

# HOMELESSNESS AND HEALTH DATA SHARING

Why and How Communities Are  
Sharing Data to Improve  
Outcomes for People  
Experiencing Homelessness



IR Electronic Medical Record

Medical Information

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## INTRODUCTION

Nationally, there has been a broad recognition that housing is an important – if not the most important – social determinant of health. Every community that has a homeless population sees similar patterns play out on the ground. Many people experiencing homelessness, particularly single adults, cycle in and out of hospital emergency rooms, get picked up by police and enter jails, and interact with nearly every other public service during their time homeless. Evidence in study after study has shown that housing – particularly permanent supportive housing – can reduce utilization and costs associated with emergency crisis care for single adults with chronic disabilities.<sup>1</sup> Most importantly, people experiencing homelessness and the most vulnerable can get housing more quickly in coordinated entry (CE) systems across the country. In order to examine the impact high service utilization is having on hospitals or the local health care system, and to “make the case” for increased investment in housing, communities are performing data matches between homeless management information systems (HMIS) and health system data (hospitals, managed care, and Medicaid agencies, to name a few) to look at the intersection between homelessness and high levels of health care utilization. The most common broad goals for sharing data related to homelessness and health care services are:



1. To quickly provide housing to persons who are homeless and are the most vulnerable and improve the ability to document disability.
2. To improve coordination between health and homeless and housing systems, which can in turn improve outcomes for health and housing for patients/clients. Improved coordination can be achieved through real-time data integration to find where people are who are already engaged, such as jails, hospitals, and the homeless system.
3. To understand the complexities of the target population, both medically and socially, and help address policy concerns such as rising health care costs and disparate impacts and outcomes by race.
4. To identify the costliest and most vulnerable subset of high utilizers to prioritize them for supportive housing. If a community has identified this population as a priority for housing through their CE system, then data from a match can help to prioritize people in addition to scores produced by an assessment tool.
5. To make the business case for a supportive housing intervention, and with the right data on utilization costs and costs of housing and services, can often show a potential ROI, or return on investment.

When considering a match between homeless data from an HMIS system and a health care database, it is important to first determine the specific purpose of the match. Communities should limit what they share to specific needs and should always keep the confidentiality and privacy of clients/patients as a top priority. This paper will go through what should be considered for each data sharing exercise.

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<sup>1</sup> “Supportive Housing and Health Care Utilization Outcomes: State of the Literature.” CSH, August 2018. <https://www.csh.org/resources/20184/>

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## I. Defining Your Purpose for Data Sharing to Shape Your Request

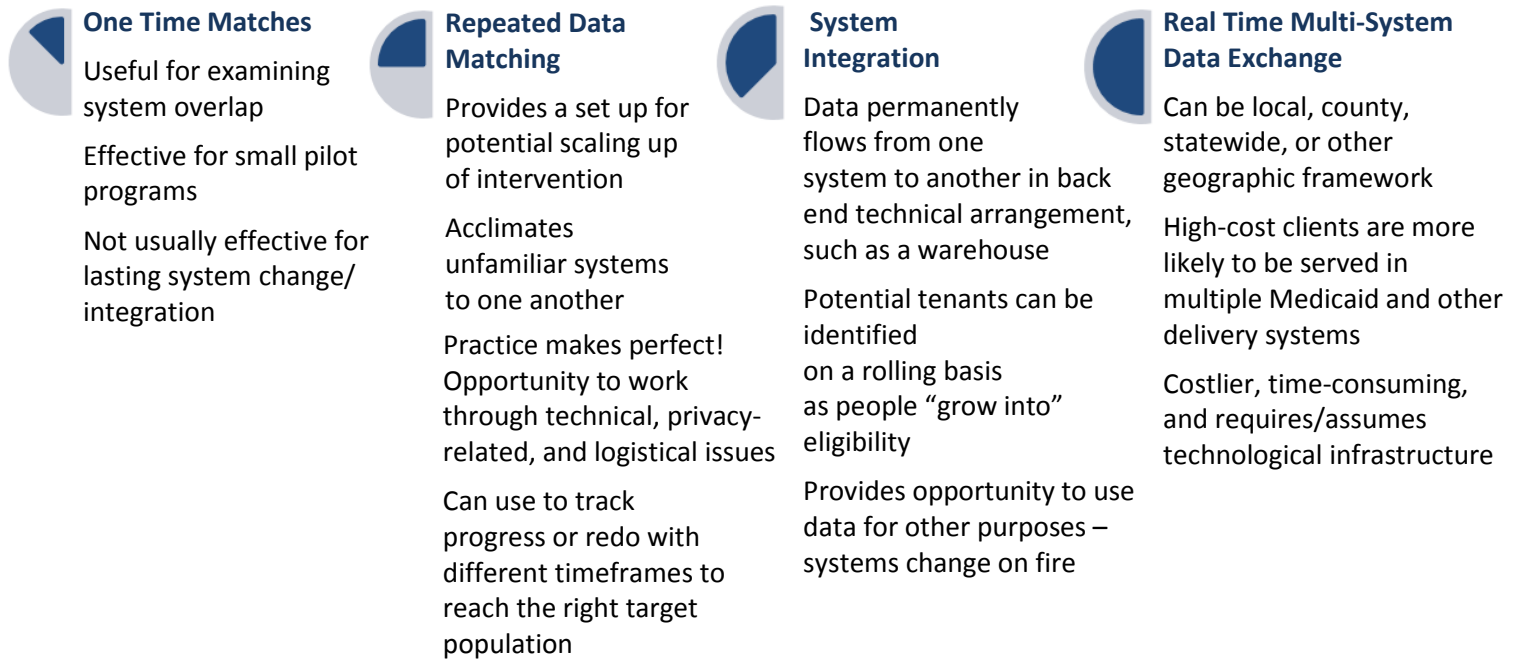
Every data sharing endeavor should have a clearly stated purpose that is defined by your community and data sharing partners. The purpose will then inform subsequent decisions about the structure of data sharing, such as the flow of data and the specific data elements that will need to be shared. After identifying the purpose, determine who will hold or own the matched data and be responsible for making it accessible for analysis purposes. Below are some specific examples of defined purposes for communities matching health and homeless data, and some of the implications for the structure of data sharing. Appendices A and B go through some specific, community examples of data sharing as well.

1. **Expedite and improve services for people experiencing homelessness:** Improve coordination between hospital workers and homeless and housing service providers at discharge.
2. **Make the case:** Help the community determine the overlap between systems and “make the case” for a supportive housing intervention. It is possible that a file of individual level homeless services data can be sent to a health system partner to be matched and reported out in the aggregate for an overall picture of emergency, inpatient and outpatient utilization and costs of the overlapping population.
3. **Create a referral list:** Data matching could streamline the creation of a referral list. If a community is looking to create a list of potentially eligible individuals in anticipation of implementation of a supportive housing program, data will need to be shared in an identified way but the referral process (more on that below) will help determine the direction of the sharing.
4. **Research and evaluation:** If the program has an evaluation component that looks to obtain administrative data to look at long-term changes in utilization of services, then a different agreement specifically with the evaluator (and often subject to a human subjects research review by an Institutional Review Board (IRB) at a university or hospital) will be entered into. It is important to note that evaluators do not actually need to have identified data – one potentially easier option is for data matching on health and other system utilization to happen at the HMIS or managed care organization (MCO) or hospital level. Then a de-identified file would be shared with the program evaluator.

## II. Region Scan – What is Happening? What is Possible?

Sharing data across systems can range from simple, one-time matching to fully integrated data at the city, county, or state level. Figure 1, below, outlines some of these data matching options. Data warehousing, which can be done at the county or state level, is a strategy for aggregating data across multiple systems, but there are challenges to creating them and they take top-level leadership and a long time to get up and running. Even if a community does have some type of data warehousing in place, there is no guarantee that the data desired for a given match is included in the warehouse’s data sets. It is important to remember that an easier one-time match can provide a “quick win” to get interest and energy in what you learn about the overlap between systems. These results can potentially be leveraged into future efforts to further integrate data.

Figure 1. Cross System Data Matching Arrangements



There are a number of questions to ask potential data sharing partners about what is currently done with data. Here are some examples:

- *Is data matching already occurring? If so, what types of data matching are already occurring?* This helps to find early adopters in your region who can speak to the benefits of local data sharing, and who maybe have already worked out some of the kinks in the data and sharing processes. Examples of early adopters can be university researchers, city or county analytics departments, and more. They can share these experiences to help you avoid pitfalls.
- *What data sharing agreements currently exist?* Leveraging an existing agreement is a good way to build out further data sharing agreements. Even if a current agreement is minimal, it can pave the way to an agreement with a broader scope.
- *Who has access to previously shared data?* Asking who has access to data and in what format (i.e., individual level data or aggregate data) will help to determine how the data currently flows and for what purposes. When thinking about data sharing agreements, it is important to think through who will have access to shared data and how it will be used.
- *Who has ability/technical capacity to match the data?* Matching data on basic demographics (e.g. first/last name, SSN, gender) is best done through matching with either a deterministic or probabilistic algorithm involving a specific skill set. Asking about previous data matching can help determine who in your county, for example, might have this skill set. Some counties employ a research and analysis unit to look at county data, while others might have a university located in the county that performs research and analyses on local data. Both options are worth pursuing.

### *What Resources Do You Need?*

Before jumping into the project, you will need to identify monetary and staff resources, even if both are limited. It is important that the leadership and the board of the Continuum of Care (CoC) and the sharing entity are completely behind a data sharing project and that they are kept apprised of the progress. The software used by your CoC for HMIS may already have an export function – if not, this will be an added cost, and, similarly, if the HMIS data lead is a different entity than the CoC, they may charge to do an export. Monetary resources can come through the CoC or from philanthropy, so getting funders on board early is helpful. It generally will always take more time and money than you originally planned. The actual data pulling will take staff time from all entities providing data, not just the HMIS staff. Many Medicaid agencies are understaffed and have other priorities, so expect delays. Many communities find successful partnerships with local universities, which can be a great resource for helping with the technical aspects of the data analysis and potentially an evaluation as well.

## **III. Understanding How Data Matching Works**

When deciding which data to share, simplicity is key. First, review local, state, or federal privacy laws to ensure your data sharing does not violate them. Second, simple data sets will help get the effort done quickly. Understanding how data flows from one entity to another is key. Data on homeless services, while protected, is generally not considered “protected health information” (or PHI), especially if the service provider is not also a health care provider, and therefore is not covered under HIPAA. Therefore, initial data extracts from HMIS systems (often referred to as the “finders file” because they may contain every person in the HMIS database) will almost always need to go TO the health entity rather than the other way around. Once the data is matched, the list of matched individuals may be shared back with the HMIS provider (based on what was agreed to in the data sharing agreement). We discuss privacy issues in more detail below. Below are typical types of data included in health and homeless data matching efforts. These data cover utilization of services as well as outcomes and costs of services.

- *Health care utilization* – number of emergency department visits, number of days for inpatient stays and number of outpatient visits;
- *Health outcomes* – specific disabling conditions (no need to request all diagnostic information);
- *Homeless Services* – days in shelter, number of outreach encounters, earliest date of homeless service, vulnerability assessment score;
- *Cost of services* – if requesting billing or other financial data, cost of health care services; this can be looked at from a charge perspective or a reimbursement perspective. If the match is with Medicaid data, it will be the amount reimbursed to the health provider. Costs of shelter use or other systems is generally not available in a per unit format but can be computed in aggregate using average daily rates, for example.

### *Use Cases for Matched Data*

This section details two different types of use cases for matched data between health and housing:

1. to identify the costliest subset of shared patients/clients, and
2. to identify eligible persons in a community for a specific initiative.

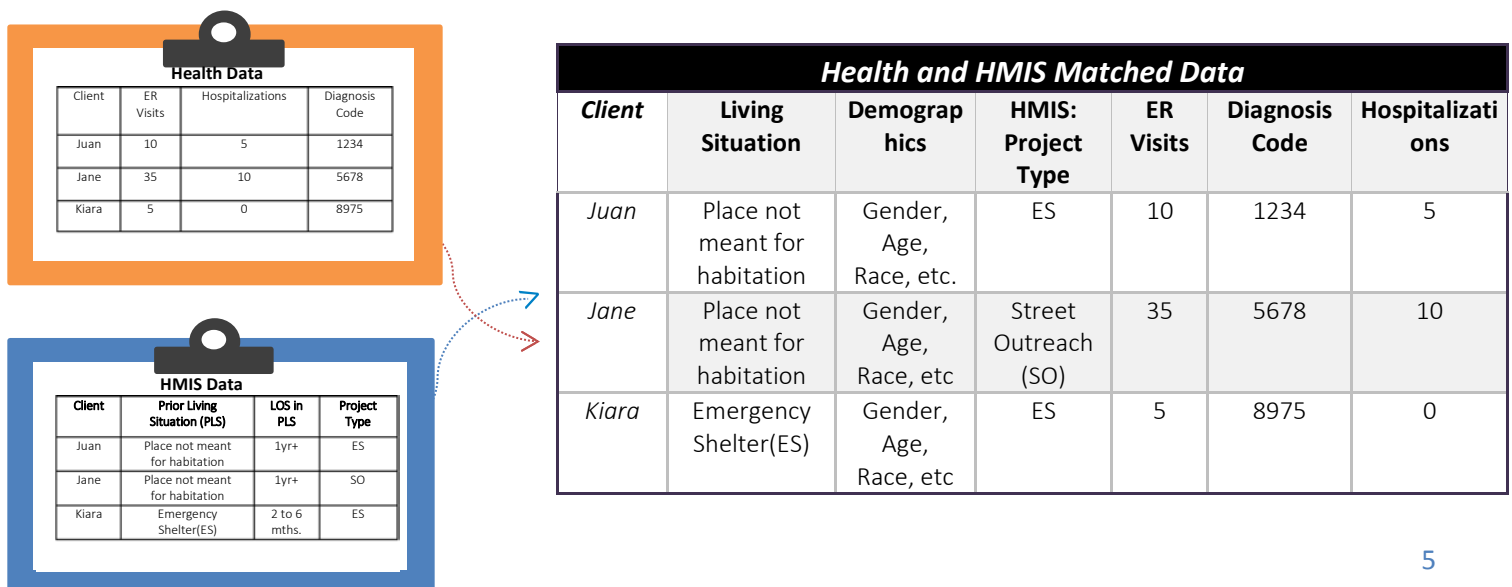
A data match effort may and usually does incorporate both use cases, albeit in different phases of a project (planning phase vs. implementation phase). While these are not the only use cases for matched data, they are typical ones for efforts that look to identify high utilizers for supportive housing initiatives.

# Use Case 1: Using Data to Identify the Costliest and Most Vulnerable Subset of Shared Patients/Clients

Below is an example of a data sharing effort between an HMIS and health care agency that have agreed to match data to identify all individuals who are both homeless and high utilizers of health care and to calculate their associated costs.

1. HMIS lead agency gathers data file on all individuals in shelter or receiving outreach services in the past year, including their 3-year history of services (to measure chronicity). Fields include last name/first name/middle initial, date of birth, Social Security Number, gender, start and end dates in program types, service types, exit destination. Data sharing agreement must be in place.
2. File is sent via a secure transfer process to health system analyst or other outside analyst (university, government etc.). It is important for CoC and HMIS lead agencies to recognize that analytical expertise and greater protection standards nearly always exist outside the homeless system, and that, as long as the proper agreements and security protocols are in place, homeless data should be in good hands in a more sophisticated health system environment, though all relevant agreements should be in place before sharing.
3. The health entity or outside party conducts the match to their data and pulls the health care data for the people who are both in the HMIS data file and who are found in their health care database. Depending on the system, the data from the health side could include all Medicaid claims over a specified time period; all hospital utilization data, including inpatient, outpatient and emergency services; and/or all billing data for hospital utilization.
4. Once the universe of interest and final dataset of both homeless and health care data is constructed, the selected analyst can analyze the data to discern costs and other desired results. During this process it is helpful to look at things like cost in quartiles or deciles to get a sense of the disproportionate system use and cost typical of this population. Consider analyzing frequency of use of emergency room visits, length of inpatient hospitalizations, and so on.
5. Once the target criteria are decided, the group can then move on to a number of other steps, such as negotiating further data use agreements and sharing the cross-matched list with other public service providers, such as corrections, behavioral health, etc., developing a referral process, or developing materials on system utilization to “make the case” to decision makers on the need for housing and services.

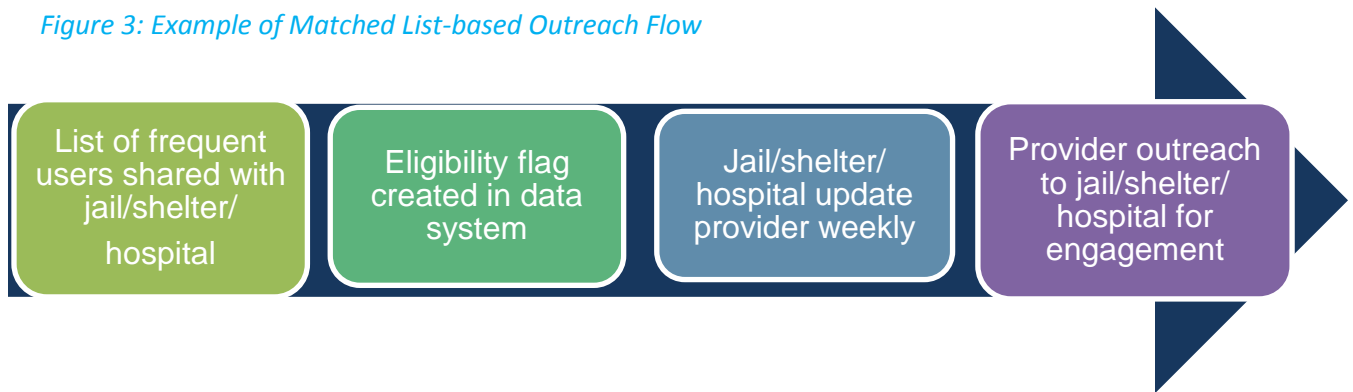
Figure 2: Example of Data Matching Output:



## Use Case 2: Using Data to Determine Program Eligibility

If using a matched list to determine eligibility for supportive housing, it will be important to determine among the stakeholders exactly how people will be found and engaged. There are several options for how to do this and it really depends on your community's process (such as CE system) and local resources. Privacy is also a consideration here – the group doing the outreach should be part of an MOU or BAA to find individuals and do outreach. We have outlined a common process for finding matched individuals in the community in graphic below:

Figure 3: Example of Matched List-based Outreach Flow



In Figure 3, the referral process originates at a location where clients are expected to return. For example, the hospital emergency or triage department would know that an individual may be eligible for a program via a flag in the hospital's electronic health record (or other mechanism), and would follow a protocol to secure release of information (ROI) from the patient and let an outreach provider know the person has presented and is interested in the program. In this example, the identified homeless individuals would not need to be shared back to the HMIS lead agency until an engagement has occurred and a ROI is signed by the potentially eligible individual. If engagement is to occur at shelters, then an agreement needs to be entered into to share matched individuals back with homeless system providers (see example on Connecticut in Appendix A).

Your community may be interested in using matched data to inform your community's housing prioritization in your CE system. HUD's notice<sup>2</sup> from January 2017 included matched administrative data as one of the ways CoCs may choose to prioritize people for housing in addition to results from a vulnerability assessment. While this field is still developing, communities are trying different methods. Below are some of the ways matched data can be used to inform prioritization:

- If CE partners agree, individuals meeting a certain threshold of utilization or cost can be given a prioritization flag along with vulnerability. Those that are "on the list" would theoretically be sorted in descending order of assessed score, and those that have higher scores would be housed first (much like the usual process).
- If the list will be used to identify utilization thresholds for high utilizers for a specific supportive housing project (in addition to those supportive housing prioritization policies utilized by the community's CE system), the same process as above could be followed to fill those specific resources.
- Utilization thresholds can be used to provide more data on which individuals to prioritize for housing in addition to the vulnerability assessment score. With this process, utilization data generated from a match could, for example, add a point to the vulnerability assessment score or be used to differentially

<sup>2</sup> <https://www.hudexchange.info/resources/documents/notice-cpd-16-11-prioritizing-persons-experiencing-chronic-homelessness-and-other-vulnerable-homeless-persons-in-psh.pdf>



prioritize individuals on a By Name List. In one community's example, results from a match were used to generate a composite score which was then divided into high, medium, and low utilization. These "bands" were then used to determine eligibility along with high, medium, and low scores on the assessment (here, the Vulnerability Assessment Tool), where a high in one or the other OR a medium in both determined eligibility for the program.<sup>3 4</sup>



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<sup>3</sup> L. Sylla, R. Franzen, D. Srebnik, M. Hoffman & A. Shoenfeld (2016): Creating a regional model to coordinate and prioritize access to permanent supportive housing, *Journal of Behavioral Health Services & Research*, 2016. 1-9. DOI 10.1007/s11414-016-9527-6

<sup>4</sup> D. Srebnik, L. Sylla, M. Hoffman & R. Franzen (2017): Impact of a supported housing prioritization system using vulnerability and high service utilization, *Journal of Social Distress and the Homeless*, DOI: 10.1080/10530789.2017.1328007

## IV. The Planning Phase

### *Let's Talk About Privacy and Security and HIPAA*

Before you enter into data sharing discussions, you must review Chapter 2 of HUD's [Coordinated Entry Management and Data Guide](#) and the HUD HMIS Data and Technical Standards Final Notice<sup>5</sup> (published in 2004) available on the [HUD Exchange](#) website.

A CoC's HMIS privacy notice, privacy plan, policies and procedures are all key to data sharing.

An example of a Privacy Policy from Houston<sup>6</sup> that allows for data sharing is below. The notice is written in clear language, and specifically identifies what may be shared between authorized entities.

#### **The HMIS Lead may share client level HMIS data with contracted entities as follows:**

- The Participating Agency originally entering or uploading the data to the Houston/Harris County HMIS.
- Outside organizations under contract with the HMIS Lead Agency or other entities acting on behalf of the Houston/Harris County CoC for research, data matching, and evaluation purposes. The results of this analysis will always be reported in aggregate form; client level data will not be publicly shared under any circumstance.

The HIPAA Privacy Rule, on the other hand, only applies to “covered entities” – health plans, health care clearinghouses and certain health care providers. HIPAA is different from homeless data in that it covers protected health information (PHI) – such as medical records – that is explicitly linked to an individual or which can reasonably identify a person when combined with other data elements. PHI is any information in a database that is created or received by a health care provider or other entity and relates to the physical or mental health condition of a client or providing care to that client. There is non-PHI data (like demographics and identifying information) in databases (such as electronic health records) that can be shared with an HMIS system to help identify individuals for an intervention like supportive housing or care coordination. HIPAA allows for sharing of non-PHI data without client consent as long as proper agreements are in place (such as a business associate agreement).<sup>7</sup>

A CoC is not a covered entity under HIPAA and most of the information that is in HMIS is not PHI. However, in some cases, organizations that are contributing data to an HMIS are covered entities, such as some mental health and behavioral health agencies, and they must comply with HIPAA in their participation in HMIS and any data sharing efforts. HIPAA allows for broad data sharing as long as appropriate protections are in place.

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<sup>5</sup> <https://www.hudexchange.info/resource/1318/2004-hmis-data-and-technical-standards-final-notice/>

<sup>6</sup> Houston HMIS Privacy Policy document <https://irp-cdn.multiscreensite.com/2d521d2c/files/uploaded/HMIS%20Docs%20-%20Privacy-Policy-Final.pdf>

<sup>7</sup> [https://www.hhs.gov/sites/default/files/exchange\\_health\\_care\\_ops.pdf](https://www.hhs.gov/sites/default/files/exchange_health_care_ops.pdf)

Similar to the HMIS privacy requirements, HIPAA requires that the provider (the covered entity) give the client a detailed privacy notice at the time of first service delivery that explains how the PHI will be used for treatment, payment, operations or compliance. The client must have access to a copy of the information, an accounting of certain disclosures, and reasonable safeguards to protect the confidentiality of the information. There are allowable disclosures to the HIPAA Privacy Rule for de-identification, research and those required by law given appropriate safeguards.

**State Privacy and Security Statutes:** Some states have added layers of protection for health information that go beyond HIPAA. These can be further barriers to data sharing with health sector partners.

### *The Role of the HMIS Lead Agency*

The CoC has ultimate responsibility for designating which data platform/vendor it will use for its HMIS and for appointing the HMIS lead agency; however, the management of HMIS is delegated to an HMIS lead agency. HMIS lead agencies can be the same as the collaborative applicant for the CoC or may be an external, third party agency or vendor. When the lead agency is a third party, that party will need to be a signing party to any data sharing agreement entered into by the CoC. The CoC ensures that HMIS policies and procedures align with the CoC's goals and priorities.

In recent years, with the implementation and maturing of CE systems across the country, communities have seen HMIS data sets increase in scope beyond the HUD database specifications, capturing data from other agencies that are not traditional partner agencies. It is important for communities to discuss how to protect the information entered in HMIS and what information should be accessible by all agencies participating in the HMIS. While broader participation means more user access levels to maintain and more training needs, some communities have found that increased participation in HMIS across various sectors increased opportunities to locate and engage individuals who were matched to housing. For instance, allowing HMIS participation from hospitals, health centers, care coordinators, and psychiatric inpatient facilities have all resulted in locating individuals who otherwise would have been lost to the housing system. Further data sharing on health care utilization, as discussed in this brief, can help housing systems further prioritize and allocate scarce housing resources among a potentially larger population of people experiencing homelessness resulting from the expansion of the HMIS dataset.

*What's the Role of Medicaid or an MCO?* In 2018 there are now 38 states that use a managed care delivery system to deliver health care for their Medicaid enrolled populations.<sup>8</sup> For the remaining 12 states, Medicaid data is held by the states. All states must report specific indicators to CMS regarding their programs.<sup>9</sup>

Either managed care organizations (MCOs) or the states are responsible for delivering all medically necessary care for those who qualify. States that manage their own Medicaid programs typically maintain detailed claims and costs data about beneficiaries. In states with managed care, states pay a per person rate to the MCO, regardless of each person's actual health care use, so states do not have access to the same type of health care utilization data

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<sup>8</sup> Source: <https://www.kff.org/other/state-indicator/total-medicaid-mco-enrollment/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

<sup>9</sup> Source: <https://www.medicaid.gov/medicaid/data-and-systems/mmis/index.html>

that are typically available in states that manage their own Medicaid programs. However, states with managed care typically receive some amount of high-level claims data, which indicates the services rendered and paid to a medical provider at a standard rate across the state. MCOs have more flexibility and generally track more detailed data that includes diagnoses, length of stay, specialized rates and services for special populations, such as people experiencing homelessness, or people transitioning to the community from long term institutionalization or incarceration.

States generally do not provide access to their full Medicaid dataset to external partners but they may be willing to match their data with other data, such as HMIS, and then provide an extract that is specific to the purpose identified in a data use agreement. In Appendix A, see the examples from Connecticut, Virginia and Michigan. MCOs will generally consider sharing data when a business associate agreement (BAA) has been signed. To get started, leadership of either the state agency, the MCO, or the health care entity has to agree with the overall objectives of the data sharing endeavor, and the entity has to inform legal counsel that the data sharing agreement in discussion is a priority. It is helpful to have examples and templates of data use agreements (DUAs) or BAAs, ideally from the same state, or a state that feels similar in terms of privacy laws and policy environment.

Health care entities, especially MCOs, want to know who is homeless, who has subsidized housing, and how to help them keep it. The trend in health care broadly has been to reframe care around a “social determinants of health” framework, which seeks to improve the factors in patients’ lives – such as housing, employment, nutrition, and economic stability – which can negatively impact patients’ health and, consequently, health quality outcomes for MCOs. Homeless individuals, as well as those at risk of losing housing, often are big cost centers for health plans, and MCOs are beginning to see the value in changing how they manage care and offer services IF they know these facts and have partnerships with the housing system (CoCs or housing authorities). They may also want a specialized ‘preferred provider network’ to work with people with special challenges, such as wanting to send people experiencing homelessness to the Health Care for the Homeless clinics, rather than a regular primary care provider or even a Federally Qualified Health Center (FQHC).

### **Examples of Legal Documents Needed to Make It Happen**

This section outlines different types of legal agreements used in data matching projects. A given project does not need all these agreements, but rather the one most fitting for the specific purpose of the data match project.

**Data Use Agreement (DUA)** - A DUA establishes who is permitted to use and receive protected information and the permitted uses and disclosures of such information by the recipient. The DUA provides that the recipient will:

- not use or disclose the information other than as permitted by the DUA or as otherwise required by law;
- use appropriate safeguards to prevent the uses or disclosures of the information that are inconsistent with the DUA;
- report to the covered entity uses or disclosures that are in violation of the DUA, of which it becomes aware; and
- ensure that any agents to who it provides the protected information agree to the same restrictions and conditions that apply to the protected information and not re-identify the information or contact the individual.

### **HMIS Participation Rates**

HUD has been emphasizing increased participation in HMIS across all homeless service agencies in a CoC. Many communities have shelters that are funded and operated privately and choose not to enter into HMIS. This will directly impact the results of a match with any other data source, as it won't show the true utilization of homeless services and may also miss homeless individuals in the community.

**Memorandum of Understanding (MOU)** - MOUs are less formal documents that outline the process by which two or more entities will share data or information, but do not require that an organization take on the legal responsibilities of another organization. MOUs are typically used between organizations who are providing services to each other to outline the responsibilities of each organization in the arrangement. Use a DUA or a BAA if you are going to be sharing information from HMIS with partners external to the CoC.

**Business Associate Agreements (BAAs)** - The HIPAA Privacy Rule only applies to “covered entities” – health plans, health care clearinghouses and certain health care providers. Many health care providers and health care plans use the services of a variety of other persons or businesses to carry out some of their activities and functions. The Privacy Rule allows covered providers and health plans to disclose *protected health information* to these “business associate” if they get assurances that the business associate will:

- Describe the permitted and required uses of protected health information by the business associate;
- Provide that the business associate will not use or further disclose the protected health information other than as permitted or required by the contract or as required by law;
- Require the business associate to use appropriate safeguards to prevent a use or disclosure of the protected health information other than as provided for by the contract.
- Steps to notify of and cure any material breach of the agreement. Disclosure by a covered entity to a health care provider for treatment of the individual.

Disclosures to a health plan sponsor, such as an employer, by a group health plan or by the health insurance issuer that provides the health insurance benefits or coverage for the group health plan are exceptions to the HIPAA Privacy Rule.

**Written Research Agreement** – If the CoC agrees with researchers to share HMIS data for research purposes, the CoC should define its policy and protocols for approving use of HMIS data for purposes of research. Once the research has been approved per the policy, the HMIS lead agency may use or disclose personal identifiable information (PII) for academic research conducted by an individual or institution that has a formal relationship with the organization if the research is conducted by either:

- An individual with the organization for use in a research project conducted under a written research agreement approved in writing by the HMIS lead agency; or
- An institution for use in a research project conducted under a written research agreement approved in writing by the HMIS lead agency. A written research agreement is not a substitute for approval of a research project by an Institutional Review Board (IRB), Privacy Board or other applicable human subject protection institution.

It should be noted that some researchers won’t need PII to conduct research and analysis if the different systems’ data is being matched elsewhere and sent in a de-identified format to the researcher. However, if a researcher is expected to look for other systems’ data and will be doing matching, a written research agreement will need to be in place (e.g. a supportive housing program for high health care utilizers may have an evaluation approach that also looks at incarcerations, emergency transport data, etc.).

Many non-profit agencies use pro bono lawyers to draft and review legal contracts, including ROIs, DUAs, and BAAs. Few agencies have in-house legal counsel, and use pro bono counsel for reviewing legal matters like data sharing agreements. However, pro bono counsel may not have the time to review your documents quickly. If you are on a tight deadline, this can be especially problematic. It is helpful to have as much information as possible prepared before sending it to the attorney. If you have a deadline, put that important information up front in your request. Scheduling an initial telephone conversation is also helpful to go over the substance and context of the document and any timelines and to share any examples from other CoCs. Ask the attorney if they can commit to a deadline

and inform you if they are unable to meet that deadline. Respond promptly if they ask for any additional or follow-up information. Thank them publicly for their service to your organization.

From beginning to end, embarking on a data sharing agreement and resulting match can take months or even years. The checklist in Figure 4 below can help you organize the tasks before you get started. These steps can be done in order although many may be occurring at the same time.

Figure 4: 10 Steps to Data Matching

10 STEP PROCESS DATA MATCH CHECKLIST	
<input type="checkbox"/>	1. Review your CoC’s privacy documents and ROI. If too restrictive, you will not be able to conduct matching using identifiable data but may be able to explore hashed approaches. Make sure the documents follow the privacy policy guidance in HUD’s <a href="#">Coordinated Entry Management and Data Guide</a> .
<input type="checkbox"/>	2. Engage leadership of health sector partner(s) at hospital, state Medicaid, or managed care organizations, and meet regularly to continue discussing and refining the purpose of the matching project. Draft a document stating the purpose that all parties can agree on.
<input type="checkbox"/>	3. Learn about data matching processes already happening locally, as there may be agreements in place to leverage or note as precedent.
<input type="checkbox"/>	4. Figure out exactly who needs to be a party to an agreement, and what type of agreement is necessary for the match (BAA, DUA, MOU).
<input type="checkbox"/>	5. Determine the party that will do the actual data matching – will it be the health partner or HMIS agency, or a third party, like a county agency or a university partner. <sup>10</sup>
<input type="checkbox"/>	6. Request legal review of the data sharing purpose document by your agency legal counsel.
<input type="checkbox"/>	7. Determine the data sharing process through meetings between health data leads and CoC data leads determine the process for the data sharing – what fields will be needed to do the match, what fields will be needed for the analysis related to the agreed upon purpose, and how data extracts will be obtained and transferred.
<input type="checkbox"/>	8. Present on the data sharing exercise to the HMIS committee in your community – check your privacy policies to see who needs to approve the matching project before the HMIS lead agency can move forward.
<input type="checkbox"/>	9. Draft the data sharing agreement or MOU. Note that this will go through several edits between the health partner’s lawyers and the CoC counsel, so starting with a draft – even an imperfect one – will kick start the process.
<input type="checkbox"/>	10. Sign the agreement and begin the sharing process. Stick to the purpose and the specific processes outlined in the agreement when discussing and sharing information about the matching.

## V. Putting Matched Data into Action

### Case Studies of Successful Data Matching

There are many examples of data matching across health care and HMIS; criminal justice and HMIS; and child welfare and HMIS, to name a few. Data matching is going on at the state and county level and with health systems – hospitals, Medicaid, MCOs – and CoCs. HUD supported a data matching project to encourage states to match

<sup>10</sup> This website has free matching tools: <https://github.com/J535D165/data-matching-software>

Medicaid health data and HMIS homeless data to evaluate the impact of health care spending and usage for chronically homeless individuals in supportive housing. Virginia developed a data sharing agreement and successfully matched HMIS data from three CoCs with Medicaid data and is pursuing efforts to match with additional CoCs. The process created more transparency and communication among state agencies and a high level of support for data sharing at the state level.

Appendices A and B include charts with both state and county level data matching examples.

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## CONCLUSION

The beginning of a data matching journey often feels like a convoluted and difficult process with many barriers to success. However, communities across the country are demonstrating that it can be done while ensuring the safety and privacy of clients. Because people experiencing homelessness are frequently shared clients and patients across systems, any effort to reduce and eliminate homelessness should be complimented and enhanced by a data sharing exercise. Best of luck on the journey!

## APPENDIX A: CASE STUDIES OF STATEWIDE MEDICAID AND HMIS DATA MATCHING

Geographic Area	Virginia	Connecticut	Michigan
Data Sources	MMIS and HMIS	HMIS and State Medicaid data	HMIS, Community Mental Health Service Programs (CMHSP), St. Joseph Mercy Hospital, University of Michigan Hospital
Data Elements Included	<p>MMIS: Medicaid enrollment dates, eligibility category, age/demographics, service dates, claim description, diagnosis code/type, diagnosis related grouping, service/procedure (CPT/HCPC codes), provider classification, place of service</p> <p>HMIS: Permanent supportive housing enrollment dates, chronic homelessness status, special needs data, enrollment identifiers, use of other homeless services (shelters, outreach)</p>	<p>MMIS: Medicaid claims data</p> <p>HMIS: quarterly updates of shelter entries and exits for the purposes of outreach for a supportive housing initiative</p>	<p>MMIS: Medicaid claims data</p> <p>HMIS: First name, last name, date of birth, Social Security Number</p>
Data Matching Frequency	One-time match	Repeated match – quarterly over lifetime of initiative which concluded in 2017	One-time match
Third Party Involved in Matching?	No. The data was matched by the MMIS and HMIS lead agencies and third-party Abt Associates analyzed the complete, matched, de-identified data set.	Yes. The Medicaid vendor conducted the actual match between HMIS and Medicaid enrollees. Researchers at NYU were performing an evaluation of the initiative and had an IRB-approved data sharing agreement with the state, so was tapped to select the high utilizers for outreach at shelter sites.	No. The data match conducted by Michigan DHHS with supplied information from HMIS.



Geographic Area	Virginia	Connecticut	Michigan
Where is the Combined Dataset Housed?	With the HMIS lead agency, Homeward. Homeward then uploaded the de-identified data set to a secure site for analysis by Abt Associates.	With researchers at the NYU School of Medicine. Only eligible treatment group members were sent to HMIS agency (Nutmeg Consulting).	With Michigan Department of Health and Human Services.
Data Match Process Type <sup>11</sup>	Match Using Finder's File	Full HMIS and Medicaid match using probabilistic matching technique	Match using Finder's File
Data Uses	Population-level metrics - HUD demonstration project on impact of permanent supportive housing on health utilization	Population-level metrics – Identify frequent users of systems for SIF initiative	Population-level metrics – Identification of utilizers of both homeless and health care systems to identify target population for housing
Data Use Agreements	<ol style="list-style-type: none"> <li>1) DMAS (MMIS lead) and Homeward (HMIS lead agency)</li> <li>2) Homeward and Abt Associates</li> </ol>	<ol style="list-style-type: none"> <li>1) BAA between CT Coalition to End Homelessness and CT Department of Social Services to establish CCEH as a business associate for the purposes of outreach</li> <li>2) MOU between CCEH and DSS for the match between homeless and Medicaid data</li> </ol>	Michigan Coalition Against Homelessness (HMIS lead agency) and Michigan Department of Health and Human Services (MMIS lead)
Evaluations	<a href="https://www.csh.org/wp-content/uploads/2020/09/Homeward-DMAS-Data-Match-Project.pdf">https://www.csh.org/wp-content/uploads/2020/09/Homeward-DMAS-Data-Match-Project.pdf</a>	<a href="https://www.nationalservice.gov/sites/default/files/evidenceexchange/CSH_Final_Report_v1_081417_508.pdf">https://www.nationalservice.gov/sites/default/files/evidenceexchange/CSH_Final_Report_v1_081417_508.pdf</a>	Resulting frequent user supportive housing pilots are being evaluated by Michigan State University researchers

<sup>11</sup> See above for description of data flow for each data match process type

## APPENDIX B: CASE STUDIES OF COUNTY CROSS SYSTEMS DATA MATCHING PROJECTS

Geographic Area	Washtenaw County, MI	Iowa City/Johnson County, IA	Miami-Dade, FL
<b>Project</b>	Washtenaw FUSE	Shelter House FUSE	Coalition LIFT
<b>Data Sources</b>	HMIS, hospital claims data, community mental health agency	Hospital claims data, local police department, Mental health service providers, treatment providers, housing authority, homeless providers	HMIS, Mental health agency, Hospital claims data, County jail system
<b>Data Elements Included</b>	MMIS provided data for individuals 18 years or older with either 5 or more ER visits or 3 or more hospitalizations within the past year:  Client enrollment identifiers, number of emergency room visits, number of inpatient admissions, hospital charges, ICD9 codes	Client enrollment identifiers, utilization and administrative data including cost of services and incidence for each system: hospital, mental health and treatment agencies, jail, homeless system	Client enrollment identifiers, Number of arrests and average cost per day incarcerated, number of emergency room visits and average cost visit, number of days experiencing homelessness and average cost per day homeless.
<b>Data Matching Frequency</b>	Semi-annual	Repeated data match-utilization and administrative information collected over a 3.5-year period	One-time match
<b>Third Party Involved in Matching?</b>	No. Catholic Social Services of Washtenaw conducted the match and then sent the resulting data set to NYU for analysis	No. Shelter House collected data and maintained master spreadsheet	Yes. University of South Florida
<b>Where is the Combined Dataset Housed?</b>	Catholic Social Services of Washtenaw	Shelter House; Case studies were created based on each client to illustrate costs and utilization across systems.	University of South Florida

Geographic Area	Washtenaw County, MI	Iowa City/Johnson County, IA	Miami-Dade, FL
Data Match Process Type <sup>12</sup>	Match using finder's file	Match using list generated by police department  Initial data-match project has led to the implementation of a data management system to further integrate system data to inform ongoing interventions	Third party matching-identifiers and select system level data was included.
Data Uses	Population-level metrics for FUSE initiative	Population-level metrics for FUSE initiative	Population-level metrics for frequent user of multi-systems initiative
Data Use Agreements	Catholic Social Services of Washtenaw maintained data sharing agreements with both hospital systems, the county health organization, the HMIS lead agency, and the shelter	Release of Information signed by interested clients to share utilization information across FUSE planning group	University of South Florida had individual data sharing agreements with jail system, HMIS, health system, and mental health system
Evaluations	<a href="https://www.nationalservice.gov/sites/default/files/evidenceexchange/CSH_Final_Report_v1_081417_508.pdf">https://www.nationalservice.gov/sites/default/files/evidenceexchange/CSH_Final_Report_v1_081417_508.pdf</a>	Ongoing evaluation through the University of Iowa focused on pre and post housing cross system service utilization	University of South Florida is overseeing an ongoing research project

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<sup>12</sup> See above for description of data flow for each data match process type

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