Executive Summary

Healthcare policies enacted during the last 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 demographic information, resources mapping, and input from 252 participants 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, bipolar and depressive disorders.

Access to quality primary and specialty care is critical to decreasing hospital-level care
for ACSCs, mental illness and substance use disorders. However, as this report highlights, there’s a lack of access to this care for vulnerable populations. This lack of access is driven by both resource gaps and by social, economic, and other "social-determinants-of-health" barriers that people face in achieving health (for example, lack of access to transportation; lack of access to affordable, healthy food; unemployment; community violence; etc.). In other words, this is a problem that sits within both the healthcare system and within the social fabric of communities.

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

Clinic-community linkages leverage the treatment expertise of healthcare systems, the on-the-ground knowledge of community-based organizations and the trust that residents have in those organizations to support a more active approach to chronic disease management. In addition, clinic-community linkages can be a way to restore trust in the healthcare system in socially vulnerable communities and hold the promise of increasing engagement in healthcare overtime. 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 stakeholder groups to 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 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 5 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 the 5 study areas and discovered a set of disease groups and conditions for which access to quality outpatient care can prevent the need for hospitalization.

3: Investigated levels of outpatient care for patients hospitalized with the identified disease groups and conditions and found low levels of outpatient care, both before and after hospitalization, indicating a crucial lack
of access to outpatient care.

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

5: Reviewed healthcare resources in the 5 study areas and found gaps that could contribute to greater incidence of hospitalization for key disease groups and conditions.

6: 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.

Summaries of each of these analyses follow.

1: Identified 5 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 used in this study to determine the areas of Illinois with the highest levels of social vulnerability.

In collaboration with the Department of Healthcare and Family Services (HFS), 5 of the most socially vulnerable communities in Illinois were selected for inclusion in the study (see Figure 1):

- Chicago—South (South Chicago)
- Chicago—West (West Chicago)
- Southern Cook County (South Cook)
- Western Cook County (West Cook)
- East St. Louis Metro Area (East St. Louis)

(Note: These communities have also experienced disproportionately higher numbers of COVID-19 infections, hospitalizations, and deaths relative to other communities in Illinois.)

2: Examined the most frequent and resource-intensive diseases driving Medicaid enrollee hospitalizations in the 5 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 5 areas of Illinois were determined for the study, the next step was to develop a true understanding of health in each area. Fiscal Year 2018 Medicaid patient-level utilization data was analyzed for each of the 5 areas. Plotting hospital-level care encounters (emergency department [ED] visits and inpatient hospitalizations) by frequency of encounters and rate of readmissions revealed the most frequent and resource-intensive conditions (see Table 1). The most frequent and resource-intensive hospitalizations (as defined by hospital readmissions for the same condition) identified in all 5 areas are: Mental illnesses,
Figure 1: Study Areas

State of Illinois

East St. Louis

West Chicago

South Chicago

West Cook

South Cook
substance use disorders and a subset of chronic illnesses identified as “ambulatory care sensitive conditions” (ACSCs).

As a result of this comparison of health use across the 5 communities, the following frequent, resource-intensive and outpatient-treatable disease groups and conditions became the focus of analysis:

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

3: Investigated levels of outpatient care for patients hospitalized with the identified disease groups and conditions and found low levels of outpatient care, both before and after hospitalization, indicating a crucial lack of access to outpatient care.

While most of the conditions in these key disease groups and conditions can be managed with outpatient care and support, data indicates that proportionally few patients who receive hospital-level care for these key conditions receive outpatient care prior to or after hospitalization or ED visits. This means that many patients who were hospitalized for these diseases or disorders did not engage in outpatient care to manage their conditions.

For Medicaid patients who went to the ED or were hospitalized for mental illness: no more than 15% received outpatient care within 3 months prior to their hospital-level care and no more than 23% received outpatient care within 3 months after their hospital-level care (see Figure 2).

The proportions of patients who receive prior outpatient care or subsequent outpatient care for substance use disorders is higher than those with mental illness, but nevertheless, still below 50% (see Figure 3).

Outpatient care prior to or after an ED visit or hospitalization for all ambulatory care sensitive conditions is less than 40% across the areas under study (see Figure 4).

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 the 5 communities. 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. Hospitalization rates for ACSCs are 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. Because of this linkage, AHRQ developed Preventative Quality Indicators (PQIs), indices that use hospital discharge data to
Table 1: Disease Blocks in the Top Sextile\textsuperscript{1} for Both Frequency Rate and Average Hospital Readmission Score\textsuperscript{2}

<table>
<thead>
<tr>
<th>Mental illnesses</th>
<th>Substance use disorders</th>
<th>ASCSs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>South Chicago</strong></td>
<td><strong>South Cook</strong></td>
<td><strong>West Chicago</strong></td>
</tr>
<tr>
<td>Mood affective disorders (bipolar, depression)</td>
<td>Mood affective disorders (bipolar, depression)</td>
<td>Mood affective disorders (bipolar, depression)</td>
</tr>
<tr>
<td>Schizophrenia, schizotypal disorders</td>
<td>Schizophrenia, schizotypal disorders</td>
<td>Schizophrenia, schizotypal disorders</td>
</tr>
<tr>
<td>Psychoactive substance use disorders (alcohol, opioids)</td>
<td>Psychoactive substance use disorders (alcohol, opioids)</td>
<td>Psychoactive substance use disorders (alcohol, opioids)</td>
</tr>
<tr>
<td>Hypertensive diseases</td>
<td>Hypertensive diseases</td>
<td>Chronic lower respiratory diseases (asthma, COPD)</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases (asthma, COPD)</td>
<td>Chronic lower respiratory diseases (asthma, COPD)</td>
<td>Hypertensive diseases</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Diabetes mellitus</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Cerebrovascular diseases</td>
<td>Cerebrovascular diseases</td>
<td>Cerebrovascular diseases</td>
</tr>
<tr>
<td>Complications of surgical/medical care</td>
<td>Complications of surgical/medical care</td>
<td>Complications of surgical/medical care</td>
</tr>
<tr>
<td>Hemolytic anemias</td>
<td>Hemolytic anemias</td>
<td>Hemolytic anemias</td>
</tr>
<tr>
<td>Other forms of heart disease</td>
<td>Diseases of liver</td>
<td>Diseases of liver</td>
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<tr>
<td>Diseases of liver</td>
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</tbody>
</table>

\textsuperscript{1} Sextile refers to the top sixth of disease blocks in for both frequency and readmission, representing ~16.67% of all disease blocks.

\textsuperscript{2} The analysis above excludes Chapter 21 of CMS' Tabular list of Diseases and Injuries, which contains encounters with the healthcare system not related to injury or disease, including normal, newborn babies.
Figure 2: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for Mental Disorders

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

Figure 3: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for Psychoactive Substance Use Disorders

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

Figure 4: Proportion of Prior and Subsequent Outpatient Care among Patients Who Received Hospital-Level Care for ACSCs

Included in this analysis are ICD-10 principal diagnosis codes categorized as Ambulatory Care Sensitive Conditions by the Agency for Healthcare Research and Quality (https://www.qualityindicators.ahrq.gov/modules/pqi_overview.aspx).
identify admissions that might have been avoided through access to high-quality outpatient care. Although PQIs are based on hospital inpatient data, they provide insight into the quality of the healthcare ecosystem outside of hospitals and in the community by measuring preventable complications that occur in a given population. Across the 5 areas under study, age-adjusted hospital Medicaid hospitalization rates for PQIs outpace national benchmarks.

The data here paint a clear picture: Medicaid enrollees have poor access to outpatient care and higher levels of prevention-sensitive hospitalizations in all 5 study areas. Improving accessibility to quality primary and specialty care (including behavioral healthcare and detection of mental health comorbidities) will be critical to decreasing hospital admissions for ACSCs as well as ED visits and hospitalizations for mental and substance use disorders.

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

Among patients who received hospital-level care for the most frequent and resource-intensive diseases, proportionately few had received outpatient care either before or after hospitalization or an ED visit. These low levels of outpatient care point to the need for resources in communities to help manage bipolar, depressive, alcohol use, and opioid use disorders as well as the most common ACSCs. Recognizing that hospitalization data can reveal what is happening, but not explain why, a parallel qualitative study was conducted to understand the barriers to outpatient care and disease prevention that contribute to high rates of utilization.

Community conversations were structured to understand challenges community residents face across a simple “healthcare journey” consisting of staying healthy, recognizing a healthcare need and deciding to get care, arranging and getting to care, receiving care (the actual moment of care) and managing a condition over time (for those with ongoing health issues).

Community residents spoke of multiple barriers (or social determinants) that they face at each point in the healthcare journey. These community-identified barriers illuminate the “why” behind the low rates of outpatient-care engagement and high rates of hospitalization for key diseases and condition (see Table 2).

It’s important to point out the cumulative impact that these barriers have on residents in communities experiencing high social vulnerability. When people decide to seek care, they make an implicit cost-benefit analysis: they trade off their time, money and trouble against the value they expect to gain from care. The various barriers voiced by community residents tip the balance toward the costs of seeking care and away from the value of getting healthcare. Stated another way, resident stories about barriers to healthcare demonstrate that the cost-benefit calculus they apply in deciding whether to seek care would produce a substantially different result if these residents resided in areas with lower social vulnerability.
## Table 2: Community-Defined Barriers to Maintaining Health and Accessing Care

<table>
<thead>
<tr>
<th>Barriers by Social Determinants of Health</th>
<th>Staying Healthy</th>
<th>Recognizing a Health Need and Deciding to Get Care</th>
<th>Arranging and Getting to Care</th>
<th>Receiving Care (Point of Service)</th>
<th>Managing the Condition in Daily Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge &amp; Information (i.e., health literacy barriers – the lack of awareness, information and skills needed to care for one's health and navigate health services)</td>
<td>Lack of factual and trustworthy health information</td>
<td>Lack of knowledge of signs and symptoms of prevalent health conditions</td>
<td>Lack of awareness of healthcare services within community</td>
<td>Difficulty understanding technical medical terms and physician instructions</td>
<td>Difficulty applying physician instructions to personal circumstances</td>
</tr>
<tr>
<td>Economic (i.e., inability to access activities, programs, and services due to the associated costs)</td>
<td>Lack of time for self-care (i.e., exercise, preparing healthy food, preventative care, etc.)</td>
<td>Inability to afford healthy food</td>
<td>Inability to afford health insurance</td>
<td>Lack of insurance or under-insured</td>
<td>Difficulty affording out-of-pocket care costs (e.g., co-pays)</td>
</tr>
<tr>
<td>Healthcare Service (i.e., barriers that impede equitable access to and engagement with healthcare)</td>
<td>Lack of preventive screening or programming in the community</td>
<td>Previous negative healthcare experience</td>
<td>Inability to afford out-of-pocket care costs (e.g., co-pays)</td>
<td>Inability to afford transportation</td>
<td>Inability to afford treatment (e.g., medication, equipment, supplies, etc.)</td>
</tr>
<tr>
<td>Socio-Cultural (i.e., individual or collective attitudes and beliefs that impact one's ability to maintain health and engage in healthcare)</td>
<td>Culturally ingrained food and cooking habits</td>
<td>Hesitancy to seek care (due to historic healthcare system mistrust, cultural issues, immigration status, fear of doctors, stigmas, or previous bad experience)</td>
<td>COVID-19 closures or reduced appointments</td>
<td>Long waits times at the point of care</td>
<td>Lack of consistent healthcare support to help manage condition over time</td>
</tr>
<tr>
<td>Environmental (i.e., resources, service, context, and infrastructure obstacles in the community that limit one's ability to maintain health and engage in healthcare)</td>
<td>Lack of resources (i.e., food, recreation, transportation, walking infrastructure, etc.)</td>
<td>Presence of unhealthy foods</td>
<td>Prevalence of drugs and alcohol in communities</td>
<td>Lack of resources (i.e., food, recreation, transportation, walking infrastructure, etc.)</td>
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<tr>
<td></td>
<td>Poor air quality due to local pollutants</td>
<td>Exposure to ongoing crime, street violence, domestic abuse, neglect and/or discrimination</td>
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<td>Poor air quality due to local pollutants</td>
<td>Presence of unhealthy foods</td>
</tr>
<tr>
<td></td>
<td>Insufficient transportation options</td>
<td></td>
<td></td>
<td></td>
<td>Prevalence of drugs and alcohol in communities</td>
</tr>
</tbody>
</table>
5: Reviewed healthcare resources in the 5 study areas and found gaps that could contribute to greater incidence of hospitalization for key disease groups and conditions.

A review of data on existing healthcare resources revealed gaps in resources for treating these diseases and conditions. The resource analysis found that parts of all 5 study areas have primary care shortages and mental health professional shortages (see Figures 5–6). These gaps may contribute to lower rates of engagement with outpatient care and higher rates of hospitalization for identified diseases and conditions.

6: 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.

The analysis of hospital utilization data, plus the inventory of concerns expressed by residents in community conversations, and the surveys of available resources together make a strong case for the need to improve access to quality primary and specialty care. The community voice made clear the need to address the social-determinants-of-health barriers that make it difficult to access care and manage conditions. The analysis and community input combine to suggest that transformation efforts should concentrate on clinic-community linkages that provide primary and secondary care and community-based wraparound services to help people manage chronic illnesses, mental illnesses, and substance use disorders. Clinic-community linkages would leverage the treatment expertise of healthcare systems, the on-the-ground knowledge of community-based organizations, and the trust that residents have in those organizations to support an active approach to chronic disease management, to restore trust in the healthcare system in socially vulnerable communities and increase engagement in healthcare.

Based on the accumulated evidence gathered through the 6-part analysis, the report suggests that transformation initiatives be guided by 5 objectives:

1. Incentivize clinic-to-community linkages that address health, healthcare access, and the social determinants of health.

2. Promote collaborative care models for chronic illnesses, including mental illnesses and substance use disorders (for example, health homes and coordinated care models).


4. Promote care engagement.

5. Continuously groom clinic-community linkage services to reduce and eliminate barriers to care.

Adherence to these objectives will not necessarily confer immediate benefit to communities and healthcare systems but it will address the need for access to services closer to where people live, work and play, and help drive infrastructure investment to support greater health. It may not be an end, but it will be a beginning, and one grounded in a firm understanding of needed changes.
Figure 5: Health Resource and Services Administration (HRSA) Mental Health Professional Shortage Areas

Figure 6: Health Resource and Services Administration (HRSA) Primary Care Shortage Areas