Exchanging Data to Drive Equity

Themes and Recommendations from the Chicagoland MPI Project

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Introduction and Background to the Project

Evidence supporting the direct relationship between housing programs and health outcomes within low-income or otherwise vulnerable populations is extensive.[1,2] Currently, people experiencing homelessness are virtually invisible because without a proper mailing address, it can be challenging for social service agencies to locate individuals who are housing insecure. This, in turn, makes it difficult for people who are homeless to access adequate and coordinated care and services to meet an array of physical, mental, and social health needs. These barriers are particularly challenging when it relates to unmet chronic behavioral and physical health conditions.

From a data sharing standpoint, there are few technologies in place to support a seamless data flow across all the systems that interact with people who are housing insecure. Generally, this lack of data infrastructure can be attributed to the varying degrees of capacity and infrastructure within healthcare systems and social service agencies. Whereas some hospital and healthcare systems have extensive funding to support sophisticated electronic medical record systems, many social service agencies still rely on paper documentation or basic spreadsheets. Furthermore, the siloed nature in which these organizations operate can impede their ability to collaborate and share data effectively. To address the need for coordination across health and housing systems in Chicago and Cook County Illinois, the Illinois Public Health Institute was funded by grants from the Michael Reese Health Trust and the JB and MK Pritzker Foundation. Funding, as well as strategy and alignment from these two organizations greatly contributed to the development of the Health and Housing Master Person Index (MPI) project.

During this project, the world was hit by the COVID-19 pandemic. While all data collection for the MPI project was done pre-COVID, COVID has underscored the need to improve services to people experiencing homelessness and housing insecurity by shining a bright light on the disparities and inequities in health and outcomes faced by this highly vulnerable group of people.

The Master Person Index project was led by the Illinois Public Health Institute (IPHI) in consultation with University of Illinois Health and Hospital System (UI Health) and All Chicago Making Homelessness History (All Chicago). IPHI mobilizes stakeholders, catalyzes partnerships, and leads action to improve public health systems to maximize health, health equity, and quality of life for people in communities. IPHI stewards regional and national efforts include the Alliance for Health Equity and Data Across Sectors for Health, a national program office of the Robert Wood Johnson Foundation.

UI Health and All Chicago, as key project partners, brought unique perspectives to the project design and deliverables. UI Health is a leading health system in Chicago and co-founder of the Better Health Through Housing Initiative with the Center for Health and Housing that aims to reduce healthcare costs and provide stability for the chronically homeless by moving individuals directly from the emergency room into supportive housing. For the MPI project, the team from UI Heath helped advance conversations related to how housing can be used as a health intervention that can lead to positive health outcomes. All Chicago operates the U.S. Department of Housing and Urban Development (HUD) funded Continuum of Care (CoC) which is a membership organization of over 100 organizations and individuals who work to prevent and end homelessness in Chicago through a coordinated, comprehensive approach to providing housing and services for people experiencing homelessness. All Chicago staff shared insights into the technical capabilities and limitations of the homeless management information system (HMIS), and their vision for expanding the data integration functionality in the future. Since the MPI project was focused on residents of both Chicago and the greater Cook County region, it is important to note that as a CoC, All Chicago serves residents of the city, while the Suburban Cook County CoC is managed by the Alliance to End Homelessness in Suburban Cook County. Although both CoCs aim to meet the needs of their respective homeless populations, the resources, funding, and capacity at their disposal varies dramatically.

The purpose of Master Person Index project was to develop consensus among participants across Chicago and Cook

1 Yale Global Health Leadership Institute. (2015). Leveraging the Social Determinants of Health: What Works? Taylor, L.A., Coyle, C.E., Ndumele, C., Rogan, E., Canavan, M., Curry, L., & Bradley, E.H. Retrieved from https://www.bluecrossmafoundation.org/sites/g/files/csphws2101/files/2020-10/Social_Equity_Report_Final.pdf

2 Sandel, M., Desmond, M. (2017). Investing in Housing for Health Improves Both Mission and Margin. JAMA. 2017;318(23):2291–2292. doi:10.1001/ jama.2017.15771

County for a multi-sector data sharing solution to improve service coordination and delivery for individuals experiencing housing instability,[3] homelessness, and chronic health conditions. At the onset, the project aimed to establish a high-level plan for governance and a set of technical specifications for a data system that enables collaboration across partners in housing, human services, public health, healthcare, and community-based organizations. While health and housing data integration was the first desired "use case" for the system, the long-term vision shared by project partners was for a data sharing solution to support various multi-sector interventions to address a broader set of social determinants. A use case describes the ways that end users want to "use" a system. DASH defines a use case as a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between information systems and users related to a particular goal.

What Is a Master Person Index?

At its most simple design, a Master Person Index is intended to provide a set of tools and technologies that allow for individual-level data matching algorithms to link client data from across systems. MPIs are structured to enable the information about individual people to be matched across systems that work within independent silos. Ultimately, an MPI is a necessary element of the data systems that allow healthcare and social service providers and housing entities to collaboratively care for clients that routinely navigate complex health and social systems. A Master Person Index is a tool that can be used to improve practitioner workflows and promote positive health outcomes for clients.

Community Information Exchange and its Relevance to the MPI Project

The MPI project was originally conceived and designed as an exploration into the multi-sector data sharing needs for providers across health and housing systems in greater Chicago. While the project activities, interviews, and analysis are focused on health and housing applications, it is well understood that the health and housing use case exists within a broader set of systems that support health, well-being, and equity holistically. Housing is, perhaps, the most powerful social determinant of health. But participants across the MPI project discussed many other sectors and systems outside of housing and healthcare that serve people with lived experience of homelessness and housing insecurity, including mental health and substance use prevention and treatment, the justice system, education and personal development, the child welfare system, and many others. While outside of the scope of this health and housing data sharing project, it is natural to think expansively of the many different sectors and systems that could ultimately be knit together to support the people who are addressed within this health and housing use case.

Over the course of this community and institutional engagement process, the funders and the community at large deepened their interest in the possibilities of, and requirements for, community information exchange in greater Chicago. A CIE is an ecosystem of multi-sector network partners that use a shared language, a resource database, and an integrated technology tool to deliver effective community care planning for people using any number of social and health services. This is an important tool that could improve service provision for Chicagoans in general, including those with chronic health conditions that are exacerbated due to their housing instability. A CIE can help tackle the complex needs of this patient population and support more effective care planning as well as healthier communities.

During the MPI project, support from the Pritzker Foundation and the Michael Reese Health Trust was extended to All Chicago to begin exploration of a CIE for Chicago. In IPHI's original proposal, one of the deliverables was to develop a set of technical specifications for the functionality of an MPI. If a CIE were to be developed in Chicago, it would include an MPI as a core technology and, therefore, a separate recommendation regarding MPI technologies becomes much less relevant. The design of the MPI stakeholder engagement process generated insights and recommendations that are very relevant and timely for the development of a CIE. While IPHI has not changed the language in the findings or recommendations for the MPI in this report, the findings and recommendations are equally relevant for establishing a Community Information Exchange in Chicago.

Assessing Initial Stakeholder Buy-In

During the project planning phase, Health and Housing (H2) data committee members expressed interest in participating in a project that would enhance data sharing, because of their desire to improve services for their clients. IPHI consulted with the H2 data committee leadership and committee members. At the project onset, the H2 data committee led the documentation of existing Chicago-based health and housing initiatives and recommended people for key informant interviews. Additionally, the H2 data committee made notable contributions during these preliminary discussions that were further elevated by other stakeholders during the engagement process. Most notably, they shared that a stronger, more integrated evidence base through shared data can be instrumental in supporting agencies' efforts to advocate for change at the policy and systems level, including garnering buy-in and funding for the Chicago Flexible Housing Pool.

3 *HUD's definition of housing instability:* The extent to which there is consistent access to high-quality, affordable housing; the reasons for and frequency of residential moves also plays into understanding factors for stability.

Methods

Over the course of 18 months, numerous stakeholder engagement activities were conducted. These included one-on-one meetings and conversations with the H2 data committee, two all-stakeholder convenings, 23 key informant interviews, three focus groups including one with individuals that have experience navigating the health and housing system, and conversations with national stakeholders in the multi-sector data sharing space.

From November 2018 to December 2019, IPHI staff conducted 23 stakeholder interviews. The interviews collected perspectives from: 1) users, practitioners, leaders, and subject matter experts, and 2) technologists and data scientists. Interviewees represented healthcare providers and payers, homeless and housing providers, governmental health and human services, behavioral health agencies, criminal justice representatives, and others involved in health- or housing-related work. Most interviews were conducted in person and ranged from 60 to 90 minutes. A specific set of questions guided the conversation that allowed us to understand how providers identify, collect data on, and provide care for patients and families struggling with unstable housing. These conversations illuminated use cases that most resonated with stakeholders.

The first set of interviews with sector-specific stakeholders helped to inform the second set of interviews with technologists. Throughout these interviews, participants identified personal and organizational interests, discussed current data systems in use or development, and shared their vision for an MPI or similar shared data tool. These interviews enabled IPHI staff to build relationships with the key stakeholders and surfaced more details regarding some of the existing multi-sector data sharing initiatives already underway. Data captured during these interviews informed the design and goals for the convenings in a way that would best advance the conversation. Furthermore, these interviews captured information about the current environment, early possibilities for desired system functionality, and a vision statement for future data sharing capacity among partners not currently available.

In March 2019, the IPHI team convened nearly 50 health and housing stakeholders from Chicago and Cook County, representing 18 organizations and lived experience, to discuss the region's health and housing needs from a client and system level perspective. (See: Appendix A: March Convening Agenda.) In August 2019, IPHI in partnership with the Allegheny County Department of Human Services, convened a special, invite-only All In: Data for Community Health "Health and Housing" national meeting. Ten small teams of community collaboration from around the country were invited to apply to discuss approaches for using shared data to better understand, identify, and address the health and housing needs of their clients. (See: Appendix B: August Convening Agenda.) Lastly, in December 2019, the IPHI team convened a second Chicago-area stakeholder meeting for approximately 50 people, representing 27 organizations and five community voice perspectives. The purpose of this meeting was to advance the consensus building on the functionality for the MPI. Additionally, this convening was designed to fill in gaps in the data collection efforts to confirm an understanding of the project among all stakeholder groups and attendees. (See: Appendix C: December Convening Agenda.)

Throughout the project, calls were held between All Chicago, UI Health, and IPHI, in conjunction with national technical experts to help inform the development of legal and governance aspects of the initial use cases of the MPI tool. These meetings shed insights into approaches for governance and promising technology solutions. Some of these advisors included: San Diego 211/Community Information Exchange, San Diego HealthConnect, North Coast

Health Improvement Network, Tompkins County Human Services Coalition, Allegheny County Human Services, IL Department of Human Services and Illinois Department of Healthcare and Family Services, and the Corporation for Supportive Housing (data integration team). (See: Appendix D: MPI Stakeholder Participation Table.)

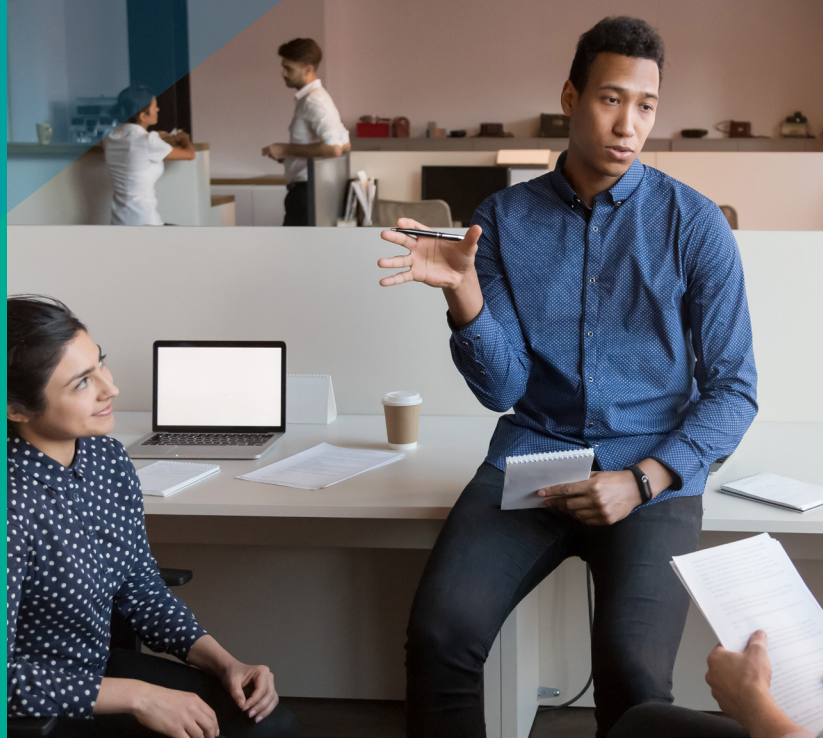
Data Analysis and Coding Process

IPHI developed a multistep process to translate the raw qualitative data from the interviews, focus groups, convenings, and national meeting into synthesized information. All of the interviews were transcribed using an automated system, and then staff cleaned and organized each document to prepare it for analysis. A team of IPHI staff systematically coded the qualitative data using a set of codes for themes and sub-themes. The codes that were utilized had previously been developed by the DASH National Program Office as "structured data tags" to organize information about national multi-sector collaboration, data sharing, and community health improvement projects. Most material was coded and reviewed by at least two staff from a team of four people.

High-level Recurring Codes

Existing assets	Across the systems level and at the data infrastructure level
Barriers	Across the systems level and at the data infrastructure level
Use cases	Would enable interventions that may have a positive impact on the health and well-being of clients
Data system requirements	Point to specific technical features and functionality that would be needed for desired use cases
Shared vision	What an MPI would enable a collective group of stakeholders to achieve, as well as the values that drive stakeholders to seek a collective data solution to address the need for coordination among health and housing sectors.

Findings and Themes



Organizations that were engaged at different points during this project shared similar sentiments across a number of different domains. Many organizational stakeholders mentioned explicitly how they serve a shared population and had a collective desire to align efforts to meet the health and social needs of their clients.

They saw potential for how an MPI tool can help to support a collective impact approach between a range of health, human, and social service systems to share data in order to address systemic needs and improve the health outcomes of entire communities. Through stakeholder interviews, cross-sector convenings, and community-based focus groups, IPHI gathered insights about the assets and barriers stakeholders face, their desired use cases for the MPI tool, the data system requirements that are necessary to develop the MPI tool, and alignment in perspective about the future of a systems approach to coordinate across health and housing providers in Chicago. Many informants emphasized the importance of long-standing partnerships based on trust, a mechanism to ensure an effective and transparent data sharing environment. We also heard stakeholders express concern about the legal limitations surrounding consent, and the ability of agencies to share private patient information.

The following themes captured the most common results from participants. As noted above, these findings are equally relevant for establishing a Community Information Exchange as they are for an MPI.

THEME 1: **A multi-sector data sharing system should be rooted in equity and designed with people's lived experience informing the design and use of the system.**

An MPI will require a commitment to equitable approaches by integrating the voices of community members that have encountered many of these systems. Key informants, including community members and service providers, enumerated the difficulties that people face when seeking shelter and permanent supportive housing. Clients can feel demoralized and frustrated when they visit social service organizations and have to repeatedly share or ask for specific information. For example, in order to determine program eligibility or inquire about their waitlist status, they are asked to complete assessments and provide the same information with different providers. For example, one person shared:

> "I want you to look at me as a person with health needs and a person with a lot of stress issues and housing issues. You should say to yourself let me help to get her housing and help her with her health needs so she won't stress out anymore once we get her housing. We also want to make sure she goes to the doctor every month and keep track of that person to make sure they don't become homeless again."
>
> – COMMUNITY PARTICIPANT

In order to honor the dignity of people undergoing housing instability, informants shared that it is important to consider ways to give patients ownership over their data. This can be done by requiring their consent for data sharing and promoting the use of longitudinal records that maintain client records and avoid the need for them to repeat extensive paperwork processes.

A housing stakeholder shared similar sentiments from a provider perspective:

> "The age of technology has not helped us. We don't have to track people on paper anymore. But I'm not confident that we're better off. If you ask me, in terms of what it has meant for a human being to not repeat their story a thousand times for providers, collecting what is essentially the same exact information over and over again, putting it into multiple systems, and making the same mistakes in the multiple systems."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

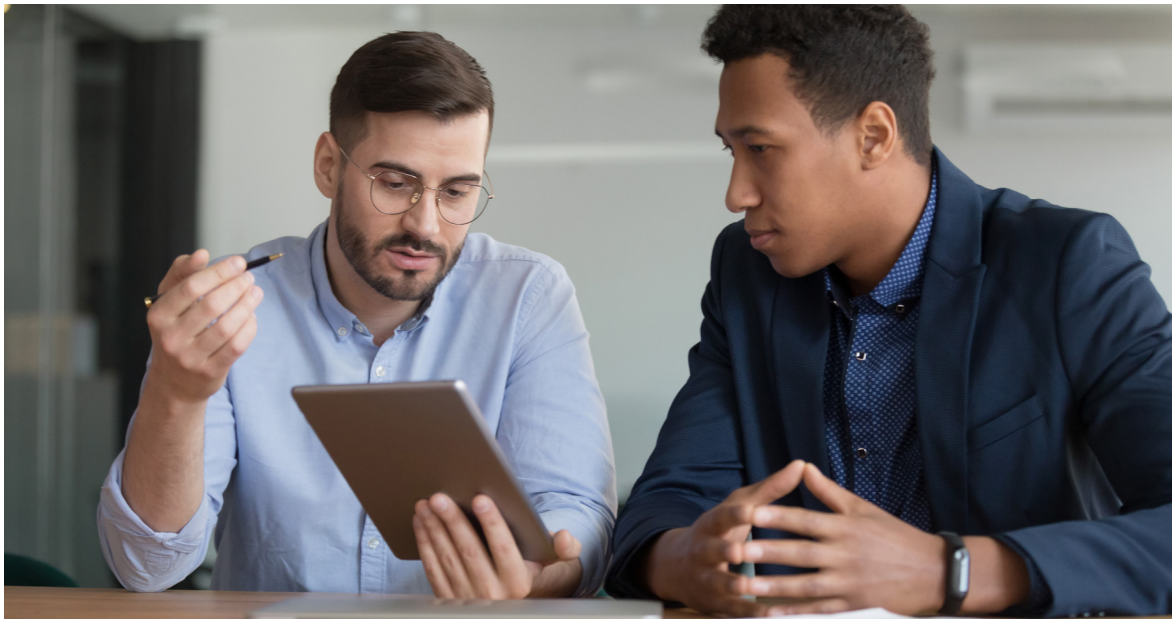
Additionally, discussions across informants elevated the importance of a holistic care model to ensure that various needs can be addressed and met among people experiencing housing instability. A key informant shared:

> "There are a lot of homeless people who need healthcare more than anything. More than a car, more than money, more than anything. I think we need to look at it as a whole, not just one thing."
>
> – COMMUNITY PARTICIPANT

THEME 2: **The MPI should be built or designed through a collaborative approach to promote a lasting impact.**

Despite the growing number of health systems, housing providers, and social service agencies working together, the region continues to lack a coordinated, collaborative response to address clients' health, housing, and other social needs. In reality, many organizations operate in their own respective silos. Stakeholders agreed that this lack of coordination makes a multi-sector response more difficult to achieve given that partnerships require relationship building and trust. Members of the lived experience committee indicated that outreach and identification of individuals facing homelessness largely felt like an uncoordinated effort. For example, one person shared:

> "At the hospital, the intake workers have a number that they can call to have someone come and get you and take you to a shelter. I guess they just noticed that I was hanging around and I had all my belongings with me. They approached me but it was not planned or coordinated."
>
> – COMMUNITY PARTICIPANT



The Health and Housing (H2) data committee is a prime example of a group of stakeholders working to improve upon and find solutions to many of the issues facing housing providers and the homeless population in Chicago. Fortunately, many key informants indicated that there is significant interest in strengthening collaboration across organizations. For example, one researcher shared:

> "We've demonstrated on the research side that we can do this, and we even understand the relative sort of valuable bins of focus areas to do exchanges. And so I feel like, maybe most importantly, we've built sort of a willing group of partners and institutions that are ready to work together, so I'm kind of excited."
>
> – HEALTH INFORMATICIST

Similarly, discussions at the second convening focused on strategies for obtaining buy-in from multiple sectors given the siloed priorities that they may have. Conversations indicated that endorsing a collaborative approach requires understanding the interests of partners in order to get them to the table. This can occur through looking at the goals, objectives, and interests of each prospective partner, and by expressing clearly and with specificity how the collaborative effort will advance those interests. A meeting participant shared:

> "Our goal is to serve our patients and most vulnerable populations. If I see that interest reflected in a partner, and ancillary benefits are saving money and resources, that communicates well to my organization."
>
> – HEALTH AND HOSPITAL SYSTEM REPRESENTATIVE

THEME 3: **If an MPI were established, client's information should only be shared through secure mechanisms that uphold user privacy.**

During the key informant interviews and national conversations, healthcare entities and social service providers mentioned the need to develop a legal framework that ensures that personal patient information can be securely shared among providers. An interviewee from a national organization shared:

> "Oftentimes communities can get cagey around sharing some of that protected data in ways that aren't necessarily what is actually required by the legal guidance that's given to those different data systems and protect information. And oftentimes even just coaching around what is and is not shareable or sharing strategies that different communities have used to be able to share that information can help alleviate concerns."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

In an effort to promote whole-person care, it is important for providers to have access to longitudinal records and historical patient information in order to meet their needs. There are various federal, state, and local regulations that determine the types of data that can be shared and the ways that patient information can be stored. However, local stakeholders have experience navigating the legal landscape, building their confidence for what data sharing is possible. A service provider shared:

> "When we first started, there was a lot of concern about protecting the privacy of clients and confidentiality. So we started out with what we call a closed system and then with various specific project types. So then we said well, maybe we need to trim some of that so that one agency can see if another agency is already giving this client financial assistance. Now, the shelters are seeing where it could be advantageous to see each other's data. But there are limitations within the system itself that really tie our hands in terms of sharing more going forward."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

In addition, data sharing can be complex given compliance regulations for handling personally identifiable information. Many stakeholders shared that part of this work requires building and establishing trust among providers in order to create a governance structure that can determine the types of data shared, who has access to the data, and the roles and responsibilities that would be taken up by organizations. A social service provider shared:

> "Our software provides a visibility and security tree that is very heavily compliant with HIPAA (the Health Insurance Portability and Accountability Act). We have very strict visibility rules built into the system. We have structures where users sit at a certain level and when they are at that level there is only so much data they can see. Users can be given different levels of access. All of the visibility and security of the data is handled within the system."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

Stakeholders elevated the need to create a safe environment for providers to interact and protect patient information. Some of the ideas mentioned include a secure data sharing platform that encompasses open-source data, de-identified data, or uses a tiered access system. At the second convening, participants grappled with how to define privacy and were concerned about the ways in which privacy is defined at the state and federal levels. Despite these concerns, stakeholders overwhelmingly mentioned their desire to engage with state-level data. Participants expressed the advantages of starting with low-risk projects that allow partners who are more risk averse to be more willing to share data with partners. They stressed the importance of being intentional and careful with data storage, which could be achieved by designating a data steward.

THEME 4: **There is a need for a standardized definition of homelessness across partners in the region.**

When thinking about how to approach the development of the MPI tool, several key informants felt that there were discrepancies in the ways that health and housing organizations document and define homelessness.[4] In order to match individuals, the systems flagging people as homeless need to use the same definition so their data is included in all systems that provide services to them.

4 Some providers rely on the U.S. Department of Health and Human Services, Health Resources and Services Administration's (HRSA) definition that defines homelessness as: "an individual that lacks housing, including individuals whose primary residence during the night is a supervised public or private facility that provides temporary living accommodations and an individual who is a resident in transitional housing." Other providers use the U.S. Department of Housing and Urban Development (HUD) definition of homelessness that defines homelessness more liberally as, "People who are living in a place not meant for human habitation, in emergency shelter, in transitional housing, or are exiting an institution where they temporarily resided." Deciding on which parameters to consider in defining homelessness is not a challenge that is unique to the housing landscape in Chicago.

> "The HUD definition of homelessness is very narrow – the information that goes into HMIS is only people who are at risk of becoming homeless or who are homeless. The definition for any other entity outside of HMIS is much broader and very different. This is something we have to strike a balance with when we are talking about numbers and data. We cannot compare apples to apples because of the different definitions."
>
> – COMMUNITY- BASED SOCIAL SERVICE PROVIDER

Members of the lived experience committee also reached a consensus about the importance of redefining homelessness. They suggested that prioritizing individuals who are more at risk, such as those with medical issues or members of certain age groups, could be beneficial for ensuring that populations with higher risks are housed in a timely manner. Ultimately, they felt that this issue could be solved through creating a universal definition of homelessness[5] and then determining which groups of people would be prioritized.

> "A couple of agencies would tell me you are not considered chronically homeless. You have to be chronically homeless for six months to a year, two years or have been sleeping on a train or park bench.... Kids are missing school because they don't have clothes. They don't have anywhere to sleep. They are not eating correctly. Why take these kids away or even elderly people with health issues away when we could house them first?"
>
> – COMMUNITY PARTICIPANT

5 The federal government has periodically redefined what it means to be homeless. According to the National Alliance to End Homelessness, in 2012 HUD updated their definition of homelessness and set particular parameters around the circumstances that warranted the status of "homeless." Rather than considering someone homeless after having resided in an institution for 30 days, HUD extended the time limit to 90 days. HUD extended this classification to cover individuals who were 14 days from losing their primary nighttime residence, rather than 7 days before, as was previously accepted. Standardizing the definition of homelessness could more accurately describe the extent of homelessness and allow for the use of appropriate interventions and allocation of funding to provide care to this population.

THEME 5: **As a data system, HMIS's scope and functionality is limited and not currently structured to support a broader set of use cases. Thus, it is not a robust foundation for a multi-sector data sharing system.**

Stakeholders across sectors mentioned various degrees of use and familiarity with the homeless management information system (HMIS). HMIS is the centralized technology system, mandated by HUD, which is used to collect and access client data for individuals and families at risk of homelessness. Each CoC then contracts with a vendor (from a shortlist pre-approved by HUD) to manage their HMIS system. Stakeholders consistently mentioned that relying on existing assets and systems such as HMIS is insufficient because HMIS is not structured to store all of the relevant client information that is needed in order to refer resources and promote person-centered care. A community-based provider shared:

> "We're able to do some good data collection with HMIS and our other EHR (electronic health record) vendor, at least. But not really any analysis. So we have to pull everything out of there and put it into something else, in order to do any decent analysis of any data that we get."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

Although HMIS allows providers to enter and access basic client information, stakeholders expressed that there are limitations to the types of data that can be stored as well as what providers can do with the data. Thus, service providers often duplicate efforts by entering the client information into other data systems that offer more technical capabilities. This approach creates inefficiencies given that providers are burdened by data entry rather than caring for clients. Stakeholders were also eager for interactive data systems and visualization tools that offer customization, support holistic care provision, and promote a deeper understanding of the factors that are driving homelessness. A provider noted:

> "It's important to consider the community of origin when somebody is homeless. Are they homeless due to them being priced out of the community? We don't have that data. HMIS doesn't have historical data. So we don't know if we had 10,000 people on the list at one time, where those people are, where they went to, if there's been recidivism, how many people actually returned back to homelessness from the different model types of housing that we have."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

> "The version of ServicePoint [HMIS software] that's being used throughout the continuum is outdated, and so it's not well supported by any browser, so we're really limited now in both reports that we can create on our own as well as the reports that are created through All Chicago, just being able to pull out of the interface. They're ending up having to create and build SQL (structured query language) reports to be able to pull the data, which doesn't necessarily match what we see if we go into an individual client record."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

When thinking about what this means for the future of HMIS, it is important to determine whether or not current HMIS systems can be improved. Stakeholders were conflicted as to whether making significant changes to the HMIS system would reduce data entry and systemic inefficiencies. It is also important to consider how to serve a population that moves across the city and county. A provider shared:

> "HMIS is a system governed outside of us and at the CoC level, and for very good reasons there's a lot of standards around that...but it doesn't have all of the capabilities we would like to see. What Salesforce has allowed us to do is to think more broadly and creatively about the impact that we're having on the communities that we're serving and thinking about what could we be measuring that could potentially tell that story."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

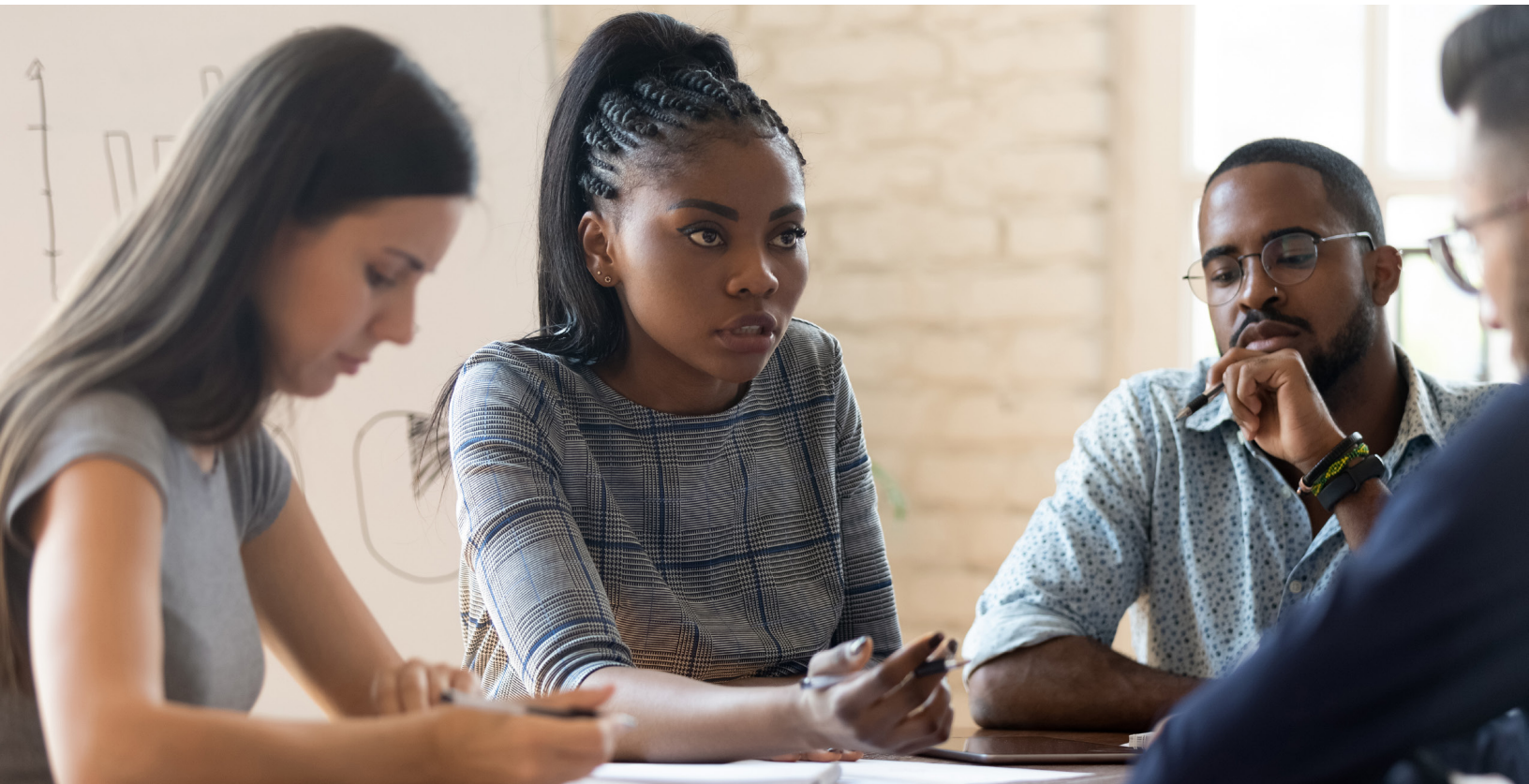
THEME 6: **An MPI should enable the expansion of entry points into health and housing systems, or a "one list" approach.**

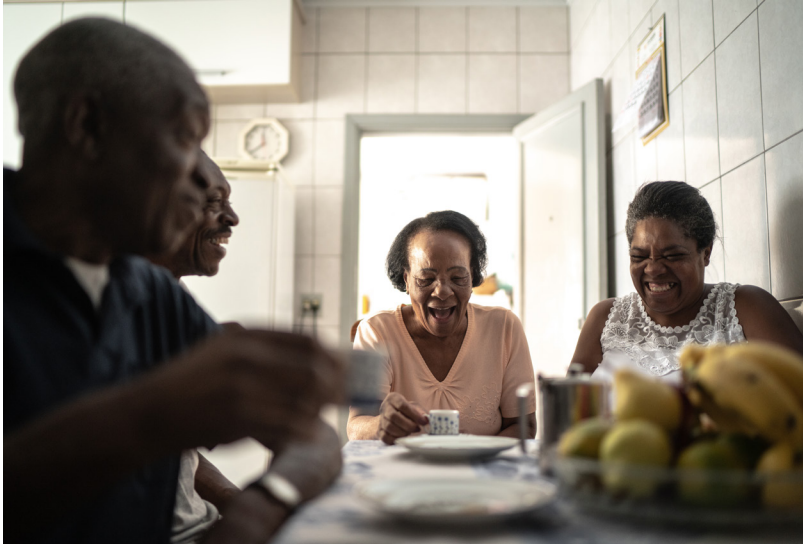
In an effort to make systems more efficient and accessible for those seeking services, stakeholders mentioned the need to expand access points to promote equity and to reach and house individuals more quickly. More access points can ensure that people obtain critical resources in a timely manner, preserve their eligibility for services, and maintain their spot on waitlists. Additionally, more access points could allow service providers to maintain updated longitudinal records so that they can share the burden of collecting and documenting patient information and can redirect more of their efforts toward care provision. One health system representative shared:

> "The CoC created this idea of access points. It's listed on the CSH website. The YMCA is now an access point, so you can send a homeless person over there to make sure that they get an entry point."
>
> – HEALTH AND HOSPITAL SYSTEM REPRESENTATIVE

Community participants mentioned they felt that an element of luck contributed to their connection to a social worker or provider, rather than the system enabling that relationship. They also provided ideas about how to ensure that clients remain on waitlists or maintain communication with service providers, which would be more accessible if there were more access points. A community voice perspective shared:

> "When it comes to drop-in centers, or Chicago Department of Family and Support Services sites, or places we know a lot of people are going to go just for general services, there could be a notice up there that says we know you have accessed services before but if it's been a while you need to talk to us."
>
> – COMMUNITY PARTICIPANT





THEME 7: **Create interoperable systems in order to streamline care provision and prompt communication between organizations. Level the playing field and allow those organizations without in-house capacity, knowledge, or funding to access a data system.**

As a result of varying degrees of in-house capacity and knowledge, stakeholders have emphasized the need to design the MPI tool with interoperability in mind. In other words, it is critical that the MP software is developed so that it can successfully communicate and properly interface with other data systems being used in the area. Discussions revolved around making data sharing accessible and affordable for social service agencies that have limited resources and staff capacity to purchase and use data systems. Providers from various sectors shared similar sentiments, including one from a healthcare representative:

> "What we want is the ability to use a tool that doesn't cost us every time we need to match data. Any progress that you make in the area to create the MPI to match people for different projects without a huge cost is something we'd want to be aligned with."
>
> – HEALTH AND HOSPITAL SYSTEM REPRESENTATIVE

Health and hospital systems commonly use sophisticated EMR vendors with the capacity to customize and tailor the software to their needs. Additionally, it is common for many hospitals in the region to use different EMR systems, which makes data sharing even more difficult to accomplish. Health and hospital systems also tend to rely on the expertise of IT departments to help integrate and troubleshoot new software. In contrast, many community-based social service organizations use HMIS or other outdated systems that impede their ability to best serve the health needs of their clients.

> "And so, even in communities that have the same tool that we're using, if they don't have the staff or the expertise to really use that well, they're struggling and they're failing and they're going backward. Some communities are going to really be in a worse space in a few years and other places are going to be a lot better."
>
> – NATIONAL NONPROFIT REPRESENTATIVE

To mitigate these differences among providers, collaborative partners can create opportunities for organizations to share expertise and build a community's collective capacity. This can also occur by helping organizations that collect data develop analysis skills. Additionally, it can be useful to demonstrate the mutual benefits of using bidirectional data, and showcase the appeal of using systems navigation that uncovers clients' longitudinal records and prior used services. A national meeting participant shared:

> "If we can share data, we can provide analytic support that will help you respond to requests and answer questions about it."
>
> – AUGUST CONVENING PARTICIPANT

THEME 8: **Stakeholders see potential value in the benefits of an MPI, or a similar data sharing infrastructure, to support collaboration across sectors, including with criminal justice, law enforcement, and others.**

Stakeholders felt an MPI would enable service providers to share pertinent patient data, receive alerts and notifications, and access longitudinal records. Access to this information would make prevention of chronic health problems more likely, and would help combat chronic homelessness.

> "An ideal system, we would be able to follow along as an individual goes through the different points of access, right? And when you have an individual that goes to access an emergency room, or has an interaction with the police department, or something like that, the primary service provider could get triggered that an event happened, right? That would be an ideal. That would be a great cost savings, and that would be a great way for us to serve people."
>
> – COMMUNITY-BASED SOCIAL SERVICE PROVIDER

Key informants also shared that an MPI tool would support the use of appropriate resources and services tailored to the specific physical and mental health needs of people across the diverse service sectors. Additionally, key informants shared that an MPI tool would support understanding the clients' full set of social and physical needs. Thus, they could allocate appropriate resources and services that are tailored to the clients' full set of needs.

> "It would be great to have the opportunity to access a data system that looked at a variety of client-related data sets...this would allow us to paint a picture of what's happened to a client since they've been off our radar. Have they been homeless? If so, how long have they been

homeless? How frequently have they been homeless? Has there been a mental health screening? Has there been a substance use screening? If so, did they ever follow up with treatment?"

– CRIMINAL JUSTICE SYSTEM REPRESENTATIVE

There was a strong belief that care coordination across sectors would greatly improve if a secure and accessible data sharing method was established and used among organizations working within the healthcare and housing space. A provider shared:

"I think it's a big win for our providers and people who are trying to navigate all of these systems to have easy access to documentation that they need. And I think at a systems level, being able to just get aggregate information about where the overlaps are and where the needs are that we're seeing for the people using our systems so we can make sure that we're...meeting those needs."

– LOCAL GOVERNMENT AGENCY REPRESENTATIVE

To ensure that the MPI would benefit stakeholders, informants recommended a laser focus on improving efficiency and reducing duplication of data entry efforts. This can be achieved by demonstrating how information sharing can save time and resources for providers by allowing them to access a client's history. It is also important to share with providers and frontline staff how this tool can create a better experience at the client level by lessening the burden on clients to explain their history with each provider.

Envisioning the Future: MPI Use Cases that Emerged from the Stakeholder Engagement

During the interviews and conversations at the convenings, stakeholders were asked to imagine the possibilities, and describe how an MPI tool could improve care coordination and health outcomes under optimal circumstances. These exercises were meant to help illuminate the most salient use cases across stakeholders. (See: Appendix E: Use Case Chart and Definitions.) The following list provides an overview of the most salient elements stakeholders identified that an MPI could enable.

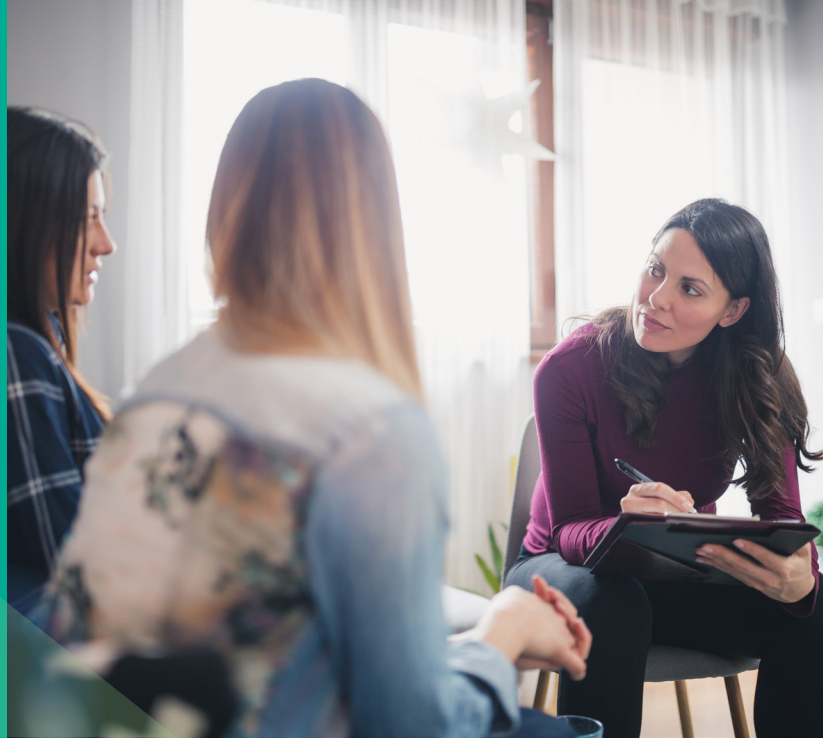
1. **Evaluate current interventions and systems:** An MPI tool could provide baseline data to evaluate systems, interventions, utilization of services across the system before and after being housed, and the impact of policy changes.
2. **Enable holistic care approaches:** An MPI tool could enable multiple care coordinating agencies to conduct outreach, tailor services, and monitor clients over time in order to fully address their needs. This approach would recognize that people move across geographic boundaries and access health and human service delivery systems at various organizations and points in time.
3. **Target and prioritize the people that need housing and care coordination:** An MPI tool could make it easier to identify, prioritize, and locate individuals with complex chronic health conditions and housing instability to get them in safe, supportive environments.
4. **Generate real-time data:** An MPI tool could support real-time data capabilities that can inform care coordination and promote preventive measures. Real-time alerts can be useful for ensuring that service provision prioritizes individuals who are seeking services, or who have a higher risk of going to emergency departments. Real-time data would enable providers to identify services that can be used to engage patients in a timely manner.
5. **Monitor trends over time:** An MPI tool could help integrate data to create a longitudinal client record that provides a detailed history and which can be used to determine the best approach moving forward. Longitudinal records can help predict which clients might be at higher risk of certain chronic health conditions or housing instability in the future.
6. **Address the social determinants of health:** An MPI tool would enable the use of predictive analytics to detect patterns and anticipate patient needs. Additionally, this will help demonstrate gaps in services. Through a data-informed approach, the MPI tool can help make the case for healthcare investment into housing, as well as other social determinants of health indicators.

At the December convening, participants met in small groups to prioritize the use cases and technical system functions that they felt were most urgent and important based on their experience as a provider or client in the system. The following three use cases were most frequently mentioned and prioritized across discussions at five tables:

1. Real-time data linking and matching system that can send alerts and notifications.
2. Enable data collection, storage, upload, manipulation, visualization, and presentation.
3. Offer standard and customizable reporting that allows users to determine how information is queried and displayed.

As discussions around use case prioritization occurred, participants raised concerns about which other systems can overlap with permanent supportive housing and homeless service providers. The consensus was to include various sectors in order to streamline care coordination.

Recommendations



The challenges expressed by community members, health systems, and housing providers are extensive and complex. Although the project began with a particular data system "solution" of an MPI in mind, the conversations pointed to the need for a more integrated, coordinated approach across sectors. As noted earlier, a Community Information Exchange would enable the needs of both client populations and service providers in Chicago to be met in a comprehensive approach. In order to achieve a successful transition toward a CIE, the following steps could guide stakeholders:

1 Design an inclusive governance structure.

Establishing a governance structure that is responsive to the community requires multiple steps. One of the first priorities should be to agree on a common vision that guides decision-making and define what success looks like. While this step may seem oversimplified, it is critical to invest time upfront to prevent setbacks in the future. One element of a common governance structure is designating a lead organization that is responsible for coordinating and convening all players under a collective plan of action. Sometimes this organization, or a designated data steward, hosts a data warehouse, or data lake, that can track existing systems and data being used across the region.

An equitable decision-making structure can empower all relevant parties to share their wisdom and opinions. This can be enabled by integrating community voices within all phases of the work. Formal mechanisms to integrate community members into decision-making can be supported by designing governing committees that have multiple seats for these perspectives. The voices of those with immediate health and social needs should be elevated to ensure that solutions are rooted in what they have determined as a priority.

From there, determine roles and responsibilities for various stakeholders. Some of these include establishing a governing board, advisory board, and workgroups. Workgroups could include: 1) a shared measures workgroup that determines standards and thresholds for defining homelessness within these systems, 2) a policy workgroup that can contribute to the development of data sharing agreements, 3) a data technology workgroup that can manage the system and technology side of the platform, and 4) a healthcare and housing workgroup that bridges organizational goals and workflows related to assessments, data collection, etc.

It is also important to continue building on existing collaborative efforts taking place for improving and tackling issues related to homelessness starting with the Health and Housing (H2) data committee. Currently, a wide range of health and housing data sharing projects are active in Chicago, and thus a deep set of knowledge and expertise within organizations leading these efforts exists. (See: Appendix F: List of Health and Housing Projects in Chicago and Cook County.) By leveraging the preliminary efforts conducted, Chicago can move the needle toward a more holistic and robust response to health and housing needs. Some of the technical capacities that can move this work forward are to develop a data tool that enables real-time data linking, data collection and storage, and also provide customizable reports as well as directory services that foster communication among providers and improves their workflows.

2 Shift power imbalances to drive equitable decision-making.

In order to coordinate care across multiple sectors, it must be acknowledged that there is a substantial differential of resources – funding, software, and staff time and expertise – that various organizations have at their disposal. Therefore, any solution must consider interoperability and be a user-friendly system that is affordable and accessible to housing and social service organizations despite the limited resources they might have available. Training and assistance on using technical systems could be offered as a means to support under-resourced organizations as they make the leap toward using new and sophisticated data systems to share and match data with larger and more well-resourced players, such as health systems. To mitigate the issues of using disparate data systems, periodically manage the platform to ensure it accommodates different data sources, types of data, and users. Additionally, it is important to ensure secure communication between systems in order for data to be transmitted safely. In order to mitigate the risk of sharing data, a technical component of the MPI that responds to this is using a secure, private, and consent-based management system that ensures that data is protected, available to those who should have access, and used for approved purposes.

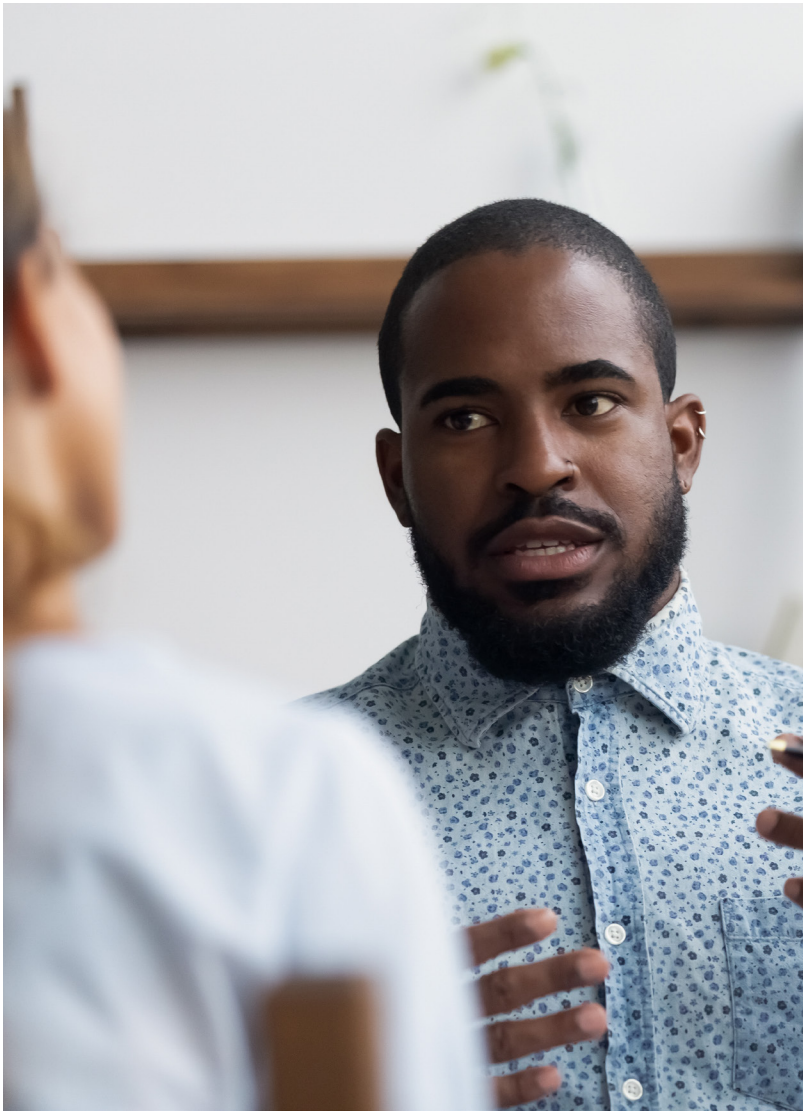
3 Address gaps in data and advocate for communities that have historically been under-resourced.

When it comes to understanding housing instability for specific populations, there are gaps in data that persist. These gaps include children, youth, and incarcerated populations. In order to understand the extent of homelessness more accurately across the region, it is crucial to find ways to document the various subpopulations that are facing housing instability. Approaches to this work could include data matches with Chicago Public Schools, as well as data matches with the criminal justice sector, such as folks undergoing re-entry through the Cook County Jail system. A technical component that can complement this work would be to integrate the use of mobile access and apps to make data widely accessible by patients and providers alike.

To date, data that drives funding and resource allocation to address homelessness is informed by limited and piecemeal datasets that only tell part of the story. Looking toward the future, stakeholders must work together to reimagine ways to drive system transformations in order to promote community well-being that includes prioritizing the design of data systems for collecting and tracking accurate information that documents people who might be facing housing instability, may soon be without housing, or have experienced housing instability in the past. Ultimately, this work will support more targeted prioritization of populations and communities that most need resources.

4 Promote alignment across stakeholders, systems, and people.

As we consider the future of the MPI tool it's important to prioritize a sustainable approach to data sharing that can drive the impact we all wish to see. As a result, we advise pushing away from one-off organization-to-organization relationships that typically lead to serendipitous outcomes. Instead, stakeholders recommend pushing toward a more cohesive and aligned outcome that can produce results that drive impact. We believe that the best way to do this is by using the social determinants of health framework. This can be operationalized through the introduction of questionnaires, screenings, and assessments that capture more thorough information about individuals, such as whether they are facing food insecurity, difficulty paying utility bills, or other indicators that might convey that someone might be at risk of homelessness. A technical solution that can advance this work is designating a lead agency in charge of managing a large data warehouse, or data lake, that tracks all the data, information, and providers in the area.



5 Political and financial investments from key stakeholders will need to be secured to sustain the data infrastructure and technology.

It will be necessary to obtain buy-in from government agencies and funders by identifying key leaders and policymakers that support the vision of the project from the start. Political will that spans geographic boundaries/jurisdictions will be needed as the population moves fluidly across the city of Chicago, suburban Cook County, and other collar counties. This buy-in can then be used to secure the capital and access to state-level data that can help develop an MPI or larger CIE. The long-term systemic changes that can have a positive impact on the lives of those facing chronic illnesses and housing instability should also be at the forefront of conversations as an MPI is developed.

Standardizing data collection processes among health and housing providers could result in a more accurate depiction of the extent of homelessness in Chicago. Having accurate numbers that portray the extent of homelessness is critical because it can help drive investments from key institutions toward resources such as the Flexible Housing Pool. By capturing ongoing data about housing instability, the MPI tool can serve as a catalyst for systems transformation and policy-based solutions that aim to address and prevent homelessness. A technical piece that responds to this need is guaranteeing a data sharing system that is secure, private, and consent driven. It's important to make sure that data is protected, available to only those who should have access, and used for approved purposes.

6 Ensure that there are adequate resources and sufficient capacity to address the needs of the population.

Beyond ensuring high-quality service provision for individuals facing chronic illnesses and housing instability, it is equally important to consider the systemic response and resources that are available to address the needs of individuals and entire communities, specifically the need for Chicago and Cook County to expand their capacity and ability to respond to housing needs. Housing shelters are overflowing, waitlists for services are extensive, and obtaining housing can ultimately feel like a gamble. When thinking about developing a data system that can prompt efficient and whole-person-centered care, we must also consider expanding capacity, and having resources available to meet the demand as social service agencies find better ways to locate, document, and work with patients.

7 Plan for sustainability to support a data sharing system in the Chicagoland region.

Lastly, it is important to establish a set of core activities that are necessary to support the development of a CIE. These include: 1) sustaining partnerships and engaging potential partners, 2) setting up regular meetings to uncover progress, successes, challenges, and opportunities within the platform, 3) developing a communication plan in order to keep all parties up to date on relevant information, 4) securing resources that can aid in the development of the CIE, and 5) developing a legal framework that can protect patient information, keep consent at the forefront, and mitigate data sharing risks.

Advancing Momentum: Lessons Learned from the COVID-19 Pandemic

Broad stakeholder interest in sharing data to better serve vulnerable people in communities was evident throughout the process of exploring the health/homelessness use case for an MPI, and enthusiasm for a broader and more comprehensive approach, such as through a CIE was a common theme. As a result, the findings and recommendations from this project can inform the next stage of development of multi-sector data exchange in Chicago and the region. As these conclusions were being developed, the COVID-19 global pandemic changed life as we know it. Despite the significant levels of uncertainty communities are facing, COVID-19 has yielded some positive outcomes relevant to this initiative. In particular, the pandemic response fostered a willingness among organizations to establish partnerships and collaborate in order to solve the problems that have been exacerbated by the pandemic. As we learn more about the impact that COVID-19 is having on communities across the nation, it is important to use this window of opportunity to leverage local, state, and federal interests and find long-term systemic solutions that are evidence-based and which keep the interests of these communities at the forefront. COVID-19 is illuminating many of the issues that public health, healthcare, and social service sectors seek to resolve. Stakeholders and advocates should use this momentum to leverage more resources, funding, and spark conversations around ways to improve systems and address gaps in care and government services.

APPENDIX A: MARCH CONVENING AGENDA

March 14, 2019	**Health and Housing MPI Project Convening**
Meeting Objectives	
	1. Gather and connect health and housing system stakeholders to identify common interests and explore potential for shared vision and alignment for a Master Person Index (MPI) or similar shared data matching utility. 2. Begin to document the health and housing system / landscape by: a. Reporting on progress of efforts to date, including preliminary findings b. Inventorying systems, workflows and data flows/pathways and barriers 3. Begin to establish the decision criteria and value for an MPI shared data matching utility. 4. Generate enthusiasm and interest in the project by discussing roles and opportunities for stakeholders to contribute to the project moving forward.
9:00	Welcome and Meeting Overview
	• Meeting objectives • Group agreements • Project timeline and status • Table introductions
9:30	Panel: Personal experiences with the housing system
10:00	Landscape and System for Health and Housing
	• Project activities so far • Early findings and themes • Participant feedback
11:00	Vision for Our Connected Data System

	• Vision and value
	• Four topics
	  • Value
	  • Sustainability
	  • Sectors and Use Cases
	  • Evaluation and Measurement

11:40	What's Next
	• Immediate opportunities • Important next steps • What else is important? • Who do we need to invite into this process? • What would you like to contribute to?

APPENDIX B: AUGUST CONVENING AGENDA

August 14, 2019	DASH All In: Health + Housing Meeting - Participant Agenda
8:30 - 9:00 am	Welcome
	1. Meeting objectives and opening remarks 2. This meeting as a concrete of All In's commitment to building the field 3. Group agreements 4. Agenda overview and meeting documentation
9:00 - 10:00 am	Introductions: Who's in The Room?
	Every team has 4 minutes to answer four specific questions: a. Who's on your team today? (sector, role) and areas of expertise b. What are you working on together (or hope to be working on together)? c. One success, one pain point d. What's the next big thing you are trying to accomplish?
10:15 - 10:30 am	Wisdom in the Room: The Value Proposition for Sharing H+H Data
	1. When you are appealing to partners, what's in it for them? e.g., payer, hospital, CBO, affordable housing developer, etc. 2. How do you describe your value when you reach out to engage these sectors?
10:30 - 11:30 am	Identifying, Predicting and Prioritizing Risk and Resiliency for Housing Instability
	1. What data and/or screening tools are you using to determine a persons' housing instability and homelessness risk? Do you use HMIS data? How? Why/why not? Do you prioritize any populations (E.g., families with children, justice-involved, youth, domestic violence survivors, etc.) 2. How is risk and need defined? By whom/which partners stakeholders, policymakers, and/or people with lived experience? 3. Have you been using any specific risk rating scales? If you have been using one risk scale but are switching to another, to what and why? 4. Are you attempting to measure homelessness prevention? Is this the same thing as personal or community resilience? What are or would be the metrics for prevention or resilience?
11:30 - 12:30 pm	Integrating Health, Housing and Other Social Need Data
	1. What data systems you are using for analysis and/or communicating to stakeholders? Are you considering other data sharing tools/systems and why? What gaps do you see in your existing data systems? How does HMIS fit into your system integration plans? 2. What types of data or datasets are you using? How are they being linked or integrated? What client matching algorithms or master person index do you use? 3. How do you share data across sectors so that it is actionable? How is that info communicated to people that can act on the data in a variety of sectors including: jails, health care, social services, criminal justice/law enforcement, affordable housing development, etc. 4. How have your negotiated and secured buy-in from partners in different sectors? Please discuss by sector: jails, health care, social services, criminal justice/law enforcement, affordable housing development, etc. What have been effective communication strategies for multi-sector collaborations (and teams from a variety of sectors) to be able to come together to address housing instability and/or homelessness risk?

August 14, 2019	DASH All In: Health + Housing Meeting - Participant Agenda
1:15 - 2:15 pm	Operationalizing Equity, including Engagement of People with Lived Experience and Community Leadership
	1. What is the conversation about equity and health like in your community? What agencies or organizations are leading the way in talking structural inequities? Other topics: a. Assessing and addressing inequities in leadership positions for people of color in the housing/ homelessness field b. Policy/advocacy needs to address structural inequities to truly address equity issues that are uncovered c. Designing evaluation to understand the gaps/equity needs d. Shifting resources so community-led organizations with expertise in specific communities impacted by inequities have adequate resources 2. How are people experiencing housing insecurity or homelessness involved in your program work? E.g. Program activities, program design, program evaluation, leadership, etc.? How are they involved in data review, analysis and decisions based on data? 3. What have you learned from strategies or engagement with people with lived experience and how has that work evolved based on your experience? 4. What types of data or data sharing procedures are you trying to explicitly advance equity or to evaluate a system's effectiveness at addressing inequities?
2:30 - 3:30 pm	Sustainable and Policy-Focused Approaches to Support H+H Systems and Interventions
	1. What are the health, moral, and economic arguments for investments in H+H programming and systems? 2. What needs to happen/change in the H+H space to encourage investments? What sectors/actors do you see as most important to develop sustainable funding for homeless services and affordable housing? 3. How have you navigated the legal or regulatory pathways to share data? What legal barriers to sharing data have you been able to overcome? 4. What policy changes have you pursued to support your work? Any specific local or state policies? What worked and what didn't in policy development? Who were/are your most effective partners for reaching and working with policymakers?
3:30 - 4:00 pm	Final Products and What's Next
	1. Reflections from Raed Mansour, Director, Office of Innovation, Chicago Department of Public Health 2. What we will produce: Updated profiles, meeting proceedings reflecting the discussions and conclusions of the day, your individual reflections as submitted 3. Popcorn style - what did we learn today – must surprising, most useful

APPENDIX C: DECEMBER CONVENING AGENDA

December 17, 2019 **Health and Housing MPI Project Convening #2**

Building Consensus on a Multi-Sector Data Utility to Improve Housing and Health Outcomes for People Experiencing Homelessness and Housing Insecurity

National Louis University | 122 S. Michigan Ave., Atrium, Chicago, IL

Meeting Objectives	
	1. Share and discuss results and findings from multiple information gathering activities 2. Fill in gaps and level-set across stakeholder groups and attendees 3. Discuss preliminary possibilities for project recommendations and deliverables 4. Propose and discuss stakeholder contributions and project activities in 2020 that will lead to project completion
8:30	Light breakfast and sign-in
9:00	Welcome and Meeting Overview
	• Room introductions (name and organization only) • Agenda overview, meeting purpose and goals • Project timeline and status
9:20	Project Updates
	• Level-setting on language, definitions, and categorization scheme for technical data solutions (what the system does) and use cases (what we do with the system)
9:45	Tabletop Activity: Level-Setting on System Functions
	• Tabletop introductions and role in health and housing • Engaging with definitions
10:00	Presentation: Stakeholder Input and Findings, Part 1
	• Systems: Assets and Barriers • Current Data Assets and Barriers • Opportunities • Roundtable discussions
10:25	Break
10:35	Presentation: Stakeholder Input and Findings, Part 2
	• Visions and Values • Data Systems and Desired Technical Functionality of MPI • Use Cases • Roundtable discussions
11:00	Tabletop Activity: Use Case Prioritization
11:15	Flowchart Exercise: Mapping Use Cases
11:45	Next Steps: Request for work group participation
11:55	Thank you and adjourn, evaluation

APPENDIX D: MPI STAKEHOLDER PARTICIPATION TABLE

Organization	Sector	Interview	March Convening	August Convening *(national)*	December Convening	Focus Group
All Chicago	Social Service Organization	✓	✓	✓	✓	
Alliance of Chicago	Health Informatics		✓			
Allegheny Department of Human Services	State / County / City Agency			✓		
Allegheny Health Network	Health and Hospital System			✓		
AMITA Health	Health and Hospital System				✓	
The Boulevard	Social Service Organization	✓				
Camden Coalition of Healthcare Providers	Health and Hospital System			✓		
Camden County Division of Community Development	State / County / City Agency			✓		
CAPriCORN	Health Informatics	✓				
Center for Housing and Health	Community-Based Social Services	✓	✓	✓		
Central City Concern	Social Service Organization			✓		
Chicago Department of Public Health	State / County / City Agency			✓		
Cook County Public Defender's Office	Criminal Justice State / County / City Agency	✓				
Cook County Health and Hospital Systems	Health and Hospital System	✓	✓	✓	✓	
Corporation for Supportive Housing	Community-Based Social Services	✓	✓		✓	
Department of Family and Supportive Services	State / County / City Agency	✓	✓	✓		
Franciscan Outreach	Social Service Organization		✓			
*GRACE, SeaMAR Community Health Centers	Health and Hospital Systems			✓		
Heartland Human Services	Social Service Organization	✓			✓	
Heartland Alliance Health	Health and Hospital System				✓	
Housing Forward	Social Service Organization		✓		✓	
*Humboldt County Health and Human Services	State / County / City Agency			✓		
Illinois Chapter of the American Academy of Pediatrics	National Nonprofit Organization	✓	✓		✓	
*Institute for Community Alliances	Social Service Organization	✓				
J.B. and M.K. Pritzker Foundation	Philanthropic Foundation		✓			

Organization	Sector	Interview	March Convening	August Convening *(national)*	December Convening	Focus Group
King County Housing Authority	Housing Authority			✓		
Los Angeles County Office of the Chief Information Officer	State / County Agency			✓		
Los Angeles County Department of Public Health	State / County / City Agency			✓		
MacNeal Hospital	Health and Hospital System	✓				
Matthew House	Community-Based Social Services	✓				
Medical Home Network (MHN)	Social Service Organization	✓				
Medical Research Analytics and Informatics Alliance (MRAIA)	Health Informatics	✓				
Metro Health System	Health and Hospital System			✓		
Michael Reese Health Trust	Philanthropic Foundation		✓		✓	
North Coast Health Improvement and Information Network	Health and Hospital System			✓		
Northwestern Medicine	Health and Hospital System		✓			
Northwestern University	Academic Institution		✓		✓	
Patient Care Innovation Center	Social Service Organization			✓		
Persons with Lived Experience Focus Group	Community Members					✓
Project Access NOW	Social Service Organization			✓		
Renaissance Social Services	Community-Based Social Services	✓			✓	
Seattle and King County Public Health	State / County / City Agency			✓		
Seattle Public Housing Authority	Housing Authority			✓		
Sinai Urban Health Institute	Research Institute				✓	
Suburban Alliance	Cook County Continuum of Care	✓	✓	✓	✓	
Transitions Project, Inc.	Community-Based Social Services			✓		
University of Illinois Hospital and Health Sciences System	Health and Hospital System	✓	✓	✓	✓	
University of Chicago Medicine	Health and Hospital System				✓	✓
University of Chicago Urban Labs	Academic Institution				✓	✓
University of Pittsburgh Medical Center Health Plan	Payer (Managed Care Organization)			✓		
Whatcom County Human Services Division	State / County / City Agency			✓		
Wellcare (MCO)	Payer (Managed Care Organization)	✓	✓		✓	

APPENDIX E: USE CASE CHART AND DEFINITIONS

Types of Use Cases	Definition
Whole-person care coordination, shared care plan, client information system, longitudinal record	Coordination of health, behavioral health, and social services in a patient-centered manner with the goals of improved beneficiary health and well-being through more efficient and effective use of resources. (Source) Through using a shared care plan model, which functions as a subset of whole-person care coordination, this can support the use of longitudinal records that allow providers to create and maintain a patient's longitudinal and historic profile.
Policy, systems and environmental change, root cause analysis	Policy change includes the passing of laws, ordinances, resolutions, mandates, regulations, or rules. System change involves change made to the rules within an organization. Environmental change is a change made to the physical environment. (Source) This use case would enable the use of root cause analysis, which is a structured investigation used to identify the true cause of a problem.
Participant/client intake & eligibility determination, screening and assessment	Determining eligibility for benefits through an intake process. This step can occur by developing screening and assessment tools as a part of the data collection and storage workflows.
Client prioritization, targeted outreach and service delivery, appropriate setting and diversion	Prioritizing individuals (e.g., Flexible Housing Pool) would enable appropriate diversion of clients to appropriate care settings. It would also prompt the use of targeted outreach and service delivery which would use messaging to promote health.
Alerts and notifications	Alerts and notifications about patient status, possibly in real-time
Quality and performance measurement, research and evaluation	Measure quality of services and organizational performance and enable research and evaluation of programs.
Sending and receiving referrals (closed loop referrals), community resource directory	Providers are able to send referrals and receive confirmation from the referring agency that the patient followed up with care, they are also able to take part in a community resource directory to refer clients to services.
Prioritizing, prevention and planning	Prioritizing populations, geographies, strategic issues (e.g., which neighborhoods to target for lead abatement with limited resources).
Standard and ad hoc queries and reports	Reporting required for internal use (e.g., performance management, etc.) and external use (e.g., for funders, etc.).
Surveillance	Serve as an early warning system for impending public health emergencies; document the impact of an intervention, or track progress toward specific goals; and monitor and clarify the epidemiology of health problems, to allow priorities to be set and to inform public health policy and strategies. (Source)
Dashboard	Pulling information from the system to create a snapshot of performance for an organization or community

APPENDIX F: LIST OF HEALTH AND HOUSING PROJECTS IN CHICAGO AND COOK COUNTY

Health and Housing Data Sharing Projects in Chicago and Agencies Involved

1. HIV/AIDS Surveillance Data Project and HPWA: *All Chicago, Suburban Alliance, CDPH*
2. HMIS/Medicaid: *All Chicago, Suburban Alliance, Abt Associates, IL Dept of Healthcare and Family Services (HFS)*
3. CAPriCORN Homelessness/Healthcare Data Match Projects: *All Chicago, Suburban Alliance, CAPriCORN, Medical Research Analytics and Informatics Alliance (MRAIA)*
4. UI Health Data Match and Data Analysis Projects: *All Chicago, The University of Illinois at Chicago Department of Emergency Medicine*
5. Flexible Housing Pool (FHP): *DFSS, CDPH, CCH, CSH, Center for Housing and Health*
6. Data Match between CCH and HMIS: *All Chicago*
7. Better Health Through Housing Collaborative: *CHH, UI Health, Northwestern, Rush, Swedish Hospital*
8. Modifications to Chicago and Illinois Qualified Allocation Plans (QAP): *CDPH, IDPH, Illinois Housing Council*
9. CHA Moving On: *CSH, Suburban Alliance, All Chicago*
10. CHA+ All Chicago HMIS: *CHA, All Chicago*
11. Statewide Referral Network (SRN) units: *CSH, Suburban Alliance, All Chicago*
12. Health Neighborhood Demonstration Project: *HAH*
13. Medicaid RIN
14. Service-high-user Tool with Medicaid MCOs
15. HMIS/ County Jail Data Integration: *CSH, UChicago*
16. All Chicago/ Wellcare/ HMIS Data Sharing: *All Chicago, Wellcare*
17. CCHHS Software to Identify High Utilizers: *CCHHS, Northwestern University, Loyola University*
18. Roadmap Initiative: *All Chicago, Cook County Sheriff, IDPH, Urban Labs, Smart Policy Works*
19. Ending Family Homelessness Initiative
20. Medical Respite Pilot: *Housing Forward, McNeal, Alliance for Health Equity*
21. Another Homeless Project: *Medical College in Wisconsin*
22. Global ID: *CCHHS*
23. Families in Transition: *Urban Labs, CPS*
24. Frequent User Systems Engagement Supportive Housing Initiative: *Corporation for Supportive Housing*
25. Chicago Housing Pipeline Work: *CHA*
26. MHN Connect: *MHN*
27. Integrated Health Homes (IHH): *MHN*
28. Text Your Health: *MHN*
29. Econsult/Imaging Connect: *MHN, Cook County Health*
30. SDOH Risk Assessment and Referrals: *NowPow, MHN*
31. Data Integration Across Jail and Service Blueprint for Success