

Transformation Data & Community Needs Report



HTC
Healthcare Transformation
Collaboratives

PEORIA AREA
October 2022

This report was prepared by the University of Illinois at Chicago (UIC) School of Public Health, Department of Psychology and Institute for Healthcare Delivery Design and Southern Illinois University (SIU) School of Medicine's Center for Rural Health and Social Service Development for the Illinois Department of Healthcare and Family Services. This report details the findings and methods for a study UIC conducted to understand health outcomes and community needs in socially vulnerable areas in the State of Illinois.

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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 quality care for vulnerable populations. Often, this lack of access is driven by healthcare access and quality of care challenges as well as social,

economic, and other "social-determinant-of-health" barriers that people face in achieving health (for example, lack of health literacy, discrimination, inequitable geographic distribution of healthcare services, transportation barriers, etc.). Lack of access to quality care 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 needs. In other words, transformation should focus on "clinic-community linkages" that provide patient-centered, culturally-competent and community-based primary and secondary care and 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.

Clinic-community linkages can leverage the treatment expertise of healthcare systems and on-the-ground knowledge gained via community engagement and partnerships with community-based organizations, to provide more accessible, holistic, patient-centered care and support a more active approach to chronic disease management. In addition, clinic-community linkages can be a way to broadcast more information about healthcare resources, 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 Peoria.

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, the West Side of Chicago, South Cook County, and West Cook County
- 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 5 socially vulnerable areas outside of Cook County (see Figure 1), with particular attention on findings for Peoria, and contains community-input findings from Peoria.

Figure 1: Study Area Maps with Zip Code Boundaries

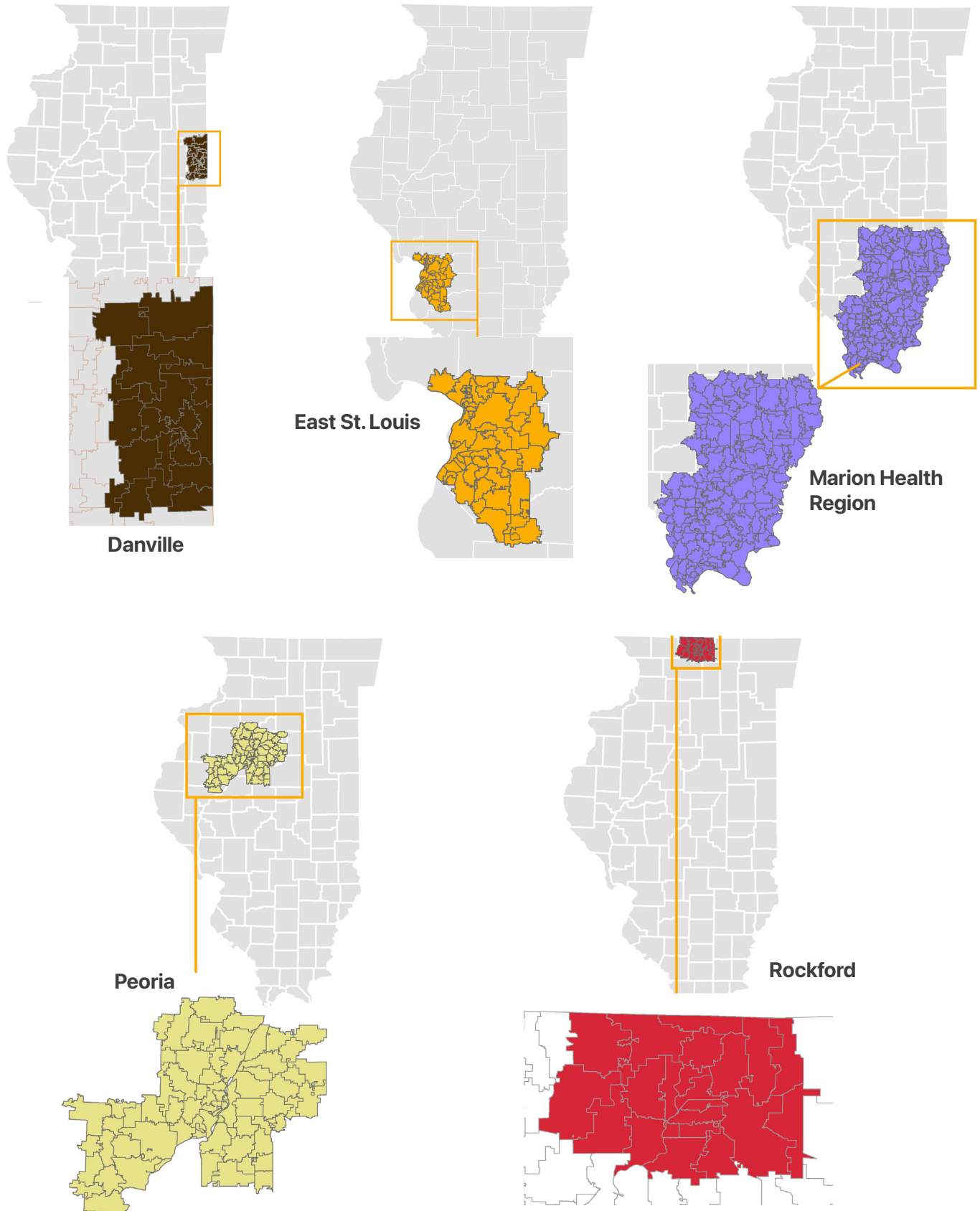


Figure 1 Continued

Danville Zip Codes (24)

60932	60963	61812	61831	61834	61846	61857
60942	61810	61814	61832	61841	61848	61858
60960	61811	61817	61833	61844	61850	61865
61870	61876	61883				

East St. Louis Zip Codes (55)

62001	62034	62061	62095	62281	62207	62232
62002	62035	62062	62097	62294	62208	62239
62010	62040	62067	62201	62059	62220	62240
62018	62046	62074	62234	62203	62221	62243
62021	62048	62084	62249	62204	62223	62255
62024	62058	62087	62254	62205	62225	62257
62025	62060	62090	62269	62206	62226	62258
62260	62264	62282	62285	62289	62293	

Marion Health Region Zip Codes (199)

62914	62949	62839	62838	62919	62997	62952
62957	62951	62858	62880	62931	62928	62961
62962	62959	62879	62885	62947	62938	62998
62969	62974	62899	62812	62982	62941	62410
62988	62801	62413	62819	62432	62956	62818
62990	62807	62427	62822	62436	62963	62863
62901	62849	62433	62825	62445	62964	62446
62903	62853	62449	62836	62448	62970	62809
62907	62854	62451	62856	62475	62976	62823
62916	62870	62454	62860	62479	62992	62833
62924	62875	62478	62865	62480	62996	62837
62927	62881	62476	62874	62481	62419	62842
62932	62882	62806	62884	62912	62421	62843
62940	62892	62815	62890	62923	62425	62850
62942	62893	62401	62891	62939	62450	62851
62950	62810	62411	62896	62943	62452	62878
62958	62814	62424	62897	62967	62868	62886
62966	62816	62426	62983	62972	62917	62895
62975	62830	62443	62999	62985	62930	62820
62994	62846	62461	62867	62995	62935	62821
62841	62864	62467	62871	62417	62946	62827
62902	62872	62473	62934	62439	62965	62835
62915	62883	62011	62954	62460	62977	62844
62918	62889	62080	62979	62466	62987	62861
62921	62894	62414	62984	62238	62905	62862
62922	62898	62418	62817	62274	62906	62869
62933	62434	62458	62828	62832	62920	62887
62948	62824	62471	62859	62888	62926	62908
62910	62953	62960				

Figure 1 Continued

Peoria Zip Codes (85)

61415	61520	61540	61536	61607	61535	61755
61427	61531	61541	61539	61614	61550	61759
61431	61542	61565	61547	61615	61554	61516
61432	61543	61451	61552	61616	61564	61530
61433	61544	61517	61559	61625	61568	61545
61441	61553	61523	61562	61421	61571	61548
61459	61563	61524	61569	61426	61610	61561
61477	61369	61525	61602	61449	61611	61570
61482	61375	61526	61603	61479	61721	61729
61484	61377	61528	61604	61483	61733	61738
61501	61424	61529	61605	61491	61734	61742
61519	61537	61533	61606	61534	61747	61760
61771						

Rockford Zip Codes (25)

61008	61038	61024	61073	61080	61102	61107
61011	61065	61063	61077	61088	61103	61108
61012	61016	61072	61079	61101	61104	61109
61111	61112	61114	61115			

Figure 2: Demographic Traits of Study Areas¹

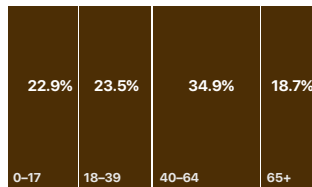
Danville

74,425

Total Population

50.6% **49.4%**

Female Male



Age

92.8% **2.6%** **3.0%** **1.6%**

White Black Latino Other

Race

77.4 **\$56,083** **10.2%**
Life expectancy Median income % of population no HS diploma

4.9% **11.2%**
% of population unemployed % of population living below the poverty rate

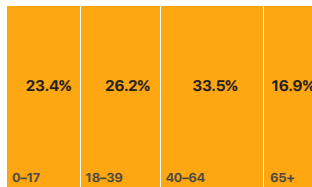
East St. Louis

524,778

Total Population

51.7% **48.3%**

Female Male



Age

76.2% **18.5%** **2.8%** **2.5%**

White Black Latinx Others

Race

76.8 **\$63,149** **9.1%**
Life expectancy Median income % of population no HS diploma

7.0% **14.8%**
% of population unemployed % of population living below the poverty rate

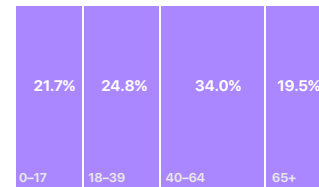
Marion Health Region

532,806

Total Population

49.4% **50.6%**

Female Male



Age

92.5% **3.4%** **1.8%** **2.3%**

White Black Latino Other

Race

77.8 **\$53,058** **11.6%**
Life expectancy Median income % of population no HS diploma

6.8% **15.2%**
% of population unemployed % of population living below the poverty rate

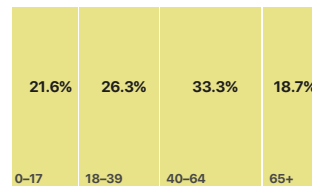
Peoria

401,049

Total Population

49.5% **50.5%**

Female Male



Age

91.9% **2.9%** **2.6%** **2.6%**

White Black Latinx Others

Race

78.9 **\$66,040** **8.9%**
Life expectancy Median income % of population no HS diploma

5.5% **11.1%**
% of population unemployed % of population living below the poverty rate

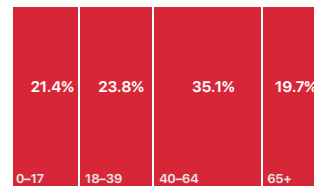
Rockford

337,383

Total Population

51.3% **48.7%**

Female Male



Age

78.2% **7.3%** **10.6%** **3.9%**

White Black Latinx Others

Race

78.5 **\$68,822** **12.4%**
Life expectancy Median income % of population no HS diploma

7.4% **10.6%**
% of population unemployed % of population living below the poverty rate

¹Total 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 (MSA¹) [n = 14], micropolitan statistical areas (μSA²) [n = 17], and counties that were neither [n = 39]. 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 for more details.

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. 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.

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

Overall Vulnerability			
Housing Type & Transportation	Minority Status & Language	Household Composition & Disability	Socioeconomic Status
Group Quarters	Speaks English “Less than Well”	Single-Parent Households	No High School Diploma
No Vehicle		Older than 5 with a Disability	Income
Crowding	Minority	Aged 17 or Younger	Unemployed
Mobile Homes		Aged 65 or Older	Below Poverty
Multi-Unit Structures			

¹An 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.

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

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, μ SAs, 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, μ SA, 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.

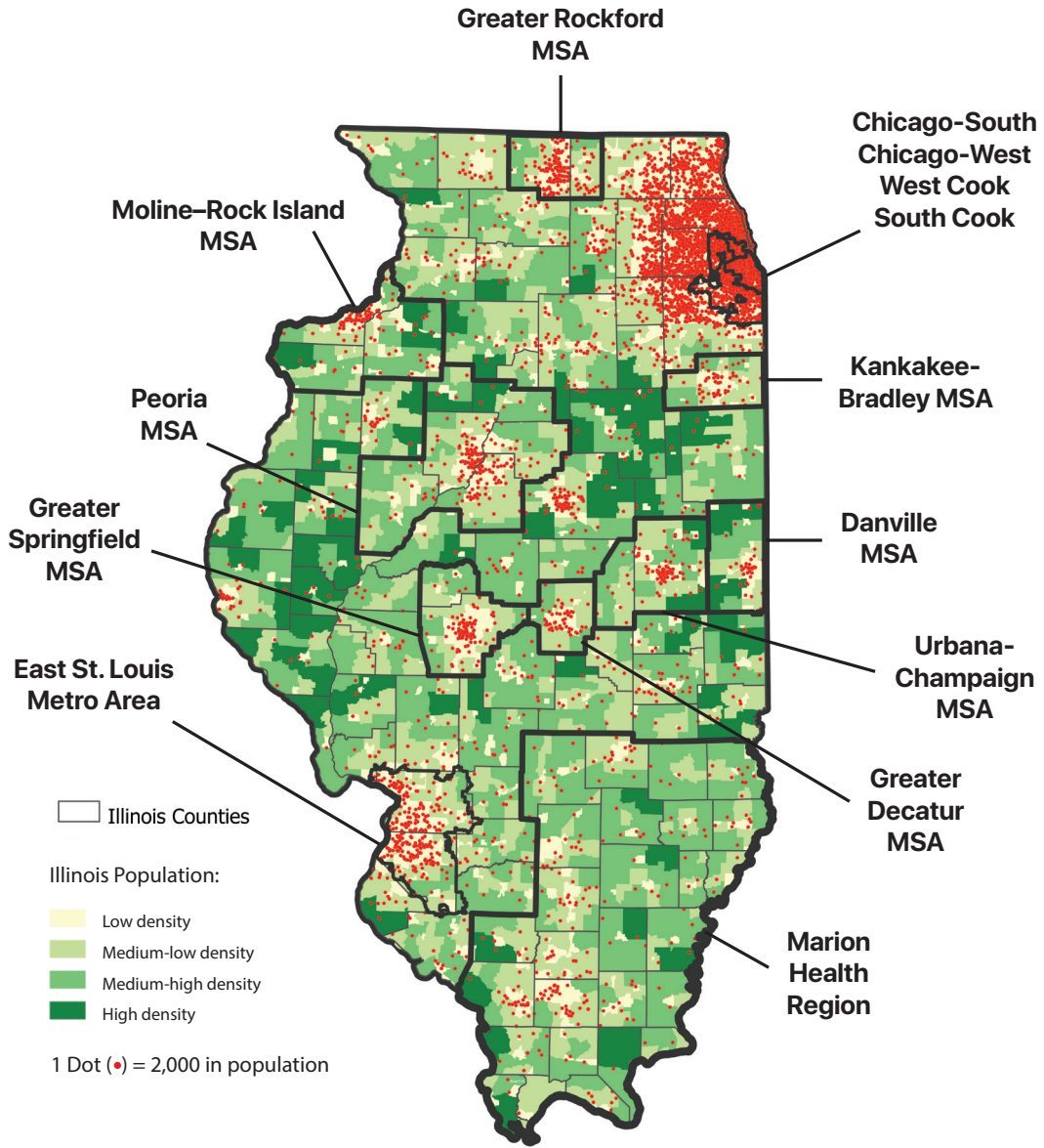
3. Geographical areas ranked based on CDC-SVI percentile scores: Geographical areas were ranked based on CDC-SVI percentile scores. Areas with scores >50 ("above average") [n = 35] were designated as potential priority locations (see Figure 4).

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 following socially vulnerable areas: Danville, East St. Louis, the Marion Health Region, Peoria, and Rockford.

(Separate reports have been compiled for the socially vulnerable areas in Cook County: South Chicago, South Cook, West Chicago, and West Cook.)

Figure 4: Areas in Illinois¹ with Above Average (>50th Percentile) Social Vulnerability Index Scores



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

MSA stands for metropolitan statistical area.

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]

<i>Areas with CDC Social Vulnerability Index Percentile Score > 50¹</i>	<i>Pop. Count²</i>	<i>CDC-SVI%-tile Score³</i>	<i>Percentile Score-Driving County, City, or Other Geography [SVI score]</i>	<i>Pop. Count²</i>	<i>Sample of Zip Codes w/ SVI Score > 75⁴ ("most vulnerable")</i>
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 Metro⁵	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

<i>Areas with CDC Social Vulnerability Index Percentile Score > 50¹</i>	<i>Pop. Count²</i>	<i>CDC-SVI%-tile Score³</i>	<i>Percentile Score-Driving County, City, or Other Geography [SVI score]</i>	<i>Pop. Count²</i>	<i>Sample of Zip Codes w/ SVI Score > 75⁴ ("most vulnerable")</i>
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				

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

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

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

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

⁵St. Clair and Madison Counties

⁶Highest 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 “recipient file” data set, and, in the case of East St. Louis, an FY2018 “noninstitutional” 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 institutional 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:

<i>Chapter Number and Title</i>	<i>ICD-10 Code Range</i>
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

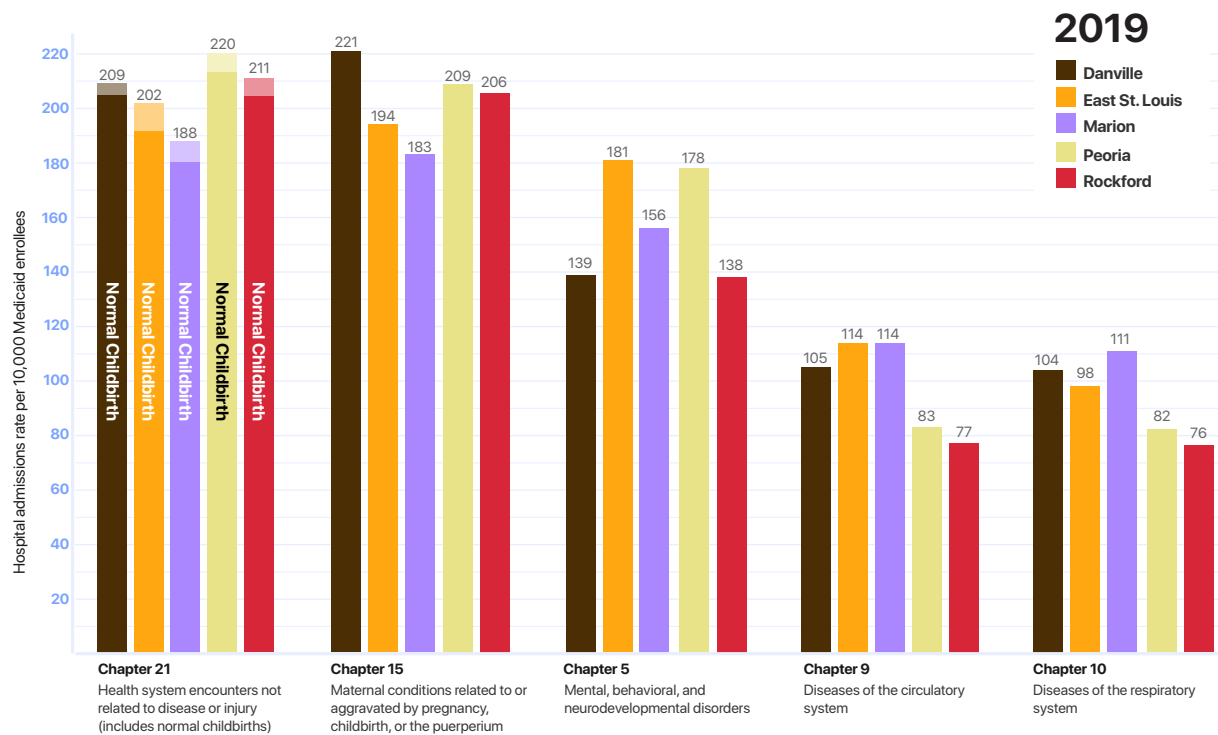
After getting to know the data sets via review of fields and variables, running histograms of variables, and doing basic data cleaning and new data creation (for example, patient age at time of the patient encounter), the data analytics team produced an initial set of descriptive statistics.

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.

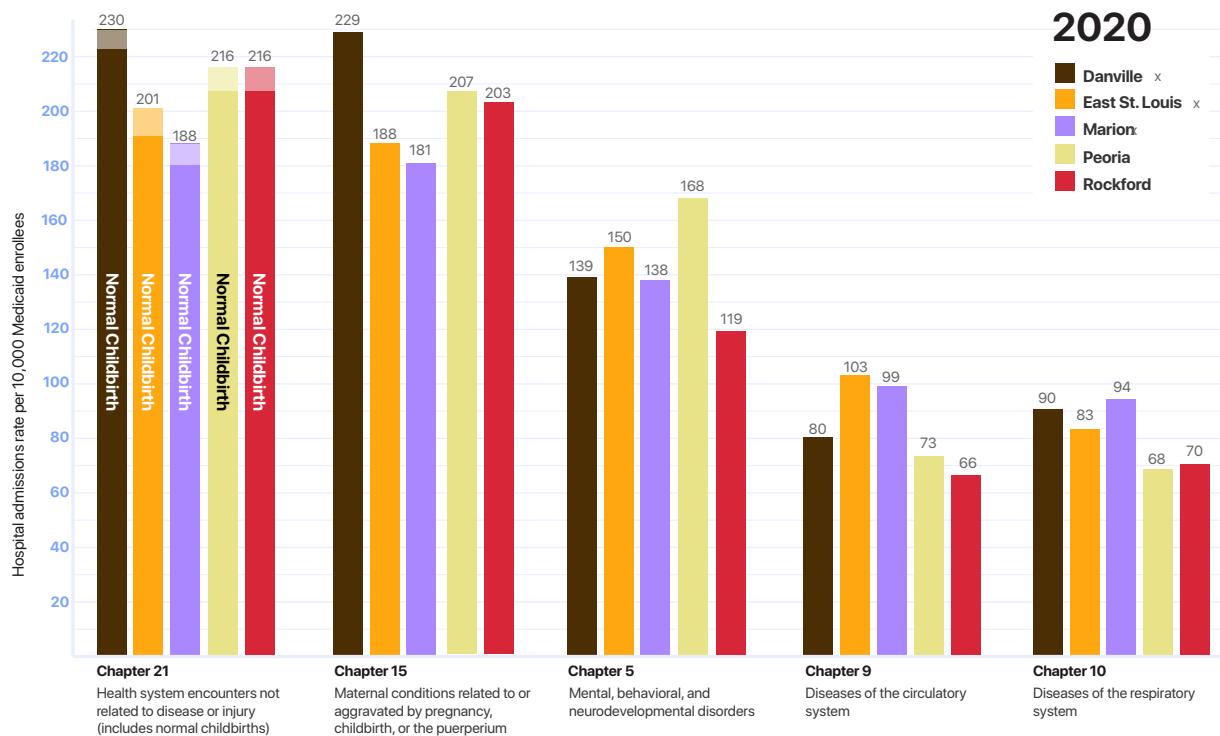
Across FY2019 and FY2020, healthcare encounters related to childbirth (Chapters 21 and 15) were the most frequent driver of hospital utilization. The vast majority of these childbirth encounters were normal or relatively uncomplicated. Following childbirth, the next most frequent hospital-level encounters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

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



Note: The 5 chapters of the CMS ICD-10-CM Tabular List of Diseases and Injuries shown here (21, 15, 5, 9, 10) represent the most frequent inpatient hospitalization chapters in all areas except Peoria. In Peoria, the 5 most frequent chapters were 21, 15, 5, 1, and 9, respectively. Chapter 1 (diseases generally recognized as communicable or transmissible) ranked fourth in terms of inpatient hospitalizations in the Peoria study area, at a rate of 104.1 per 10,000 Medicaid enrollees.

Figure 5 Continued



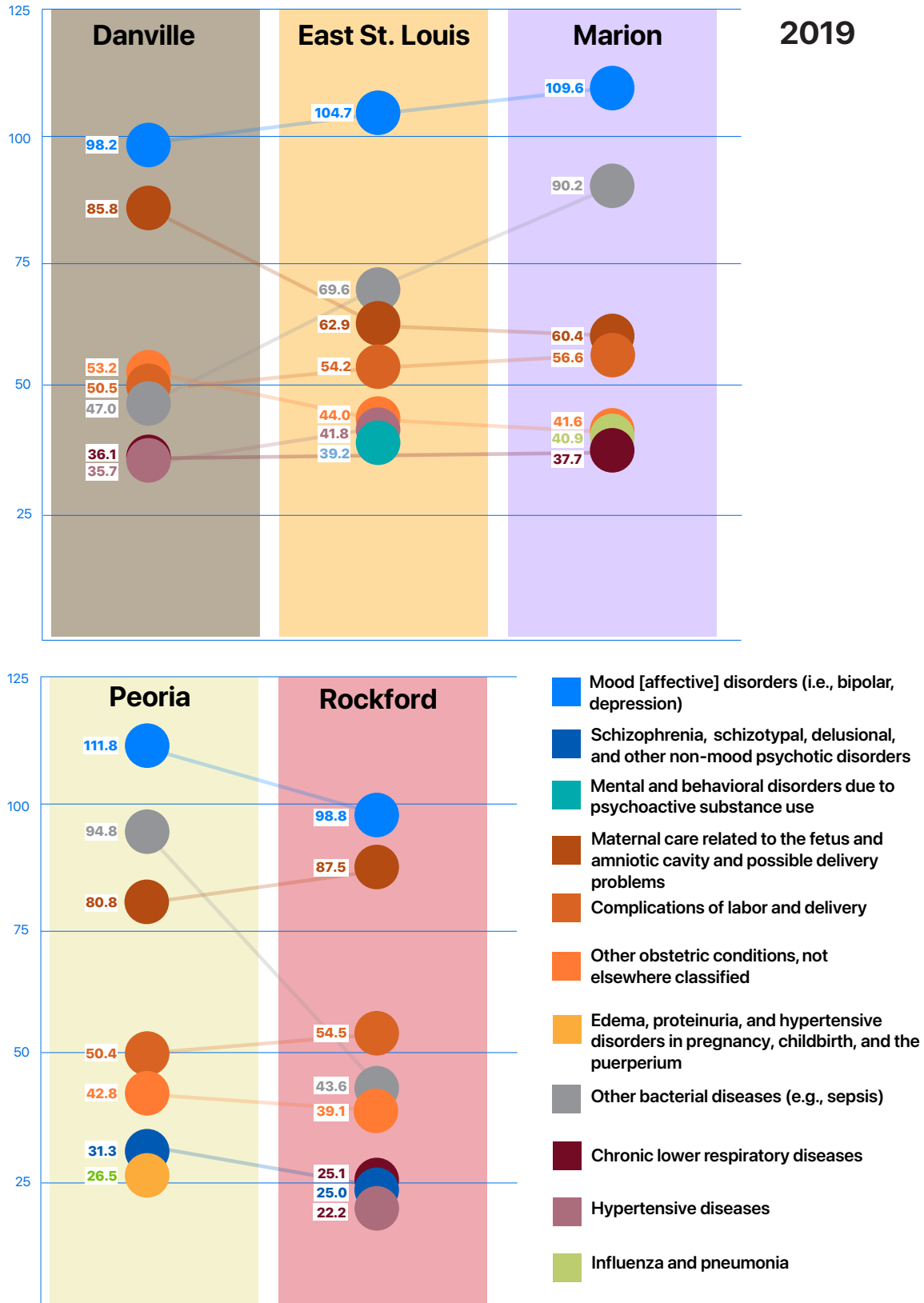
Note: The 5 chapters of the CMS ICD-10-CM Tabular List of Diseases and Injuries shown here (21, 15, 5, 9, 10) represent the most frequent inpatient hospitalization chapters in all areas except Peoria. In Peoria, the 5 most frequent chapters were 21, 15, 5, 1, and 19, respectively. Chapter 1 (diseases generally recognized as communicable or transmissible) ranked fourth in terms of inpatient hospitalizations in the Peoria study area, at a rate of 91.8 per 10,000 Medicaid enrollees. Chapter 19 (injury, poisoning, and certain other consequences of external causes) ranked fifth in Peoria at a rate of 74.1 per 10,000 Medicaid enrollees.

Figure 6 displays the most frequent blocks. Four of the most frequent hospitalization blocks in Peoria for both FY2019 and FY2020 are related to pregnancy, childbirth, or postpartum: maternal care related to the fetus and amniotic cavity and possible delivery problems; complications of labor and delivery; other obstetric conditions, not elsewhere classified; and edema, proteinuria, and hypertensive disorders in pregnancy, childbirth, and the puerperium. All of these blocks point to complications related to pregnancy, childbirth, or postpartum. However, frequency distributions of the ICD-10 codes that make up the most frequent of these blocks show that most

complications are mild and not preventable and are often, in fact, common issues related to childbirth. For example, in Peoria, one of the top complications is first and second degree perineal lacerations during delivery, a common, treatable occurrence during childbirth (see Figure 7).

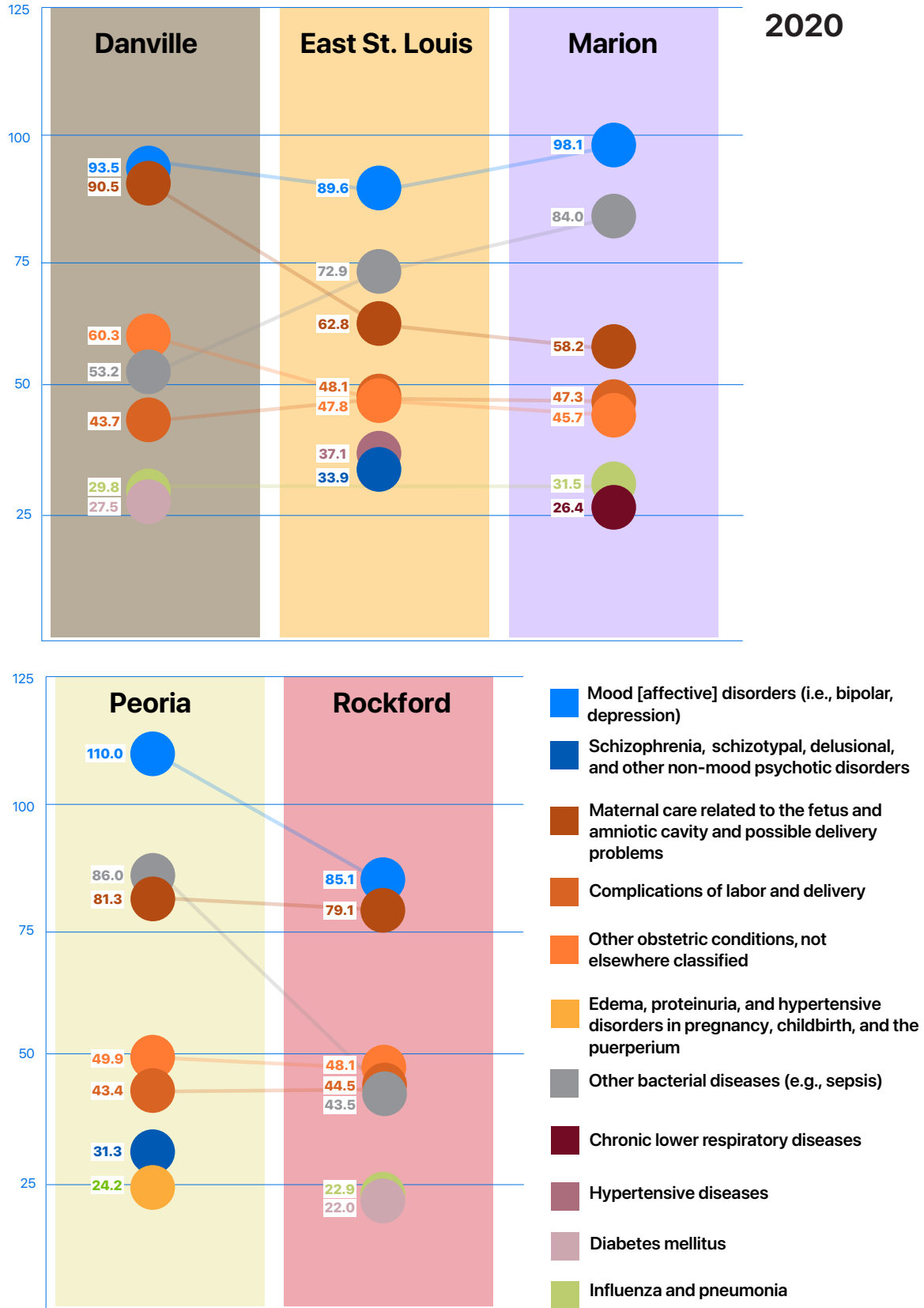
Otherwise, the most frequent hospitalization blocks in Peoria are related to mental disorders (mood [affective] disorders and schizophrenia-related disorders) and other bacterial diseases (in particular, sepsis).

Figure 6: Top 7 Most Frequent Inpatient Hospitalization Blocks¹ by Study Area
 (Frequency expressed as rate per 10,000 Medicaid enrollees)



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

Figure 6 Continued

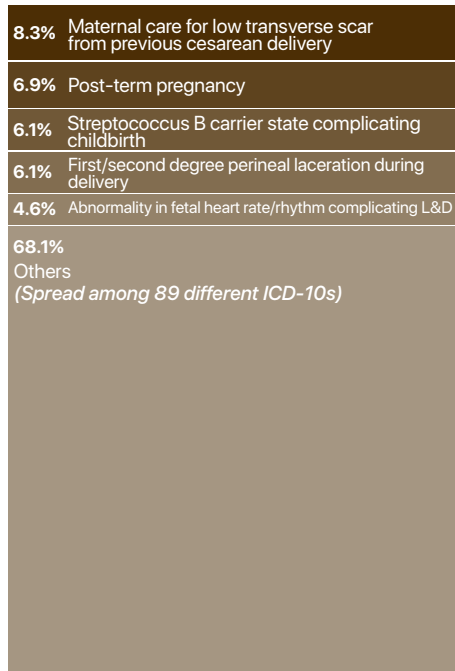


[†]These figures do not include Chapter 21 blocks, which include blocks for normal childbirth.

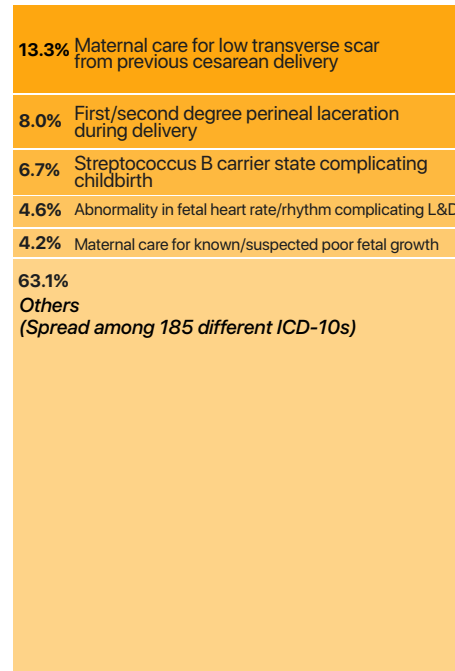
Figure 7: Distribution of ICD-10s of Top Childbirth Complications Blocks¹ by Study Area

2019

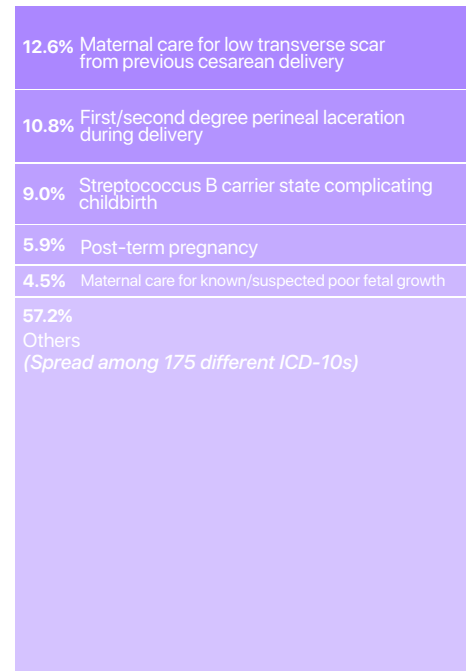
Danville



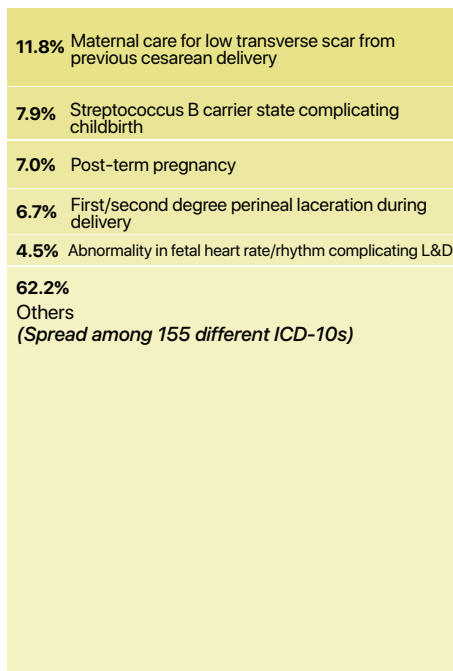
East St. Louis



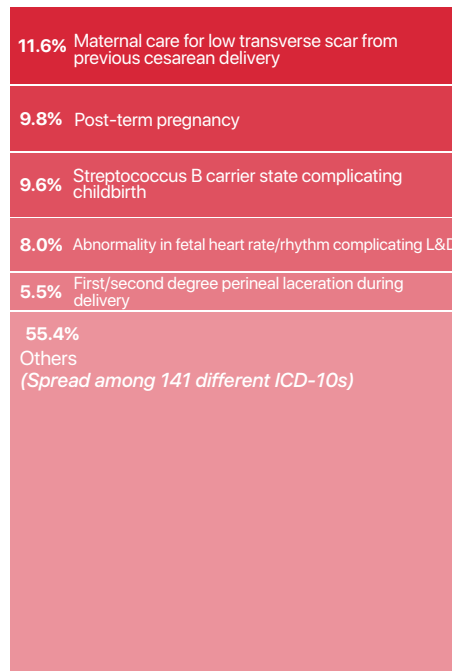
Marion Health Region



Peoria



Rockford



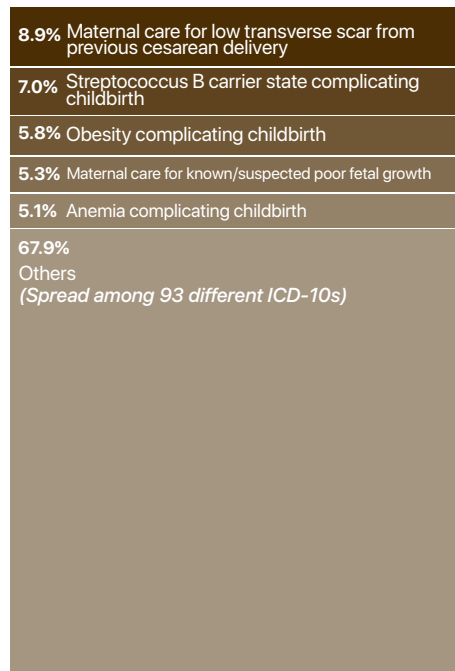
¹The charts here contain ICD-10s from the top pregnancy, labor and delivery, and post-partum complication blocks across all 5 areas: complications of labor and delivery; maternal care related to the fetus and amniotic cavity; and other obstetric conditions, not elsewhere classified.

Note: L&D = labor and delivery.

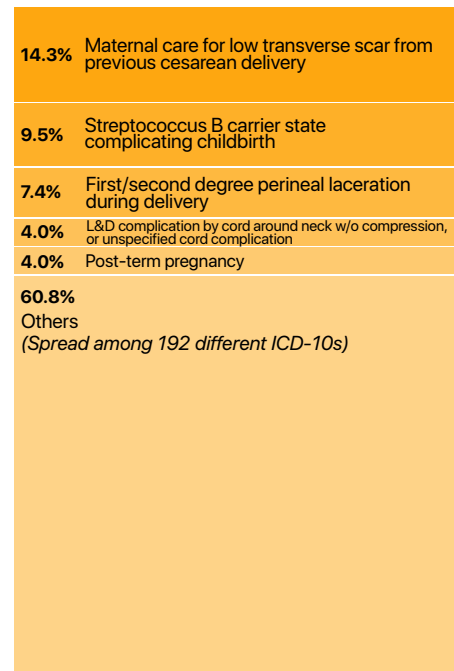
Figure 7 Continued

2020

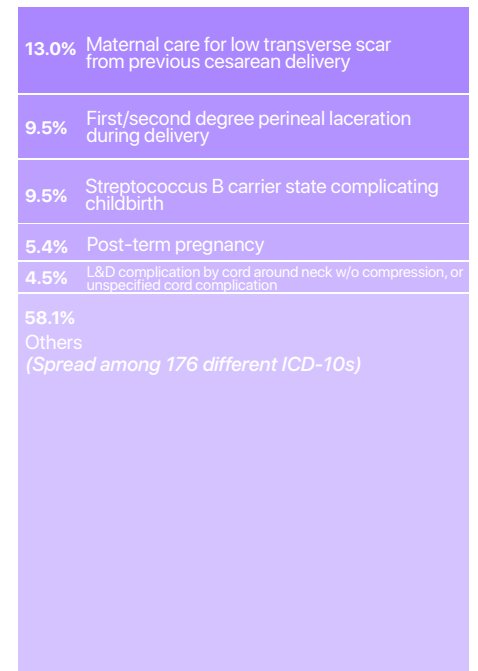
Danville



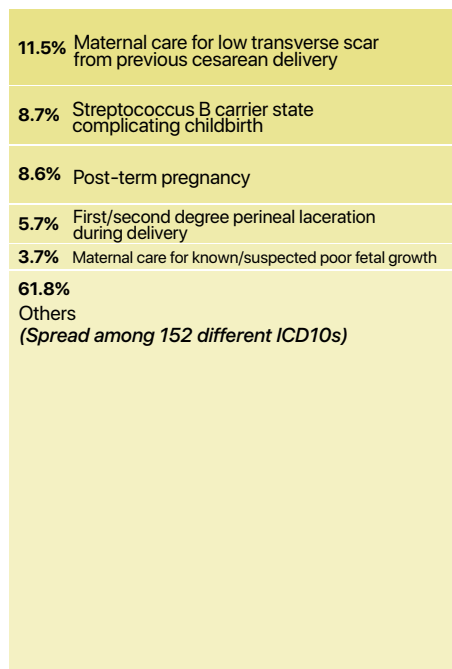
East St. Louis



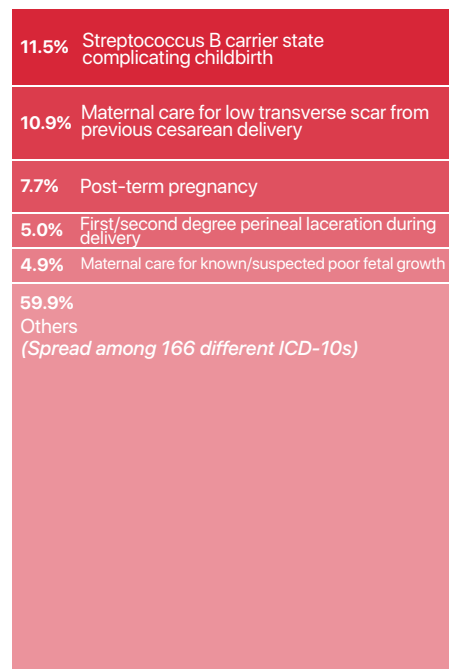
Marion Health Region



Peoria



Rockford



¹The charts here contain ICD-10s from the top pregnancy, 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 elsewhere classified.

Note: L&D = labor and delivery.

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 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 Peoria 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 data for the East St. Louis area shows that *outpatient care prior to or subsequent to hospital-level care for these disease groups and conditions is relatively low*, indicating that many patients who were hospitalized for these diseases or disorders did not engage in outpatient care to manage their conditions (see Figure 10). For example, outpatient care within 3 months after hospital-level care for a mental disorder, falls well below the national Medicaid benchmark of 56% of discharges receiving follow-up care within 30 days after a hospitalization for mental illness (14, 15).

Table 2a: FY2019 Disease Blocks in the Top Sextile¹ for Both Frequency Rate and Average Hospital Readmission Score² (Ranked by Product of Frequency Rate and Readmission Score)

■ Mental illnesses

■ Substance use disorders

■ ACSCs

Danville	East St. Louis	Marion	Peoria	Rockford
1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)
2. Hypertensive diseases	2. Schizophrenia, schizotypal disorders	2. Schizophrenia, schizotypal disorders	2. Schizophrenia, schizotypal disorders	2. Schizophrenia, schizotypal disorders
3. Diabetes mellitus	3. Hemolytic anemias	3. Diabetes mellitus	3. Psychoactive substance use disorders (alcohol, opioids)	3. Diabetes mellitus
4. Other bacterial diseases	4. Hypertensive diseases	4. Hypertensive diseases	4. Diabetes mellitus	4. Chronic lower respiratory diseases (asthma, COPD)
5. Schizophrenia, schizotypal disorders	5. Diabetes mellitus	5. Chronic lower respiratory diseases (asthma, COPD)	5. Complications of surgical/medical care	5. Diseases of liver
6. Other diseases of the respiratory system	6. Psychoactive substance use disorders (alcohol, opioids)	6. Complications of surgical/medical care	6. Hypertensive diseases	6. Psychoactive substance use disorders (alcohol, opioids)
7. Cerebrovascular diseases	7. Chronic lower respiratory diseases (asthma, COPD)	7. Disorders of gall-bladder, biliary tract, and pancreas	7. Disorders of gall-bladder, biliary tract, and pancreas	7. Hypertensive diseases
8. Chronic lower respiratory diseases (asthma, COPD)	8. Other diseases of the respiratory system	8. Other diseases of the respiratory system	8. Chronic lower respiratory diseases (asthma, COPD)	8. Other diseases of the respiratory system
9. Psychoactive substance use disorders (alcohol, opioids)	9. Cerebrovascular diseases	9. Psychoactive substance use disorders (alcohol, opioids)	9. Cerebrovascular diseases	9. Disorders of gall-bladder, biliary tract, and pancreas
10. Metabolic disorders	10. Complications of surgical/medical care	10. Diseases of liver	10. Episodic and paroxysmal disorders	10. Complications of surgical/medical care
11. Other forms of heart disease	11. Disorders of gall-bladder, biliary tract, and pancreas	11. Noninfective enteritis and colitis		11. Cerebrovascular diseases
12. Diseases of esophagus, stomach, and duodenum	12. Noninfective enteritis and colitis			
	13. Behavioral and emotional disorders			

¹Sextile 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.

²This 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 Sextile¹ for Both Frequency Rate and Average Hospital Readmission Score² (Ranked by Product of Frequency Rate and Readmission Score)

■ **Mental illnesses**
■ **Substance use disorders**
■ **ACSCs**

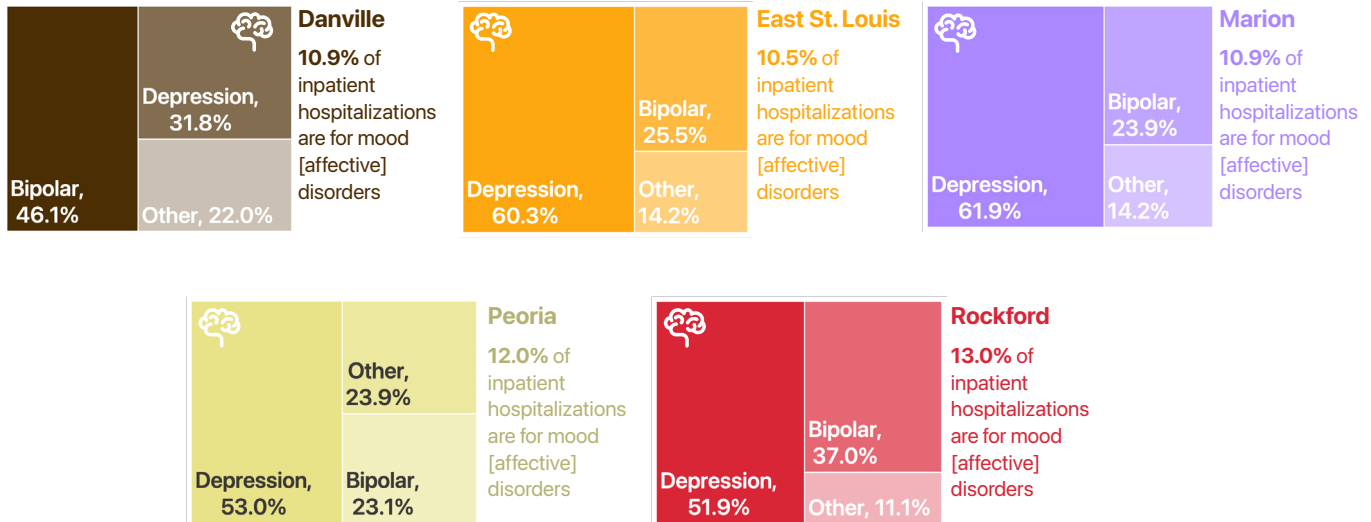
Danville	East St. Louis	Marion	Peoria	Rockford
1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)	1. Mood affective disorders (bipolar, depression)	1. Schizophrenia, schizotypal disorders	1. Mood affective disorders (bipolar, depression)
2. Hypertensive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

¹Sextile 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.

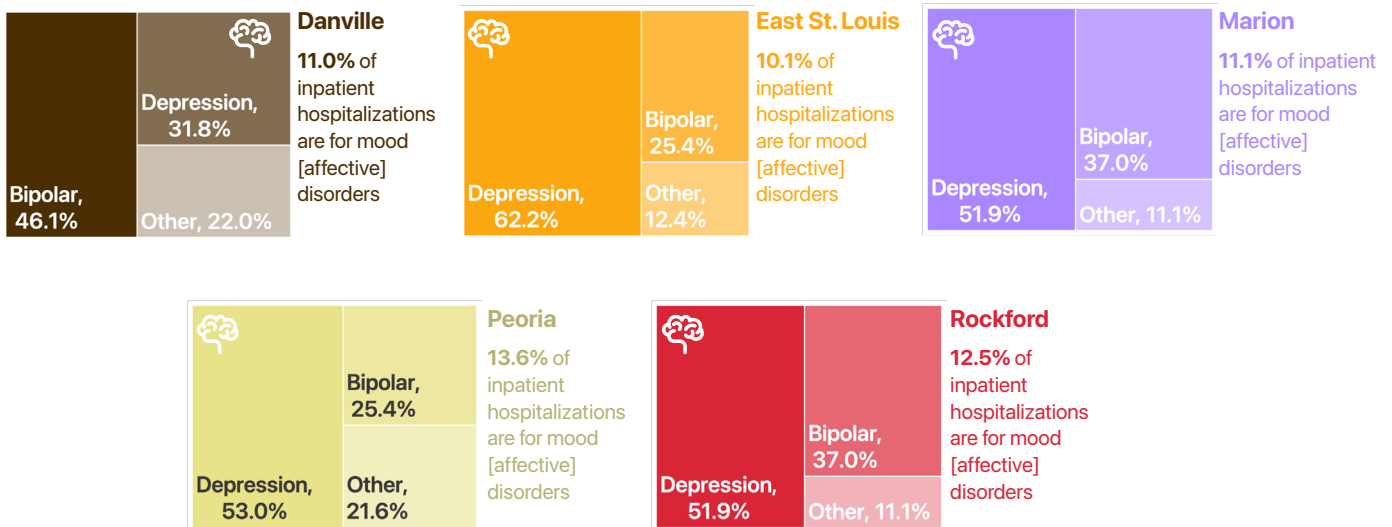
²This analysis excludes Chapter 21 of the ICD-10-CM Tabular List of Diseases and Injuries which contains encounters with the healthcare system not related to injury or disease, including encounters for normal newborns.

Figure 8: Proportion of Inpatient Hospitalizations for Depressive Disorders, Bipolar Disorders, and Other ICD-10s¹ within the Mood [Affective] Disorders Block across Study Areas

2019



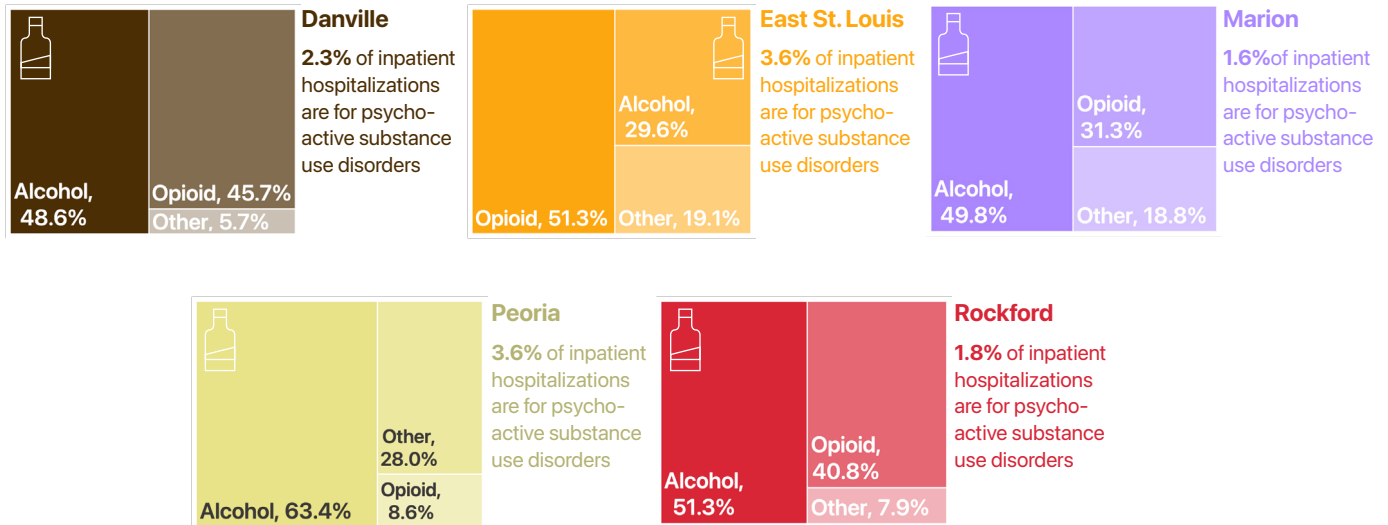
2020



¹Depression 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



2020



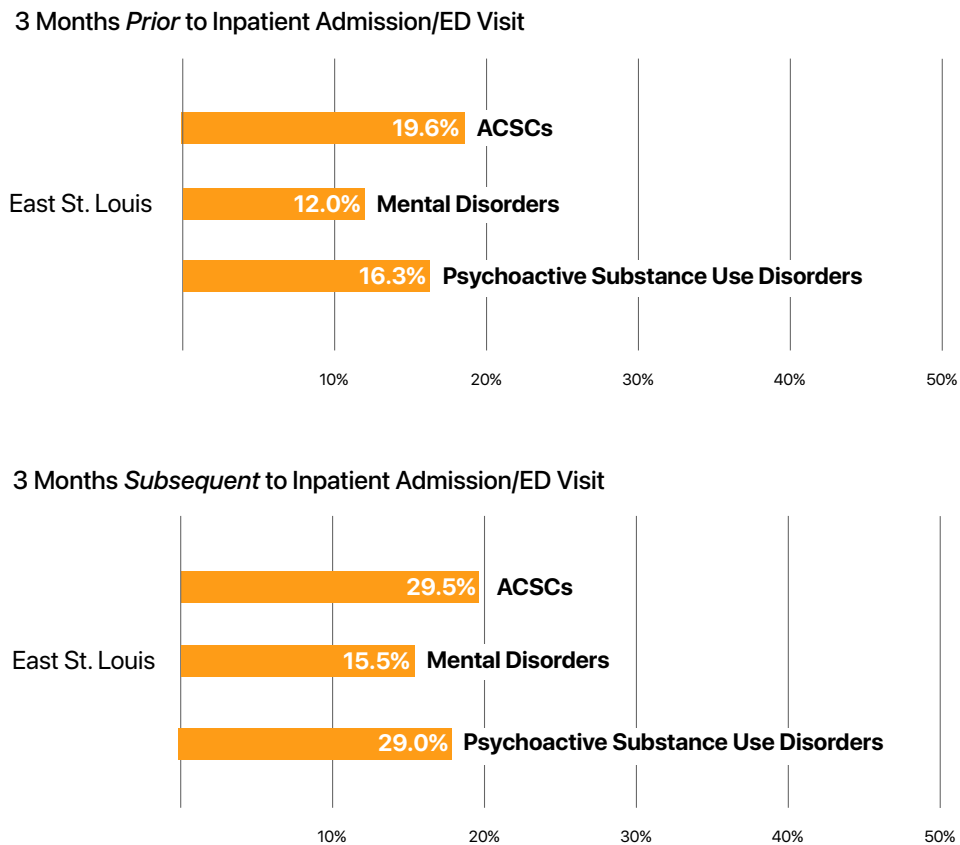
Note: "Other" psychoactive substance use disorders includes ICD-10 codes for cannabis, cocaine, hallucinogens, sedatives, and other psychoactive substances or stimulants.

FY2018 analyses completed for these disease groups and conditions in socially vulnerable areas in Cook County produced similar results.

(Note: All outpatient encounters were used for this analysis, whether related to the hospitalization diagnosis or not. Thus,

the results presented in Figure 10 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,

Figure 10: East St. Louis 2018 / Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for ACSCs, Mental Disorders, and Psychoactive Substance Use Disorders



ACSCs consist of all of the ICD-10 principal diagnosis codes categorized as Ambulatory Care Sensitive Conditions by the Agency for Healthcare Research and Quality.

Mental Disorders consist of 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.

Psychoactive Substance Use Disorders consist of 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.

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.

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 Peoria 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 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. Nearly all age-adjusted admission rates for composite PQIs in Peoria outpace national benchmarks (see Figure 11).

Results of multivariate logistic regressions show that, in Peoria, Black adults age 40 and over are associated with hospitalizations for ACSCs, in general. Women age 40 and over are associated with acute ACSC hospitalizations and Black adults age 40 and over are associated with chronic ACSC hospitalizations. And, finally, two age groups are associated with diabetes hospitalizations in Peoria: adults age 40–64 and adults age 75 and older. (See Table 3.)

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

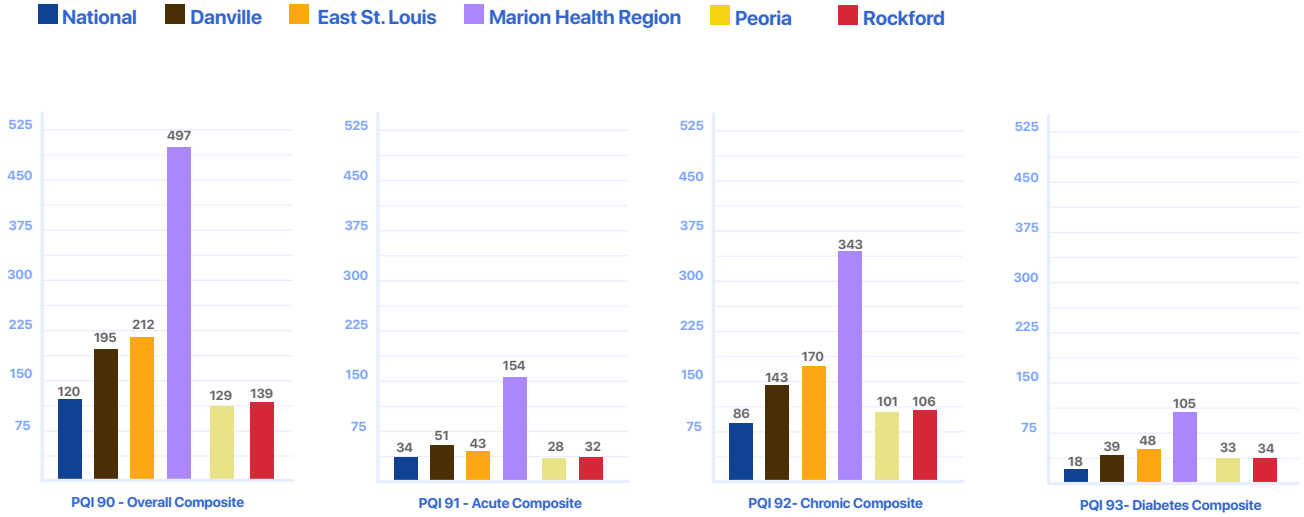
disorders block and the psychoactive substance abuse disorder block. Results of multivariate logistic regressions show that teens and young adults, age 12–24, are most associated with hospitalizations for depression in Peoria. For the other disorders (bipolar, alcohol, and opioid use), no associations are evident. (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 areas in the study. In Peoria, this is particularly true for the Black Medicaid population, in terms of accessing care for ACSCs, and teens and young adults for accessing mental health services for depression. 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 11, 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 11: 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

2019



2020

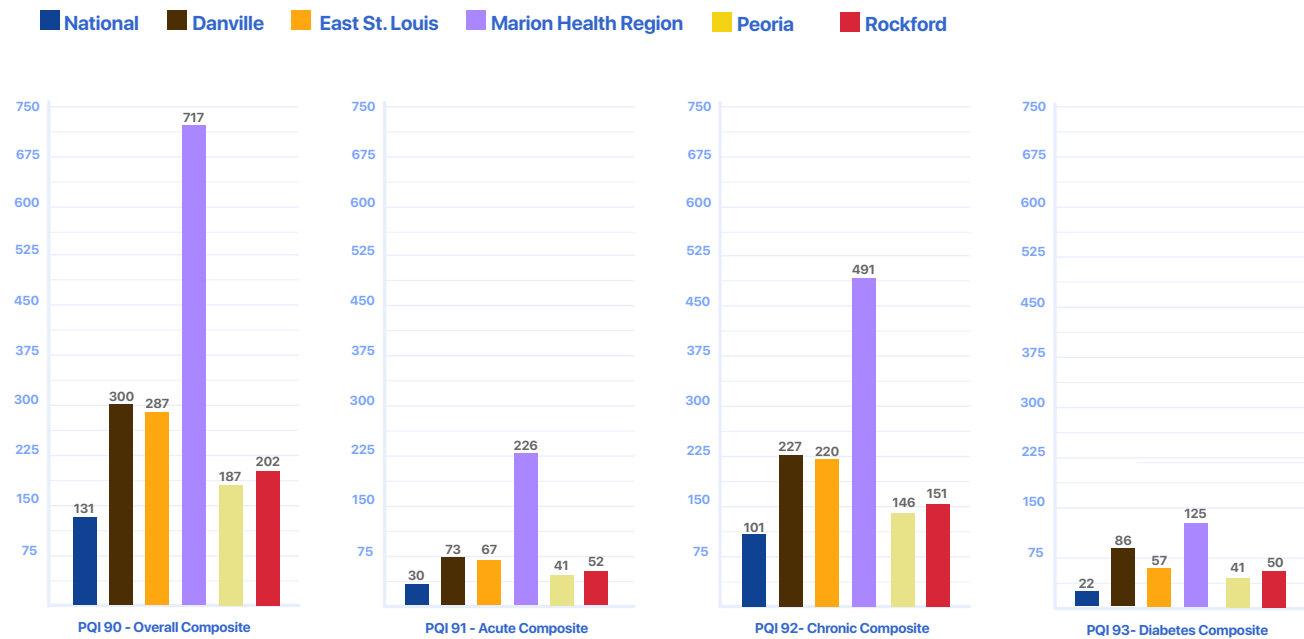


Table 3: Population Characteristics Associated with Composite PQIs in Peoria (FY2019 and FY2020 Data Combined)

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%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.32	3.56	5.24	<.0001
65-74	18-39	6.20	4.86	7.91	<.0001
75 or older	18-39	8.99	6.98	11.58	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.75	0.27	2.13	0.59
Black	White	1.41	1.20	1.64	<.0001
Other/UNK	White	1.05	0.75	1.48	0.79
SEX					
Male	Female	0.86	0.74	0.99	0.036

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

PQI 91_Acute Composite			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.68	2.42	5.60	<.0001
65-74	18-39	6.73	4.11	11.00	<.0001
75 or older	18-39	12.57	7.88	20.06	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.65	0.09	4.83	0.68
Black	White	0.80	0.56	1.15	0.23
Other/UNK	White	0.83	0.40	1.71	0.61
SEX					
Female	Male	1.53	1.13	2.08	0.0055

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

Table 3 Continued

PQI 92_Chronic Composite			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.31	3.48	5.34	<.0001
65-74	18-39	5.62	4.27	7.38	<.0001
75 or older	18-39	6.84	5.10	9.16	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.80	0.25	2.61	0.71
Black	White	1.59	1.34	1.89	<.0001
Other/UNK	White	1.12	0.77	1.64	0.55
SEX					
Male	Female	0.94	0.80	1.10	0.41

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

PQI 93_Diabetes Composite			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.94	1.43	2.63	<.0001
65-74	18-39	1.60	0.98	2.63	0.063
75 or older	18-39	1.76	1.01	3.05	0.046
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	NR	NR	NR	NR
Black	White	1.20	0.89	1.62	0.23
Other/UNK	White	1.40	0.80	2.44	0.24
SEX					
Male	Female	1.02	0.78	1.34	0.87

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

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

Table 4: Population Characteristics Associated with Depression-Related Hospitalizations in Peoria (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_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	2.37	1.89	2.98	<0.001
15 to 19.9	25 to 34.9	2.71	2.27	3.24	<0.001
20 to 24.9	25 to 34.9	1.4	1.15	1.71	<0.001
35 to 44.9	25 to 34.9	0.92	0.77	1.11	0.39
45 to 64.9	25 to 34.9	0.81	0.68	0.95	<0.05
>65	25 to 34.9	0.35	0.25	0.49	<0.001
RACE					
AmericanIN/AN	White	0.69	0.25	1.87	0.46
Asian/PI	White	0.49	0.18	1.33	0.16
Black	White	0.51	0.44	0.59	<0.001
Other/Unknown	White	0.6	0.51	0.72	<0.001
SEX					
Female	Male	1.1	0.99	1.23	0.08

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

Bipolar_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.66	0.39	1.11	0.11
15 to 19.9	25 to 34.9	1.2	0.86	1.68	0.27
20 to 24.9	25 to 34.9	1.28	0.95	1.73	0.10
35 to 44.9	25 to 34.9	0.91	0.69	1.20	0.50
45 to 64.9	25 to 34.9	0.67	0.52	0.88	<0.01
>65	25 to 34.9	0.19	0.10	0.37	<0.001
RACE					
AmericanIN/AN	White	1.02	0.25	4.14	0.98
Asian/PI	White	0.38	0.05	2.71	0.33
Black	White	0.54	0.42	0.69	<0.001
Other/Unknown	White	0.58	0.41	0.82	<0.01
SEX					
Female	Male	0.87	0.72	1.05	0.14

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 Peoria (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_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.036	0.01	0.26	<0.01
15 to 19.9	25 to 34.9	0.19	0.09	0.38	<0.001
20 to 24.9	25 to 34.9	0.76	0.51	1.12	0.16
35 to 44.9	25 to 34.9	1.33	1.02	1.75	0.16
45 to 64.9	25 to 34.9	1.23	0.96	1.57	<0.05
>65	25 to 34.9	0.29	0.16	0.53	<0.001
RACE					
American/IN/AN	White	0.54	0.00	3.86	0.53
Asian/PI	White	0.45	0.06	3.25	0.43
Black	White	0.89	0.71	1.10	0.27
Other/Unknown	White	0.61	0.39	0.96	<0.05
SEX					
Female	Male	0.33	0.07	0.40	<0.001

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

OUD_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.98
15 to 19.9	25 to 34.9	0	0.00	INF	0.98
20 to 24.9	25 to 34.9	0.22	0.07	0.72	<0.05
35 to 44.9	25 to 34.9	1.13	0.68	1.90	0.63
45 to 64.9	25 to 34.9	0.63	0.37	1.07	0.85
>65	25 to 34.9	0.081	0.01	0.60	<0.05
RACE					
American/IN/AN	White	0	0.00	INF	0.99
Asian/PI	White	0	0.00	INF	0.99
Black	White	0.46	0.25	0.83	<0.05
Other/Unknown	White	0.73	0.26	2.02	<0.01
SEX					
Female	Male	0.7	0.46	1.07	0.09

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



ghomephoto - <https://www.istockphoto.com/photo/bridge-over-the-illinois-river-in-peoria-gm182748140-13139623>

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

The findings presented in this report up to this point demonstrate a lack of access to outpatient care for the most frequent and resource-intensive conditions. 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.

Participant Demographics:

6 focus groups conducted in English between May 2nd and May 27th, 2022.

26 Participants over 6 Sessions

Age:

18-25	4 Participants
26-35	4 Participants
36-45	8 Participants
46-55	7 Participants
56-65	2 Participant
66+	1 Participant

Gender:

Female	19 Participants
Male	6 Participants
Transgender	1 Participant

Race/Ethnicity:

Black	23 Participants
Hispanic	2 Participants
White	1 Participant

Communities:

61605	12 Participants
61604	11 Participants
61606	1 Participant
61616	1 Participant
61602	1 Participant

Insurance:

Private	2 Participants
Public	21 Participants
Insured, not specified	2 Ptpts.
Unspecified	1 Participant

Toward this end, six community-input sessions were held with 26 residents of Peoria in May 2022. Community residents were recruited from Peoria's most distressed zip codes: 61602, 61603, and 61605 (see Appendix C for information on how zip codes were selected). During these sessions, community residents engaged in conversations about health and healthcare. These conversations were structured to elicit open-ended thoughts, stories, and reflections from participants, about:

- the top health issues in Peoria
- participants' own experiences (or those of loved ones) with recognizing healthcare needs and seeking care at local providers
- the impact of the COVID-19 pandemic on health and healthcare in their community
- health resources available in the community
- participant recommendations for a healthier Peoria

Three community-based organizations—House of Hope (HOH), Big Brothers Big Sisters–Heart of Illinois (BBBS), and Central Illinois Friends (CILF)—recruited participants from their local networks of clients and beneficiaries. These organizations also provided facilitators for the sessions. Consequently, the findings presented here particularly reflect the experiences of the populations the organizations serve. (See left for tally of participant demographics and the next page for partner organizations' mission statements.)

Community members shared detailed accounts of logistical, informational, and other challenges they have faced in **accessing care**. Participants also shared rich anecdotes about the **quality of care** they encountered in Peoria. Finally, participants offered their ideas for **resources and interventions** that would make it easier to stay healthy and seek healthcare in Peoria.



House of Hope

The House of Hope provides holistic, trauma-informed approaches to address the mental, physical, emotional, and spiritual well-being of beneficiaries in Peoria's high risk areas.



Central Illinois Friends

Central Illinois Friends supports people living with HIV and vulnerable community members in need of comprehensive clinical and supportive services through compassionate and personalized care.



Big Brothers Big Sisters Heart of Illinois

BBBSIL is a nonprofit mentoring organization that develops future leaders, strengthens families, and builds community throughout Southwestern Illinois.

Note:

All focus group participants adopted an pseudonym during the session and quotations are attributed to the pseudonym.

Healthcare Access in Peoria

Healthcare access refers to a population's ability to approach and utilize needed healthcare. To assess the level of healthcare access for a socially vulnerable population, a holistic and multifaceted interpretation of access is necessary. Healthcare access in Peoria is assessed here under the following six categories, which are informed by a "patient-centered access to healthcare" framework that conceptualizes access at the interface of health systems and populations (25):

- Availability of needed services
- Adequacy of available information to find needed services
- Ease of scheduling needed services
- Geographic reachability of needed services
- Limitations in services due to insurance coverage
- Acceptability of services to community members based on cultural/social factors

Availability of needed services

Participants in all the focus groups discussed their belief that Peoria has an insufficient supply of health services. Participants mentioned that some services, especially urgent care clinics, do exist, but they are not equitably distributed throughout the region, as Ashley at HOH (a 40-year-old Black, female) explained:

"I don't think there are many resources in the community, especially in the south end. If you go far out, you see a lot of [urgent care centers]. You see a lot of doctor facilities. You have more access the further you go out. The other low-end parts of town . . . don't have that access to healthcare facilities."

Even harder to find in the region are service

“I only know of one place here that specifically works with the transgender community providing care.”

Roe, 40, on the scarcity of healthcare resources in Peoria for the transgender community

centers that are LGBTQ+ affirming. As Roe of CILF (a 23-year-old, white, transgender female) explained, one of the few centers working within Peoria is CILF:

“I asked around and I couldn’t find an LGBTQ center until last week. . . . So the fact [is] that I only know of one place here that specifically works with the transgender community providing care [CILF].”

Adequacy of information to find services

Even when services exist, there is a lack of information about them. Finding them requires a significant amount of personal effort and time. The process can be particularly daunting for a new resident of Peoria with limited social connections. The strenuous nature of the process of information seeking was echoed by participants in groups, such as Keisha at HOH (a 40-year-old Black, female):

“[There’s] not just a center location where you can get information on how to apply for . . . Medicaid, so you can have proper healthcare coverage and get mental health counseling services . . . For a lot of individuals in our community, it’s hard to find that information. They have to seek it out. It’s especially hard if they don’t know where to start.”

Pookie at BBBS (a 36-year-old, Black female) had similar comments about how people in the community find starting the process of care seeking difficult due to a general lack of information about where to start:

“I think that is a really big issue among African Americans . . . not having the education or knowing [how] to get the proper help that they need.”

Even when care is available, participants

“When I got sick, [with] my navigator, I never wanted for anything because the navigator would say, ‘here’s a number you call for transportation, here’s a number you call to get your medication, here’s a number you call to make your appointments.’”

Ann, 70, on the benefits of good care navigation

“If you hit the wrong button, it’s like you will never get through to a live person.”

Kiki, 43, on the process of scheduling appointments

described a process of intense navigation, research, and other efforts required to find existing services. Finding this to be a common issue for her community, Ann at BBBS (a 70-year-old Black female) said that the healthcare system needs “more navigators.” Speaking from her experience with lung cancer, Ann lauded the comprehensive care she received as a cancer patient through the patient navigator program. She thought that this service would be beneficial for those with other health conditions:

“I feel like the health system needs more navigators to point people to different things where they can get help—like transportation help and help with other things. When I got sick, I never wanted for anything because the navigator would say ‘here’s a number you call for transportation, here’s a number you call to get your medication, here’s a number you call to make your appointments.’”

Ease of scheduling needed services

Additionally, participants mentioned difficulties in scheduling care and long wait times when seeking care. For instance, Kiki at HOH (a 43-year-old Black, female) explained the tedious process of reaching a physician’s office:

“Trying to get through to someone on a phone or even online is hard and sometimes nearly impossible. Going through the phone prompts for a doctor’s office, if you hit the wrong button, it’s like you will never get through to a live person. So it can be very frustrating, and whatever issues you have, it just makes them worse . . . because you’re not getting the answers you need. You’re not able to talk to somebody, and then you don’t know what to do.”

Member checking refers to engagement of people in the research analysis process who know the phenomenon of interest well – in this case leadership and staff of local community-based organizations. This practice functions to improve the trustworthiness of research findings.

In Peoria, the UIC academic team conducted member checking sessions with two of the three community organizations: HoH and BBBS. With HoH, the UIC team met with the focus group facilitator and the CEO of the organization, and at BBBS the team met with the two focus group facilitators. The UIC team presented preliminary findings from the data analysis asked for and received feedback and clarification on these findings.

These types of experiences left participants feeling frustrated, as they cannot get their needs met in critical health situations.

Some participants felt that the health system did not do enough to communicate with them, especially about the different types of services they have access to, including telehealth. In one HOH focus group, all three participants learned what telehealth was from the facilitator during the session. Ward (a 46-year-old Black, male), Donna (a 23-year-old, Black, female), and Zay (a 19-year-old Black male) thought that telehealth could be a good option for getting care faster by avoiding long wait times. Ward elaborated, saying he wanted to reach out to his providers to inquire more about whether it is an option for him, but he noted his frustration that his providers had not alerted him to the availability of telehealth services:

“I am going to reach out and ask about [telehealth]. . . . They should communicate about things like this. I’m sure I’m not the only person that doesn’t know about it. It would make things a whole lot easier for a lot of people who aren’t always able to get to appointments.”

Participants who did have experience with telehealth services did not think that telehealth was the way forward. The mothers and caregivers at BBBS who had experienced these services said they prefer “person-to-person” care interactions, as Jill of BBBS (a 34-year-old, Black, female) put it. Others questioned the usefulness of these visits without a doctor being able to perform physical exams—as Stacey of BBBS (a 55-year-old, Black, female) said, “How can they listen to your lungs?” Thus, while some participants felt telehealth may address some access issues, the service may not be a solution for all community members. In member checking sessions (see sidebar for more information on

“For somebody who doesn’t have a vehicle or driver’s license, it’s a lot to ask for.”

Les, 55, on the reachability of services

member checking), facilitators noted that this discomfort with using telehealth may be related to the general discomfort they see in their clients with new forms of technology. Furthermore, the facilitators mentioned that many of their clients may not always be able to access the internet services that telehealth visits require.

Geographic reachability of services

With respect to the physical "reachability" of services, only a few participants mentioned transportation as a barrier to accessing care. In all instances, it was brought up as a barrier for people who participants knew in the community rather than for themselves, as Les of HOH (a 55-year-old Black male) described:

“You know, there are not a lot of places to go. We,ve got to go way out off of Glen Street to go see an [urgent care] specialist or for somebody to deal with us. For somebody who doesn’t have a vehicle or a driver’s license, it’s a lot to ask for.”

Insurance coverage limitations

Participants in the focus groups rarely discussed the affordability of services. Member checking sessions with community partners provided insight into why affordability may not have been mentioned as a direct barrier to accessing care: Most of the participants are on government assistance and do not pay for services. Participants did, however, mention the limitations of the coverage of services when “on the medical card.”

Jill mentioned that the coverage for dental services is very limited and suggested that these coverage gaps be addressed. saying, "One thing [to expand] would be dental, to try to get it covered for everyone."

Participants also mentioned some of the consequences of being able to select only

Acceptability refers to community members' judgments regarding the suitability and appropriateness of available services for the social, cultural, and socioeconomic groups of which they are a part (26).

"If they don't keep their obligation to help . . . the trust level is just shot, it's gone."

Ward, 46, on trust in patient-provider relationships

in-network providers to avoid out-of-pocket payments. Due to the lack of availability of in-network mental healthcare providers, Roxanne of CILF (a 22-year-old, Latinx, female) described having to continue to see a provider with whom her interactions were unprofessional:

"This the only person I could find within the network. And he's very obviously sexualizing the conversation, trying to joke around as if we are buddy-buddy, to the point where there's very inappropriate things said. But I literally don't have any other options in the network."

Acceptability of services to community members based on cultural/social factors

Some participants described having an underlying distrust in the health system, stemming from experiences of discrimination and a lack of communication between the patient and the healthcare system.

As previously mentioned, Ward found that the health system was uncommunicative about services that were available to him (in his case, telehealth) and also when there was an important change in his health care (the departure of his primary care doctor from the clinic). This lack of transparency caused Ward to develop a mistrust of the greater health system:

"When people get into these positions . . . it's because [they] want to help people. If they don't keep their obligation to help . . . the trust level is just shot, it's gone. It's difficult to get back to trusting people who have certain roles, roles of power. We need more people to be trained—that's the best way to put it."

He explained that the trust level diminishes further when a patient feels discriminated against because of their outward appearance:

“Healthcare means care that doesn't look at the person on the outside . . . or your zip code.”

Candy, 64, reflecting on the meaning of health equity

“What I mean about the trust level is that . . . when you go in, you’re trusting someone with your life. And you trust that you’re going to get the best care and that you’re not going to get frowned down on because of maybe the way you look or maybe even the way you smell. . . . But it happens. They don’t have to say anything, it’s the expressions on their face and the way they talk to you—they try to keep their distance from you. It really makes you feel low.”

Candy of BBBS (a 64-year-old, Black, female) echoed the feeling of not fully trusting providers as she described being provided care that was different from care of others because of her “zip code”:

“Healthcare should mean care that doesn’t look at the person on the outside . . . or their zip code. Sometimes they see your zip code and they just look at your outside, and they judge you, and use you like a guinea pig. Everybody should get fair healthcare.”

These experiences of poor communication with health systems, as well as instances of discrimination, may influence whether participants deem health services acceptable. Already wary of health system biases that lead to unequal treatment of patients, it is unsurprising that participants found several interactions at the point of healthcare delivery unacceptable.

Some participants said they felt that very few providers could understand them. In other words, participants noted a lack of culturally competent care providers in Peoria. Mahogany of BBBS (a 35-year-old Black, female) provided an anecdote about the positive changes in her healthcare interactions with providers after starting to receive care from a provider who “looked like” her:

“I was able to tell her the things I was going through. . . . I was able to express myself.”

Mahogany, 35, on the benefit of a culturally competent provider

“When I told my gynecologist about [my] sexual health history, it just kind of fell into dead air.”

Cynthia, 40, on lack of empathy from her provider

“I got a new doctor and . . . I went in, and she asked me what I wanted to do with my health. It wasn’t like, ‘you need to do this, this, and this.’ I was actually shocked. The doctor was somebody who looked like me and I think that has a lot to do with it—having a doctor who can relate to you. Before this, I’ve never really had a doctor who could actually relate to me, so I think that was the biggest change. So when I walked in, I was made to feel in charge of my health. I was able to tell her the things I was going through without her looking at me like this big old lady, you know what I’m saying? . . . I was able to express myself.”

Mahogany described how prior to this experience she had rarely been listened to and asked for her opinion on how she could improve her own health. In other words, her new provider treated her as an equal and encouraged her to be an agent of change in her own health journey. In contrast to Mahogany’s experience, Cynthia of CLIF (a 40-year-old, Hispanic female) described how her trips to her gynecologist were uncomfortable, because the provider failed to recognize that her identity as a queer woman shapes her sexual health experiences:

“We all identify as LGBTQ here [at CLIF], but when I told my gynecologist about my sexual health history, it just kind of fell into dead air. It was just like, OK, [I’m] moving on.”

For community members, it's crucial to have access to providers who are trained well to work with diverse populations and take that diversity into consideration in their interactions with patients.

Unmet Needs The gap between the healthcare services deemed appropriate and effective and the actual services the patient receives

Lack of Timeliness Concerns related to long wait times that negatively affect a patient's health status and outcomes; a slow response to immediate care needs

Lack of Socialized Care Concerns related to a lack of community-based specialized care and training

Examples:

- Lack of specialists necessitating travel outside of Peoria (e.g., Chicago) to receive care
- Lack of providers trained in caring for LGBTQ+ populations

Patient Provider Interaction Poor patient-provider interactions: Interactions between patients and providers that hinder the creation of a trusting relationship and deters patients from playing an active role in their own care.

Experiences of Healthcare Quality in Peoria

The stories and observations the community members expressed in the focus groups about their direct experiences with Peoria's formal healthcare institutions indicated their dissatisfaction with what they considered substandard quality of care. The list in the left sidebar summarizes the leading factors related to the poor-quality healthcare experiences discussed by the participants in the Peoria focus groups.

The following three stories describe quality-of-care problems from the patient's point of view.

Unmet Needs

Focus group participants reported that care received from Peoria's healthcare institutions was often not appropriate for their needs and failed to deliver the necessary outcome. For example, Britney of HOH (a 40-year-old Black) described her experience seeking emergency care:

"I had a accident and went to [an emergency room], and they sent me away. I've never had a doctor experience like that. I'm literally bleeding from my head and [they] say, 'It's just a deep cut, it'll be OK, you don't need stitches.' I knew I needed stitches. I went to a different doctor [who] immediately put 11 stitches in my face and said, 'You definitely needed stitches.' He was confused just as much as I was as to why they sent me away."

Lack of Specialized Care

Peoria focus group participants expressed concerns about the lack of specialists in the community and lack of specialized care for the LGBTQ+ community. For example, Roe

“They just looked at me like I was a problem to them. I think education’s a big thing. As soon as doctors see sexual assault, they should know about post-exposure prophylaxis.”

Roe, 23, on a provider's lack of training to address an urgent medical situation

“I felt like I let that doctor walk over me. I didn’t speak up for myself . . . In the end, I just felt like the doctor really didn’t listen to me.”

Pookie, 40, on being heard by providers

described a provider’s limited knowledge of HIV risk reduction:

“I was sexually assaulted . . . and there’s post-exposure prophylaxis [PEP] you can take. I went to [a hospital] and I told them that I’m allergic to Truvada [a prescription PEP medicine], so that’s not an option. I know have approximately 4 hours until the window closes and I can [no longer take] post-exposure prophylaxis. The doctor didn’t even know what PEP was, first of all. Second of all, the doctor still tried to prescribe me Truvada. So I told her [again] I can’t take that. . . .”

Once they did get me what I could take, it was past the 4 hour window. It was too late. And they just looked at me like I was a problem to them. I think education is big thing. As soon as doctors see sexual assault patient, they should know about post-exposure prophylaxis. . . .”

Patient-Provider Interaction

Across all the focus groups, participants reported that poor patient-provider interactions greatly impeded the quality of their care. Participants said that providers did little to establish a foundation of trust, which hindered the effective exchange of information between patients and providers. Several participants said they felt unheard and were not listened to by their provider, as Pookie explained:

“There was something wrong with my kidneys so I went to my doctor and I got referred to go to another doctor. I felt like I let that doctor walk over me. I didn’t speak up for myself. If would have stood my ground and said, ‘No, there’s a problem, you guys need to run tests,’ and things like that, then I don’t think I would be in this situation [kidney failure], it would have

“I wound up [with] just the worst panic attacks because I was in the house all the time.”

Stacey, 55, on mental health challenges

been caught sooner. But that was because I didn't speak up. In the end, I just felt like the doctor really didn't listen to me.”

Several Peoria participants shared stories of when they felt their care was greatly improved by a provider with strong interpersonal care skills, including: inquiring about patient needs early in the visit, actively listening, avoiding judgmental language, responding with understanding and empathy, allowing the patient to ask questions, including the patient in the decision-making process, and thoroughly explaining procedures and results. However, the focus group participants rarely reported positive patient-provider interactions.

Mental Health a Key Area of Healthcare Challenges in Peoria

When asked to identify the most pressing health problem in their community, Peoria focus group participants mentioned mental health the most frequently. Participants reported that struggles with mental health affected people of all ages and described the impact of mental health struggles as far-reaching, influencing every aspect of day-to-day life in Peoria.

Several participants, particularly caregivers to children or aging parents, noted increased mental health struggles during COVID-19. For example, Stacey said:

“I wound up [with] just the worst panic attacks because I was in the house all the time. . . . with all the kids . . . and I'm supposed to help them. I really started freaking out and panicking, and I had to go call my doctor.”

And Mary of BBBS (a 33-year-old, Black,

“Mental health is just a big thing . . . that nobody wants to talk about.”

Mahogany, 35, on mental health stigma

“Kids . . . don’t feel comfortable coming to talk to you about [mental health issues] even though you’re their parents. That’s a big problem.”

Mary, 33, on mental health stigma

female) related:

“I lost my mind. I couldn’t work. My kids couldn’t go to school. I couldn’t go outside. . . . I broke my foot in 2020, so I was injured. I definitely couldn’t do anything. So, my mental issues just deepened . . . I’m not a person that likes to depend on people. I like to do things myself. So being stuck in the house and injured and having to depend on others, it did not work out very well for me.”

Stigma

Although many of the participants recognized that mental health struggles are a major issue, many Peoria residents are struggling in silence. Participants noted that stigma associated with mental illness is a major barrier to mental health awareness, acceptance, and treatment. Mahogany noted that mental health issues are not discussed openly:

“Mental health is just a big thing . . . that nobody wants to talk about, especially within the Black community.”

Mary further noted that the stigma surrounding mental health creates a fear of discrimination and negative social consequences:

“It’s not talked about a lot, and a lot of kids nowadays don’t want to talk about it because they think people are going to judge them. And, they really don’t feel comfortable coming to you to talk even though you’re their parents. That’s a big problem.”

The focus group participants said that stigma exacerbates existing mental health problems and prevents Peoria residents from seeking the help they need. They acknowledged that while there is an increased knowledge of the importance of mental health, stigma remains a major barrier to mental health care.

“At first, they wouldn’t give me the time of day when I walked in. They were like, ‘Ain’t nothing wrong with you.’ I sat there all day. ”

Carla, 46, on her mental health issues being dismissed in the waiting room

Awareness of and Access to Services

Participants in all the focus groups discussed the difficulty of finding accessible and affordable mental healthcare. They noted that mental health treatment was not as well understood as the treatment of other illnesses, and thus there’s a lack of knowledge about mental health services. Participants identified uncertainty about where to seek treatment as a major barrier to accessing mental health care.

In addition, participants said that treatment was not within reasonable reach to those seeking treatment for mental health struggles. Carla of BBS (a 46-year-old Black, female) described barriers that prevented her from receiving treatment when she felt she needed it most:

“I went over to Methodist [Hospital], and they almost gave me a hard time. That’s the problem with mental health—if you are having a problem, you should be able to talk to someone about it. . . . At first, they wouldn’t give me the time of day when I walked in. They were like, ‘Ain’t nothing wrong with you.’ I sat there all day. I did. I finally talked to somebody about getting some type of help.”

Youth Focus

Focus group participants identified youth and adolescents as a group with unique mental health needs. They also discussed the need to increase mental health education and resources for youth and adolescents. Mahogany noted:

“That’s one thing they don’t really talk about in schools. You see so many younger kids you on the news or on Facebook who have committed suicide. I mean, freshman in college and high schoolers because nobody talked about it. It is something that is skipped . . . where you can go to get help,

“I feel like someone [should] go to the schools and talk about mental health and . . . places where the [students] can go for help.”

Mahogany, 35, on mental health education efforts for youth

“And offer more programs to help kids understand . . . they’re not alone. . . .”

Lisa, 65, on mental health services

that you’re not alone, there’s other people out here struggling with the same thing. . . . I feel like someone [should] go to the schools and talk about mental health and . . . places where the [students] can go for help.”

Lisa of BBBS (a 65-year-old Black, female) echoed Mahogany’s sentiments and added to them the need for more positive youth development programs to improve mental health:

“If we can get more agencies to sponsor programs that help keep our kids off the streets and get them into something educational, something that would help them have meaning in their lives, I think that would help kids. And offer more programs to help kids understand . . . they’re not alone, [by] learning from their peers or from someone else who has been through it.”

During member checking, it was noted that while youth mental health resources exist in Peoria, there is still a need for culturally responsive youth mental health care. Further, the point was made that there is a shortage of mental health resources throughout the entire community, but the resource gap is much wider for high-risk youths, who are most likely to experience mental health problems.

Desired Community Interventions to Improve Health and Healthcare in Peoria

Focus group participants were invited to recommend resources and interventions that would improve health in their community. These recommendations tended to speak to structural challenges that impede the pursuit of health and healthcare in Peoria.

“Peoria should advertise more resources people could reach out to whenever they’re going through depression or anxiety.”

Donna, 23, on the need to spread awareness of mental health resources

In general, Peoria’s participants desired accessible and good-quality care. Furthermore, many of their recommendations addressed system-level inequities that affected their pursuit of health services. Frequent recommendations included making sure services are more physically accessible.

Spreading Awareness

A frequent recommendation was to ensure that services are advertised more to community members who need them—that is, to spread awareness—as well as to make the services more reachable. One participant described a need for more patient navigators throughout the health system. Others called for amplifying mental health care services and spreading awareness, as Donna explained:

“I think that Peoria should advertise more resources people could reach out to whenever they’re going through depression or anxiety or anything like that. Because some people don’t feel comfortable talking to their family about what they are going through because they fear that they’ll be judged. But I feel like if they had a website where you can go into a live chat room that’s 24 hours and just talk to somebody anonymously that would help.”

A Centralized Location for Services

Most notably in the BBBS and CILF groups, participants called for a central location for a variety of services they may need access to—in other words, a “hub” of services, including access to healthy food. Participants across the groups recognized food as a key determinant of their health. It’s also part of Stacey’s recommendation:

“I would build a facility where people can exercise . . . at a low cost, and where they

“Honestly, I would just put it all in one big building . . . That way you don’t have to have a car to drive clear over here for your health and over [there] for food. . . It’s all in one area.”

Stacey, 55, recommendation for locating services in a community-centered way

[can] check for women things, where you can get dental [issues] fixed . . . get fresh food . . . Honestly, I would just put it all in one big building. [One place you can go] to get to where you actually need to be to stay healthy, to maintain yourself, whether it’s mental health [or] physical health. That way you don’t have to have a car to drive clear over here for your health and over [there] for food . . . It’s all in one area.”

While not directly identified as a barrier for participants seeking care, people did mention that transportation is an issue in their communities. Thus, having a central location for all services would resolve some issues, as Mahogany commented:

“I feel like we need transportation to or from these places. . . . that way elderly people with no cars or single-parent moms [wouldn’t] have to get on the bus and take all their kids and try to get to all these places.”

Specifically, CILF participants called for the development and advertising of more centers for comprehensive gender-affirming care services, as Roxanne explained:

“I’m sure that the resources are out there, and Central Illinois Friends is a testament to that, but those resources [must be] known and accessible. I don’t have the answer as to how to do that. But [maybe by] creating a bridge to fill the gap between people who are not as well served within the community and the resources to support them.”

Conclusion

At the heart of many participants’ challenges with the health system are the structural barriers to seeking and receiving care. Medical service sites are often in inconvenient locations and

not spread equitably over geographic areas. The participants pointed out the complexity of the health system and the difficulty of finding out about existing resources, scheduling appointments, and finally reaching the point of care.

Once in the health system, they often found an absence of culturally competent providers, and they recounted episodes of poor-quality care that stemmed from negative interpersonal interactions with providers and poor communication by them. Participants told about encounters with providers evidently not trained to deliver care to diverse populations and hospital systems with cultures of discrimination against LGBTQ+ people as well as people of color.

To address the lack of services in Peoria, the participants recommended investment in a centralized location for comprehensive services. Among other recommendations were investing in advertising at the community level to increase awareness of services and investing in helping community members navigate the health system. Because participants emphasized that providers who listen to, understand, and empower patients are key to improving the quality of care, future work in Peoria may entail hiring more providers of color and members of the LGBTQ+ community to start to address this gap between healthcare expectations and the reality recounted in the focus groups.

Summary of Peoria Community Input

Healthcare Access

- a) Existing services in Peoria are not equitably distributed and even when services exist, they are not adequately advertised.
- b) Experiences of discrimination and a lack of communication between patients and providers results in mistrust of the healthcare system.
- c) Community members want more culturally-competent providers, providers that understand them and “look like” them.

Healthcare Quality

- a) Peoria participants reported a deficiency in the quality of care received at Peoria’s health care institutions, reporting feelings of dissatisfaction with both clinical and interpersonal aspects of care.
- b) Patient-provider interaction was identified as the leading factor contributing to poor-quality care; dismissive attitudes and a paternalistic approach by providers was described often; patient-centered experiences were rare.
- c) Participants felt that deliberate self-advocacy was needed to counteract perceived social discrimination.

Mental Health

- a) Mental health was by far the most frequently mentioned problem across all Peoria focus groups, exacerbated by COVID-19 and affecting people of all ages, especially youth.
- b) Stigma remains a major barrier to mental health care.
- c) Residents at greatest risk for mental health problems are not receiving mental health care: many lack knowledge of mental health services and mental health treatment is not as well understood as other illness or injury treatment.

Recommendations

- a) When asked what could improve health and healthcare in Peoria, participants expressed a desire for accessible, good quality, care.
- b) Across focus groups, participants desired more geographically accessible, culturally-competent services and better advertising of services to community members who need them.

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 Peoria to reach out beyond the walls of their hospitals and into communities. It will also require community residents and organizations in Peoria 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* to provide patient-centered, culturally-competent and community-based primary and secondary care and 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.

Clinic-community linkages can leverage the treatment expertise of healthcare systems, the on-the-ground knowledge gained via community engagement and partnership with community-based organizations to provide more accessible, patient-centered

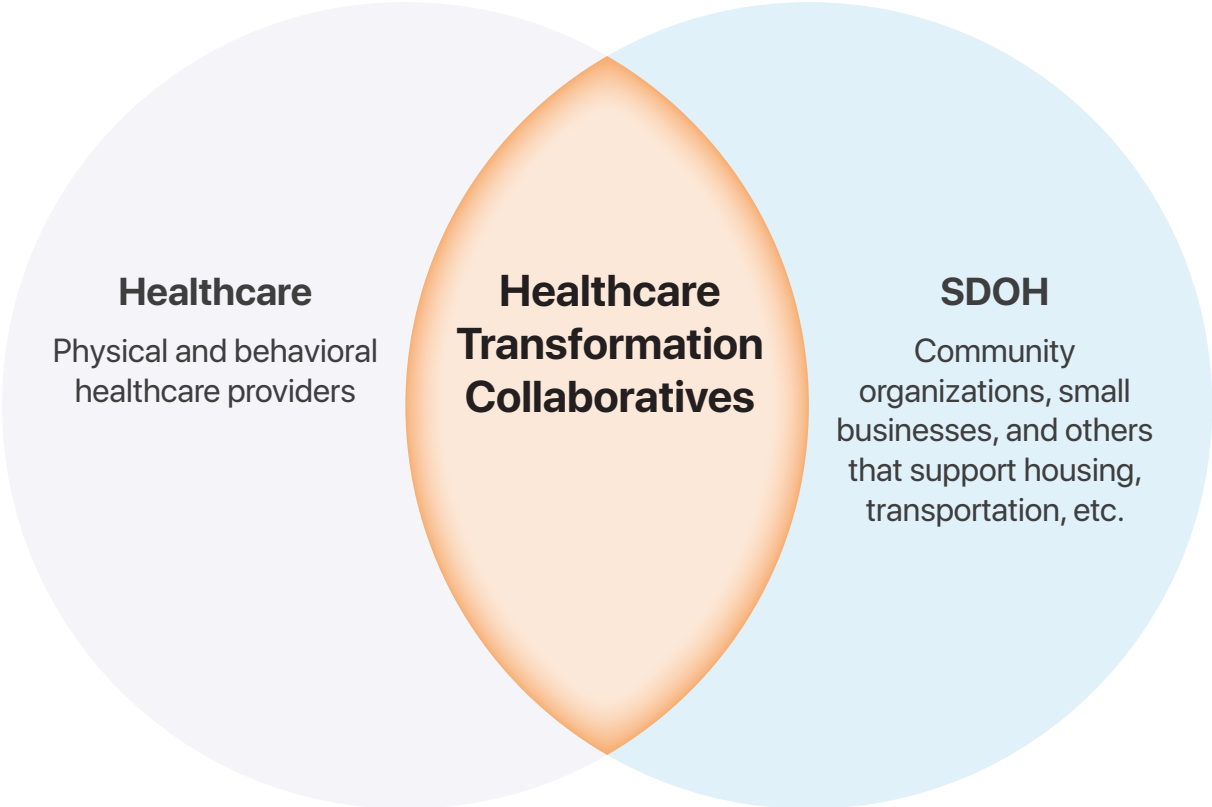
care, support a more holistic approach to chronic disease management, restore trust in the healthcare system, and increase engagement in healthcare.

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 12). Over time, investments in these linkages will address the need for access to quality, patient-centered services where people live, work, and play and, ultimately, will help drive greater health in communities.

Figure 12



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.

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.

Opportunities for Future Research

Appendices

Appendix A:

Approach to Analyzing Medicaid Utilization Data

About Medicaid Utilization Data

The team tasked with updating 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 and discharge dates
- ICD-10 code and description (principal diagnosis for the encounter)
- diagnosis related group (DRG) code

Noninstitutional Utilization Data

(FY2018 only and for a limited number of area; 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 13 to 19 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.

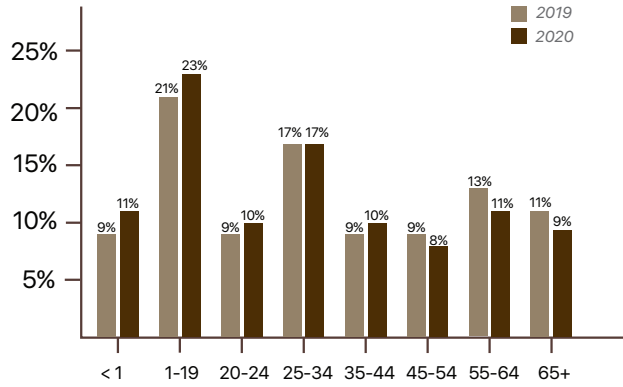
Bivariate associations: The data analytics team also investigated bivariate associations, such as associations between health conditions (that is, principal diagnosis codes represented by chapter, block, or ICD-10 code) and localities (zip codes and study areas). More specifically, the team compared 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: The data analytics team also performed a limited set of advanced inferential statistical analysis using bivariable and multivariable regression analyses. Regression analyses were used to understand Medicaid patients' demographic characteristics most associated with diseases of interest: bipolar and depressive disorders, and alcohol and opioid use disorders, and ACSCs. 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 the demographic covariates available in the data, these being age, race, and sex.

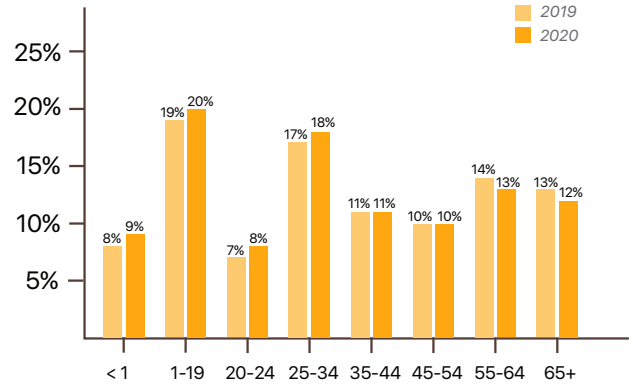
See Appendix B, "Additional Analyses for Selected Disease Groups and Conditions," for tables containing the results of the logistic regressions for bipolar and depressive disorders, and alcohol and opioid use disorders, and ACSCs.

Figure 13: Inpatient Hospitalizations—Distribution of Ages of Patients by Study Area

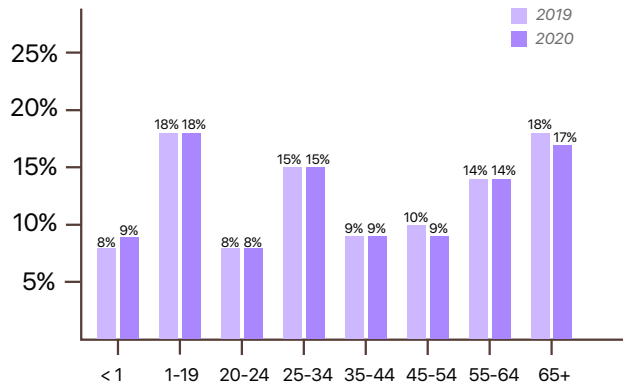
Danville



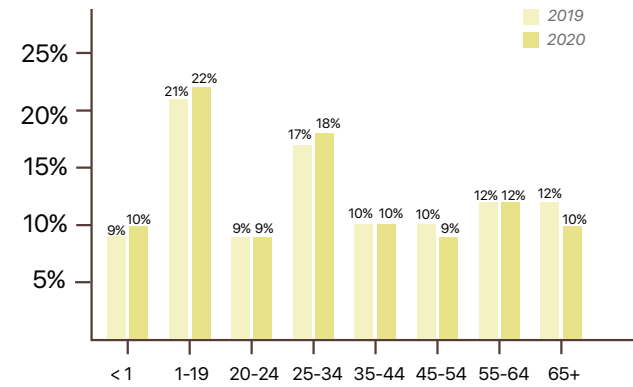
East St. Louis



Marion Health Region



Peoria



Rockford

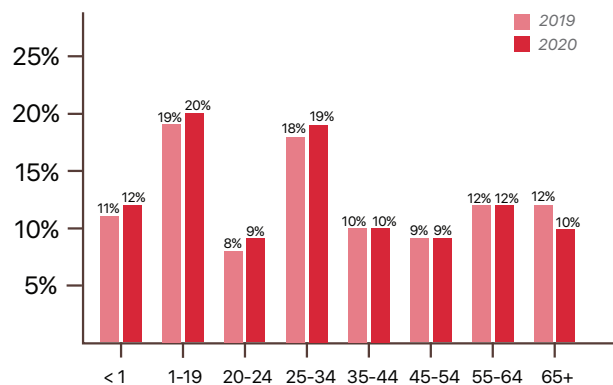
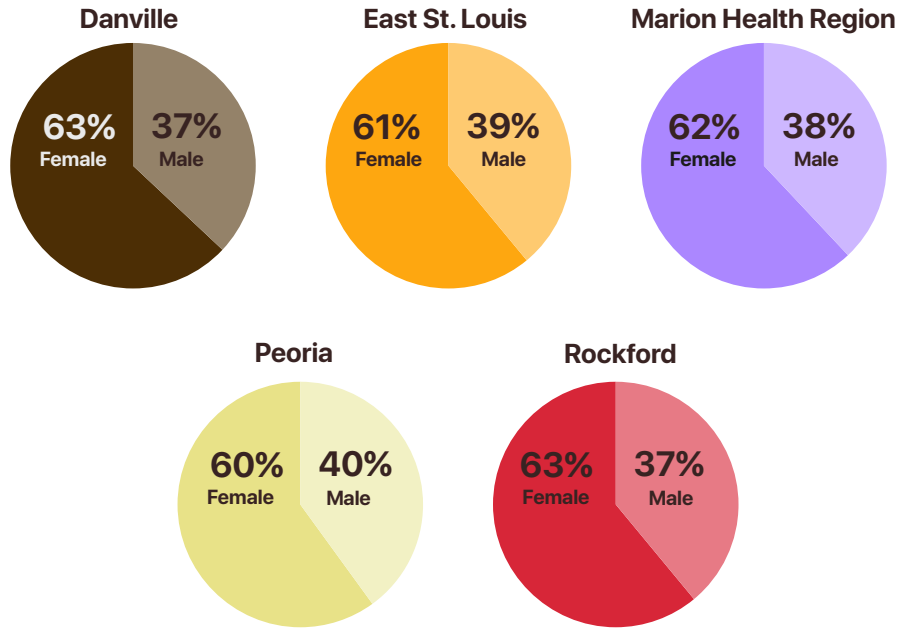


Figure 14: Inpatient Hospitalizations—Distribution of Sex of Patients by Study Area

2019



2020

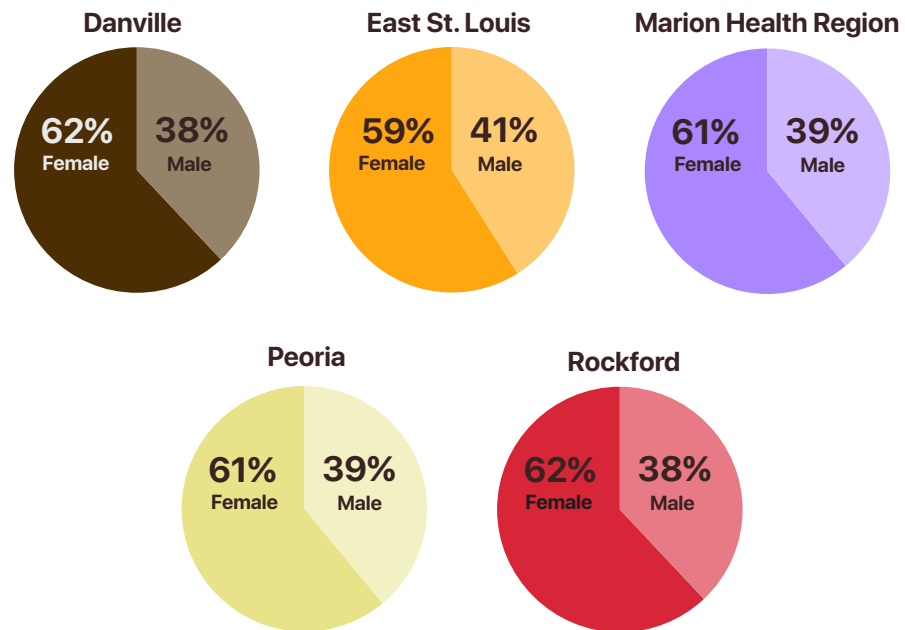
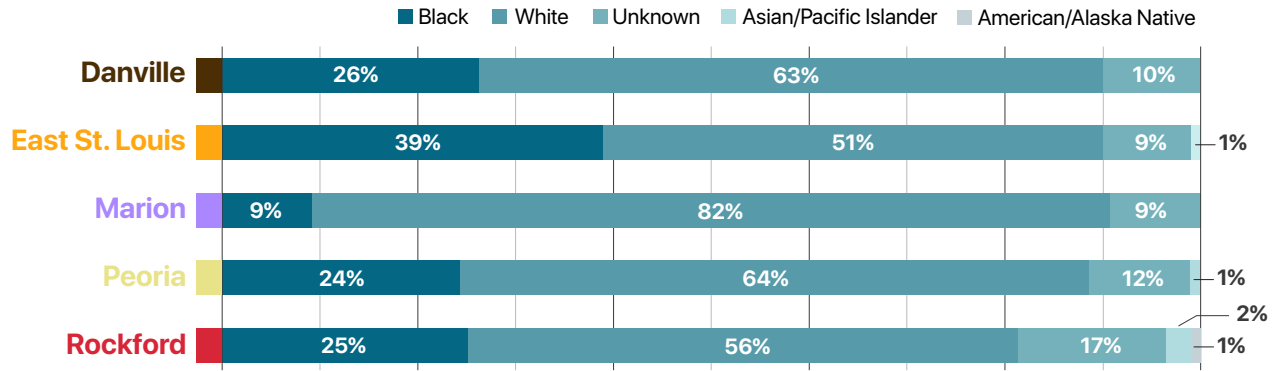


Figure 15: Inpatient Hospitalizations—Distribution of Races of Patients by Study Area

2019



2020

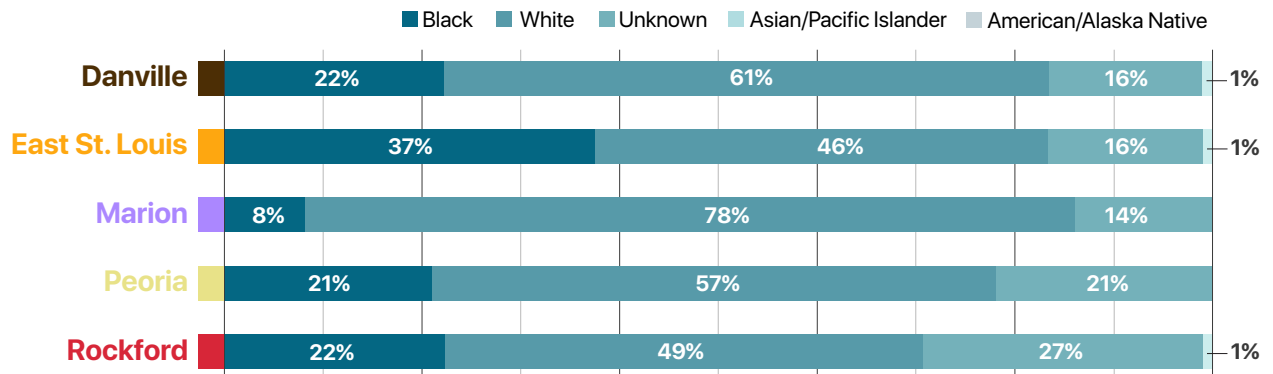


Figure 16: Emergency Department Visits—Distribution of Ages of Patients by Study Area

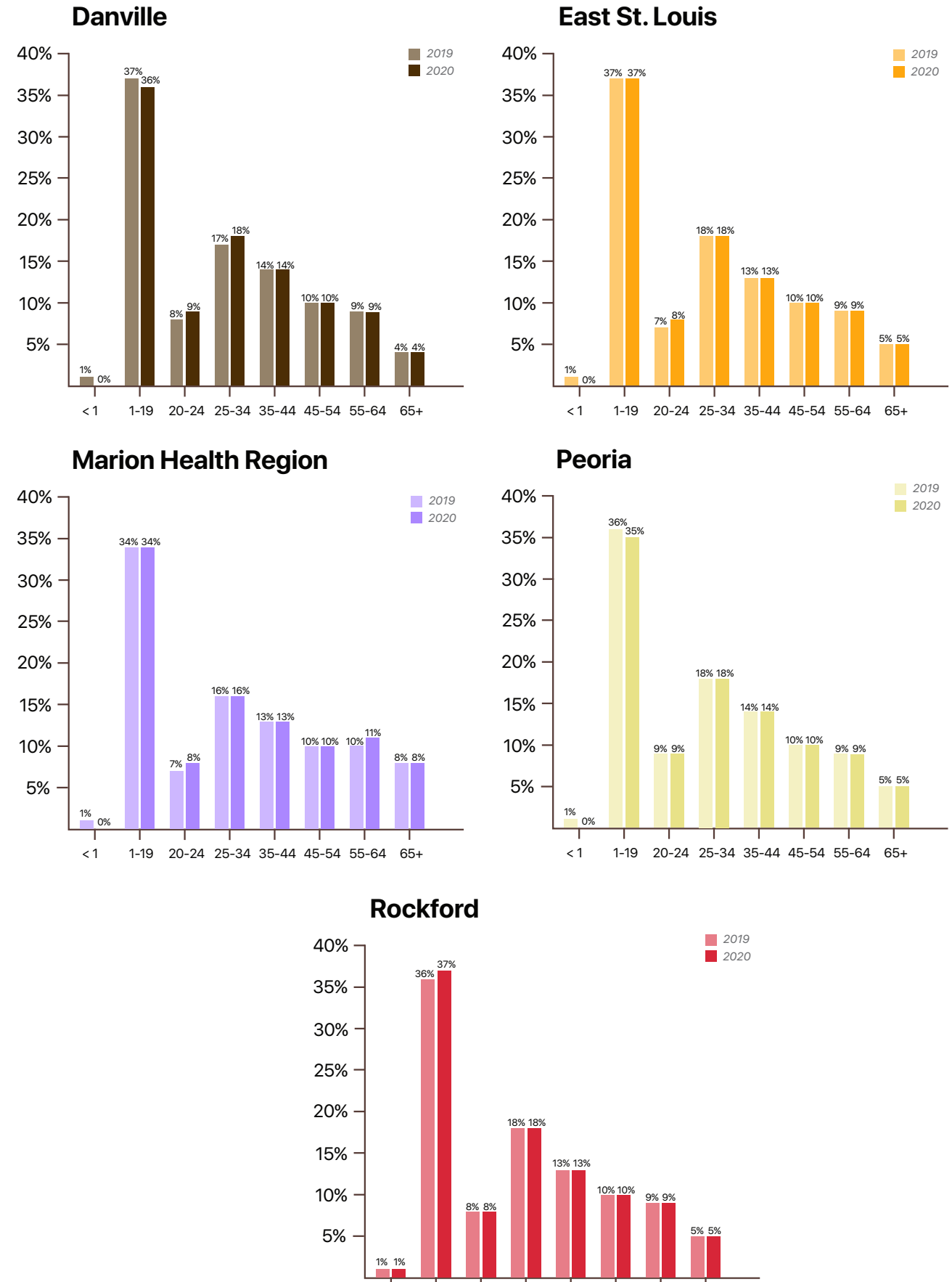


Figure 17: Emergency Department Visits—Distribution of Sex of Patients by Study Area

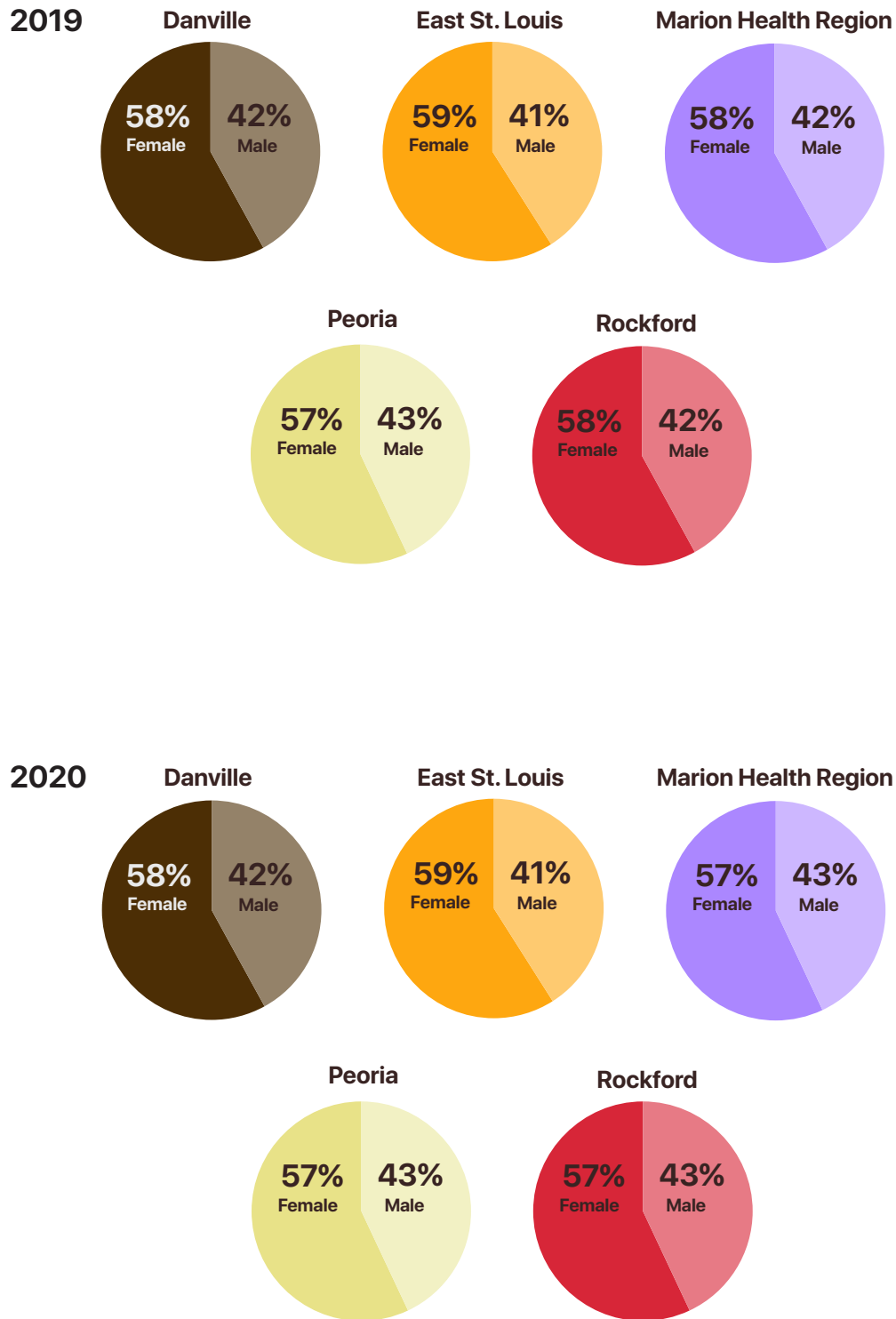
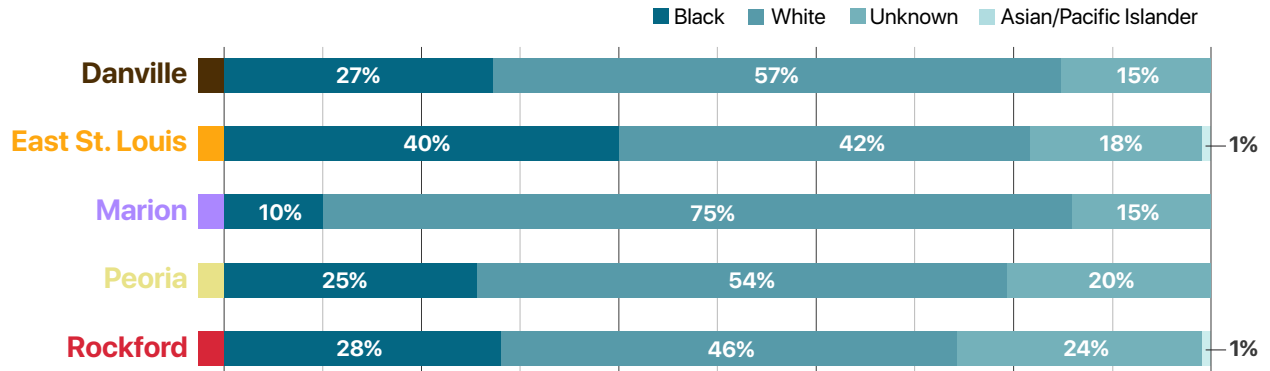


Figure 18: Emergency Department Visits—Distribution of Races of Patients by Study Area

2019



2020

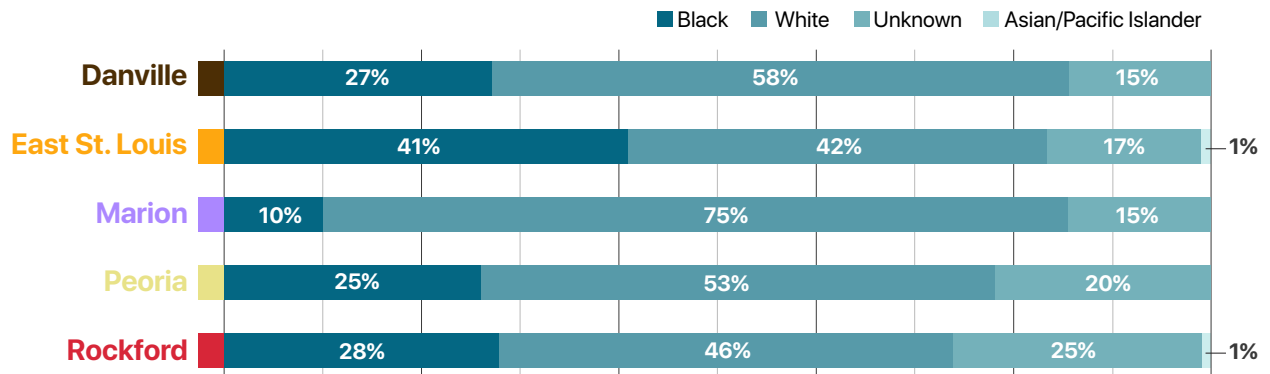
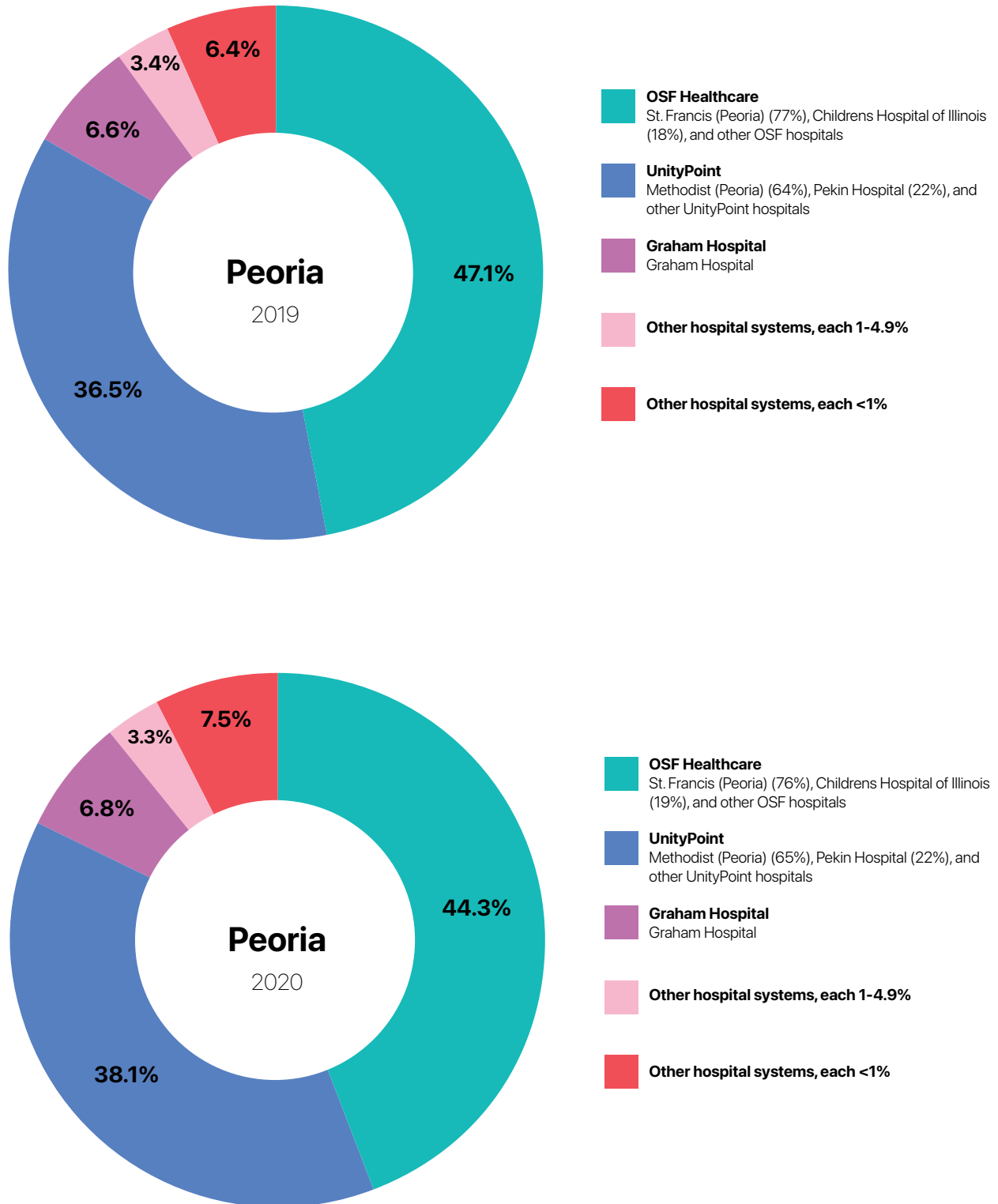


Figure 19: Estimated Share of Peoria Medicaid Enrollees Admitted to the Hospital
 (Share of hospitals receiving Medicaid enrollees who live in the Peoria study area as patients for FY2019 and FY2020)



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 8–11 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 Depressive Disorders

- Teenagers, age 12–19 in all areas
- Young adults, age 20–24 in Danville and Peoria

Table 8: Population Characteristics Associated with Depressive Disorder Patients (FY2019 and FY2020 Data Combined)

DEPRESSION_Danville			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	2.37	1.43	3.93	<0.001
15 to 19.9	25 to 34.9	2.54	1.70	3.80	<0.001
20 to 24.9	25 to 34.9	1.62	1.05	2.50	<0.05
35 to 44.9	25 to 34.9	0.83	0.53	1.30	0.41
45 to 64.9	25 to 34.9	0.6	0.39	0.92	<0.05
>65	25 to 34.9	0.17	0.05	0.56	
RACE					
AmericanIN/AN	White	0.88	0.12	6.49	0.89
Asian/PI	White	0.81	0.11	5.95	0.83
Black	White	0.51	0.36	0.73	<0.001
Other/Unknown	White	0.6	0.39	0.93	<0.05
SEX					
Female	Male	0.78	0.60	1.01	0.06

DEPRESSION_E. St. Louis			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	1.92	1.55	2.37	<0.001
15 to 19.9	25 to 34.9	2.06	1.73	2.46	<0.001
20 to 24.9	25 to 34.9	1.11	0.90	1.37	0.31
35 to 44.9	25 to 34.9	0.91	0.76	1.08	0.27
45 to 64.9	25 to 34.9	1.03	0.89	1.20	0.68
>65	25 to 34.9	0.52	0.39	0.68	<0.001
RACE					
AmericanIN/AN	White	1.65	0.92	2.97	0.09
Asian/PI	White	0.33	0.12	0.88	<0.05
Black	White	0.46	0.41	0.52	<0.001
Other/Unknown	White	0.63	0.53	0.75	<0.001
SEX					
Female	Male	0.82	0.74	0.91	<0.001

Table 8 Continued

DEPRESSION_Marion HR			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	1.37	1.12	1.67	<0.01
15 to 19.9	25 to 34.9	1.89	1.63	2.20	<0.001
20 to 24.9	25 to 34.9	1.13	0.97	1.35	0.11
35 to 44.9	25 to 34.9	0.93	0.80	1.07	0.3
45 to 64.9	25 to 34.9	0.61	0.53	0.70	<0.001
>65	25 to 34.9	0.47	0.38	0.57	<0.001
RACE					
AmericanIN/AN	White	1.6	0.87	2.95	0.13
Asian/PI	White	0.62	0.23	1.67	0.34
Black	White	0.67	0.56	0.80	<0.001
Other/Unknown	White	0.88	0.75	1.03	0.1
SEX					
Female	Male	0.97	0.88	1.06	0.48

DEPRESSION_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	2.37	1.89	2.98	<0.001
15 to 19.9	25 to 34.9	2.71	2.27	3.24	<0.001
20 to 24.9	25 to 34.9	1.4	1.15	1.71	<0.001
35 to 44.9	25 to 34.9	0.92	0.77	1.11	0.39
45 to 64.9	25 to 34.9	0.81	0.68	0.95	<0.05
>65	25 to 34.9	0.35	0.25	0.49	<0.001
RACE					
AmericanIN/AN	White	0.69	0.25	1.87	0.46
Asian/PI	White	0.49	0.18	1.33	0.16
Black	White	0.51	0.44	0.59	<0.001
Other/Unknown	White	0.6	0.51	0.72	<0.001
SEX					
Female	Male	1.1	0.99	1.23	0.08

DEPRESSION_Rockford			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	3.13	2.39	4.10	<0.001
15 to 19.9	25 to 34.9	3.44	2.76	4.28	<0.001
20 to 24.9	25 to 34.9	1.17	0.89	1.54	0.25
35 to 44.9	25 to 34.9	1.14	0.90	1.43	0.26
45 to 64.9	25 to 34.9	1	0.81	1.23	0.96
>65	25 to 34.9	0.38	0.25	0.57	<0.001
RACE					
AmericanIN/AN	White	1.41	0.69	2.90	0.34
Asian/PI	White	0.37	0.16	0.83	0.05
Black	White	0.62	0.53	0.74	<0.001
Other/Unknown	White	0.7	0.59	0.84	<0.001
SEX					
Female	Male	0.87	0.76	0.99	0.05

Summary of Population Characteristics Most Associated with Patients with Bipolar Disorders

- Native Americans in Danville and the Marion Health Region

Table 9: Population Characteristics Associated with Bipolar Disorder Patients (FY2019 and FY2020 Data Combined)

Bipolar_Danville			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.26	0.08	0.87	<0.05
15 to 19.9	25 to 34.9	0.78	0.43	1.40	0.4
20 to 24.9	25 to 34.9	0.9	0.52	1.55	0.7
35 to 44.9	25 to 34.9	1.1	0.71	1.71	0.65
45 to 64.9	25 to 34.9	0.49	0.30	0.79	<0.01
>65	25 to 34.9	0	0.00	INF	0.98
RACE					
AmericanIN/AN	White	4.48	1.35	14.92	<0.05
Asian/PI	White	0	0.00	INF	0.96
Black	White	0.67	0.44	1.00	0.52
Other/Unknown	White	0.76	0.38	1.52	0.43
SEX					
Female	Male	0.71	0.51	0.99	<0.05

Bipolar_E. St. Louis			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.54	0.33	0.88	<0.05
15 to 19.9	25 to 34.9	1.14	0.84	1.54	0.39
20 to 24.9	25 to 34.9	0.84	0.61	1.16	0.29
35 to 44.9	25 to 34.9	1.01	0.79	1.29	0.95
45 to 64.9	25 to 34.9	0.66	0.52	0.83	<0.001
>65	25 to 34.9	0.25	0.15	0.42	<0.001
RACE					
AmericanIN/AN	White	1.03	0.33	3.25	0.09
Asian/PI	White	1.35	0.60	3.04	0.47
Black	White	0.37	0.30	0.45	<0.001
Other/Unknown	White	0.51	0.36	0.71	<0.001
SEX					
Female	Male	0.86	0.72	1.02	0.08

Table 9 Continued

Bipolar_Marion HR			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.61	0.38	0.05	<0.05
15 to 19.9	25 to 34.9	1.13	0.85	1.49	0.41
20 to 24.9	25 to 34.9	0.89	0.67	1.20	0.45
35 to 44.9	25 to 34.9	1.05	0.84	1.33	0.65
45 to 64.9	25 to 34.9	0.66	0.53	0.82	<0.001
>65	25 to 34.9	0.3	0.21	0.44	<0.001
RACE					
AmericanN/AN	White	2.93	1.38	6.28	<0.01
Asian/PI	White	0.95	0.24	3.86	0.94
Black	White	0.59	0.43	0.82	<0.01
Other/Unknown	White	0.56	0.40		<0.01
SEX					
Female	Male	0.91	0.77	1.06	0.21

Bipolar_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.66	0.39	1.11	0.11
15 to 19.9	25 to 34.9	1.2	0.86	1.68	0.27
20 to 24.9	25 to 34.9	1.28	0.95	1.73	0.10
35 to 44.9	25 to 34.9	0.91	0.69	1.20	0.50
45 to 64.9	25 to 34.9	0.67	0.52	0.88	<0.01
>65	25 to 34.9	0.19	0.10	0.37	<0.001
RACE					
AmericanN/AN	White	1.02	0.25	4.14	0.98
Asian/PI	White	0.38	0.05	2.71	0.33
Black	White	0.54	0.42	0.69	<0.001
Other/Unknown	White	0.58	0.41	0.82	<0.01
SEX					
Female	Male	0.87	0.72	1.05	0.14

Bipolar_Rockford			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.73	0.43	1.25	0.25
15 to 19.9	25 to 34.9	1.08	0.75	1.54	0.67
20 to 24.9	25 to 34.9	0.98	0.69	1.40	0.91
35 to 44.9	25 to 34.9	1.09	0.82	1.45	0.53
45 to 64.9	25 to 34.9	0.82	0.63	1.07	0.14
>65	25 to 34.9	0.15	0.07	0.33	<0.001
RACE					
AmericanN/AN	White	1.81	0.73	4.44	0.19
Asian/PI	White	0.26	0.06	1.05	0.06
Black	White	0.61	0.48	0.78	<0.001
Other/Unknown	White	0.64	0.47	0.88	<0.01
SEX					
Female	Male	0.64	0.53	0.78	<0.001

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

While no particular characteristic is statistically associated with OUD, low odds ratios of women compared to men indicate that being female is likely a protective factor in terms of OUD.

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

OUD_Danville		Odds Ratio	Confidence Interval (95%)		P-Value
Group	Compared To		Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.99
15 to 19.9	25 to 34.9	0.11	0.01	0.82	<0.05
20 to 24.9	25 to 34.9	0.28	0.08	0.95	<0.05
35 to 44.9	25 to 34.9	0.92	0.49	1.75	0.8
45 to 64.9	25 to 34.9	0.34	0.16	0.70	<0.01
>65	25 to 34.9	0	0.00	INF	0.99
RACE					
American/IN/AN	White	3.48	0.46	26.43	0.22
Asian/PI	White	0	0.00	INF	0.99
Black	White	0.61	0.31	1.20	0.15
Other/Unknown	White	0	0.00	INF	0.98
SEX					
Female	Male	0.44	0.26	0.76	<0.01

OUD_E. St. Louis		Odds Ratio	Confidence Interval (95%)		P-Value
Group	Compared To		Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.97
15 to 19.9	25 to 34.9	0.03	0.01	0.12	<0.001
20 to 24.9	25 to 34.9	0.39	0.25	0.61	<0.001
35 to 44.9	25 to 34.9	0.98	0.78	1.25	0.88
45 to 64.9	25 to 34.9	0.28	0.21	0.37	<0.001
>65	25 to 34.9	0.015	0.00	0.11	<0.001
RACE					
American/IN/AN	White	0.84	0.21	3.43	0.81
Asian/PI	White	0.61	0.15	2.47	0.48
Black	White	0.21	0.15	0.28	<0.001
Other/Unknown	White	0.29	0.15	0.55	<0.001
SEX					
Female	Male	0.39	0.32	0.48	<0.001

Table 10 Continued

OUD_Marion HR			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.98
15 to 19.9	25 to 34.9	0.036	0.00	0.26	<0.001
20 to 24.9	25 to 34.9	0.38	0.20	0.75	<0.01
35 to 44.9	25 to 34.9	1.07	0.73	1.55	0.73
45 to 64.9	25 to 34.9	0.43	0.29	0.65	<0.001
>65	25 to 34.9	0.025	0.00	0.18	<0.001
RACE					
AmericanN/AN	White	1.47	0.20	10.57	0.7
Asian/PI	White	0	0.00	INF	0.99
Black	White	0.92	0.55	1.54	0.74
Other/Unknown	White	0.72	0.31	1.64	0.43
SEX					
Female	Male	0.55	0.40	0.75	<0.001

OUD_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.98
15 to 19.9	25 to 34.9	0	0.00	INF	0.98
20 to 24.9	25 to 34.9	0.22	0.07	0.72	<0.05
35 to 44.9	25 to 34.9	1.13	0.68	1.90	0.63
45 to 64.9	25 to 34.9	0.63	0.37	1.07	0.85
>65	25 to 34.9	0.081	0.01	0.60	<0.05
RACE					
AmericanN/AN	White	0	0.00	INF	0.99
Asian/PI	White	0	0.00	INF	0.99
Black	White	0.46	0.25	0.83	<0.05
Other/Unknown	White	0.73	0.26	2.02	<0.01
SEX					
Female	Male	0.7	0.46	1.07	0.09

OUD_Rockford			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.98
15 to 19.9	25 to 34.9	0.037	0.01	0.27	<0.01
20 to 24.9	25 to 34.9	0.25	0.11	0.58	<0.01
35 to 44.9	25 to 34.9	0.95	0.64	1.41	0.78
45 to 64.9	25 to 34.9	0.34	0.22	0.53	<0.001
>65	25 to 34.9	0.26	0.12	0.58	<0.001
RACE					
AmericanN/AN	White	2.02	0.49	8.31	0.33
Asian/PI	White	0	0.00	INF	0.99
Black	White	0.41	0.26	0.63	<0.001
Other/Unknown	White	0.55	0.29	1.07	0.07
SEX					
Female	Male	0.39	0.28	0.55	<0.001

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

- Adults age 35–64 in East St. Louis and Rockford
- Native Americans in the Marion Health Region

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

AUD_Danville				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	0.98	
15 to 19.9	25 to 34.9	0.077	0.01	0.58	<0.05	
20 to 24.9	25 to 34.9	0.57	0.23	1.41	0.22	
35 to 44.9	25 to 34.9	1.1	0.59	1.99	0.78	
45 to 64.9	25 to 34.9	1.44	0.86	2.41	0.16	
>65	25 to 34.9	0.13	0.02	1.00	0.05	
RACE						
AmericanIN/AN	White	0	0.00	INF	0.99	
Asian/PI	White	2.06	0.27	15.40	0.48	
Black	White	0.98	0.62	1.55	0.93	
Other/Unknown	White	0.98	0.39	2.48	0.96	
SEX						
Female	Male	0.3	0.20	0.46	<0.001	

AUD_E. St. Louis				Confidence Interval (95%)		
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	P-Value	
AGE						
12 to 14.9	25 to 34.9	0.035	0.00	0.25	<0.001	
15 to 19.9	25 to 34.9	0.23	0.12	0.43	<0.001	
20 to 24.9	25 to 34.9	0.45	0.07	0.73	<0.01	
35 to 44.9	25 to 34.9	1.49	1.15	1.92	<0.01	
45 to 64.9	25 to 34.9	1.37	1.09	1.73	<0.01	
>65	25 to 34.9	0.4	0.24	0.67	<0.05	
RACE						
AmericanIN/AN	White	1.82	0.67	4.97	0.24	
Asian/PI	White	0	0.00	INF	0.98	
Black	White	0.83	0.69	0.99	<0.01	
Other/Unknown	White	0.46	0.27	0.77	<0.001	
SEX						
Female	Male	0.31	0.26	0.37	<0.001	

Table 11 Continued

AUD_Marion HR			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.93
15 to 19.9	25 to 34.9	0.28	0.17	0.48	<0.001
20 to 24.9	25 to 34.9	0.56	0.37	0.85	<0.01
35 to 44.9	25 to 34.9	1.29	1.00	1.67	0.05
45 to 64.9	25 to 34.9	1.05	0.83	1.33	0.67
>65	25 to 34.9	0.23	0.14	0.39	0.99
RACE					
American/AN	White	3.48	1.62	7.49	<0.01
Asian/PI	White	0	0.00	INF	0.98
Black	White	0.93	0.68	1.26	0.64
Other/Unknown	White	0.99	0.67	1.47	0.97
SEX					
Female	Male	0.39	0.32	0.47	<0.001

AUD_Peoria			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0.036	0.01	0.26	<0.01
15 to 19.9	25 to 34.9	0.19	0.09	0.38	<0.001
20 to 24.9	25 to 34.9	0.76	0.51	1.12	0.16
35 to 44.9	25 to 34.9	1.33	1.02	1.75	0.16
45 to 64.9	25 to 34.9	1.23	0.96	1.57	<0.05
>65	25 to 34.9	0.29	0.16	0.53	<0.001
RACE					
American/AN	White	0.54	0.00	3.86	0.53
Asian/PI	White	0.45	0.06	3.25	0.43
Black	White	0.89	0.71	1.10	0.27
Other/Unknown	White	0.61	0.39	0.96	<0.05
SEX					
Female	Male	0.33	0.07	0.40	<0.001

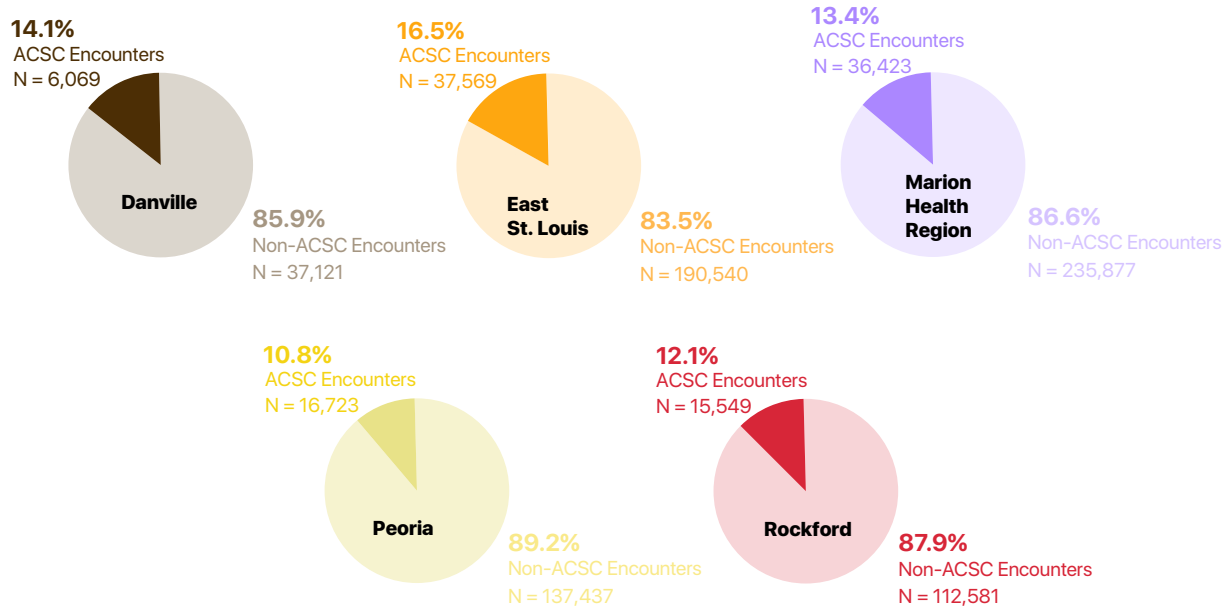
AUD_Rockford			Confidence Interval (95%)		P-Value
Group	Compared To	Odds Ratio	Lower Limit	Upper Limit	
AGE					
12 to 14.9	25 to 34.9	0	0.00	INF	0.98
15 to 19.9	25 to 34.9	0.17	0.06	0.47	<0.001
20 to 24.9	25 to 34.9	0.52	0.28	0.98	0.05*
35 to 44.9	25 to 34.9	1.75	1.24	2.46	<0.01
45 to 64.9	25 to 34.9	1.62	1.18	2.21	<0.01
>65	25 to 34.9	0.29	0.14	0.62	<0.01
RACE					
American/AN	White	0	0.00	INF	0.99
Asian/PI	White	0.49	0.16	1.54	0.22
Black	White	0.55	0.42	0.73	<0.001
Other/Unknown	White	0.37	0.21	0.64	<0.001
SEX					
Female	Male	0.31	0.24	0.39	<0.001

Ambulatory Care Sensitive Conditions

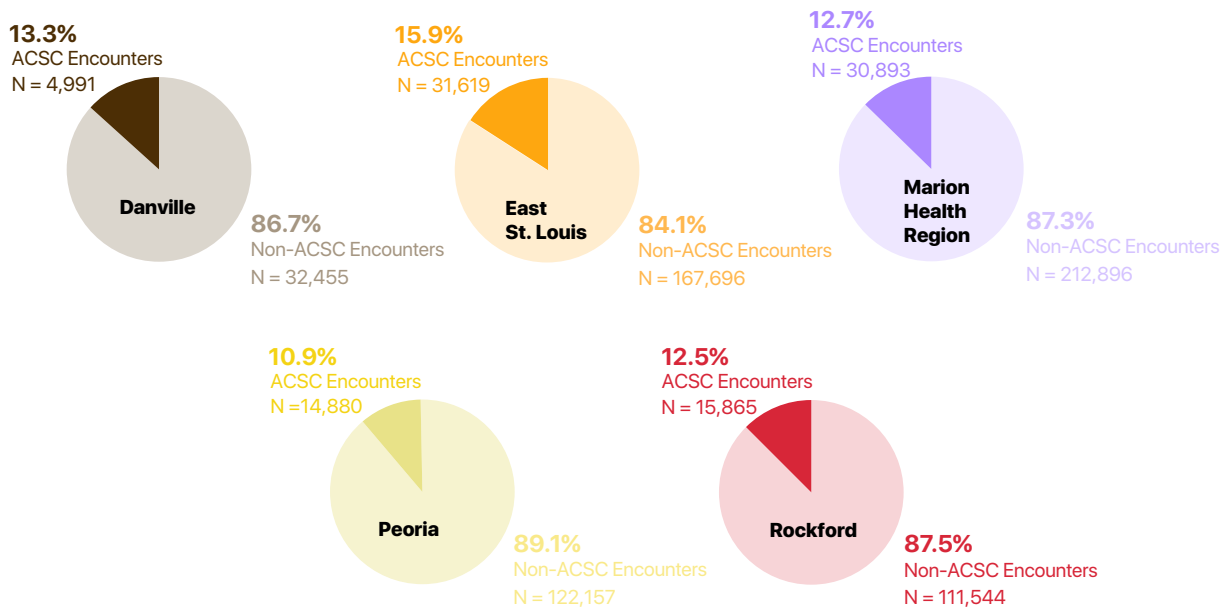
ACSCs, which are health conditions for which good outpatient care can potentially prevent the need for hospitalization or early intervention can prevent complications or more severe disease (27) and they are some of the most frequent and resource-intensive conditions in the FY2019 and FY2020 Medicaid institutional data. In fact, ACSCs account for approximately 10–17% of all care encounters in the institutional data across the study areas (see Figure 20).

Figure 20: Distribution of Care Encounters for ACSCs and Non-ACSCs by Study Area

2019



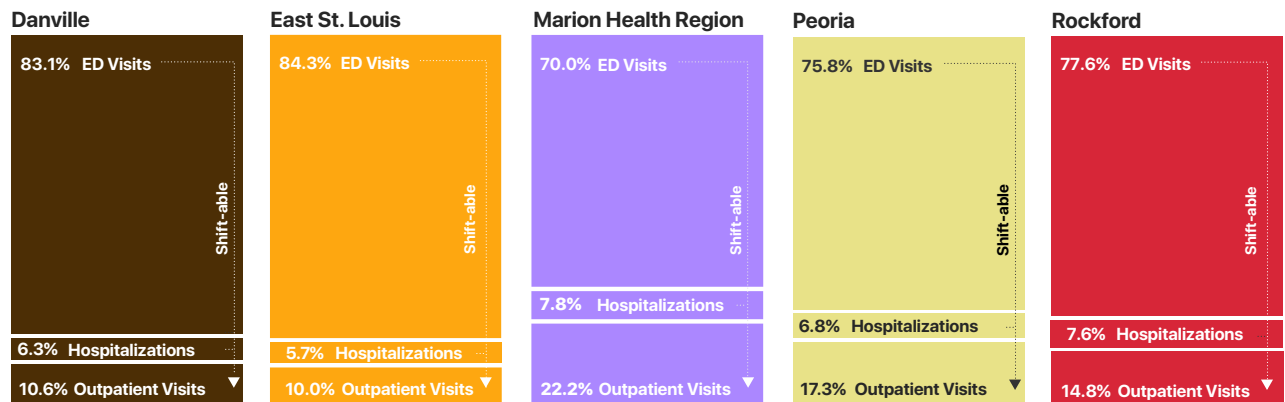
2020



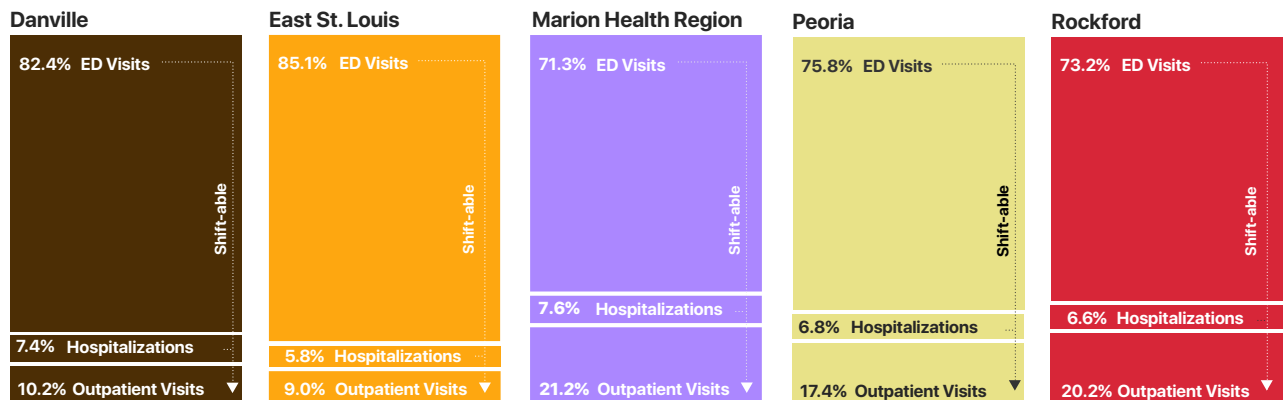
A majority of ACSC care encounters take place in the ED or the hospital as opposed to outpatient settings, adding evidence to the lack of outpatient resources in each of the areas under study (see Figure 21).

Figure 21: Distribution of Point of Care Encounters for ACSCs by Study Area

2019



2020



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 (28). 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) (29). 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 comprised 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 12 to 15.

(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:

- Adults, age 40 and over
- Black people in all areas except the Marion Health Region

Table 12: Population Characteristics Associated with PQI 90, Overall ACSC Composite (FY2019 and FY2020 Data Combined)

PQI 90_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.41	3.07	3.78	<.0001
65-74	18-39	5.37	4.70	6.13	<.0001
75 or older	18-39	5.99	5.23	6.85	<.0001
RACE					
AmerN/AN	White	1.65	0.74	3.69	0.22
Asian/PI	White	0.93	0.66	1.29	0.66
Black	White	1.57	1.44	1.71	<.0001
Other/UNK	White	1.38	1.21	1.59	<.0001
SEX					
Male	Female	1.00	0.92	1.08	0.99

PQI 90_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.81	3.32	4.36	<.0001
65-74	18-39	5.52	4.65	6.56	<.0001
75 or older	18-39	4.61	3.80	5.59	<.0001
RACE					
AmerN/AN	White	1.76	0.96	3.26	0.069
Asian/PI	White	0.71	0.33	1.52	0.37
Black	White	1.41	1.25	1.59	<.0001
Other/UNK	White	1.31	1.00	1.72	0.050
SEX					
Male	Female	1.00	0.90	1.11	0.98

Table 12 Continued

PQI 90_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.47	3.05	3.95	<.0001
65-74	18-39	5.80	5.00	6.73	<.0001
75 or older	18-39	6.42	5.51	7.49	<.0001
RACE					
AmerN/AN	White	2.14	1.14	4.01	0.018
Asian/PI	White	0.79	0.33	1.88	0.59
Black	White	1.15	0.99	1.34	0.070
Other/UNK	White	0.85	0.63	1.14	0.27
SEX					
Male	Female	1.04	0.95	1.14	0.36

PQI 90_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.32	3.56	5.24	<.0001
65-74	18-39	6.20	4.86	7.91	<.0001
75 or older	18-39	8.99	6.98	11.58	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.75	0.27	2.13	0.59
Black	White	1.41	1.20	1.64	<.0001
Other/UNK	White	1.05	0.75	1.48	0.79
SEX					
Male	Female	0.86	0.74	0.99	0.036

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

PQI 90_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.34	2.79	4.01	<.0001
65-74	18-39	5.48	4.31	6.95	<.0001
75 or older	18-39	6.63	5.18	8.49	<.0001
RACE					
AmerN/AN	White	0.98	0.48	2.01	0.95
Asian/PI	White	0.68	0.37	1.25	0.21
Black	White	1.48	1.27	1.74	<.0001
Other/UNK	White	1.03	0.80	1.32	0.84
SEX					
Male	Female	0.96	0.83	1.10	0.56

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

- Adults, age 40 and over
- Females in East St. Louis, the Marion Health Region and Peoria

Table 13: Population Characteristics Associated with PQI 91, ACSC Acute Composite (FY2019 and FY2020 Data Combined)

PQI 91_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	8.32	4.07	16.98	<.0001
65-74	18-39	9.01	3.79	21.43	<.0001
75 or older	18-39	19.40	8.68	43.37	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	NR	NR	NR	NR
Black	White	0.85	0.51	1.41	0.52
Other/UNK	White	0.86	0.31	2.42	0.78
SEX					
Female	Male	1.40	0.91	2.14	0.12

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

PQI 91_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.64	3.36	6.40	<.0001
65-74	18-39	6.52	4.46	9.53	<.0001
75 or older	18-39	10.85	7.49	15.73	<.0001
RACE					
AmerN/AN	White	0.47	0.06	3.46	0.46
Asian/PI	White	0.70	0.17	2.93	0.62
Black	White	0.96	0.77	1.20	0.72
Other/UNK	White	0.91	0.50	1.65	0.75
SEX					
Female	Male	1.31	1.06	1.62	0.01

Table 13 Continued

PQI 91_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.42	2.68	4.36	<.0001
65-74	18-39	6.59	5.07	8.58	<.0001
75 or older	18-39	9.78	7.57	12.64	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.73	0.17	3.05	0.66
Black	White	0.59	0.42	0.82	0.0017
Other/UNK	White	0.69	0.39	1.21	0.19
SEX					
Female	Male	1.25	1.07	1.46	0.0049

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

PQI 91_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.68	2.42	5.60	<.0001
65-74	18-39	6.73	4.11	11.00	<.0001
75 or older	18-39	12.57	7.88	20.06	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.65	0.09	4.83	0.68
Black	White	0.80	0.56	1.15	0.23
Other/UNK	White	0.83	0.40	1.71	0.61
SEX					
Female	Male	1.53	1.13	2.08	0.0055

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

PQI 91_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	2.75	1.91	3.95	<.0001
65-74	18-39	5.72	3.70	8.84	<.0001
75 or older	18-39	8.88	5.89	13.40	<.0001
RACE					
AmerN/AN	White	0.48	0.07	3.50	0.47
Asian/PI	White	0.56	0.17	1.79	0.32
Black	White	0.90	0.65	1.23	0.49
Other/UNK	White	1.07	0.69	1.66	0.75
SEX					
Female	Male	1.13	0.86	1.47	0.38

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

- Adults, age 40 and over
- Black people in all areas
- Males in the Marion Health Region

Table 14: Population Characteristics Associated with PQI 92, ACSC Chronic Composite (FY2019 and FY2020 Data Combined)

PQI 92_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.47	3.19	6.27	<.0001
65-74	18-39	5.52	3.48	8.74	<.0001
75 or older	18-39	5.69	3.46	9.36	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	NR	NR	NR	NR
Black	White	1.80	1.37	2.37	<.0001
Other/UNK	White	0.80	0.39	1.62	0.53
SEX					
Male	Female	0.86	0.66	1.12	0.27

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

PQI 92_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.43	2.96	3.97	<.0001
65-74	18-39	4.88	4.06	5.88	<.0001
75 or older	18-39	3.22	2.59	4.01	<.0001
RACE					
AmerN/AN	White	2.19	1.17	4.10	0.014
Asian/PI	White	0.73	0.31	1.74	0.48
Black	White	1.56	1.37	1.77	<.0001
Other/UNK	White	1.43	1.07	1.91	0.017
SEX					
Male	Female	1.07	0.96	1.20	0.23

Table 14 Continued

PQI 92_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.05	2.62	3.55	<.0001
65-74	18-39	4.18	3.50	5.00	<.0001
75 or older	18-39	3.57	2.94	4.32	<.0001
RACE					
AmerN/AN	White	3.03	1.58	5.79	0.0009
Asian/PI	White	0.80	0.28	2.29	0.68
Black	White	1.41	1.18	1.69	0.0002
Other/UNK	White	0.93	0.66	1.30	0.67
SEX					
Male	Female	1.20	1.08	1.34	0.0007

PQI 92_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	4.31	3.48	5.34	<.0001
65-74	18-39	5.62	4.27	7.38	<.0001
75 or older	18-39	6.84	5.10	9.16	<.0001
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	0.80	0.25	2.61	0.71
Black	White	1.59	1.34	1.89	<.0001
Other/UNK	White	1.12	0.77	1.64	0.55
SEX					
Male	Female	0.94	0.80	1.10	0.41

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

PQI 92_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	3.40	2.78	4.17	<.0001
65-74	18-39	4.94	3.78	6.47	<.0001
75 or older	18-39	5.11	3.83	6.81	<.0001
RACE					
AmerN/AN	White	1.21	0.57	2.58	0.62
Asian/PI	White	0.77	0.39	1.51	0.45
Black	White	1.69	1.42	2.01	<.0001
Other/UNK	White	1.00	0.75	1.34	1.00
SEX					
Male	Female	0.98	0.84	1.15	0.83

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

- Males in the Marion Health Region
- Middle-age (40–64) adults and adults 75 and older in Peoria
- Black, male adults age 65–74 in Rockford

Table 15: Population Characteristics Associated with PQI 93, Diabetes Hospitalization Composite (FY2019 and FY2020 Data Combined)

PQI 93_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.51	0.91	2.52	0.11
65-74	18-39	0.59	0.18	1.97	0.39
75 or older	18-39	0.80	0.24	2.67	0.71
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	NR	NR	NR	NR
Black	White	0.90	0.52	1.55	0.71
Other/UNK	White	0.87	0.27	2.84	0.82
SEX					
Male	Female	1.49	0.92	2.41	0.11

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

PQI 93_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.14	0.92	1.41	0.23
65-74	18-39	1.02	0.72	1.44	0.91
75 or older	18-39	0.63	0.39	1.02	0.060
RACE					
AmerN/AN	White	0.42	0.06	3.05	0.39
Asian/PI	White	1.30	0.40	4.23	0.66
Black	White	1.16	0.94	1.44	0.17
Other/UNK	White	1.22	0.75	1.97	0.42
SEX					
Male	Female	1.21	0.99	1.47	0.064

Table 15 Continued

PQI 93_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.03	0.84	1.26	0.79
65-74	18-39	0.69	0.50	0.96	0.03
75 or older	18-39	0.31	0.19	0.52	<.0001
RACE					
AmerN/AN	White	0.88	0.21	3.64	0.85
Asian/PI	White	1.53	0.36	6.39	0.56
Black	White	1.28	0.95	1.72	0.11
Other/UNK	White	0.88	0.52	1.50	0.64
SEX					
Male	Female	1.86	1.54	2.25	<.0001

PQI 93_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.94	1.43	2.63	<.0001
65-74	18-39	1.60	0.98	2.63	0.063
75 or older	18-39	1.76	1.01	3.05	0.046
RACE					
AmerN/AN	White	NR	NR	NR	NR
Asian/PI	White	NR	NR	NR	NR
Black	White	1.20	0.89	1.62	0.23
Other/UNK	White	1.40	0.80	2.44	0.24
SEX					
Male	Female	1.02	0.78	1.34	0.87

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

PQI 93_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
40-64	18-39	1.29	0.95	1.74	0.099
65-74	18-39	1.69	1.08	2.64	0.021
75 or older	18-39	0.82	0.43	1.57	0.54
RACE					
AmerN/AN	White	0.43	0.06	3.13	0.40
Asian/PI	White	0.92	0.28	2.97	0.88
Black	White	1.67	1.25	2.23	0.0005
Other/UNK	White	0.98	0.59	1.63	0.95
SEX					
Male	Female	1.74	1.33	2.28	<.0001

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 (30). Table 16 lists the conditions included in each of these categories. Population characteristics associated with PQI composite measures were computed and appear in Tables 17–19.

(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 16: 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

- In general, children younger than 12 and teenagers age 12–19
- Young adults age 20–24 in the Marion Health Region and Rockford
- Females in East St. Louis, the Marion Health Region, Peoria, and Rockford

Table 17: Population Characteristics Associated with Acute ACSC ED Visits (FY2019 and FY2020 Data Combined)

ACUTE_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	3.73	3.12	4.46	<.0001
1 to 2.9	25 to 34.9	4.01	3.42	4.71	<.0001
3 to 5.9	25 to 34.9	3.76	3.17	4.47	<.0001
6 to 11.9	25 to 34.9	2.88	2.45	3.38	<.0001
12 to 14.9	25 to 34.9	1.36	1.06	1.74	0.017
15 to 19.9	25 to 34.9	1.10	0.91	1.32	0.32
20 to 24.9	25 to 34.9	0.90	0.75	1.07	0.22
35 to 44.9	25 to 34.9	0.92	0.79	1.07	0.28
45 to 64.9	25 to 34.9	0.77	0.67	0.89	0.0004
65 or older	25 to 34.9	0.62	0.45	0.85	0.0033
RACE					
AmerN/AN	White	0.53	0.19	1.47	0.22
Asian/PI	White	0.43	0.15	1.19	0.10
Black	White	0.93	0.84	1.03	0.15
Other/UNK	White	0.96	0.86	1.09	0.55
SEX					
Female	Male	1.09	1.00	1.19	0.041

Table 17 Continued

ACUTE_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	3.40	3.16	3.66	<.0001
1 to 2.9	25 to 34.9	3.50	3.29	3.74	<.0001
3 to 5.9	25 to 34.9	3.26	3.05	3.48	<.0001
6 to 11.9	25 to 34.9	2.23	2.09	2.37	<.0001
12 to 14.9	25 to 34.9	1.47	1.35	1.60	<.0001
15 to 19.9	25 to 34.9	1.30	1.21	1.39	<.0001
20 to 24.9	25 to 34.9	1.03	0.97	1.11	0.34
35 to 44.9	25 to 34.9	0.86	0.81	0.91	<.0001
45 to 64.9	25 to 34.9	0.65	0.62	0.69	<.0001
65 or older	25 to 34.9	0.50	0.45	0.56	<.0001
RACE					
AmerN/AN	White	1.11	0.86	1.42	0.43
Asian/PI	White	1.05	0.84	1.31	0.68
Black	White	0.94	0.91	0.98	0.0042
Other/UNK	White	1.00	0.95	1.04	0.88
SEX					
Female	Male	1.12	1.08	1.15	<.0001

ACUTE_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	3.45	3.17	3.75	<.0001
1 to 2.9	25 to 34.9	3.85	3.58	4.14	<.0001
3 to 5.9	25 to 34.9	3.29	3.05	3.54	<.0001
6 to 11.9	25 to 34.9	2.11	1.96	2.27	<.0001
12 to 14.9	25 to 34.9	1.06	0.95	1.19	0.28
15 to 19.9	25 to 34.9	1.12	1.04	1.21	0.0046
20 to 24.9	25 to 34.9	1.12	1.04	1.21	0.0029
35 to 44.9	25 to 34.9	0.85	0.79	0.91	<.0001
45 to 64.9	25 to 34.9	0.71	0.67	0.75	<.0001
65 or older	25 to 34.9	0.76	0.70	0.83	<.0001
RACE					
AmerN/AN	White	0.84	0.61	1.16	0.29
Asian/PI	White	0.69	0.44	1.07	0.095
Black	White	0.96	0.90	1.02	0.20
Other/UNK	White	1.04	0.99	1.10	0.13
SEX					
Female	Male	1.02	0.99	1.06	0.23

Table 17 Continued

ACUTE_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	3.41	3.05	3.80	<.0001
1 to 2.9	25 to 34.9	3.94	3.56	4.37	<.0001
3 to 5.9	25 to 34.9	3.12	2.80	3.48	<.0001
6 to 11.9	25 to 34.9	1.83	1.64	2.04	<.0001
12 to 14.9	25 to 34.9	1.21	1.04	1.40	0.013
15 to 19.9	25 to 34.9	1.10	0.99	1.22	0.079
20 to 24.9	25 to 34.9	1.08	0.98	1.19	0.11
35 to 44.9	25 to 34.9	0.88	0.80	0.96	0.0053
45 to 64.9	25 to 34.9	0.67	0.61	0.73	<.0001
65 or older	25 to 34.9	0.65	0.55	0.77	<.0001
RACE					
AmerN/AN	White	0.82	0.51	1.32	0.42
Asian/PI	White	0.92	0.58	1.46	0.73
Black	White	0.99	0.92	1.05	0.69
Other/UNK	White	1.01	0.95	1.09	0.69
SEX					
Female	Male	1.13	1.07	1.18	<.0001

ACUTE_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	3.25	2.90	3.64	<.0001
1 to 2.9	25 to 34.9	4.18	3.77	4.63	<.0001
3 to 5.9	25 to 34.9	3.53	3.16	3.94	<.0001
6 to 11.9	25 to 34.9	2.44	2.19	2.71	<.0001
12 to 14.9	25 to 34.9	1.54	1.33	1.79	<.0001
15 to 19.9	25 to 34.9	1.15	1.02	1.29	0.021
20 to 24.9	25 to 34.9	1.12	1.00	1.25	0.042
35 to 44.9	25 to 34.9	0.89	0.81	0.98	0.019
45 to 64.9	25 to 34.9	0.72	0.66	0.79	<.0001
65 or older	25 to 34.9	0.61	0.51	0.72	<.0001
RACE					
AmerN/AN	White	0.74	0.50	1.10	0.14
Asian/PI	White	1.25	0.98	1.59	0.073
Black	White	1.02	0.96	1.09	0.44
Other/UNK	White	1.01	0.95	1.09	0.69
SEX					
Female	Male	1.06	1.01	1.12	0.020

Summary of Population Characteristics Most Associated with Chronic ACSC ED Visits

- Adults age 35 and older in all areas, children and teens in Danville (age 3–14), children age 3–11 in East St. Louis, and children age 6–11 in Rockford
- Blacks in all areas
- Males in East St. Louis, the Marion Health Region, Peoria, and Rockford

Table 18: Population Characteristics Associated with Chronic ACSC ED Visits (FY2019 and FY2020 Data Combined)

CHRONIC_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	0.18	0.07	0.44	0.0002
1 to 2.9	25 to 34.9	1.14	0.80	1.60	0.47
3 to 5.9	25 to 34.9	1.66	1.19	2.30	0.0026
6 to 11.9	25 to 34.9	2.01	1.51	2.66	<.0001
12 to 14.9	25 to 34.9	1.55	1.04	2.31	0.033
15 to 19.9	25 to 34.9	0.89	0.64	1.24	0.48
20 to 24.9	25 to 34.9	0.87	0.64	1.18	0.38
35 to 44.9	25 to 34.9	1.82	1.46	2.27	<.0001
45 to 64.9	25 to 34.9	3.89	3.21	4.71	<.0001
65 or older	25 to 34.9	4.14	3.12	5.49	<.0001
RACE					
AmerN/AN	White	0.60	0.14	2.48	0.48
Asian/PI	White	0.46	0.11	1.90	0.28
Black	White	1.31	1.15	1.50	<.0001
Other/UNK	White	0.97	0.77	1.21	0.77
SEX					
Male	Female	1.10	0.98	1.23	0.12

Table 18 Continued

CHRONIC_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	0.15	0.10	0.21	<.0001
1 to 2.9	25 to 34.9	0.74	0.63	0.87	0.0003
3 to 5.9	25 to 34.9	1.30	1.13	1.50	0.0003
6 to 11.9	25 to 34.9	1.49	1.31	1.69	<.0001
12 to 14.9	25 to 34.9	1.00	0.83	1.20	0.96
15 to 19.9	25 to 34.9	0.99	0.86	1.14	0.87
20 to 24.9	25 to 34.9	1.03	0.90	1.17	0.70
35 to 44.9	25 to 34.9	1.89	1.72	2.08	<.0001
45 to 64.9	25 to 34.9	3.24	2.99	3.53	<.0001
65 or older	25 to 34.9	4.00	3.57	4.47	<.0001
RACE					
AmerN/AN	White	1.03	0.68	1.55	0.90
Asian/PI	White	1.21	0.85	1.72	0.30
Black	White	1.38	1.30	1.47	<.0001
Other/UNK	White	1.09	0.99	1.20	0.085
SEX					
Male	Female	1.27	1.20	1.33	<.0001

CHRONIC_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	0.18	0.12	0.28	<.0001
1 to 2.9	25 to 34.9	0.51	0.40	0.64	<.0001
3 to 5.9	25 to 34.9	0.74	0.60	0.90	0.0033
6 to 11.9	25 to 34.9	0.87	0.74	1.03	0.11
12 to 14.9	25 to 34.9	0.81	0.65	1.01	0.064
15 to 19.9	25 to 34.9	0.63	0.53	0.75	<.0001
20 to 24.9	25 to 34.9	1.26	1.10	1.43	0.0007
35 to 44.9	25 to 34.9	1.46	1.31	1.63	<.0001
45 to 64.9	25 to 34.9	3.15	2.88	3.45	<.0001
65 or older	25 to 34.9	4.64	4.20	5.14	<.0001
RACE					
AmerN/AN	White	1.51	1.06	2.15	0.024
Asian/PI	White	0.78	0.42	1.43	0.42
Black	White	1.32	1.21	1.45	<.0001
Other/UNK	White	0.88	0.77	0.99	0.037
SEX					
Male	Female	1.20	1.14	1.27	<.0001

Table 18 Continued

CHRONIC_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	0.11	0.07	0.18	<.0001
1 to 2.9	25 to 34.9	0.38	0.28	0.51	<.0001
3 to 5.9	25 to 34.9	0.86	0.68	1.10	0.23
6 to 11.9	25 to 34.9	1.07	0.87	1.32	0.50
12 to 14.9	25 to 34.9	0.69	0.52	0.92	0.012
15 to 19.9	25 to 34.9	0.88	0.73	1.07	0.19
20 to 24.9	25 to 34.9	0.79	0.66	0.94	0.0088
35 to 44.9	25 to 34.9	1.51	1.32	1.72	<.0001
45 to 64.9	25 to 34.9	2.62	2.34	2.93	<.0001
65 or older	25 to 34.9	3.02	2.57	3.55	<.0001
RACE					
AmerN/AN	White	0.84	0.41	1.73	0.64
Asian/PI	White	0.71	0.33	1.54	0.39
Black	White	1.35	1.23	1.49	<.0001
Other/UNK	White	0.98	0.86	1.13	0.78
SEX					
Male	Female	1.24	1.15	1.34	<.0001

CHRONIC_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
< 1 y	25 to 34.9	0.15	0.09	0.24	<.0001
1 to 2.9	25 to 34.9	0.65	0.51	0.83	0.0007
3 to 5.9	25 to 34.9	1.19	0.96	1.49	0.11
6 to 11.9	25 to 34.9	1.25	1.02	1.52	0.031
12 to 14.9	25 to 34.9	0.92	0.69	1.22	0.55
15 to 19.9	25 to 34.9	0.78	0.63	0.96	0.019
20 to 24.9	25 to 34.9	0.96	0.80	1.15	0.63
35 to 44.9	25 to 34.9	1.68	1.47	1.92	<.0001
45 to 64.9	25 to 34.9	2.80	2.50	3.15	<.0001
65 or older	25 to 34.9	3.35	2.83	3.96	<.0001
RACE					
AmerN/AN	White	2.14	1.49	3.07	<.0001
Asian/PI	White	1.02	0.69	1.50	0.92
Black	White	1.47	1.35	1.60	<.0001
Other/UNK	White	1.28	1.14	1.45	<.0001
SEX					
Male	Female	1.13	1.05	1.22	0.0009

Summary of Population Characteristics Most Associated with Avoidable ACSC ED Visits

- Adults age 21–64
- Blacks in Peoria and Rockford
- Males in East St. Louis, the Marion Health Region, Peoria, and Rockford

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

AVOIDABLE_Danville Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
21 to 34	< 21	5.58	4.34	7.17	<.0001
35 to 44	< 22	4.27	3.26	5.61	<.0001
45 to 64	< 23	1.87	1.39	2.51	<.0001
65 or older	< 24	0.35	0.11	1.12	0.077
RACE					
AmerN/AN	White	3.17	1.50	6.71	0.0025
Asian/PI	White	0.34	0.05	2.42	0.28
Black	White	1.01	0.86	1.19	0.923
Other/UNK	White	0.88	0.62	1.24	0.451
SEX					
Male	Female	1.08	0.93	1.26	0.327

AVOIDABLE_E. St. Louis Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
21 to 34	< 21	4.18	3.78	4.63	<.0001
35 to 44	< 22	3.44	3.07	3.86	<.0001
45 to 64	< 23	1.47	1.30	1.67	<.0001
65 or older	< 24	0.51	0.36	0.72	0.0001
RACE					
AmerN/AN	White	0.94	0.56	1.58	0.81
Asian/PI	White	0.28	0.10	0.75	0.011
Black	White	1.03	0.97	1.11	0.35
Other/UNK	White	0.95	0.83	1.09	0.47
SEX					
Male	Female	1.12	1.04	1.19	0.0017

Table 19 Continued

AVOIDABLE_Marion HR Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
21 to 34	< 21	5.81	5.20	6.49	<.0001
35 to 44	< 22	4.28	3.79	4.83	<.0001
45 to 64	< 23	1.72	1.51	1.96	<.0001
65 or older	< 24	0.20	0.13	0.31	<.0001
RACE					
AmerN/AN	White	0.98	0.61	1.58	0.95
Asian/PI	White	1.15	0.56	2.33	0.71
Black	White	0.99	0.89	1.09	0.79
Other/UNK	White	0.89	0.77	1.03	0.11
SEX					
Male	Female	1.17	1.09	1.25	<.0001

AVOIDABLE_Peoria Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
21 to 34	< 21	4.78	4.03	5.66	<.0001
35 to 44	< 22	3.53	2.92	4.27	<.0001
45 to 64	< 23	1.69	1.38	2.07	<.0001
65 or older	< 24	0.17	0.06	0.46	0.0004
RACE					
AmerN/AN	White	0.17	0.02	1.19	0.074
Asian/PI	White	0.23	0.03	1.65	0.14
Black	White	1.13	1.01	1.26	0.032
Other/UNK	White	1.20	0.99	1.45	0.064
SEX					
Male	Female	1.38	1.25	1.53	<.0001

AVOIDABLE_Rockford Group	Compared To	Odds Ratio	Confidence Interval (95%)		P-Value
			Lower Limit	Upper Limit	
AGE					
21 to 34	< 21	4.23	3.49	5.13	<.0001
35 to 44	< 22	4.40	3.59	5.40	<.0001
45 to 64	< 23	1.36	1.08	1.71	0.0095
65 or older	< 24	0.48	0.25	0.91	0.026
RACE					
AmerN/AN	White	0.93	0.44	1.97	0.85
Asian/PI	White	1.10	0.60	2.02	0.75
Black	White	1.19	1.06	1.35	0.0043
Other/UNK	White	0.94	0.77	1.16	0.57
SEX					
Male	Female	1.13	1.01	1.27	0.034

Appendix C:

Approach to Community Input

Members of University of Illinois Chicago's (UIC) Institute for Healthcare Delivery Design (IHDD) and School of Public Health (SPH), in collaboration with Southern Illinois University School of Medicine Center for Rural Health and University of Illinois College of Medicine Rockford Division of Health Research and Evaluation (all entities together the "CI team"), conducted community-input sessions from February through July 2022 in five regions in Illinois: Danville, the Marion Health Region (MHR), Peoria, the Rockford metropolitan region, and West Cook County. The project teams at the academic institutions reached out to community-based organizations (CBOs) that serve vulnerable populations in each region. Twelve CBOs conducted a total of 24 input sessions and 39 individual interviews. In the end, 230 individuals' voices are represented in the regional reports.

Community-Input (CI) Goals

1. Support the overall Transform initiative through narratives of community members' health and healthcare experiences to inform Illinois Department of Healthcare and Family Services (HFS).
2. Elevate the use of narratives to inform what questions are asked, how findings are interpreted, and what emerging questions need to be investigated in the future.
3. Demonstrate and enhance methods to solicit community input.
4. Uncover emerging issues for potential directions of the Transform project in the future.
5. Empower community-based organizations with community-input solicitation tools and findings to continuously improve the health of socially vulnerable populations in Illinois.

Targeted Regions and Communities

In 2020, the UIC and SIU teams conducted community input in four socially vulnerable areas in Illinois: the South Side of Chicago, the West Side of Chicago, South Cook County, and the East St. Louis Metropolitan Area. HFS published these reports on the HFS website in February of 2021. In 2022, the CI team conducted community input in five additional socially vulnerable areas: Danville, the MHR, Peoria, and Rockford, and West Cook County.

Within the five areas under study, the CI team identified the geographic areas or communities with the most vulnerable populations with respect to accessing healthcare and to health outcomes. They completed the identification of these specific geographic areas in consultation with UIC faculty members: Dr. Vincent Freeman (Associate Professor of Epidemiology and Biostatistics, UIC SPH) and Dr. Matt Sweeney (Senior Research Specialist, UIC Institute for Policy and Civic Engagement). Drs. Freeman and Sweeney used

the CDC Social Vulnerability Index to determine priority zip code areas and/or “meaningful communities” (e.g., Cicero in the West Cook region) for the CI team to focus on.

Once priority zip codes were identified, the CI team identified groups of community members in each geographic community who demonstrated characteristics that were priorities of the HFS Transformation program (racial/ethnic groups, women of reproductive age, people with multiple chronic diseases, older adults, people with disabilities, family caregivers, etc.). The team used these population groups to inform the identification of and outreach to potential community partners.

Identifying Community Partners

The CI team identified CBOs that provide services to vulnerable community members with the previously described characteristics. To do this, they used multiple sources of information—including existing health assessments, databases, and resource lists, as well as preexisting connections, referrals from other community-organizations, and internet searches. They excluded healthcare organizations, to ensure the participants would include individuals who face challenges accessing healthcare. The CI team from each region contacted potential partner CBOs and scheduled meetings with organizations to describe the project, including roles and expectations for the CBOs and the CI team. The interested CBOs then entered a formal partnership with the university. For each interested CBO, the CI team developed a scope of work outlining roles for each party along with a contract between UIC and each partner organization. Because most of the CBOs recruited participants, collected data, provided incentives to participants, and engaged in other activities, the contracts stipulated that UIC would compensate the organizations for their time and the cost of the participant incentives.

Community Partner Training

The CI team provided a series of training sessions to the staffs of the partner CBOs to prepare them for the community-input sessions. This unique feature of UIC’s community-input process was intended to enhance both the capacity of the CBOs (see the “Goals” section, above) and their input-session-facilitation skills. The training included participant-recruitment and focus-group facilitation practices. The CBO staff were able to practice their skills during the training sessions, which were held either in person or online. To allow CBO staffers to revisit training topics and to share information with staff members unable to attend the live training, the training sessions were recorded.

The Social or Structural Drivers of Health Framework

The CI team developed a conceptual framework which integrated the key concepts of the social drivers of health, access to healthcare, and healthcare quality. These provided a common framework for developing discussion guides, the codebook, and data analysis and interpretation in all 5 regions. The framework also allowed flexibility for each region to adapt

its community-input strategy to regional variations and to discover and highlight findings that were unique to the region.

Community-Input Focus Groups Led by the CBOs

After training was completed, the partner CBOs scheduled community-input sessions, recruited participants, and conducted the focus-group sessions. All participants received a gift-card incentive to thank them for participating in a community-input session.

Participant Recruitment. To leverage the community partners' networks of readily available existing relationships, a convenience sampling (a type of non-probability sampling) was taken, using flyers and other promotional materials created by the CI team to recruit session participants. The convenience-sampling approach had the advantage of using the CBOs' existing relationships with community members to recruit community-input participants and to establish some trust with them. A key limitation of convenience sampling is the possibility that people who are not part of the CBO's network could be underrepresented in the sample. This situation limits the ability to make generalizations about residents of the community as a whole. However, in 3 of the 5 regions (Peoria, Rockford, West Cook), partnering with multiple CBOs helped to mitigate this limitation.

Implementation of Community-Input Sessions. Community-partner staffers conducted most of the community-input sessions, using the discussion guide developed by the CI team. The CI team provided technical and note-taking support. However, some CBOs indicated they had insufficient capacity to conduct sessions. In those cases, the UIC team conducted the community-input sessions. The sessions were conducted either in-person or via Zoom, depending on CBO and community preferences as well as COVID-19 restrictions at the time of the sessions. In addition to having a note taker present, all the community-input sessions were audio recorded.

Regional Adaptations of the Protocol and Procedures. The CBOs were allowed to adapt the standard protocol developed by UIC to fit their own communities (e.g., to adjust the community-member recruitment strategy, vary the number of participants in an input session, and have either virtual or in-person sessions).

Languages. To maximize the inclusion of multiple perspectives, focus groups were conducted in 3 languages other than English – as needed (or requested) by the local organizations. The CI team translated the focus-group guide in advance. In all, 2 CBOs conducted 10 sessions in languages other than English:

- **Erie House**, in West Cook County, conducted 7 sessions in Spanish.
- **Winnebago Emerging Small Business Services**, in Rockford, conducted 1 session

in Spanish, 1 session in Dari (with Afghani immigrants), and 1 session in Swahili (with Congolese immigrants).

Sessions were facilitated by persons fluent in the relevant language. One session in Rockford was co-facilitated by an English-speaking staff person and a person from the community who was fluent in the non-English language. For the Spanish-language and Swahili-language sessions, focus-group recordings were transcribed in their original language and then translated into English for coding and analysis. For the Dari-language session, translation back to English was conducted in real time and notes were captured in English.

Individual Interviews. In Rockford, individual interviews were conducted with 39 community members. Interviews were done for a range of reasons, including limited access to technology for some priority populations, which would have restricted their ability to participate in a Zoom session; an uptick in COVID-19 infections, which restricted in-person gatherings; and the desire to elicit community input from community members who, for health or logistics reasons, were unable to participate in a 90-minute focus group.

Data Management and Analytic Strategy

The community-input sessions' recordings were automatically transcribed using voice-recognition software and corrected by a member of the CI team. The CI team created a codebook using the Social and Structural Drivers of Health Framework that was used to create the focus-group discussion guide. Like the discussion guide, the codebook covered key concepts of the social drivers of health, access to healthcare, and healthcare quality. A subset of CI team members tested and modified the codebook. Once the codebook was finalized, a member of the CI team held 2 training sessions to describe the coding process.

Using the codebook, CI team members coded transcripts, created memos, and reviewed notes to analyze the participants' experiences related to health and healthcare in their communities. Through this analytic process, each regional team identified key themes and summarized its findings in the areas of healthcare access, healthcare quality, and other thematic areas related to social determinants of health or community recommendations to address them. All these findings were then compiled into a separate, final community-input report for each region.

In addition, representative participant quotations and stories were pulled and curated to ground the research findings and bring out the human perspective. Through member-checking, the community partners were asked to offer feedback on the data analysis and thematic findings in draft summary reports. Upon publication of this report, community partners will disseminate the project objectives and findings to resident participants and their broader networks of stakeholders.

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