters in the institutional data across the study areas (see Figure 23).

Figure 23: Distribution of Care Encounters for ACSCs and Non-ACSCs by Study Area



A majority of ACSC care encounters take place in the ED or the hospital as opposed to outpatient settings, adding evidence to the lack of outpatient resources in each of the areas under study (see Figure 24).

Figure 24: Distribution of Point of Care Encounters for ACSCs by Study Area



AHRQ developed Preventative Quality Indicators (PQIs), measures based on ACSC hospital inpatient discharge data and designed to identify outpatient care quality and access issues, including appropriate follow-up care after hospital discharge. These benchmarks for healthcare accessibility and quality are based on a subset of the ACSC codes for hospital admissions in the John Billings algorithm (26). Specifically, PQIs use data from hospital discharges to identify admissions that might have been avoided through access to high-quality outpatient care. In other words, while PQIs are based on hospital inpatient data, they provide insight into the quality of the healthcare ecosystem outside hospitals and in the community by measuring preventable complications that occur in a given population (in a community or region) (27). Four composite PQIs and several disease-specific PQIs make up the composite measures.

Composite PQIs:

- PQI 90 Composite combines hospitalizations diagnoses for all PQIs below
- PQI 91 Acute is a composite indicator of acute, episodic hospitalization diagnoses and is composed of the following disease-specific acute PQIs:
  - -PQI 11 Bacterial Pneumonia Admission Rate
  - -PQI 12 Urinary Tract Infection Admission Rate
- PQI 92 Chronic is a composite indicator of chronic disease hospitalizations and is composed of the following disease-specific chronic PQIs:
  - -PQI 01 Diabetes Mellitus, Short-Term Complications Admission Rate
  - -PQI 03 Diabetes Mellitus, Long-Term Complications Admission Rate
  - -PQI 05 COPD or Asthma, Older Adults (40+) Admission Rate
  - -PQI 07 Hypertension Admission Rate
  - -PQI 08 Congestive Heart Failure Admission Rate
  - -PQI 10 Dehydration Admission Rate
  - -PQI 14 Uncontrolled Diabetes Mellitus Admission Rate
  - -PQI 15 Asthma, Younger Adults (18–39) Admission Rate
  - -PQI 16 Rate of Lower Extremity Amputation among Patients with Diabetes
- PQI 93 Diabetes Mellitus Hospitalization Composite is a combined measure of diabetes-related PQIs:
  - -PQI 01 Diabetes Mellitus, Short-Term Complications Admission Rate
  - -PQI 03 Diabetes Mellitus, Long-Term Complications Admission Rate
  - -PQI 14 Uncontrolled Diabetes Mellitus Admission Rate

Population characteristics associated with PQI composite measures were computed and appear in Tables 14 to 17.

(Note: In the logistic regression tables that follow, AmerIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, and Other/UNK = Other/Unknown.)

Summary of Population Characteristics Most Associated with PQI 90, a composite of all PQI measures:

- Black adults, age 40 and over in all areas

Table 14: Population Characteristics Associated with PQI 90, Overall ACSC Composite (FY2019 and FY2020 Data Combined)

PQI 90_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.67	3.40	3.95	<.0001
65-74	18-39	4.06	3.68	4.48	<.0001
75 or older	18-39	4.83	4.36	5.35	<.0001
RACE					
AmerIN/AN	White	0.87	0.43	1.75	0.69
Asian/PI	White	0.63	0.48	0.82	0.0007
Black	White	1.53	1.39	1.70	<.0001
Other/UNK	White	1.26	1.11	1.43	0.0003
SEX					
Male	Female	1.03	0.98	1.09	0.28

PQI 90_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.18	2.86	3.54	<.0001
65-74	18-39	4.68	4.07	5.37	<.0001
75 or older	18-39	4.96	4.31	5.71	<.0001
RACE					
AmerIN/AN	White	1.46	0.65	3.31	0.36
Asian/PI	White	0.94	0.67	1.31	0.70
Black	White	1.48	1.35	1.64	<.0001
Other/UNK	White	1.33	1.16	1.53	<.0001
SEX					
Male	Female	1.06	0.98	1.15	0.15

Table 14 Continued

PQI 90_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.25	2.94	3.59	<.0001
65-74	18-39	5.03	4.42	5.72	<.0001
75 or older	18-39	5.01	4.36	5.75	<.0001
RACE					
AmerIN/AN	White	1.19	0.50	2.86	0.70
Asian/PI	White	1.26	0.95	1.69	0.11
Black	White	1.41	1.27	1.56	<.0001
Other/UNK	White	1.22	1.08	1.39	0.0021
SEX					
Male	Female	0.99	0.92	1.07	0.80

PQI 90_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	4.30	3.59	5.15	<.0001
65-74	18-39	6.81	5.45	8.51	<.0001
75 or older	18-39	8.94	7.24	11.04	<.0001
RACE					
AmerIN/AN	White	0.64	0.22	1.87	0.41
Asian/PI	White	1.00	0.65	1.53	0.98
Black	White	1.35	1.17	1.57	<.0001
Other/UNK	White	1.06	0.89	1.27	0.52
SEX					
Male	Female	1.10	0.97	1.24	0.15

Summary of Population Characteristics Most Associated with PQI 91, a composite of acute PQI measures:

- Adults, age 40 and over in all areas
- Females in all areas except West Cook
- Asians and Pacific Islanders in West Chicago

Table 15: Population Characteristics Associated with PQI 91, ACSC Acute Composite (FY2019 and FY2020 Data Combined)

PQI 91_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.55	2.13	3.04	<.0001
65-74	18-39	3.76	3.01	4.69	<.0001
75 or older	18-39	6.88	5.60	8.45	<.0001
RACE					
AmerIN/AN	White	0.54	0.07	3.92	0.54
Asian/PI	White	0.79	0.51	1.23	0.29
Black	White	1.01	0.83	1.22	0.95
Other/UNK	White	1.03	0.79	1.33	0.83
SEX					
Female	Male	1.14	1.01	1.29	0.04

PQI 91_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.62	2.06	3.33	<.0001
65-74	18-39	4.84	3.63	6.44	<.0001
75 or older	18-39	7.66	5.89	9.98	<.0001
RACE					
AmerIN/AN	White	0.86	0.12	6.33	0.88
Asian/PI	White	1.30	0.77	2.19	0.33
Black	White	0.84	0.70	1.01	0.06
Other/UNK	White	0.80	0.59	1.08	0.15
SEX					
Female	Male	1.62	1.35	1.94	<.0001

Table 15 Continued

PQI 91_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.75	2.19	3.44	<.0001
65-74	18-39	4.82	3.67	6.33	<.0001
75 or older	18-39	5.99	4.56	7.87	<.0001
RACE					
AmerIN/AN	White	0.86	0.12	6.33	0.88
Asian/PI	White	1.84	1.16	2.94	0.01
Black	White	1.02	0.84	1.24	0.87
Other/UNK	White	0.93	0.71	1.22	0.61
SEX					
Female	Male	1.30	1.10	1.52	0.00

PQI 91_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.66	1.90	3.73	<.0001
65-74	18-39	6.06	4.12	8.92	<.0001
75 or older	18-39	11.19	7.96	15.72	<.0001
RACE					
AmerIN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.91	0.44	1.89	0.79
Black	White	1.10	0.85	1.41	0.47
Other/UNK	White	1.02	0.74	1.40	0.92
SEX					
Female	Male	1.16	0.92	1.46	0.22

NR = Not reported due to small sample size/unstable estimate

Summary of Population Characteristics Most Associated with PQI 92, a composite of chronic PQI measures:

- Black adults, age 40 and over in all areas
- Males in South Cook

Table 16: Population Characteristics Associated with PQI 92, ACSC Chronic Composite (FY2019 and FY2020 Data Combined)

PQI 92_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.78	3.48	4.10	<.0001
65-74	18-39	3.95	3.55	4.39	<.0001
75 or older	18-39	4.03	3.60	4.52	<.0001
RACE					
AmerIN/AN	White	0.98	0.46	2.06	0.95
Asian/PI	White	0.55	0.39	0.77	0.0005
Black	White	1.64	1.47	1.84	<.0001
Other/UNK	White	1.32	1.15	1.51	0.0001
SEX					
Male	Female	1.06	1.00	1.12	0.058

PQI 92_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.22	2.87	3.62	<.0001
65-74	18-39	4.42	3.80	5.14	<.0001
75 or older	18-39	3.98	3.39	4.66	<.0001
RACE					
AmerIN/AN	White	1.62	0.68	3.88	0.28
Asian/PI	White	0.78	0.52	1.19	0.25
Black	White	1.67	1.50	1.86	<.0001
Other/UNK	White	1.51	1.30	1.76	<.0001
SEX					
Male	Female	1.19	1.09	1.30	<.0001

Table 16 Continued

PQI 92_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	3.25	2.91	3.63	<.0001
65-74	18-39	4.74	4.11	5.46	<.0001
75 or older	18-39	4.37	3.75	5.11	<.0001
RACE					
AmerIN/AN	White	1.33	0.52	3.41	0.56
Asian/PI	White	1.04	0.74	1.46	0.81
Black	White	1.52	1.36	1.70	<.0001
Other/UNK	White	1.30	1.13	1.50	0.0002
SEX					
Male	Female	1.05	0.97	1.14	0.20

PQI 92_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	4.79	3.88	5.91	<.0001
65-74	18-39	6.54	5.04	8.47	<.0001
75 or older	18-39	6.95	5.40	8.94	<.0001
RACE					
AmerIN/AN	White	0.89	0.30	2.65	0.83
Asian/PI	White	1.01	0.62	1.66	0.97
Black	White	1.32	1.12	1.56	0.0011
Other/UNK	White	1.05	0.86	1.29	0.62
SEX					
Male	Female	1.16	1.01	1.34	0.034

Summary of Population Characteristics Most Associated with PQI 93, a composite of diabetes measures:

- Black men age 40–64 in South Chicago and South Cook
- Men age 40–74 in West Chicago
- Men age 40 and over in West Cook

Table 17: Population Characteristics Associated with PQI 93, Diabetes Hospitalization Composite (FY2019 and FY2020 Data Combined)

PQI 93_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	1.38	1.22	1.57	<.0001
65-74	18-39	0.97	0.78	1.19	0.74
75 or older	18-39	1.19	0.96	1.47	0.12
RACE					
AmerIN/AN	White	1.17	0.36	3.74	0.80
Asian/PI	White	0.38	0.19	0.75	0.0057
Black	White	1.26	1.05	1.51	0.013
Other/UNK	White	1.31	1.05	1.64	0.016
SEX					
Male	Female	1.33	1.19	1.48	<.0001

PQI 93_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	1.40	1.19	1.65	<.0001
65-74	18-39	1.30	0.99	1.70	0.058
75 or older	18-39	0.75	0.53	1.08	0.12
RACE					
AmerIN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.47	0.19	1.15	0.0995
Black	White	1.40	1.19	1.65	<.0001
Other/UNK	White	1.40	1.09	1.78	0.0078
SEX					
Male	Female	1.82	1.57	2.11	<.0001

NR = Not reported due to small sample size/unstable estimate

Table 17 Continued

PQI 93_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	1.21	1.02	1.44	0.026
65-74	18-39	1.64	1.28	2.09	<.0001
75 or older	18-39	0.88	0.62	1.23	0.44
RACE					
AmerIN/AN	White	0.77	0.11	5.67	0.80
Asian/PI	White	1.03	0.55	1.93	0.93
Black	White	1.09	0.90	1.32	0.39
Other/UNK	White	1.41	1.11	1.78	0.0044
SEX					
Male	Female	1.34	1.15	1.56	0.0002

PQI 93_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
40-64	18-39	2.91	2.11	4.01	<.0001
65-74	18-39	3.24	2.10	4.98	<.0001
75 or older	18-39	2.81	1.82	4.36	<.0001
RACE					
AmerIN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.93	0.38	2.30	0.88
Black	White	0.81	0.61	1.08	0.15
Other/UNK	White	1.19	0.86	1.65	0.29
SEX					
Male	Female	1.44	1.13	1.84	0.0036

NR = Not reported due to small sample size/unstable estimate

A majority of hospital-level care for ACSCs take places in the ED. PQIs are measures for ACSC hospitalizations. For ED visits, ACSCs can be categorized as acute, chronic, or avoidable (28). Table 18 lists the conditions included in each of these categories. Population characteristics associated with PQI composite measures were computed and appear in Tables 19–21.

(Note: In the logistic regression tables that follow, AmerIN/AN = American Indian/American Native, Asian/PI = Asian/Pacific Islander, and Other/UNK = Other/Unknown.)

Table 18: Diseases Comprising Acute, Chronic, and Avoidable ACSCs

ACUTE	CHRONIC	AVOIDABLE
Bacterial Pneumonia	Angina	Congenital syphilis
Bronchitis	Asthma	Failure-to-thrive
Cellulitis	Chronic obstructive pulmonary disease (COPD)	Dental conditions
Seizure (non-epileptic)	Congestive heart failure (CHF)	Vaccine preventable
Dehydration	Diabetes	Nutritional deficiencies
Gastroenteritis, noninfective	Grand mal status and other, epileptic convulsions	
Hypoglycemia	Hypertension	
Kidney/urinary infection	Tuberculosis (non-pulmonary)	
Pelvic inflammatory disease	Tuberculosis (pulmonary)	
Severe ear, nose, and throat infections		
Skin grafts with cellulitis		

Summary of Population Characteristics Most Associated with Acute ACSC ED Visits

- Females age 0–19 in all areas
- Females age 20–24 in South Cook as well

Table 19: Population Characteristics Associated with Acute ACSC ED Visits (FY2019 and FY2020 Data Combined)

ACUTE_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	4.19	3.97	4.43	<.0001
1 to 2.9	25 to 34.9	4.63	4.41	4.87	<.0001
3 to 5.9	25 to 34.9	4.04	3.83	4.25	<.0001
6 to 11.9	25 to 34.9	3.05	2.90	3.20	<.0001
12 to 14.9	25 to 34.9	1.78	1.65	1.90	<.0001
15 to 19.9	25 to 34.9	1.31	1.24	1.39	<.0001
20 to 24.9	25 to 34.9	1.02	0.97	1.08	0.38
35 to 44.9	25 to 34.9	0.88	0.83	0.92	<.0001
45 to 64.9	25 to 34.9	0.61	0.58	0.64	<.0001
65 or older	25 to 34.9	0.51	0.46	0.55	<.0001
RACE					
AmerIN/AN	White	0.97	0.75	1.26	0.82
Asian/PI	White	1.14	0.99	1.30	0.066
Black	White	0.97	0.93	1.01	0.13
Other/UNK	White	0.96	0.93	1.01	0.086
SEX					
Female	Male	1.11	1.09	1.14	<.0001

Table 19 Continued

ACUTE_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	4.57	4.27	4.90	<.0001
1 to 2.9	25 to 34.9	5.12	4.81	5.44	<.0001
3 to 5.9	25 to 34.9	4.44	4.17	4.73	<.0001
6 to 11.9	25 to 34.9	2.93	2.75	3.12	<.0001
12 to 14.9	25 to 34.9	1.66	1.52	1.81	<.0001
15 to 19.9	25 to 34.9	1.36	1.27	1.45	<.0001
20 to 24.9	25 to 34.9	1.10	1.03	1.17	0.0065
35 to 44.9	25 to 34.9	0.93	0.87	0.99	0.017
45 to 64.9	25 to 34.9	0.63	0.60	0.67	<.0001
65 or older	25 to 34.9	0.49	0.43	0.55	<.0001
RACE					
AmerIN/AN	White	1.07	0.81	1.41	0.64
Asian/PI	White	0.94	0.82	1.08	0.40
Black	White	0.95	0.91	0.99	0.018
Other/UNK	White	0.99	0.94	1.03	0.61
SEX					
Female	Male	1.17	1.13	1.20	<.0001

ACUTE_W. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	4.15	3.87	4.45	<.0001
1 to 2.9	25 to 34.9	4.81	4.53	5.12	<.0001
3 to 5.9	25 to 34.9	4.34	4.07	4.62	<.0001
6 to 11.9	25 to 34.9	3.00	2.82	3.19	<.0001
12 to 14.9	25 to 34.9	1.79	1.64	1.95	<.0001
15 to 19.9	25 to 34.9	1.28	1.20	1.38	<.0001
20 to 24.9	25 to 34.9	1.07	1.00	1.15	0.38
35 to 44.9	25 to 34.9	0.88	0.83	0.94	<.0001
45 to 64.9	25 to 34.9	0.64	0.60	0.67	<.0001
65 or older	25 to 34.9	0.60	0.54	0.66	<.0001
RACE					
AmerIN/AN	White	0.85	0.62	1.16	0.82
Asian/PI	White	1.06	0.89	1.26	0.066
Black	White	0.93	0.89	0.97	0.13
Other/UNK	White	0.98	0.94	1.02	0.086
SEX					
Female	Male	1.16	1.12	1.19	<.0001

Table 19 Continued

ACUTE_West Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	3.92	3.55	4.33	<.0001
1 to 2.9	25 to 34.9	4.50	4.12	4.91	<.0001
3 to 5.9	25 to 34.9	3.79	3.46	4.15	<.0001
6 to 11.9	25 to 34.9	3.07	2.81	3.34	<.0001
12 to 14.9	25 to 34.9	1.64	1.46	1.85	<.0001
15 to 19.9	25 to 34.9	1.22	1.10	1.35	0.0001
20 to 24.9	25 to 34.9	1.00	0.90	1.12	0.94
35 to 44.9	25 to 34.9	0.85	0.77	0.94	0.0022
45 to 64.9	25 to 34.9	0.64	0.59	0.71	<.0001
65 or older	25 to 34.9	0.54	0.46	0.63	<.0001
RACE					
AmerIN/AN	White	0.95	0.64	1.42	0.81
Asian/PI	White	0.97	0.76	1.22	0.77
Black	White	0.98	0.91	1.04	0.44
Other/UNK	White	1.02	0.97	1.08	0.47
SEX					
Female	Male	1.12	1.07	1.17	<.0001

Summary of Population Characteristics Most Associated with Chronic ACSC ED Visits

- Adults age 35 and older in all areas, children in South and West Chicago age 3–14, and children age 6–11 in South and West Cook
- Blacks in all areas plus American Indian/American Natives in South Chicago
- Males in all areas

Table 20: Population Characteristics Associated with Chronic ACSC ED Visits (FY2019 and FY2020 Data Combined)

CHRONIC_So. Chicago Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	0.17	0.14	0.21	<.0001
1 to 2.9	25 to 34.9	0.69	0.62	0.76	<.0001
3 to 5.9	25 to 34.9	1.44	1.33	1.57	<.0001
6 to 11.9	25 to 34.9	1.71	1.59	1.85	<.0001
12 to 14.9	25 to 34.9	1.28	1.16	1.42	<.0001
15 to 19.9	25 to 34.9	0.89	0.82	0.97	0.0068
20 to 24.9	25 to 34.9	0.81	0.75	0.88	<.0001
35 to 44.9	25 to 34.9	1.46	1.38	1.55	<.0001
45 to 64.9	25 to 34.9	2.53	2.42	2.66	<.0001
65 or older	25 to 34.9	2.31	2.16	2.47	<.0001
RACE					
AmerIN/AN	White	1.41	1.03	1.94	0.031
Asian/PI	White	0.67	0.53	0.84	0.0004
Black	White	1.41	1.32	1.50	<.0001
Other/UNK	White	1.17	1.09	1.25	<.0001
SEX					
Male	Female	1.22	1.19	1.26	<.0001

Table 20 Continued

CHRONIC_South Cook Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	0.13	0.09	0.17	<.0001
1 to 2.9	25 to 34.9	0.48	0.41	0.56	<.0001
3 to 5.9	25 to 34.9	1.09	0.97	1.23	0.16
6 to 11.9	25 to 34.9	1.31	1.17	1.45	<.0001
12 to 14.9	25 to 34.9	1.03	0.89	1.20	0.65
15 to 19.9	25 to 34.9	0.77	0.69	0.87	<.0001
20 to 24.9	25 to 34.9	0.80	0.72	0.90	<.0001
35 to 44.9	25 to 34.9	1.44	1.32	1.56	<.0001
45 to 64.9	25 to 34.9	2.15	2.00	2.30	<.0001
65 or older	25 to 34.9	2.38	2.15	2.64	<.0001
RACE					
AmerIN/AN	White	1.48	0.98	2.24	0.061
Asian/PI	White	0.85	0.66	1.08	0.19
Black	White	1.53	1.43	1.64	<.0001
Other/UNK	White	1.34	1.24	1.45	<.0001
SEX					
Male	Female	1.41	1.35	1.48	<.0001

Table 20 Continued

CHRONIC_W. Chicago Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	0.24	0.19	0.31	<.0001
1 to 2.9	25 to 34.9	0.75	0.66	0.86	<.0001
3 to 5.9	25 to 34.9	1.45	1.30	1.62	<.0001
6 to 11.9	25 to 34.9	1.76	1.60	1.94	<.0001
12 to 14.9	25 to 34.9	1.35	1.18	1.55	<.0001
15 to 19.9	25 to 34.9	0.81	0.72	0.91	0.0006
20 to 24.9	25 to 34.9	0.93	0.84	1.03	0.15
35 to 44.9	25 to 34.9	1.65	1.53	1.78	<.0001
45 to 64.9	25 to 34.9	2.89	2.71	3.08	<.0001
65 or older	25 to 34.9	2.68	2.46	2.93	<.0001
RACE					
AmerIN/AN	White	1.28	0.86	1.92	0.23
Asian/PI	White	1.16	0.93	1.45	0.18
Black	White	1.48	1.39	1.57	<.0001
Other/UNK	White	1.22	1.14	1.30	<.0001
SEX					
Male	Female	1.27	1.22	1.32	<.0001

Table 20 Continued

CHRONIC_West Cook Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
< 1 y	25 to 34.9	0.23	0.15	0.33	<.0001
1 to 2.9	25 to 34.9	0.63	0.51	0.78	<.0001
3 to 5.9	25 to 34.9	0.97	0.80	1.17	0.75
6 to 11.9	25 to 34.9	1.27	1.08	1.48	0.0034
12 to 14.9	25 to 34.9	0.81	0.64	1.03	0.080
15 to 19.9	25 to 34.9	0.86	0.72	1.03	0.10
20 to 24.9	25 to 34.9	0.99	0.84	1.18	0.93
35 to 44.9	25 to 34.9	1.42	1.24	1.63	<.0001
45 to 64.9	25 to 34.9	2.32	2.07	2.60	<.0001
65 or older	25 to 34.9	2.47	2.12	2.88	<.0001
RACE					
AmerIN/AN	White	1.00	0.54	1.85	1.00
Asian/PI	White	1.15	0.83	1.60	0.40
Black	White	1.44	1.32	1.58	<.0001
Other/UNK	White	1.06	0.96	1.17	0.24
SEX					
Male	Female	1.27	1.19	1.37	<.0001

Summary of Population Characteristics Most Associated with Avoidable ACSC ED Visits

- Adults age 21–44 in all areas plus adults 65 or over in South Chicago
- Blacks in all areas plus American Indian/American Natives in South Chicago
- Males in all areas

Table 21: Population Characteristics Associated with Avoidable ACSC ED Visits (FY2019 and FY2020 Data Combined)

AVOIDABLE_So. Chicago			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
21 to 34	< 21	2.14	1.94	2.35	<.0001
35 to 44	< 22	1.83	1.63	2.05	<.0001
45 to 64	< 23	1.11	1.00	1.24	0.056
65 or older	< 24	0.62	0.49	0.78	<.0001
RACE					
AmerIN/AN	White	1.04	0.49	2.21	0.92
Asian/PI	White	0.89	0.55	1.44	0.64
Black	White	1.39	1.24	1.57	<.0001
Other/UNK	White	1.19	1.03	1.37	0.02
SEX					
Male	Female	1.25	1.17	1.34	<.0001

AVOIDABLE_South Cook			Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value
AGE					
21 to 34	< 21	2.70	2.39	3.05	<.0001
35 to 44	< 22	2.19	1.91	2.52	<.0001
45 to 64	< 23	1.43	1.24	1.64	<.0001
65 or older	< 24	0.37	0.24	0.58	<.0001
RACE					
AmerIN/AN	White	2.38	1.39	4.08	0.0017
Asian/PI	White	0.84	0.55	1.28	0.41
Black	White	1.19	1.07	1.32	0.001
Other/UNK	White	1.05	0.91	1.22	0.48
SEX					
Male	Female	1.14	1.04	1.24	0.0038

Table 21 Continued

AVOIDABLE_W. Chicago Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
21 to 34	**< 21**	2.11	1.86	2.40	<.0001
35 to 44	**< 22**	1.60	1.37	1.86	<.0001
45 to 64	**< 23**	0.96	0.82	1.11	0.55
65 or older	**< 24**	0.49	0.35	0.69	<.0001
RACE					
AmerIN/AN	**White**	0.23	0.03	1.63	0.14
Asian/PI	**White**	0.30	0.11	0.80	0.016
Black	**White**	1.13	1.00	1.27	0.042
Other/UNK	**White**	0.97	0.84	1.13	0.71
SEX					
Male	**Female**	1.29	1.18	1.42	<.0001

AVOIDABLE_West Cook Group	Compared To	Odds Ratio	Confidence Interval (95%) Lower Limit	Upper Limit	P-Value
AGE					
21 to 34	**< 21**	2.28	1.87	2.78	<.0001
35 to 44	**< 22**	2.48	1.98	3.10	<.0001
45 to 64	**< 23**	1.08	0.85	1.38	0.52
65 or older	**< 24**	0.45	0.25	0.81	0.0076
RACE					
AmerIN/AN	**White**	1.09	0.35	3.42	0.88
Asian/PI	**White**	1.61	0.85	3.04	0.14
Black	**White**	1.43	1.20	1.69	<.0001
Other/UNK	**White**	1.05	0.85	1.29	0.64
SEX					
Male	**Female**	1.21	1.04	1.41	0.012

Appendix C:
Approach to Community Input

University of Illinois at Chicago's (UIC) Institute for Healthcare Delivery Design (IHDD) engaged community partners in the West Chicago area to recruit and facilitate 15 remote community conversations via conference call with a total of 60 residents between August and October 2020. UIC researchers offered session support through a facilitation guide and training, technical assistance, notetaking, and data analysis. Each community partner recruited a convenience sample of residents through their preferred recruitment channel. The sample included a mix of age, gender, race/ethnicity, and health insurance status. Values of equity, relationship-based trust, and collaboration guided the work with community partners.

The goals of the community-input sessions were to:

1. Understand the health conditions and diseases important to community members.
2. Determine factors that make it hard to prevent, get care for and manage these diseases
3. Determine what existing or new resources are needed to help community manage these diseases

Selecting Zip Codes for Community Input in Each Community Area

Participant recruiting focused on specific zip codes within the West Chicago area. The specific approach used to identify zip codes was the following:

1. *Determine the social determinants of health profiles of zip codes*. Each zip code in West Chicago was characterized with respect to 23 social determinants of health (SDOH) variables and life expectancy estimates using data derived from the 2014-2018 American Community Survey (ACS), 2010 U.S. Decennial Census, Institute for Child, Youth and Family Policy, and the CDC's Behavioral Risk Factor Surveillance Survey (BRFSS) and Small-Area Life Expectancy Estimates Project (29–33). The SDOH variables included the prevalence of behavioral risk factors health conditions such as obesity, current smoking, diabetes, and chronic obstructive pulmonary disease, as well as 3 multidimensional composite socioeconomic (SES) indicators: Concentrated Disadvantage (CD), Economic Hardship Index (EHI), and Child Opportunity Index (COI) 2.0 (34–36). All data and measures were obtained at the census tract level and aggregated up to the zip code level using standard areal interpolation techniques followed by manual adjudication of the results (37).
2. *Identify SDOH characteristics more negatively correlated with life expectancy (LE)*. SDOH-LE correlations were ranked from most negative to most positive, and SDOH characteristics with correlation coefficients of $r > 0.65$ were identified.
3 *Identify most "distressed" zip codes in the community area*. Zip codes were ranked

with respect to LE and each of the SDOHs most negatively correlated with LE. Those in the worst quartile for LE and for each of the SDOH were identified. This resulted in a list of most "distressed" zip codes. This list was used in step 4 as a sampling frame from which to select zip codes with the highest inpatient admission rates among Medicaid enrollees.

4 *Identify zip codes with highest inpatient admission per capita Medicaid enrollees.* Hospital-based utilization data for persons enrolled in Medicaid during FY2018 were obtained from HFS. Inpatient admission rates were calculated for each of the most distressed zip codes per 100 Medicare enrollees in each zip code during FY2018 (38).

5 *Finalize list of target zip codes:* Zip codes that were the most distressed and had the most Medicaid enrollee inpatient admissions per capita were targeted for community input. The resulting list is as follows:
   - 60612 (East Garfield Park Area)
   - 60623 (Little Village and North Lawndale Areas)
   - 60624 (West Garfield Park Area)
   - 60644 (Austin Area)
   - 60651 (Humboldt Park Area)

Community Partner Selection

Two community partners were selected to conduct community-input sessions in the West Chicago area: Chicago Hispanic Health Coalition (to recruit and facilitate sessions with Latinx community members in West Chicago) and Teamwork Englewood (to recruit and facilitate sessions with Black community members in West Chicago). See Table 22 for more information about these community partners.

Criteria used to identify and select community partners included health mission alignment, community embeddedness in target zip code areas, and current capacity to recruit and facilitate community conversations. Community partners were identified through existing academic-community partnerships at UIC or via introductions to organizations through those existing partnerships. Final community partner selection was done in collaboration with HFS. Several of the community-based organizations that were contacted declined participation due to bandwidth constraints and the urgency to address basic client needs in response to COVID-19.

After aligning on the intended scope of work and entering into a contract agreement, UIC researchers onboarded community partner moderator(s) to a facilitation guide focused on understanding, from a resident perspective, the most pervasive health conditions and key barriers to staying healthy and accessing care and treatment. Feedback from community partners was integrated to tailor sessions for cultural appropriateness and vocabulary. Sessions were conducted in English or in Spanish. For sessions conducted in Spanish, the guide was translated and the sessions facilitated by a Spanish speaker.

Table 22: West Chicago Community Partner Organizations

Community Partner	Mission	Leadership	Recruitment & Facilitation
Chicago Hispanic Health Coalition	The Chicago Hispanic Health Coalition's (CHHC) mission is to promote healthy behavior and prevent chronic disease and health disparities in the Hispanic communities of metropolitan Chicago. CHHC improves health in Hispanic communities by sponsoring culturally appropriate, evidence-based health education classes, and by providing a forum for policy development.	Esther Sciammarella, Executive Director	Humberto Nava
Teamwork Englewood	Teamwork Englewood's mission is to improve the quality of life of the residents and stakeholders of Englewood by facilitating economic, educational, and social opportunities. Teamwork Englewood assisted in recruiting in West Chicago using relationships it has with community organizations and members in this area of Chicago.	Cecile DeMello, Executive Director Michael Johnson, Project Manager, Quality of Life Plan	Rodney Johnson Terry Williams

Sample Size, Recruitment Approaches and Incentives

For each community area, community partners recruited a convenience sample of 50–75 residents across age, gender, race/ethnicity, and insurance status. UIC supplied a flier to market the sessions and each partner employed their own recruitment tactics based on existing relationships, communication channels, and engagement methods.

In the West Chicago Latinx community, the Chicago Hispanic Health Coalition recruited via street outreach and partner engagement. In the West Chicago Black community, Teamwork Englewood leveraged their existing social media presence and posted Facebook ads. Anyone interested in participating was asked to complete a Google intake form. This step was followed by direct outreach to participants across age, gender, and zip code.

Participants were compensated for their time in the form of a $50 gift card or check.

Discussion Guide

In order to understand the social, economic, and physical factors influencing health and healthcare access, the discussion guide was informed by 2 prominent preventive medicine and public health frameworks: the Levels of Prevention framework (39) and the Healthy People 2020 Social Determinants of Health (SDOH) framework (40).

The Levels of Prevention framework includes 3 categories across the prevention spectrum: primary prevention aimed at preventing the onset of specific diseases by limiting exposure to key risk factors, secondary prevention aimed at preventing progress of specific diseases through early detection and treatment, and tertiary prevention aimed at preventing negative quality of life and longevity impact for patients with specific diseases. Adaptations to the initial framework have been made since its development which include the addition of a fourth category called primordial prevention, aimed at preventing broad health determinants at the population level. For the purpose of the discussion guide, the researchers translated the levels of prevention into everyday language (for example, primordial level as "staying healthy," primary level as "preventing X condition," secondary level as "accessing care and treatment for a condition," and tertiary level as "managing a condition when really sick"). Questions were developed across each of the 4 prevention levels.

The Healthy People 2020 SDOH framework includes 5 categories

- neighborhood and built environment
- health and healthcare
- social and community context
- education
- economic stability

The framework is built on a growing body of evidence that suggests the home environment, schools, workplace, and neighborhoods play an important role in preventing disease and improving health outcomes. For the purpose of the discussion guide, researchers developed probes as follow-up questions for each of the social determinants of health (for example, for neighborhood and built environment a variation of the following question was asked: "Is there anything related to our built environment that makes it hard? By built environment, I mean things like our streets, sidewalks, parks, open space, etc.").

Here is the discussion guide used for the community-input sessions:

Discussion Guide

0) [Introduction]

Hello, my name is [name of moderator] and I'm from [community partner]. Before we begin, I would like to take this opportunity to let you know how much we appreciate you committing to this HEALTH discussion. [Community Partner] has partnered with the University of Illinois Chicago to conduct discussions about

health in [community area] communities.
The information we gather will be used to help healthcare providers and other organizations get funding to develop new programs to help address top health issues. Your participation in this discussion will be kept confidential. We will share anonymous quotes in reports that we provide to HFS with the purpose of reporting community priorities. Our discussion is scheduled to last 1 hour and 30 minutes. You must participate for the entire time of the discussion in order to be compensated. You will receive $50 in the form of a gift card [or check]. Our discussion will be recorded and others from my team may have questions for you at the end of the discussion. Can I have your permission to record our discussion today? [Get verbal permission; start recording]

Just to confirm: I asked for, and everyone on the call gave, permission to record this discussion. Is that correct? [Go around and have each person state their name and restate their permission to record.]

One request as we get started here: Before answering a question or adding a comment to the discussion, state your first name so that we know who's talking.

Here's an overview of how we'll spend the next 90 minutes:First, we will do some brief introductions. Then, we will then identify 1 or 2 of the most important health conditions in our community.
For each health condition (we will likely get through 1–2), we will go through a set of questions and ask for you all to share your perspective on:

a) Challenges related to prevention
b) Challenges related to care and treatment
c) Challenges related to supporting someone who is really sick
d) Finally, we'll talk about resources that exist or are needed in our communities to help with this health condition

1) [Resident Introductions]

- What is one word a family member or close friend would use to describe you?
- What do you do?
- What the word "health" means to you?

2) [Health Issues in Our Community]

Several months ago, the UIC School of Public Health analyzed data about why people end up in the hospital in West Chicago. The top 3 drivers are:

- mental illness such as depression, bipolar, and schizophrenia
- substance use disorders
- respiratory illnesses such as acute asthma and chronic obstructive pulmonary disease (COPD)

[Folow up questions]

- Are there other important diseases or health conditions that you see in this community that aren't on this list?
- Have you or someone you know been personally affected by any of the issues that have been mentioned?
- Of all of the issues mentioned so far, which condition do you believe is the #1 most important health issue facing our communities? [Get consensus on 1–3 of the most important health issues for community participants)

[NUMBER 1 HEALTH ISSUE IN DETAIL]
Let's talk about [#1 most important condition] in more detail, specifically, about challenges related to prevention, care and treatment, and supporting someone when they are really sick. We will also discuss resources that exist in our communities for this health issue.

[For each question below, probe on relevant social determinants of health]

a) What makes it hard to PREVENT this health issue
b) For those with this health issue, what makes it hard to get CARE AND TREATMENT that they need?
c) Think about what happens when someone is really sick with this issue. What makes it hard for someone in our community who is really sick with this issue get the support they need?
d) Finally, we'd like to discuss and learn about the existing resources or assets in our communities that support people who are living with this condition. What's happening, or what exists, in our communities right now that's working to help people to prevent or manage this health issue?

[#2 & #3 HEALTH ISSUE IN DETAIL—Go through questions A–D above as time allows]

[SOCIAL DETERMINANTS PROBES]
(moderators select 2–3 relevant probes)

i) Is there anything related to **healthcare resources** like doctors, hospitals, clinics, treatment centers or pharmacies that makes it hard?
   (a) Any issues making an appointment?
   (b) Any issues at the point of service?
   (C) Any issues with the treatment plan / caring for the condition over time?
ii) Is there anything related to **food or food access** that makes it hard?
iii) Is there anything related to our **built environment** that makes it hard? By built environment I mean, things like our streets, sidewalks, parks, open space, etc.
iv) Is there anything about our air or water quality—or other **environmental issues**—that makes it hard?
v) Is there anything about **transportation** in our community that makes it hard? By transportation, I mean everything from public transit to taxi services to access to highways.
vi) Is there anything about **housing** in our community that makes it hard?
vii) Is there anything about **education** in our community that makes it hard?
viii) Is there anything **economically** that makes it hard?
ix) Is there anything related to **child care or caring for adult dependents or elderly care** that makes it hard?
x) Is there anything about our community's **social fabric** that makes it hard? And by social fabric, I mean our trust of and reliance on one another and our trust of, and ability to work with, governmental organizations.

Format of Input Sessions

Ninety-minute small group conversations with 1 to 6 residents were held via WebEx phone call. The calls were recorded. Participants verbally consented to recording for data processing purposes and reaffirmed voluntary consent to participate once the recording started. After sharing background information about the study and facilitating resident introductions, the moderators followed the discussing guide above. Throughout the discussion, participants were encouraged to reflect on and share stories about their own lived experiences and those

of loved ones. UIC researchers supported moderators with real-time follow-up questions prompted via text message or WebEx chat.

Sessions Analysis and Reporting

UIC researchers reviewed audio recordings and detailed notes to summarize barriers, challenges, and issues that surfaced during the community-input sessions.

Researchers applied affinity clustering to participants' remarks to identify common themes, surface domains of consensus and divergence, and summarized these barriers using a care journey framework (See Table 8 in the Detailed Findings section of the report). Additionally, representative resident quotes and stories were pulled and curated to bring out the human perspective. Community partners were asked to offer feedback on the data represented and storytelling contained in draft summary reports. Upon publication of this report, community partners will disseminate the project objectives and findings to resident participants and share among their broader stakeholder networks.

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