

Homeless Management Information Systems: Implementation Guide

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Introduction

Information is critical to making informed decisions in any field. Until now, the data to support informed decisions for homeless populations have not been strong or accurate because service providers across jurisdictions have lacked compatible tracking capabilities. This situation has begun to change. For the most part, homeless management information systems (HMISs), which provide a means to collect and analyze information over time, are a relatively new concept. By gathering and analyzing solid data on the individuals and families who use homeless service systems, communities and the Nation can work to end this crisis.

An HMIS is a tool that communities can use to collect ongoing data on homeless persons who use service programs. Without an HMIS, most communities have no consistent means to identify service needs, barriers to accessing services, and program-, region-, and system-wide results. Advocates and planners are forced to rely on point-in-time census counts to estimate the size of local homeless populations. Although this approach is useful for gathering a one-time unduplicated count of homeless individuals and families, it is vulnerable to seasonal fluctuations. Snapshot counts also tend to over-represent those with the most chronic problems while under-representing those facing time-limited situational crises.¹

Using longitudinal data, communities can track service and demand trends. These data are critical to accurately calculate the size and needs of the homeless population as well as the outcomes of specific interventions and programs. Policymakers, agency directors, homeless program consumers, and advocates require this information for service and systems planning and advocacy.

Congressional Direction

In 2001 Congress directed the U.S. Department of Housing and Urban Development (HUD) to collect unduplicated data on the extent of homelessness at the local level (H.R. Report 106-988; Senate Report 106-410). The House report states:

...local jurisdictions should be collecting an array of data on homelessness in order to prevent duplicate counting of homeless persons, and to analyze their patterns of use of assistance, including how they enter and exit the homeless assistance system and the effectiveness of the systems. HUD is directed to take the lead in working with communities toward this end, and to analyze jurisdictional data within three years. Implementation and operation of management information systems (MIS), and collection and analysis of MIS data, have been made eligible uses of Supportive Housing Program funds.

HUD's Plan of Action

To accomplish this directive by 2004, HUD entered into a technical assistance (TA) contract with Aspen Systems Corporation (Aspen) to assist communities with HMIS implementation. The Center for Social Policy (CSP) at the McCormack Institute, University of Massachusetts Boston, under subcontract to

¹ For more detail on this topic, see Culhane, D., Metraux, S., Raphael, S. (2000). *The Prevalence of Homelessness in 1998: Results from the Analysis of Administrative Data in Nine US Jurisdictions*. Center for Mental Health Policy and Services Research, University of Pennsylvania.

Aspen, developed this implementation guide based on more than 5 years of practical and research experience managing a statewide HMIS for Massachusetts and consulting with other jurisdictions on HMIS issues. In addition, Aspen offers a number of TA activities nationally to help communities fulfill this mandate, including general HMIS trainings and individualized TA sessions in conjunction with HUD field offices and headquarters.

As communities work to meet the directive at a local level, HUD will continue to clarify specific objectives and requirements about data standards, system scope, and other important HMIS policy issues.

Overview of the Guide

This guide, based upon the collective knowledge of CSP and many localities across the country, presents a set of steps to implementing an HMIS—from planning through implementation. Although some areas of the country are just beginning the planning process, others have had a system in place for many years—well before the congressional directive. These communities began this process in search of accurate information with the goal of meeting consumers’ needs and, ultimately, ending homelessness.

HMIS implementation presents an opportunity to re-examine how homeless services are provided in a local community and to make informed decisions and develop appropriate action steps. However, HMISs will more than automate existing processes. They will allow community stakeholders to build new alliances, to strengthen services, meet consumer needs in a more streamlined manner, and obtain information to guide future planning. This guide attempts to help communities think about how an HMIS can meet the congressional direction and address other community objectives.

The guide frames the task of implementing an HMIS from a community’s perspective—*community* is the broad sense of city, county, region, or State. An HMIS can be implemented to cover a jurisdiction of any size. A common vision and shared commitment to the process is all that is needed. In fact, throughout the guide, smaller jurisdictions are urged to seek local and regional partners to discuss HMIS implementation jointly. Many of the issues described may appear overwhelming or costly to a small locality. Despite some increased logistical (and perhaps, political) challenges, by forming an HMIS partnership with others, these costs can be shared and cross-jurisdictional goals can be accomplished.

Readers can judge how the suggested steps will work in their communities. In several steps, alternative models are highlighted to illustrate different approaches that may be equally or more successful given the community context. The guide provides useful resource material from which communities can pick and choose, collapse or expand steps to fit their needs.

The Implementation Guide is designed in a step-by-step format beginning with an overview (Concepts and Components of HMIS), which defines an HMIS, describes the benefits in relation to functional options, and introduces privacy, security, and consumer involvement issues.

EIGHT STEPS TO HMIS SUCCESS

Step 1:
Planning

Step 2:
**Programmatic
Decisions**

Step 3:
**Technical
Decisions**

Step 4:
**Selecting
Software**

Step 5:
Funding

Step 6:
**Management and
Implementation
Strategies**

Step 7:
**Operating
Procedures and
Protocols**

Step 8:
Using the Data

- ◆ “Step One: Planning” explains the *whys*, *whos*, and *hows* of planning and developing consensus on the HMIS vision.
- ◆ “Step Two: Designing the System—Programmatic Decisions” outlines critical decisions about how the HMIS will function within the community and discusses possible outcomes of these decisions.
- ◆ “Step Three: Designing the System—Technical Decisions” explains design options. The step guides the development of a system-design requirements document that will combine technical decisions with the programmatic decisions from Step Two. This step also explains how a community can assess their existing technical infrastructure to determine their future technical needs.
- ◆ “Step Four: Selecting Software” proposes a methodology for a community to select an appropriate HMIS software package using the information compiled in the system-design requirements document.
- ◆ “Step Five: Funding an HMIS” discusses the major cost items to be considered in an HMIS budget, including planning, implementing, and operating costs. This step also considers the implication of design decisions on costs and potential revenue options.
- ◆ “Step Six: Implementing the System—Management and Implementation Strategies” describes system management models for HMIS implementation and operation, implementation strategies, and the key phases of the implementation process.
- ◆ “Step Seven: Implementing the System—Operating Procedures and Protocols” builds on the system management discussion in Step Six and indicates the standard operating procedures and data accuracy protocols that need to be developed prior to system operation.
- ◆ “Step Eight: Using the HMIS Data” provides insight into data analysis opportunities of an HMIS and reviews data coverage, cleaning, and release issues.

Throughout this document, suggested exercises and examples guide system design and community decisionmaking. References to supporting materials are imbedded in the text and listed again at the end of each step. Many of the documents are available from HUD's HMIS Web site: <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>. The appendix includes a glossary of terms, sample documents, and supporting materials that are not available on the Web site.

Concepts and Components of HMIS

What is a *homeless management information system (HMIS)*? This step defines and describes the purpose and components of HMISs and discusses issues of particular concern, including privacy and security, consumer involvement, and the importance of vision.

What is a *Homeless Management Information System*?

HMISs are computerized data collection tools designed to capture client-level information over time on the characteristics and service needs of men, women, and children experiencing homelessness.² An HMIS may be an off-the-shelf product, a vendor-developed database application, or a community's homegrown software system. It is not a set of stand-alone program-specific databases designed to capture only information about clients served in one particular program. An HMIS is designed to aggregate client-level data to generate an unduplicated count of clients served within a community's system of homeless services—often referred to as the Continuum of Care (CoC).³ HMISs can also be statewide or regional possibly including several CoCs. For those included in an unduplicated count, the HMIS can provide data on client characteristics and service utilization.

Purpose, Goals, and Benefits

The primary purpose of an HMIS is to gather and aggregate data on homelessness at local and national levels to accurately describe the scope of the problem and the effectiveness of efforts to ameliorate it. Beyond data collection, HMIS provides significant opportunities to improve access to and delivery of services for people experiencing homelessness and to strengthen community planning and resource allocation. Many communities have recognized that manual data collection efforts are limited and may result in flawed decisionmaking. Consequently, communities use a variety of models of HMIS planning and implementation. The national HMIS initiative (introduced through the congressional directive of 2001) reflects a nationwide interest both in understanding homelessness and in using longitudinal client-level information to improve local and Federal response efforts.

Within a specific community, HMIS can provide important benefits at the consumer, program, and system levels. Homeless program consumers indirectly benefit from service improvements derived from system analysis and directly gain through streamlined referrals, coordinated case management, and benefits eligibility. HMIS offers front-line homeless service program staff tools for faster, more effective client services through improved referrals, interagency case management, and service coordination. Agency administrators can better manage operational information through access to a variety of agency, program, and client-level reports. Policymakers and advocates benefit from access to system-wide data describing the extent and nature of homelessness and a greater understanding of service usage, effectiveness, and gaps. This information can be used to target limited resources and inform community

² This definition has been developed by University of Massachusetts for the purposes of this technical assistance contract, and has been approved and adopted by HUD.

³ *Continuum of Care (CoC)* is a HUD term used to define a coordinated approach at the local level to delivering services to persons who are homeless. A CoC generally includes a full range of emergency, transitional, and permanent housing and service resources to address the various needs of homeless persons.

planning and policy decisions. Regional and statewide HMIS implementations offer an opportunity to achieve all of these service coordination and policy benefits across even greater geographic areas.

Components

An HMIS is composed of modules that provide a variety of functions and track different types and levels of client and service information. Basic HMIS components include client intake, case management, service tracking, information and referral (I&R), and a report generation tool.⁴ HMISs can also contain modules whose scope is broader than homelessness. Each component offers different benefits and some may be more relevant than others, depending on the community's specific information needs. As a community formalizes its goals (Step One), stakeholders should select the appropriate mix of features to best achieve its vision.

Client intake

A client intake system captures information about people served at the point of entry into shelters or other homeless assistance programs. Common data elements collected can include name, social security number, gender, age, and bed assignment. All client information is associated with a unique identifier that can be used to create an unduplicated count of homeless persons served in a particular area. Information from the client intake module can be aggregated to characterize typical individuals and families who access community homeless services.

Case management

A case management module builds on client intake and provides a way to track information electronically throughout the process of client service provision. Case management data elements include information learned through case manager interactions with clients, such as needs assessments, history, program participation, and service plan goals. Data can be updated and supplemented while the case manager works with the client. Information collected in the case management module can be used to determine client needs and program use and to measure and evaluate program outcomes. Collectively, these data can be used to inform program design and to provide a compelling case to boards, funders, and other stakeholders about program and system effectiveness.

Some HMIS case management modules can be structured to facilitate interagency coordination. This function allows case managers from different programs, who are working with the same client, to share client-level information. This sharing can decrease duplicative intake and assessment for clients, improve interagency service coordination, support case management allocation, and prevent conflicting case management plans for clients in multiple programs. However, interagency information sharing and/or interagency case management must be paired with strong privacy and security measures to protect confidential client information.

Service tracking

Service tracking modules serve as companions to the case management module. While the case management module tracks client information, the service tracking module records information about

⁴ These components, with the exception of the I&R module, which is optional, are considered the standard elements for an HMIS that would be able to generate the data required by the congressional directive.

services delivered to a client by a provider. Depending on the HMIS application, these two modules can be distinct or seamlessly integrated. This function also allows a provider the ability to plan, schedule, and follow up on the delivery of services. Service tracking can be beneficial for agencies that want to accumulate information about services delivered by different programs or staff members. For example, *Agency A* has a case manager who provides 10 client intakes, 5 needs assessments, and 15 counseling service hours in a specific week. A service tracking module allows the agency to log that workload by the specific case manager and link each service unit to a particular client record and/or a specific funding source.

Tracking services and/or comparing that information with the case management module can generate service utilization patterns, provide an understanding of the percentage of clients who use multiple services, and assess service needs and gaps in delivery.

Information and referral

I&R commonly contains an electronic database of available resources for a particular area, including shelter, food pantries, health services, and educational programs. Implementation of this module requires the development and maintenance of an electronic resource directory. These modules are most effective when available on a Web site or in a real-time format so that users can always access the most current information. Although an I&R module can be used as a stand-alone program, when linked with intake or case management modules, it can be used to match client needs with available community services. Some real-time I&R modules facilitate online referrals, submit electronic applications on behalf of clients, determine availability of resources, and, in a few cases, reserve a specific resource—such as a shelter bed—for a particular client.

Benefits eligibility

A benefits eligibility tool can be paired with an I&R to find services and maximize benefits to address client needs. Some of these tools even include an application and the means to submit it. Both I&R and benefits eligibility tools provide clients with immediate information and access to important income, housing, and supportive service resources. The benefits eligibility tool can also stand alone if it is preformatted with entitlement program eligibility and application information (e.g., social security, Medicaid, Food Stamps, veterans benefits, and other mainstream resources.)

Report generation tool

The reporting function is one of the most compelling benefits to new HMIS users because it can save time and increase accuracy of reports on community homelessness and homeless services to funders and local stakeholders. A report generation tool can aggregate, filter, and report information. Reports can be generated at the individual client, program, agency, and community levels (see Step Eight for more information on reports). Some HMIS reporting modules come programmed with standard homeless funding reports, such as the HUD Annual Progress Report (APR).

Privacy and Security Issues

Despite the clear benefits of an HMIS, risks to consumers must be understood prior to embarking on the planning and implementation process. Instituting comprehensive privacy and security mechanisms from the onset can mitigate these risks.

Why care about privacy and security?

During the case management process, clients share a great deal of personal information to help case managers provide the most appropriate referrals and professional guidance. That information is recorded in an HMIS for future case management reference, reporting and analytical purposes. Although the intent of an HMIS is to provide benefits to clients, once stored in the database, this information is potentially accessible to many people who could use it inappropriately. With this in mind, it is important to consider that:

- ◆ Web-based systems are created to optimize accessibility and technology. However, the use of Web-based servers entails greater risk than the use of paper-generated or decentralized electronic record-keeping systems.
- ◆ Most shelters report a high level of turnover among staff, contributing to the likelihood of inadequate training and ineffective enforcement of security policies and standards.
- ◆ Most security breaches are by people who are authorized to use the system.
- ◆ Particularly in cases of domestic violence, the consequences of lapses in client security can be grave.

For these reasons, an HMIS should always be secured with limitations to how the information can be accessed, shared, modified, or used. It is critical to develop both formal procedures to govern the behavior of pertinent staff and technical solutions to protect privacy and security. Recommendations on the issues to consider and privacy/security mechanisms are provided throughout this guide, particularly in Step Two—Programmatic Decisions (privacy protection policy issues), Step Three—Technical Decisions (technical security measures), Step Four—Selecting Software, and Step Seven—Operating Procedures and Protocols.

Importance of Consumer Involvement

One of the best ways to ensure that a system protects consumers and meets their needs is to involve them in the planning, implementation, and operations processes. Providing informational forums to the broader consumer community helps them understand the benefits, protections, and risks of HMIS. Consumers can suggest ways to improve HMIS service delivery and design client-sensitive interview questions, privacy protections, and system explanations. Consumer involvement can also provide valuable learning experiences that may lead to additional professional and personal development opportunities.

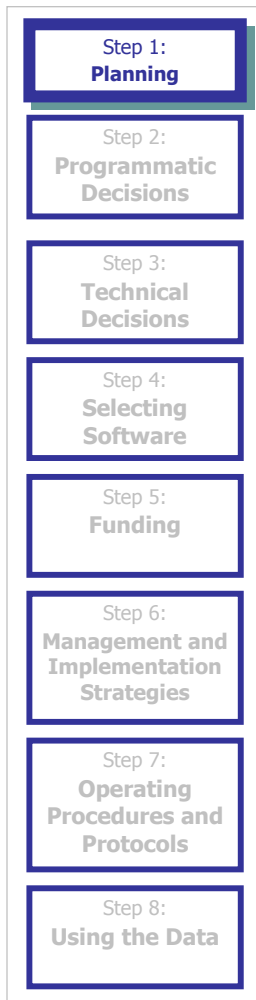
Informed consumers make great goodwill ambassadors. Their shared knowledge helps to diminish suspicion, resistance, and fear of the system. Involvement in the planning and implementation process may change consumers from naysayers to advocates, and their input can help to develop a well-designed system.

Community Example #1: Massachusetts has a history of consumer involvement in the implementation process. When Massachusetts first implemented its HMIS, consumers participated in the process of creating privacy protection and informed-consent procedures. As programs began using the system, consumers designed and delivered training workshops for case managers. These year-round workshops focused on sensitivity training and privacy protections. Today, several consumer representatives hold official seats on the steering committee. These representatives also convene a consumer advisory group that reviews system policies and procedures, offers consumer involvement training to community agencies, and disseminates information on the HMIS to other local consumers and providers. Consumers have also represented the project nationally, helping other communities engage consumers to enhance data collection and analysis.

Importance of Vision

To design a successful HMIS, a community must thoughtfully approach planning, implementation, and operation. The next step focuses on the visioning process. A community's vision guides all software and policy decisions. Although it is tempting to rush immediately into choosing and purchasing a software product, communities should follow the process of developing a shared vision and considering related design issues before selecting a product. An HMIS is a substantial investment that requires serious commitment from its partners. Sound planning can ensure stakeholder buy-in and that the system provides the most benefits to all, contributing to operational success.

Step One: Planning



This step focuses on the HMIS planning process and the importance of planning to implementation. The process includes:

- ◆ Engaging key stakeholders and developing an organizational structure.
- ◆ Educating the stakeholders.
- ◆ Assessing community needs.
- ◆ Building consensus on a system vision.
- ◆ Designing the system to meet local needs.

Why Plan?

To implement a successful HMIS, a community must first determine what it wants to learn and how it can use technology to do so. HMIS provides many kinds of benefits, depending on how the system is designed. Therefore, it is critical that a community spend ample time to plan for the kind of system that will best meet local needs. The client-level information collected from each program can be analyzed with data from other programs to determine system-wide information, such as the overall level of homelessness, service effectiveness, and unmet community needs.

Step One output:

- ◆ Vision statement.

Developing a Planning Group

Broad-based representation from the community is essential to the planning process. The more far-reaching and open the planning group is, the greater the potential for achieving a successful HMIS. Although all of the specific stakeholders may not be clear at the beginning of the process, it is important to begin with a core group of representatives, expanding the group as other partners are identified. Being inclusive will increase overall buy-in from community partners. Outreach is an important part of planning. Stakeholder groups may include:

- ◆ Service providers.
- ◆ Consumers.
- ◆ Advocates.
- ◆ Government officials.
- ◆ Funders.
- ◆ Researchers.
- ◆ Information technology professionals.

Providers understand service delivery issues from the frontlines. They are keenly aware of their own reporting needs as well as the strengths and limitations of their internal tracking and reporting tools. Their input is critical to both visioning and designing the system. Frontline and technology staff, program and agency directors, and board members may be engaged in the planning process.

Consumer input during the planning phase can help create inclusive, comprehensive system goals, and can identify critical roadblocks to implementation. Consumers bring a unique perspective to discussions on client privacy and security. Consumer input throughout the implementation process increases ownership, use, and support of the system. Consumers representing a range of perspectives and service needs should be involved.

Policymakers bring broad perspectives to the process. In many communities, when data are not available, policy decisions are based on anecdotal or limited information. Many policymakers have specific questions they would like HMIS data to answer while ensuring that programs are designed to best meet clients' needs. Funders, government officials and staff members, researchers, and advocates should be encouraged to plan how an HMIS can shape policy strategies.

Involving partners who may espouse anxiety about the system in the planning process from the beginning is also helpful. Often consumers and agencies that provide services to victims of domestic violence, ex-offenders, undocumented immigrants, persons with behavioral health needs and/or HIV/AIDS have strong concerns about privacy and security. These are issues that all stakeholders should understand. Input from critical sources from the beginning can help a community design a stronger system.

Organizational structure

Due to the complexities of planning and the challenging decisions that need to be made, establishing an organizational structure to process information and manage decisionmaking is important. In most cases, this structure will continue as the community transitions from planning to implementation and operation. It is also helpful to identify a respected organization or individual to facilitate and chair the process and maintain stakeholder engagement. Some of the basic roles are outlined below. Although the actual structure may vary within each community, each function should be assigned to a specific group and attempts should be made to include in the steering committee and each workgroup members that represent each type of stakeholder.

- ◆ HMIS steering committee: A governing or advisory committee should be established to provide overall HMIS project leadership. The committee, which should include representation from lead partners (including consumers), should reflect geographic and program diversity and encompass key people involved in the coordination of local homeless services and local information systems. In some cases, this oversight role can be assigned to an existing body, such as the local CoC planning group. The committee's tasks include oversight of the planning, implementation, and system operation process; the development and enforcement of HMIS policies and procedures in conjunction with the designated project administrator; and the approval of key HMIS decisions.
- ◆ Consumer advisory group: In addition to consumer participation in other groups, convening a group of consumers to provide a focused perspective on multiple issues throughout the planning and implementation process will be beneficial. Consumers should facilitate this group. Tasks may include design and/or feedback on consumer HMIS explanations, interview protocols, and training curricula; review of privacy protections and security measures; user-testing of system software during the selection phase; organization of focus group sessions on key HMIS topics; and outreach to other consumer and advocacy groups.

- ◆ Workgroups: Depending on the size of the community, setting up small workgroups to focus on specific issues during planning and implementation may be helpful. In smaller communities, the same group of people may be involved in a majority of the discussions, and all planning may occur within the auspices of the steering committee. The following are examples of potential workgroup structures:
 - **Data**: Development of minimum data standards, data collection protocols, training, and data release policies.
 - **Privacy and Security**: Detailed oversight of the development of privacy and security policies, procedures, and technical mechanisms developed to protect client privacy and security. Local legal experts might be recruited to join this workgroup to provide insight on State and Federal laws affecting the sharing of client-level data.
 - **Technical**: Direct involvement in the assessment of existing technology infrastructure, development of technical requirements, and oversight of software selection process.

- ◆ Project manager/facilitator: The project will need a designated manager to guide the planning and implementation process, as directed by the HMIS steering committee. An individual or team can provide the project management, and lead roles may shift from facilitator to organizer and technical advisor as the process evolves. Neutrality, consensus-building style, organizational skills, and accessibility are important characteristics for the person in this role—as is the capacity to motivate and inspire stakeholders around the vision. Responsibilities will include design and management of various project phases; facilitation of committees, workgroups, and community meetings; stakeholder and community outreach and education; and transition to long-term system management (see Step Six for information on system management models).

- ◆ Consumer involvement specialists: Consumers can be paid stipends to help staff the planning, implementation, and operations phases. As peer trainers, consumers can play a vital role in obtaining buy-in from other consumers and advocates. These trainers can also serve as peer advocates helping consumers understand secure ways to provide information. Consumers can lead advisory groups and help facilitate or act in other supporting roles for ongoing workgroups or ad hoc committees that may form. Finally, consumers can analyze and interpret data, putting the numbers into a human context.

Community Example #2: Alternative Organizational Structure

Columbus, Ohio, organized its HMIS planning committee into workgroups based on common perspectives and interests.

- ◆ Case managers: Focused on data sharing issues, client interactions in relation to HMIS policies, use of software for case planning, and particular issues concerning front-end users of the HMIS.
- ◆ Program managers: Focused on the issues of program planning, management, evaluation, staff management, and interagency data sharing agreements.
- ◆ Policymakers: Focused exclusively on policy issues relating to confidentiality, data sharing, HMIS use, HMIS access, and data ownership.
- ◆ Technology: Focused on advanced technical design issues that are often beyond the experience of many human service providers.

Decisionmaking philosophy

An HMIS is most effective when all stakeholders fully cooperate and buy into the system goals. If an agency chooses not to participate, the clients served by that agency will not be included in the HMIS data. Therefore, consideration of the varying interests of each stakeholder group and how it may affect the design of the system is important in the planning process. Although a community may have to resort to a majority vote on decisions, reaching consensus is more likely to retain key stakeholders because those who support the process are more likely to continue to participate. Stakeholders should agree on a decisionmaking approach early in the process. For example, groups should consider the following questions:

- ◆ Will decisions be made by group consensus or majority vote?
- ◆ If members will vote, who actually gets a vote?
- ◆ How will the group handle ties or very close votes?

Timing

In many communities it has taken a year or longer to complete the visioning and design steps (Steps Two and Three). Although this may seem to be a long time, the work and buy-in achieved during this process will be important to HMIS implementation and operation. When undertaking an HMIS planning process, communities should be aware that completing this step may take a long time.

Educating Stakeholders

Once the organizational structure is in place, the next step is to educate the stakeholders on HMIS issues and choices. Before stakeholders can begin making decisions about HMIS, all participants must understand the many options—their benefits and risks. At a minimum, groups must discuss the topics addressed in the Concepts and Components step, including the interrelationships among the issues. For example, stakeholders should understand the ways in which benefits relate to function and the related need for increased privacy protections with certain types of functions, such as interagency case management.

Visiting or talking with other HMIS communities to see how their system functions might be valuable. Also, consumer stakeholders should be offered education on issues that relate to their HMIS rights, potential benefits and risks, and the protections to their privacy, such as oral and signed consent. The language used should be clear and free of jargon.

With a full understanding of the issues, HMIS stakeholders are better equipped to debate the type of system that would be most beneficial for the community.

Assessing Community Needs

Assessing the community environment and existing challenges in homeless service delivery and data collection is important during the initial planning phases. This assessment provides an opportunity to revisit a community's specific needs. The community assessment should examine issues from the perspectives of all stakeholders. Focus groups can provide a great opportunity to collect information from consumers, providers, and policymakers who are not active in the HMIS process.

Examples of community issues include:

- ◆ Consumer issues: Are services accessible? Can consumers easily get appropriate referrals? Do they experience duplicative client intakes from program to program?
- ◆ Provider issues: Is information on available resources readily accessible? Are case managers able to easily access the services that clients need? Are services fragmented? Are shelter and supportive service resources being efficiently used? Is the process for producing program reports challenging and time consuming? What are the ways to evaluate program effectiveness?
- ◆ Policy issues: Is there accurate system-wide information on homelessness and the needs of those who experience homelessness? Is it possible to understand how consumers move between programs and the overall effectiveness of the system? Are there challenges to identifying service priorities when allocating limited resources?

These issues can be addressed in many ways. The HMIS is not the single solution to all homeless service delivery and data collection problems. However, communities can prioritize among these issues and needs to determine whether the HMIS can meet multiple objectives and if community support and funding opportunities can be increased. An assessment should also consider what community resources may benefit the project. For instance, does a central provider maintaining a centralized I&R database?

Building Consensus on the HMIS Vision

Based on the information learned in the education process and community assessment, the stakeholders must determine what the HMIS will strive to accomplish. Are there critical issues in existing systems that the community wishes to address in the design of the HMIS? For instance, if consumers currently must complete unnecessary and duplicative intakes at each agency, one objective of the new HMIS could be to decrease redundant intake processes.

Some common objectives include:

- ◆ Speeding homeless persons' access to the service system.
- ◆ Decreasing duplicative intake processes.

- ◆ Streamlining the referral process.
- ◆ Improving use of shelter resources.
- ◆ Coordinating case management.
- ◆ Collecting uniform data on those who access the service system.
- ◆ Generating unduplicated counts of clients served.
- ◆ Simplifying reporting processes.
- ◆ Identifying gaps in services.
- ◆ Improving information to guide resource allocation and policymaking.
- ◆ Enhancing access to client benefits, including entitlement programs and mainstream resources.

Guiding principles

A discussion of values or principles is important to key partners in the system. Do partners have any non-negotiable positions, such as consumer participation or privacy and security for domestic violence clients. Those partners may feel reassured if their views are incorporated as guiding principles for the design process.

Vision statement

After the group has reached consensus on the HMIS goals and guiding design principles, stakeholders document these ideas in a vision statement that captures the community's goals for the future. The vision should state anticipated outcomes of the implementation. Community Example #3, which describes a model in Seattle, Washington, provides samples of these kinds of statements and a discussion of how their development.

Once a vision statement has been clearly articulated, the steering committee should review and approve it. Once adopted, it can be used to guide implementation and assess whether the HMIS ultimately achieves its goals and predicted outcomes and to test major decisions, verifying whether the HMIS remains consistent with the community direction.

The planning process continues through the next two steps in this guide. Stakeholders will use their vision statement to guide them through the planning process and to help them design a system that meets local needs.

Community Example #3: Seattle, Washington—A Model for HMIS Planning

In Seattle, funders, planners, service providers, and consumers have long worked together to find ways to effectively prevent, address, and reduce homelessness. In 1999 the city of Seattle, King County, and the United Way of King County collaborated to spearhead a regional HMIS initiative. The partners engaged national expertise and local facilitators to shepherd the planning and design phase of what became known as the Safe Harbors System. The result is an inclusive and comprehensive HMIS planning process that began with objectives and developed into a community vision, guiding principles, shared hopes, and initial system design decisions.

At the beginning of the process, the city's elected officials passed a city ordinance that outlined community objectives. This action signified the importance and legitimacy of the Safe Harbors project. The objectives included:

- ◆ To improve the quality of client services and provide faster links to housing, benefits, and services.
- ◆ To identify gaps in the service system.
- ◆ To provide an unduplicated count of homeless men, women, and children.
- ◆ To increase the availability of data to help the city and its funding partners make planning and funding decisions about the services provided to homeless people.

The planning process identified key policy questions, legal parameters that might influence community decisions, existing technology literacy and infrastructure, and primary data required for homeless funders' reports. These inputs were used in a broad range of forums to spark stakeholder discussion and position formulation on the key policy decisions. One early lesson learned was the lack of universal agreement on many of the issues. The constructive opposition was healthy to the process. In fact, even after months of debate, Safe Harbors stakeholders still had not arrived at agreement on several critical policy questions, including the conditions of client and program participation, processes to select the central server organization, or the standardized set of minimum data requirements for the system. However, more importantly, those initial months of planning were used to establish consensus on a community vision, guiding principles, shared hopes, system benefits, and a community process of decisionmaking that could be used to guide stakeholders in all future Safe Harbors planning, implementation, and operation decisions.

The Safe Harbors guiding principles were developed from two perspectives. The city of Seattle, King County, and the United Way of King County's bottom line requirements for the Safe Harbors System were: "An outcome-based, computerized system to facilitate timely, efficient and effective access to needed services and supports for persons who are homeless in Seattle and King County."⁵ Two components related to timely service linkage and data needs were further defined in the statement.

A majority of planning process community participants defined the second set of principles, which included statements on privacy protections, funding, and appropriate use of data. Both of these perspectives were then used to inform and test future design decisions.

Two shared hopes for preventing, addressing, and reducing homelessness reinforced the guiding principles.

⁵ *Safe Harbors Design Project*. Prepared for the city of Seattle, King County, and the United Way of King County (February, 2001). Available at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

- ◆ Easy access to resources for individuals and families who are homeless or near homeless:
 - No barriers to needed resources, including elimination of red tape and duplicated assessment processes.
 - Culturally competent resource delivery.
 - A match between what individuals and families ask for and what they receive.
 - Individuals' and families' timely and direct connections with needed resources, including public assistance benefits.
 - Attention to individuals' and families' strengths, desires, and needs.
 - Recognition and acceptance of the diverse paths and choices individuals and families make when they are dealing with their homeless situation.

- ◆ Effective use of data generated through a Safe Harbors system:
 - De-identified aggregate data available to all stakeholders.
 - Data used to identify system gaps and barriers.
 - Data used to increase public awareness and mobilize public action that results in increased resources for improving the Seattle/King County response to homeless.
 - Maximum protection of the privacy rights of individuals and families who use services in the Safe Harbors System.
 - Streamlining of the administrative reporting requirements for agencies serving individuals and families who are homeless.

The Safe Harbors planning process was successful due to many factors, including:

- ◆ Taking sufficient time with adequate resources to engage in comprehensive planning.
- ◆ Having HMIS champions and political will to publicly move project goals forward.
- ◆ Committing to consumer involvement with resources, support, and meeting location.
- ◆ Building media awareness and support.
- ◆ Providing regular community updates, education, and training.
- ◆ Learning from others, including peer education, site visits, and training seminars.
- ◆ Building on community strengths by incorporating the local I&R system, information technology (IT) professionals, local facilitation, and expertise and beliefs of community partners.
- ◆ Creating a name for the project that promoted the goals of the system, rather than its technical nature.
- ◆ Documenting consensus, commitments, and expectations throughout the process.

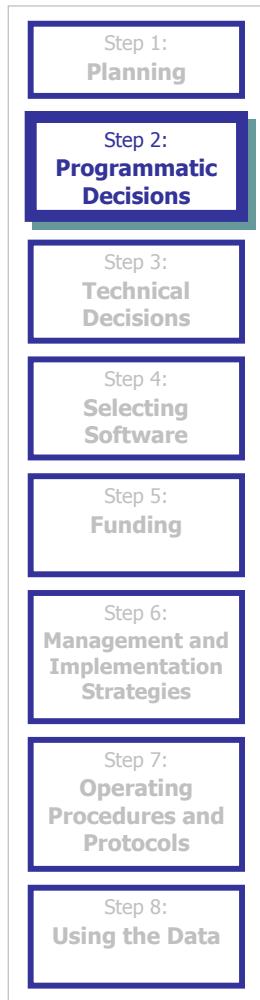
Visioning Exercise #1: HMIS Goals and Objectives

Task

Craft a project statement for an HMIS that would meet the needs of your community. The project statement should respond to the following questions.

1. Why are we doing this?
2. What are the anticipated outcomes of the system?
3. What are the objectives for the system?
4. What are the anticipated benefits of having a system for:
 - a. homeless men, women, and children?
 - b. service providers?
 - c. public policy stakeholders?
5. What do we want to be able to do at the local level?
6. What do we want to be able to do at other levels (regional or state)?

Step Two: Designing the System—Programmatic Decisions



Once a community has completed the initial phases of planning and organizational development, it can begin to design an HMIS to best meet the needs of local partners. The HMIS vision, described in Step One, should guide design and development decisions. For simplicity, this guide divides the design stage into two steps. This step discusses the major policy decisions and the next step (Step Three) outlines major technical decisions. This division supports the idea that a community should first understand its programmatic goals before tackling the technical requirements needed to attain those goals. In reality, these two steps are interrelated and although technical design decisions should be primarily dependent on policy goals, there will be times that technical limitations or opportunities lead policy decisions.

Major policy decisions relate to:

- ◆ Size and scope.
- ◆ Function.
- ◆ Data sharing.
- ◆ Privacy and security.
- ◆ Minimum data standards.
- ◆ Business processes.

In each of these topic areas, this step provides a discussion of the decisions that must be made and some suggested questions for a community to use to develop system design recommendations.

Step Two output:

- ◆ System Design Requirements Document—Part One.

Size and Scope

Decisions about size and scope refer to the breadth and depth of system coverage and program participation. These decisions should be documented in a system design requirements document. The primary considerations are:

- ◆ When the system is fully implemented, will the HMIS cover one city or county, a region, or a state? Do neighboring jurisdictions already have an HMIS? Are there opportunities to develop partnerships with other jurisdictions to design and implement the HMIS that would help to share costs and enhance regional/statewide information collection and service delivery? At this point, the community should also consider the benefits and potential compromises of economies of scale. Particularly from a cost perspective, greater economies of scale achieve more services and more volume when concentrated at a central server organization.
- ◆ Will the system be limited to homeless providers or will mainstream service agencies also be asked to participate? Should agencies that frequently provide services to people who experience or are at-risk of homelessness, such as domestic violence, HIV/AIDS, and/or behavioral health providers be offered an opportunity to participate?

- ◆ Will the system track only information on people who are homeless, or will it also collect information on people who are at-risk of homelessness or formerly homeless? Is the community interested in tracking client outcomes after individuals are no longer homeless? If so, how might this occur? Do any providers remain in contact with the formerly homeless and should they be encouraged to participate in the HMIS?

HMIS participation

A related issue that is often overlooked is the question of how to get providers to participate in the HMIS. Some communities that have strong government or funder support mandate participation from agencies that receive specific funding sources. Other communities offer incentives for participation. Incentives may include hardware, software, or stipends to offset program costs for data entry. Yet other communities offer indirect incentives for participation, such as bonus points during funding application processes. Ideally, the system will yield sufficient benefits that agencies will want to participate; however, a community should plan to conduct ongoing outreach to engage and retain voluntary partners.

The HMIS congressional directive may eventually change the dynamics of participation. It encourages all communities to collect data on homelessness, service utilization, and effectiveness, regardless of whether the community receives Federal funding. Although persuading agencies that do not receive Federal or local funding to participate may be difficult, in the future it may become commonplace for publicly funded programs to be required to report data to the HMIS. Regardless of the method used to encourage participation, all users must be committed to the HMIS. Without full participation, data quality and accuracy will suffer.

Community Example #4: State of Wisconsin HMIS Implementation

Wisconsin has initiated a statewide HMIS run by the Department of Housing and Intergovernmental Relations (DHIR). The State provides HMIS infrastructure, staffing, and training for all statewide homeless agencies. Participation in the system is voluntary but strongly encouraged. DHIR uses grant application scoring tools as a participation incentive. For instance, agencies applying for HUD Emergency Shelter Grant (ESG) funds in Spring 2001 were awarded bonus points if the agency was willing to participate in the HMIS in 2001. For the 2002 HUD ESG application process, agencies that agreed to participate in 2001 and have not done so by March 2002 will lose points. Agencies that have implemented HMIS by March 2002, as well as those agencies now agreeing to participate will receive bonus points in the scoring process.

Functionality

Options for what a system can do for users abound. Based on the educational process in Step One, community members should think about the system modules that are required to achieve the vision. What functions does the community want the system to perform? For instance, if the system vision relates just to data collection, reporting, and analysis, a streamlined data collection system should be designed, without I&R, case management, or other modules. Conversely, if the vision suggests streamlined referrals, the system functions will need to include modules to help accomplish this goal.

Specific functional requirements include:

Client-level features (clients may be individuals or households)

- ◆ Standardized client intake and assessment screens.
- ◆ Complete case management services, including client intake, assessment, case management, service history, case notes, client financial worksheets, transaction history, and client follow-up.
- ◆ Discharge placement and outcomes.
- ◆ Benefit eligibility screening.
- ◆ Collection of socio-demographic information about clients served and/or turned away.

Report generation features

- ◆ Built-in Federal/HUD reporting.
- ◆ A custom report generator that allows users to create their own reports by choosing fields and sorting orders, data ranges, and so forth, while allowing for flexibility regarding data collected by multiple users, in multiple counties, and in specific counties by zip code, street address, and so forth.
- ◆ The ability to count service units in either or both hours or monetary amounts.
- ◆ The ability to track single or multiple funding sources by service, by client, and/or by staff person.

System-level functional features

- ◆ An electronic I&R system that includes the capacity to generate residential logs of bed availability and bed reservations.
- ◆ The capability to handle vacancy and rental information with regard to transitional and permanent housing.
- ◆ The real-time capability for all users within a geographic locale to communicate with each other individually and as a group using e-mail, pop-up messaging, chat, and bulletin board modes.

(Note: Agencies need phone or DSL lines and access to the Internet to accrue the benefits of real-time functioning.)

Data Sharing

Some of the potential benefits of an HMIS (discussed in the Concepts and Components step) are available only through interagency data sharing. Without this function, an HMIS can still produce unduplicated client reports and generate system-wide client information for funding and policy purposes. However, for an HMIS to be used to reduce duplicative client intakes and provide opportunities to improve case management and service coordination, the system must support interagency data sharing. These objectives are important to a community's vision.

The decision to explore data sharing will necessitate more stringent privacy and security protections. All data sharing should be contingent upon written client consent and must comply with local, State, and Federal legal requirements and the local privacy protection policies (discussed in the next step). In some communities, data sharing agreements are limited to specific time periods, such as one to 3 years. Some potential data sharing functions are described below:

- ◆ Blanket sharing or flexible data sharing. A blanket sharing function discloses a complete client record to other agencies. Flexible data sharing capacity allows clients to identify which part or parts of a client's file they would like disclosed and to specify individual programs with whom to share the information. The extent of flexibility varies depending on HMIS technology features.
- ◆ The real-time capacity for agencies to share client information and jointly manage services for a client through the Internet.
- ◆ The capability for one agency to electronically send a client referral with complete client intake information to another agency.

Privacy Protection Policies

As briefly described in the Concepts and Components step, privacy protection policies are critical to the design of an HMIS in order to protect the confidentiality and safety of the consumers who agree to have their information stored in the HMIS. These policies should govern the behavior of people who use the information, whether during a client interview or after the information has been stored in a paper file, HMIS case file, or another electronic file. Most agencies are already familiar with client confidentiality protocols related to case management. These protocols must be supplemented with HMIS provisions that include parameters for inputting, revising, aggregating, and sharing client information. To generate communitywide data about homelessness, some level of data must be aggregated at the regional level. In some cases, improvements in service delivery can come about through interagency case management, but none of these should occur without proper written consent. It is critical to ensure that private client information, such as undisclosed shelter locations or sensitive personal information, not be divulged to anyone for whom the data are not essential.

When developing a privacy policy, a community should consider the questions below. Some questions may raise issues that are premature to determine in the design phase. However, it is important to think about these issues early in the planning process—to the extent that the community must establish principles and/or make design decisions to protect client privacy concerns. These issues should be revisited in Step Seven, during the development of formal privacy policies, including consent forms,

documented in a community's standard operating procedures, and included in requirements for user training.

Stakeholder issues

- ◆ Is there a broad range of stakeholders involved in the development of the privacy policy? Are persons who have experienced homelessness at the table?
- ◆ What is the level of trust among agency partners, and are there historical issues with client confidentiality that may influence this policy? For example, if a particular agency has a reputation for violating client privacy, stakeholders may want to address this issue openly and directly.
- ◆ Are there integral partners with non-negotiable positions regarding confidentiality or sharing specific types of information? These positions may be a good starting point for discussion—to be sure to keep these agencies at the table. For example, domestic violence agencies often have stringent policies on confidentiality to protect clients' safety.

Design issues

- ◆ How much and what type of interagency case management or information sharing must the system accommodate? Under what circumstances? How will client confidentiality be protected during these exchanges?
- ◆ Are there other system function preferences that may affect the design of protection mechanisms?

Privacy and consent considerations

- ◆ Are there local, State, or Federal laws that may govern the specifics of this policy (e.g., consent procedures, provisions about who can be authorized to share or receive certain client data and under what circumstances)? Applicable Federal laws may include 42 CFR Part 2 (Substance Abuse) and the Health Insurance Portability & Accountability Act (HIPAA) of 1996.
- ◆ What level of client consent (oral or written) is considered acceptable for entering client data into the HMIS and/or for sharing identified client data among agencies? A blanket release, release by agency, program, or specific case managers? For what data elements? For what time periods (see Step Seven for more information about privacy consent procedures)?
- ◆ What procedures will be established to inform clients about their HMIS rights, including client consent related to interagency data sharing, whether consent can be retracted, and proposed uses for HMIS data?
- ◆ What type of consent will be required for aggregating information? For sharing information among case managers within an agency? With another entity? Should specific releases be developed for particularly sensitive issues, such as mental health history?

Protection measures

- ◆ What security mechanisms can be developed to protect confidential client information? Password protections? Stripping client data of identifying information prior to saving on a central server? Using a unique Client Identifier (ID) that is not identifiable or traceable by general users of the system? Using data encryption when transferring and storing data? (Step Three includes more information on specific technical design decisions.)

- ◆ Does the policy define client rights? Limit staff who can access an individual's information? The right not to answer questions unless required for program entry? The right to know who reads and/or edits his/her information? Data protection through encryption or other security measures?
- ◆ Does the policy include client interview protocols and training for case managers and central staff?
- ◆ What procedures are in place for consumer grievances regarding violations to privacy protections?
- ◆ What penalties will be established for persons who violate privacy protection policies? Reprimand? Sanctions or revocation of HMIS rights? Termination of employment? Criminal prosecution?

A policy should clearly state a community's position on a specific topic. Once documented, a policy can be implemented in two primary ways, behavioral and institutional. Behavioral solutions require people to act in certain ways or have their behavior restricted in some ways when using the system—as defined by policy. Often, to guide the user in conforming to behavioral policies, a community will develop procedures to document the specific protocol that should be employed in particular circumstances (see Step Seven for a discussion of standard operating procedures). Institutional solutions can be used to enforce protections by limiting system options to operations that conform to the established policy. These solutions are discussed in Step Three.

There are some issues for which it is too critical to rely on individual behavior, particularly given high levels of staff turnover. For example, rather than rely on a written policy that prohibits case workers from sharing client mental health records with a case manager at another agency, the HMIS can be programmed so that these data records are stripped before any client information is transferred. Based on the situation and the environment, each community will need to decide which method is most appropriate. Hybrid models can be particularly effective. These create certain technology or institutional parameters and then set behavioral expectations within them. If well designed, institutional security measures will not affect system performance or function but will provide the level of security needed to guarantee basic client privacy.

Minimum Data Standards

Many communities struggle to determine the information that should be collected in an HMIS. For each element, a community must also define the frequency and specific points in time at which to gather data from clients. HUD's CoC Annual Progress Report (APR) requirements set an ad-hoc national data standard, and many HMIS software vendors have informally suggested a standard by offering a common package of data fields in their HMIS applications. All of these are good beginning points. However to make sure that the HMIS meets local needs, each community should determine its own data standards early in the design process, based on the programmatic goals and vision for the system. Four major areas should be considered in the development of local data standards, a unique ID approach, data collection fields, type and method of data collection, and data storage. See Supporting Materials for additional reference material.

Unique client identifier

The unique ID is an exclusive code generated by the HMIS for all clients as their data are entered into the system. The HMIS must have an algorithm or formula built in to create this ID in a way that protects

client privacy. It cannot be associated with the individual's identity. However, the algorithm must consistently generate the same ID for each individual, regardless of which program he/she participates in. The formula for a unique ID is actually a technical decision. However, it is important for the planning participants to understand the ID and to make sure that the HMIS has a valid way of generating it. One example of how to generate a unique ID is presented in the box below.

Sample Client ID: First initial of client's last name, third initial of client's last name, six-digit date of birth, client's gender, and first initial of mother's last name before she was married (i.e., maiden name initial)

Example:	Client's name:	William Simpson
	Client's Date of Birth:	September 5, 1948
	Client's gender:	M
	Mother's name before she was married:	Kelley
Client Code:	SM090548MK	

Data collection fields

Data collection fields are the specific elements that an HMIS will store in the database. Each item (client name, date of birth, gender, date of shelter entry, etc.) must be specified in a community's system requirements to ensure that the HMIS software package purchased includes that information. Depending on the HMIS goals, planners can begin with identifying items of information already collected and used for case management and reporting purposes by the majority of participating agencies.

The community may want to consider three sets of information:

- ◆ Minimum data set: Information that is needed for basic aggregate community reports. All providers agree to collect and input at least this minimum set of data for every intake client. For example, the data could include basic demographics and housing history.
- ◆ Universal data set: Information that everyone in the community agrees is valuable to collect about all clients over time. For example, the universal data set could include all of the default information that appears on blank client intake and case management screens. These additional fields could be completed, as appropriate, for case management clients and, in some case, intake clients as well.
- ◆ User-defined fields: One or two programs will want some data that other programs will not need. Rather than clutter the system with every possible data field, developing a handful of user-defined fields that can be customized for use within a specific program is worthwhile. These fields will typically not be aggregated at the community level because most other agencies will not be collecting the information.

Although a temptation to collect every piece of client information exists, there are several reasons to avoid collecting too much data. For one, the more data that are collected about a client, the greater the privacy risk to that individual. Another reason—the more data the system collects, the greater potential for data entry errors. Finally, buy-in at the agency level will be easier to obtain if case managers are not required to collect much additional information. Balancing the opportunity of data collection and analysis with the privacy concerns and data collection burdens of an HMIS is important. An additional issue,

discussed in Step Four (Selecting Software), is user-friendly screen design layout, which can make a big difference in staff comfort and willingness to use the system.

Types of data fields

After defining a list of system data elements, types need to be assigned to each element to ensure that the HMIS collects data in a way that can be easily analyzed. The hardest information to analyze is open-ended information. Therefore, to the extent possible, the data in the HMIS should be collected in prescribed formats to minimize the possibility of entry errors. Many of these formats are incorporated into HMIS products so communities are unlikely to need to design response types. It is important, however, that technical workgroup members understand these issues because the community needs to decide how it collects various data elements. This understanding will also be helpful in reviewing and choosing software products. The various data types are described below. Also see Step Eight for further discussion.

- ◆ Fixed-answer responses, such as drop-down menus

Software limiting the choices of responses to a specified set of options can reduce data entry errors. For example, options for marital status could be married, divorced, widowed, single, or separated. Or the community could choose to customize the fields differently. The benefit of fixed-answer responses is that once a community has decided on the fixed options, each case manager must choose from that standard list, which ensures continuity for the purposes of data analysis. Missing, unknown, and no answer categories should be distinctly defined as potential responses for each variable.

Frequently, a system will use drop-down menus for fixed-answer responses when only one option applies. For instance, drop-down menus with the specified choices for employment, yes/no questions, and names of programs or locations can minimize data-entry errors. Small differences in the way things are entered can lead to increased headaches during data analysis. For example, *Chicago*, *CHICAGO*, and *Chgo* all imply the same city, but data analysis software would categorize them as three different places. Auto fill software features can correctly complete the data entry after a few keystrokes, which can also save time for staff.

Additional features, such as checkboxes, can be used for list options. For example, many programs provide a long list of choices for factors that contributed to homelessness and ask the client to check all that apply. To provide more flexibility, these options often provide an *other* category with a small comment field for specific descriptions. For situations in which the client is asked to choose one option from a list, the software can be programmed to accept only one check mark or a drop-down menu can be used.

- ◆ Fixed-format responses

The HMIS can limit numerical information, such as dates, phone numbers, and zip codes, to specific formats to help ensure that information collected is consistent. For example, the date-of-birth field can have pre-formatted slashes between the day, month, and year and can prompt a 4-digit year so correct ages may be calculated. Regions that have multiple telephone area codes can format all numbers to prompt for the correct code. Income fields can be formatted with dollar signs and decimal points to avoid simple mistakes.

- ◆ Open-ended data fields and attachments

In some cases, it may be useful to include open-ended data fields, such as case management notes. However, these fields should only be used for information that does not need to be routinely analyzed. Options to attach copies of computer documents and scanned images of signed client consent forms, client records, or photographs can also be helpful for case management purposes.

- ◆ Static versus transactional data

Each data field needs to be set up as either static (value remains the same) or transactional (value is situational and can change over time). For static information, only one data value needs to be recorded. If new information is learned, then the field can be revised with the new value replacing the old. For example, when clients enter the process, they may be living at a shelter, so their address would be that of the shelter. Later, when they move to transitional housing, the caseworker could revise the address.

Transactional data are likely to change over time. For this type of data, the community needs to decide whether this information should be collected once, acknowledging that it only represents a particular point-in-time, or if a history of values should be collected. For instance, many agencies suggest that enrollment in their program will help a client increase their income over time. To determine whether the program is successful, the client's income must be tracked over a period of time. In this case, income should be programmed as a transactional data field, and at key points (e.g., program entry, 6- or 12-month follow-up, and program exit) the client information should be updated. Transactional data should be entered in tandem with the date. Stakeholders must agree about which points in time transactional data will be collected for each relevant field.

On a related technology note, the HMIS should have built-in software query capacity to detect and correct data-entry errors and omissions. For example, if the program entry date is later than the discharge date, some software can be programmed to query the user. If much data are omitted, reports on the entire client pool may be misleading.

Data storage

The community must also consider the length of time for which it is committed to storing the information. Policies can be developed that delineate periods for different purposes. For example, archival data could be stored indefinitely for analysis purposes, but online data may be stored for a shorter period, such as one to 5 years.

Business Processes

A business process is a series of steps or procedures required to accomplish a specific task. For instance, a business process could list the series of steps required for a consumer to apply for a specific program. In communities with ad-hoc business processes, providers and consumers are often confused about how to access services. These steps can be modeled in the form of a flow chart or diagram that can be used to explain the process to consumers.

An HMIS implementation provides a tremendous opportunity for a community to review how they conduct business and to institute service delivery changes to improve the process for consumers. These kinds of improvements may not be directly related to the HMIS, but they can be a valuable side benefit of

the planning and design process. Regardless of whether changes to business processes are actually made, this is an excellent time to document business processes and to clarify how a system functions. If a community decides to incorporate case management or interagency referrals, the HMIS vendor can use the business process diagrams to automate these procedures within the system.

For instance, if the referral process between emergency shelter programs and transitional programs is standardized, the HMIS could be used to streamline the application and referral processes. A household staying in the emergency shelter program could complete a standard application with the assistance of their case manager. The case manager could use the HMIS to complete an automated eligibility verification to determine which transitional shelter programs are most appropriate for that household. Depending on the results, the system could submit the application electronically to the transitional shelter provider. The application process could be automated within the HMIS, based on the steps outlined in the business process, which could save time and eliminate reduce the human-error common in application processing.

A community may want to start business process modeling with the areas that directly relate to the HMIS implementation. Some of these areas include:

- ◆ Client intake: How, where, when, and by whom will the basic client information be collected and entered into the system?
- ◆ Program referrals: How do clients access shelter beds and services within the system?
- ◆ Case management: How and when will case management information be updated? Will information be updated from clients at specific points in time, such as at 6 and 12 months following program completion? If the system supports interagency case management, what are the specific protocols and procedures for how the case management information will be shared and coordinated?

Documenting Design Decisions

Before going to Step Three, stakeholders should document all of the programmatic design decisions formulated in Step Two. These decisions will provide the framework for assessing and defining technical design options and requirements.

System design requirements document

The system design requirements document should provide a brief summary of the community's programmatic decisions, including, at least:

- ◆ Size and scope.
- ◆ Function.
- ◆ Data sharing.
- ◆ Privacy and security.
- ◆ Minimum data standards.
- ◆ Business processes.

These programmatic design decisions will compose the first part of the system design requirements document, which will be supplemented by the technical decisions that will be developed in Step Three. The complete document can be used in the software selection process to convey community needs and

goals to software vendors, to select appropriate software applications, and to document decisions that will be needed throughout the implementation phase.

Supporting Materials

- ◆ See appendix A for a list of privacy protection resources.
- ◆ *Homeless Management Information Systems: An In-Depth Look*, Center for Social Policy, McCormack Institute, University of Massachusetts Boston (January 2001). (See pages 91 to 117 for information on data elements.) This publication is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

Programmatic Design Exercise #1: Privacy Protection Working Group

Questions to Explore:

1. What State and Federal laws affect the sharing of client-level information?
2. How will privacy protections work? This includes decisions about:
 - a) Approach to client-identification.
 - b) Client consent for data sharing.
 - c) Access to identified client-level data (Who has access to data, for what purposes, and under what circumstances?).
 - d) Access to anonymous aggregate data (Who has access to data, how, and under what circumstances?).
3. What are the participating agencies' concerns and anticipated benefits regarding electronic sharing of client-level information among agencies?
4. What information-sharing practices currently exist among agencies? What information-sharing practices does the community want to encourage or discourage?
5. At what level of the system will client-identified or anonymous data be aggregated—at the central server level, the community level, or the participating agencies?
6. What technologies should we use to ensure protection and privacy of data?

Recommendations for Working Group:

- ◆ Review existing Federal and/or State laws that affect the sharing of client-level data.
- ◆ Review existing models of data sharing from other States or locales that have implemented HMIS (open- versus closed-system models).
- ◆ Review Seattle's "Safe Harbors Design Project" (see community example footnote in Step One).

Programmatic Design Exercise #2: Participation Working Group

Questions to Explore:

1. Will participation in the system be mandatory or voluntary?
2. What incentives can be used to encourage participation? Are there any government agencies/contracts that will mandate participation (i.e., will participation be required by any of funders of homeless programs and services)?
3. What sanctions might be used for non-participation? What is the process for dealing with communities and/or agencies that do not want to participate in the system?
4. What will the community recommend as participation requirements at the agency level?
5. What will be community expectations regarding cost sharing in HMIS implementation?
6. What will participation targets be during each year of implementation?

Recommendations for Working Group:

- ◆ Review existing participation requirements from localities currently using HMIS (mandatory vs. voluntary participation models).

Programmatic Design Exercise #3: Minimal Data Elements Working Group

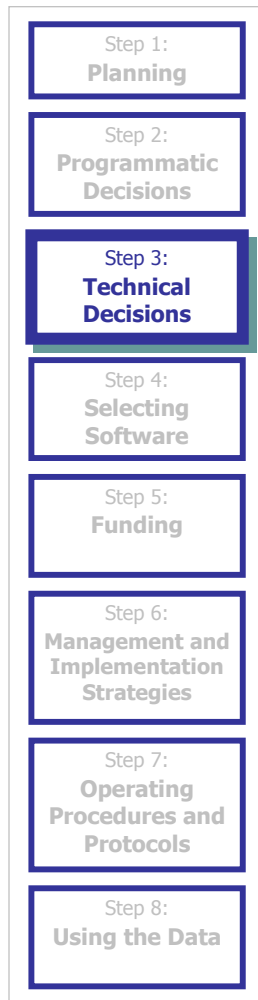
Questions to Explore:

1. What are the reporting requirements of participating agencies?
 - ◆ HUD McKinney programs.
 - ◆ ESG.
 - ◆ Domestic Violence.
 - ◆ Veterans Services.
 - ◆ Runaway and Homeless Youth.
 - ◆ Other.
2. Which data elements are necessary for completion of these reports?
3. What data elements must the system generate?
4. What are the current data collection processes of participating agencies and funders?

Recommendations and Resources for Working Group:

- ◆ Develop a matrix of data elements currently collected by participating HMIS agencies and the reporting requirements from different funding sources.
- ◆ Review minimal data elements required by other localities using HMIS.
- ◆ Review recommended minimal data elements in *Homeless Management Information Systems: An In-Depth Look*. (See Supporting Materials in at the end of Step Two.)

Step Three: Designing the System—Technical Decisions



The second part of the design process involves the formulation of technical decisions. Technical system features serve as a mechanism for implementing the community vision (Step One) and programmatic goals of the HMIS (Step Two). This step discusses the major technical design decisions, outlines the final steps required to articulate system requirements in preparation for Step Four: Selecting Software, and describes how a community can assess its current technical capacity. Finally, this step provides an example of an alternate approach to planning used in Spokane, Washington.

Major technical design decisions include:

- ◆ System scope.
- ◆ Structure and connectivity.
- ◆ Platform requirements.
- ◆ System security mechanisms.
- ◆ Other technology features.

All technical decisions should be documented throughout the process, adding to the system design requirements document begun in Step Two. This process will culminate in a report that details the existing technical environment and infrastructure recommendations to meet the technology needs of the proposed HMIS.

Step Three output:

- ◆ System Design Requirements Document—Part Two.
- ◆ Technical Infrastructure Assessment Report.

Technical Workgroup Role and Responsibilities

As with all of the earlier steps, the technical recommendations should be developed by an inclusive group. Depending on the size of the community, all of the primary stakeholders may participate in this group or a subset can be convened as the technical workgroup (as described in Step One). Although this workgroup should include individuals with technical expertise, it is also important to have continuity between the stakeholders involved in the programmatic design and this step. Often technical experts can be found among the staff of local service providers or local government. In some areas, community residents working with local technology firms may be willing to volunteer their time to participate in both this phase of the process and Step Four: Selecting Software.

The primary responsibilities of the technical workgroup are to develop technical system design recommendations and to assess existing technology infrastructure. These tasks are interrelated and can occur concurrently—each informing the other. For organizational simplicity, this step first describes the technical design decisions and then focuses on the technical assessment process and report.

System Scope

Based on the programmatic scope and size decisions, the technical workgroup can determine technical size specifications. The scope of the system is used to gauge the capacity needs of the central equipment and software and to provide a basis for estimating site equipment and software.

The technical scope statement should estimate the number of agencies and programs participating. For each agency, the following should be quantified:

- ◆ Staff positions that will be provided access to the system.
- ◆ Concurrent users (maximum number using the system at the same time).
- ◆ Seats (the computers on which the software will be accessed).
- ◆ Beds/service slots to be covered in the HMIS.
- ◆ Annual intakes (new clients who will be entered into the system during a year).
- ◆ Case management clients (new and active carry-over clients).

For I&R services, the scope information should also include the number of:

- ◆ Participating agencies supplying services along with their capacity, eligibility criteria, and service types.
- ◆ The frequency with which the information needs to be upgraded.
- ◆ Annual referral transactions per agency.

Structure

The structure of the system will vary based on the purpose of the HMIS, data sharing decisions, privacy policies, and existing systems already in place. Regardless of project scope and the specific goals for the system, the fundamental structure of all HMIS packages is based on the existence of a central place in which data are aggregated and stored—the central server or central data repository, which facilitates the electronic storage of aggregate or client-level data in one place to support service coordination and to facilitate reporting and analysis.

The two major options for system structure are *real-time* or *batch* systems. Other options combine both methodologies.

In a real-time system, all programs use the same software tool to enter client-level information into a central data repository. The central server can usually be accessed by a phone line (dial-up access) or over the Internet (continuous access). If a community wants to support real-time case management, program referrals, or any interagency data sharing, a centralized Web-based system structure is the best approach. Data aggregation, reporting, and system administration are all simplified with a real-time system. However, a real-time centralized structure presents greater security risks because all client data are stored in one database accessed by agencies. The security step of this step identifies security protections that can be used to mitigate risks to clients.

In a batch system, all users enter information on either their personal computer or local database application. The information is periodically uploaded (transferred in batches) to a central data repository. If a community does not want to use HMIS for any purpose other than periodic reporting, a batch system may meet its needs with lower security risks than a real-time system. However, because a batch system involves merging databases, access to current aggregate information can only happen when all program data are synchronized and sharing information among programs cannot occur unless individual programs

dial-up and communicate directly with one another. Merging databases also requires a high level of skills and coordination, impacting staffing needs (see Step Eight).

Regardless of the structure, some systems, especially those based on Web-enabled technology, offer the possibility of offloading the technical issues involved in organizing, setting up, and operating a central server to a third party. In such situations, a third party, such as the HMIS software vendor or local software service company, may provide hosting services. These services involve the technical administration of the HMIS and data repository, which will normally reside at the location of the hosting organization.

Connectivity

Connectivity—the way that agency site computers communicate with the central server—may vary depending on the selected structure. For real-time models, the Internet is the most effective means of connectivity because it minimizes software requirements at the site level. Using the Internet for this purpose avoids technical issues associated with installing software, fixing bugs, and providing other technical support at each site. These software challenges still need to be addressed on central server equipment. Alternatively, site computers can be configured to dial into the central server directly, without going through the Internet. However, this method is generally slower and more expensive than Internet alternatives. Another connectivity approach involves the use of emulation methods or multi-session environments, such as Citrix and Microsoft Terminal Services. These methods achieve real-time connectivity with or without the Internet. They run Microsoft Windows (rather than an Internet browser) applications over a network.

For periodically accessed models, dial-up access is the most secure approach. This method may reduce site connectivity costs. Site computers can be scheduled to dial into the system at a regular time, such as in the middle of the night once a month or as needed, to minimize tying up phone lines or computer time during the day.

Platform Requirements

Platform requirements refer to the specifications of the central system and server used for the central data repository. Platforms are also required for backup and recovery equipment at the central server organization and for equipment and connectivity at the agency site level. Different HMIS software packages use varying types of databases and require different equipment configurations, some of which are both less expensive and less robust, and others that are more expensive but able to accommodate sophisticated functioning more effectively. Although a community does not want to overbuy, particularly when technology and equipment design change so frequently, it is important to purchase a system that will grow with the community's needs thus minimizing the need for future overhauls. The systems requirement document can request that a vendor address specific plans for future development and enhancements.

Scalability

Scalability refers to the robustness of the system. Depending on the scope of the project and implementation strategy, a community may want to develop product specifications for a system that can handle large volumes of data quickly and reliably. These requirements include expansion capacity to meet local needs as the number of records increase and maintain the speed of data transmission from multiple sites.

For example, a statewide coordinated implementation strategy involving large numbers of programs with numerous client records should select a product that has the ability to scale to maintain system performance—even as new programs with large numbers of clients and staff begin to participate.

Flexibility

The platform that the HMIS database uses should have the flexibility to support basic user maintenance, such as user-defined data fields and updates to selections for drop-down menus. The database should also use industry standards that support the ability of the central database to interface with existing agency databases, including the capacity to customize conversion from one or more existing systems currently used by HMIS partners.

Again, there are tradeoffs between small and large database packages. Small database applications, such as Microsoft Access-based systems, may not be complex enough for aggregating HMIS data with appropriate security protections. Conversely, although more robust packages (e.g. SQL and Oracle) are definitely suitable, they require technical administration.

System Security Mechanisms

Designing and maintaining a secure system is essential to the ongoing use and integrity of the HMIS. Agency staff and consumers will not support the system if it fails to meet their security needs and contributes to client vulnerability. The privacy protection policies developed in Step Two should be enforced with technology mechanisms that limit behavior of system users to prohibit them from activity that might leave the system vulnerable. These types of security features primarily protect the system and client records from being accessed, changed, or shared by unauthorized users.

Security measures include:

- ◆ User accounts, passwords, and access protocols limit access to authorized users of the system. They can be used to limit which information particular users can view and/or revise based on defined access levels (read, write, edit, and delete specifications, variable by HMIS module).
- ◆ User agreements define appropriate and prohibited user behavior. In these agreements, users certify commitment to abide by HMIS policies and procedures (see Step Seven for more detail on these policies).
- ◆ User authentication verifies that a particular user is authorized to access the system.
- ◆ Location authentication verifies that the computer (location) is authorized to access the system. Possible options include public key infrastructure (e.g., certificate authority).
- ◆ Transaction audits track critical information on who, what, and when certain data are modified. The firewall, Web server, and central database can also be audited.
- ◆ Data storage protections protect data stored on the central server. Mechanisms include hardware and/or software firewalls.
- ◆ Data transfer mechanisms protect data while they are transferred from one location to another. Mechanisms include Secure Socket Layer (SSL) protection for over-the-wire transfer or for

decentralized systems, stripping client-identifying information, splitting identifiable data elements from sensitive, or protected data fields during transmission.

- ◆ Penetration testing checks the system for security weaknesses and failures and identifies vulnerabilities using contracted computer hackers on a regular basis.
- ◆ Back-up and disaster recovery procedures regularly create (secure) back-up data in case of loss or contamination of primary data. Offsite storage of back up data is recommended.
- ◆ Restricted equipment and data locations limit storage of equipment and data in locked and/or monitored locations, including back-up data storage files.
- ◆ Reporting Protocols can limit publication of information to anonymous aggregate client information with appropriate authorization by a local advisory group.

A Special Note on User Access: When the HMIS is established, a system of access needs to be determined. Some jurisdictions establish an access hierarchy in which the lowest level is read-only access. The next level might allow access to add and edit records. A third level might be established to add, edit, and delete records. A fourth level might allow the user to define access rights for other users within the organization and so on. Generally, the system administrator has the highest level of access. However, many systems will require a multi-step process with multiple users completing certain high security tasks, such as de-encryption of the database. In addition to type of access, stakeholders must determine which records particular types of users should be allowed to access. Even with read-only access, a single individual should not be given rights to view every record in the system, unless there is an overwhelming functional need to do so. More likely, each case manager should be given an appropriate level of access to the records within their program. If they work in multiple programs, perhaps the system can be coded so they can view only the cases that are assigned to them. Or they could be given access to both programs. The executive director or data analyst for the agency may be given rights to see all records for that agency, but that individual would not have access to other agencies' client records.

In some jurisdictions, the system administrator does not even have access to every agency's case files. These communities have decided to aggregate only anonymous data. Therefore, there is no access to systemwide identifiable client data.

It is important to remember that these security measures should be implemented in conjunction with the privacy protection policies defined in Step Two and standard operating procedures that will be defined in Step Seven, which clearly define client release/consent options for general HMIS participation and interagency data sharing, behavioral expectations of system users, and enforcement mechanisms.

When defining security mechanisms, a community should consider these related questions:

- ◆ What is the process for assigning and maintaining user accounts and passwords?
- ◆ How will physical workstation locations at participating agencies and central server equipment be secured?
- ◆ Is the database of client and service information secure at agency sites? Central server? Transmission between sites? Are there security protocols for each?

- ◆ How frequently and what information needs to be backed up? Under what circumstances would old data be retrieved?
- ◆ Who will host the data? Does the host meet the security policy? Contracting out for services may save the trouble of doing it inhouse, but local stakeholders are still responsible for ensuring that the host has adequate security measures in place.
- ◆ What enforcement mechanisms and penalties will be established for people who violate system security?

Other Technology Features

The community should also consider whether other features should be incorporated into the technical design specifications. For example, in Step Two, minimum data standards were discussed. The community's data policy may suggest several technical requirements related to the unique client identifier, data fields, and additional technical features, such as data-entry error and omission queries.

System Design Requirements Document

At the culmination of the design process, all of the community decisions on program policy issues (Step Two) and technical design specifications (Step Three) should be formally documented in a systems design requirements document. This document will become the foundation for software solicitation and can be used by the community to develop evaluation criteria for gauging whether a potential software package is a good match with the community's needs. The systems design requirements document can be organized in a way that makes sense for the local community, but it should include at least the following:

- ◆ Size and scope (programmatic and technical specifications).
- ◆ Desired function.
- ◆ Data sharing policies.
- ◆ Privacy protection policies.
- ◆ Data requirements.
- ◆ Core business processes.
- ◆ System structure.
- ◆ Connectivity.
- ◆ Platform requirements.
- ◆ System security mechanisms.
- ◆ Other technology features.

This process may feel overwhelming, particularly for small jurisdictions in which one or two individuals may need to lay out all of the design options, make many of the decisions, and compile the requirements document. In some cases, it may make sense to seek out local MIS experts who can assist with parts of the process. In other cases, some of the issues can be considered simply and quickly, because there are fewer stakeholders and fewer options. Information for the technical infrastructure assessment can also be more easily obtained in areas with a small number of provider agencies.

Technical Infrastructure Assessment

Before selecting a software system or making decisions about system management needs, it is important to understand the community's existing technical capacity. A technical infrastructure assessment will identify the technical resources among provider agencies, government partners, and other HMIS participant organizations. The resulting report should provide recommendations on the specific equipment, desired functions of the software, and system management; serve as a companion to the system design requirements document; and facilitate cost estimating during Step Four and Step Six.

The technical workgroup should be responsible for conducting the assessment with the support of a staff person or designated workgroup member (referred to as the assessment administrator) to specifically manage the process. The assessment will be much more effective if all of the stakeholders understand its importance and if each agency/site assigns a staff contact to compile that site's information. Consumers can be involved in administrative tasks related to the technical assessment, such as conducting and tallying surveys, making follow up calls, or assisting in the arrangement of site visits or meetings.

The assessment should also be closely coordinated with other HMIS planning activities to ensure that the scope of agencies included in the survey effort is consistent with the scope and jurisdiction identified in Step Two. The technical workgroup should schedule assessment activities so as to complete the effort within a brief period of time.

Assessment objectives and process

At the beginning of the assessment, the technical workgroup should formulate assessment objectives and develop a rationale for the process that can be shared with agency administrators and site contacts. Common objectives include:

- ◆ To understand the existing capabilities of the network of agencies.
- ◆ To develop a sense of the willingness of service provider agencies to participate in the HMIS.
- ◆ To better understand system requirements for equipment, personnel, and training.
- ◆ To provide a basis for estimating costs.

The basic objectives can be accomplished using a detailed survey questionnaire complemented by several focus groups. The survey questionnaire should be designed to capture figures and objective indicators of processes and capacities. (A sample questionnaire is provided in appendix D.) The workgroup can conduct focus groups with site participants to probe the more subtle motivations and concerns of the many individuals whose business processes will be affected by the HMIS use. In particular, focus group exercises can inform site-training needs.

To complete the survey process, the assessment administrator needs to work with the technical workgroup and other planning committees to compile a complete list of potential HMIS participants and appropriate agency/site contact information. Once the survey is designed and approved by the technical workgroup (or higher level planning entity), the survey should be distributed to all of the participating agencies with a concrete deadline for responses. It is critical to get complete and accurate responses from all of the participating agencies. Therefore, the technical workgroup or assessment administrator should develop a plan to conduct calls and/or e-mails to request the return of completed surveys and to follow up on any missing or unclear information. Slow responses from agencies may indicate that these agencies are unaware of the process or are reluctant to participate, requiring additional outreach to increase buy-in. After the completed surveys have been returned and checked for errors and omissions, the responses should be compiled and analyzed. By comparing the assessment results with the technical design recommendations, technical infrastructure recommendations and requirements can be developed.

The six components of technical infrastructure

The technical assessment survey should be designed to acquire quantitative information about existing technical capacity and infrastructure in the following areas:

- ◆ Equipment: Information on the number of computer workstations in place, their characteristics and age, printing capacity, current connectivity (modems, phone lines, Internet access—e.g., phone, DSL, T-1 lines), and security features.
- ◆ Systems: Specific management information systems (MIS) currently in use at each site, including client-related case management, spreadsheets, financial or bookkeeping, reporting, and grants management software. Information about other software packages is also useful, including word processing and Internet applications.
- ◆ Data: Information about the methods that agencies use to analyze their data, including any manual or computer-based processes used to tally the numbers of clients served and outcomes of service delivery. Since most agencies use a combination of both manual and automated methods to organize their data for reporting and management purposes, exploring the categories of data that have already been automated, the specific database products used, and the length of time the agency has utilized this technology is important. This information will inform staff training and data conversion needs.
- ◆ Operational procedures: It is important to understand the major procedures and policies that participating agencies use related to the collection, manipulation, and sharing of client data. This portion of the assessment should produce specific lists and indicators of the particular policies and procedures. This information can be used to inform the development of standard operation procedures, staff training, and data integrity and security mechanisms.
- ◆ Organization: Information about each agency's services, listing the primary characteristics, bed count or case management capacity, annual client capacity, and number of staff by type for each unit of activity. The survey should clearly define a unit of *activity* to ensure that agencies and programs respond consistently. For instance, a unit of activity can be defined as an agency, a program, or a site (physical location). These units of activity will be used to identify software license and equipment needs and data capacity estimates and to distinguish them for reporting and security purposes. For example, if an emergency shelter program and transitional program operate at the same site, it may be helpful to distinguish programs for reporting purposes. Most emergency shelter programs have different reporting requirements, varying expectations of client outcomes and, follow-up case management protocols. Therefore, the system needs to differentiate between the two programs. However, if the programs are reported separately but are staffed by the same case managers, the level of staffing overlap should be indicated on the survey so an accurate number of staff user licenses can be calculated. Similarly, if one program has multiple sites, the locations should be indicated so an accurate equipment estimate can be generated.
- ◆ Skills: Information on the level of site staff competence and expertise in information and computer systems. The survey should request specific information on the numbers of staff that fall into various categories of expertise, including basic exposure to computers and networking; use of computer productivity tools, such as word processing and spreadsheet tools; and use of business-specific computer applications, such as case management or program management products. This information will be used to design appropriate training recommendations and to identify staff members within participating agencies who can be engaged in a more prominent role in HMIS implementation project because of their expertise.

Defining infrastructure requirements

There are three major steps involved in the preparation of the infrastructure recommendation. A master spreadsheet with the site information from the survey assessment may help organize the various equipment, staff, and training needs for the central organization and each individual site. In addition to the areas described below, some specific cost items are discussed in Step Five. Detailed information can be found in the HMIS Cost Estimation Guide (see supporting materials at the end of this step).

◆ Estimating equipment and license requirements

Equipment and license requirements can be estimated from the agency survey assessment. These estimates will vary based on system-function decisions, system structure, and connectivity decisions as well as business processes, all of which should be included in the system design requirements document. The agency survey should provide the total number of computer users (program, data entry, and administrative staff who will access the system) and the number of sites that will be connected.

The number of personnel, numbers of clients served, and the business processes will determine the number of computers required. For example, if the HMIS is used directly by client and case manager for I&R or benefits screening, each staff member may need a computer. However, if the HMIS is used only for reporting purposes and an individual administrative staff member inputs the data, fewer computers may be required. Also, in the estimation phase, the workgroup should consider the level of need for printers, modems, or other connection devices; communication lines; and such equipment as scanners and/or digital cameras to post pictures or print identification cards. The central organization equipment estimates will vary depending on community requirements. For example, if the community wants to incorporate an I&R component in the HMIS, the central organization will need additional database development, maintenance, storage, connectivity, firewalls, and security capabilities. Similarly, an Internet-accessible central server may require equipment and software different from a dial-up, periodically accessed system.

The total number of software licenses or copies needed will depend on staff levels, roles, work schedules, and proposed business processes. Vendors of HMIS products define user licenses differently from other software producers. Some licenses are based on seat while others are based on individual user names and passwords. Software licensing for the central server should also be calculated. Depending on how the software is installed and accessed, the central server licensing may vary. However, generally, the vendor will issue one central server license and multiple client licenses.

Whether an agency can use concurrent licensing is a prime factor. Concurrent licensing allows staff members to share a license when one staff person will not be using the system at the same time as others; each user maintains individual access passwords and protections. Licenses may be shared when, for example, an agency employs 50 case managers on 3 shifts. If no more than 20 staff would ever be logged on at the same time, the agency could purchase 20 licenses with 50 user accounts. In this type of setup, if all 50 staff were to come to work for a special meeting one day, no more than 20 could be logged on at the same time.

◆ Identifying staffing and service needs

To be successful the HMIS initiative will require staffing. Most of the staffing requirements will be for the organization that manages central operations, such as project management, system

administration, agency coordination and technical assistance, data administration, reporting, and training. In some instances, a community may prefer to contract certain services with third parties. The system management roles and options are described in greater detail in the management models step of Step Six. However, many of the initial requirements need to be identified at this point in the process.

Agencies will also have increased staffing needs to complete client interviews and data entry as well as to manage and maintain site-specific hardware and software.

◆ Identifying training needs

To successfully implement and operate an HMIS, establishment of an ongoing mechanism for developing skills and ensuring that these skills are used is essential. Without training and quality control measures, the entire initiative will be in jeopardy. The system could be put in place, but never used. Staff could enter data that are so inaccurate they cannot be aggregated. Client privacy and security could be at risk.

Based on the HMIS function and design, the workgroup should produce job descriptions for both central organization and site staff. The technical skill base should include a description of skills needed for each type of staff position, such as the required understanding and proficiency in:

- Computer operating systems.
- Computer networking.
- Internet operations.
- Database applications.
- Use of e-mail and other productivity tools.
- Basic interaction with computers.
- Operation of the specific HMIS application, including basic functions, appropriate use of security mechanisms, and standard operating procedures.
- System administration functions.

Then, based on a comparison of the technical skill base with the assessment of existing staff expertise, the workgroup can develop the format, frequency, and cost of delivering training to broaden the base of technical skills. The workgroup may also determine whether current staff can conduct training or if there is a need to hire a local TA consultant, the HMIS software vendor, and/or a combination of these options.

Developing the technical infrastructure recommendations

The final step of the technical infrastructure assessment process is to prepare the Technical Infrastructure Recommendations document that identifies the basic elements necessary for the HMIS cost estimation. It may be organized by the central-organization and individual site needs:

- ◆ Central organization information: equipment, software, services, and staff (positions and professional services).
- ◆ Site information: type of program or agency, clients served, equipment, and staff (positions and training), individually itemized for each agency or unit of activity.

The final report should compare the analysis of the existing technical infrastructure with the needs of the proposed HMIS, designed in steps Two and Three. The final report should highlight the extent to which

the HMIS can rely on existing equipment, software, and staff, and should specifically identify the equipment, systems, staff, and training that need to be acquired for a successful HMIS implementation. This information can be used by software vendors to develop their cost estimates, by the technical workgroup to evaluate software proposals, and by implementation workgroups to purchase equipment and make system-management decisions.

Alternative Approaches to Planning and Implementation

Although this guide outlines the HMIS planning and implementation process in a linear eight-step process, in reality planning is more likely to be iterative—the community learns from each step of the process and decisions made early on may be revisited later in the process. Rather than using a linear step-by-step process, there are communities that have been successful at merging the design and implementation processes. Spokane, Washington, is an example. Spokane decided to design its own system in-house to make the most of limited time.

Community Example #5: Spokane, Washington—An Alternative Approach to Planning and Implementation

To design a system quickly and in a hostile environment, Spokane adapted a best practices software design model called Rapid Application Development. This model uses a prototyping methodology—a conference room pilot. The conference room pilot worked with a select group of providers who deliberated HMIS planning issues and concurrently developed and ran a prototype HMIS. Thus, the planning and implementation processes were intertwined, each informing the other along the way.

This approach was selected because most stakeholders either had little experience with automation or a history of automation/measurement failures. Some had participated in State-driven data collection and aggregating efforts that had either returned no information or generated error-ridden reports. The conference room pilot model allowed participants not only to better understand the implications of critical path decisions but also to begin to develop trust in the overall measurement process. This process also allowed Spokane to work out many implementation problems and concerns within a smaller, less complex environment, reducing the likelihood of a large and costly failure. Finally, this pilot approach also created a core group of knowledgeable users who took ownership and sold it to other community programs.

The process began by identifying a few providers that were willing to participate in the prototype development. Four organizations, representing larger area providers and local leaders, assigned both directors and line staff to participate in the planning process. This group initially answered critical questions. Although one homeless consumer was included in the group, client representation was weak.

The group conducted the following activities:

1. Identification of consultants, including a measurement specialist with extensive history in social service databases, an information technology (IT) person, and a legal aid, to support the group.
2. Definition of the initial objectives and core values for the proposed system: What was absolutely needed from the system? What would be nice but not necessary? What functions could be supported over time?
3. Identification of privacy and security constraints along with a variety of strategies for solving them. This discussion focused on whether interagency-shared client-level data was feasible or meaningful enough to offset the inherent risks. An initial client identifier strategy was also developed.

4. Completion of a technical infrastructure assessment with the initial list of potential participants.
5. Review of an existing specialized software package. Stakeholders also reviewed the risks and assets of developing a homegrown system. Budget and function were critical to this discussion. The group decided to go with the homegrown approach. This decision was driven by experience with vendor failures as well and a low overall project budget.
6. Decisions about platform and a myriad of other technical issues with the support from the IT consultant.
7. Identification of the initial data elements based on existing intake, assessment, and discharge forms as well as a review of typical Federal, State, local, and private-funder requirements.
8. Formalizing of processes for data storage and transfer among sites.

Throughout this stage of the development, group members reported initial decisions and talking points to the larger homeless coalition on a monthly basis. Coalition input was integrated into the small group discussions.

The IT consultant developed an initial prototype and the four organizations began to use it. The consultant was flexible with data element design and redesign. Reports were produced for the coalition to demonstrate the power of the information and reduce anxiety. These presentations were coupled with training on methods for defining and measuring outcomes and use of database information to improve organizational level planning and operation.

By the end of the first year, Spokane had been through several permutations of the data elements that would be included in core reports as well as the information to populate those fields. Through this interactive process, the group stabilized the core fields and procedures for entry, storage, and reporting. Other organizations then joined the system. The number interested in participating grew substantially during the second year—and has grown every year since. Currently, the project includes shelters, transitional housing providers, and feeding programs, mental health outreach teams that canvas people living in the rough, domestic violence shelters and court programs, and the Spokane School District. Shared communitywide outcomes have been defined and are used to report to a diversity of funding sources at both the agency level and across the total continuum of homeless providers.

The group members added an ongoing design/redesign process to the database project, which they believe is key to its survival. Membership in the ongoing process is open to all participants. Each year, members review data elements for relevancy and data integrity, discuss definitions, revise procedures for collection and dissemination of information, review proposed new data elements, and discuss confidentiality. Core values identified during the implementation stage, including flexibility, relevance, data integrity, feedback, collaboration, and trustworthiness, continue to guide the evolution of the project.

Supporting Materials

- ◆ See appendix B for a sample security layout.
- ◆ *Safe Harbors Design Project*, prepared for the City of Seattle, King County and the United Way of King County (February, 2001). See pages 9 to 27 for a detailed description and graphic layouts of the systems' three levels. This publication is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.
- ◆ *Homeless Management Information Systems: An In-Depth Look*, Center for Social Policy, McCormack Institute, University of Massachusetts-Boston (January, 2001). See pages 13 to 16 for information on system structure. This publication is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.
- ◆ *Homeless Management Information Systems (HMIS) Cost Estimation Guidelines: Cost Framework and Submission Recommendations*, Center for Social Policy, McCormack Institute, University of Massachusetts-Boston/Aspen Systems, Inc. (January, 2002). Document provides detailed information on technical cost elements. The publications is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

Technical Design Exercise #1: System Structure Working Group

Questions to Explore:

1. How will the system be structured?
2. What is the current technical capacity within each continuum area for HMIS adoption?
3. What software tool(s) will best meet the needs of the system?
4. Who will be responsible for the central administration of the system?
5. What are the base requirements at each level (State, community, agency) for:
 - ◆ Hardware.
 - ◆ Software.
 - ◆ Staffing/personnel.
 - ◆ Training.
 - ◆ Technical assistance.

Resources for Working Group:

- ◆ *Homeless Management Information Systems: An In-Depth Look.*
- ◆ *Homeless Management Information Systems (HMIS) Cost Estimation Guidelines.*
- ◆ *Homeless Service Tracking and System Implementation Guide.*
- ◆ *Safe Harbors Design Project.*

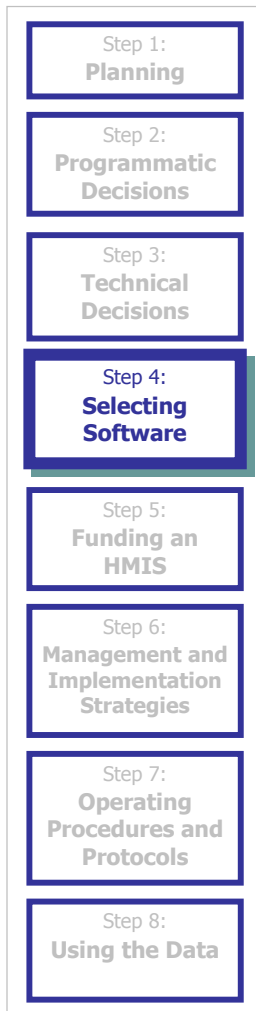
Technical Design Exercise #2: System Structure

Questions

Based on your community's purpose statement and identified goals, create subcommittees to address each of the four issues below. Choose one topic from the list and prepare a response to the questions for the next HMIS planning committee meeting.

- A) System functions: Despite preparation of a purpose statement, questions remain about the structure of the system. What system structure do you recommend? Using the structure you select, what types of information will be gathered and how can they be used? What limitations do the selected structures impose?
- B) System benefits: Service providers are interested in how the proposed system will benefit them and their clients. Funders, who are also interested in benefits to clients, will want to know that their money is invested soundly and that the project includes measurable outcomes. Please list anticipated benefits and outcomes of the system that will appeal to each group.
- C) Existing systems: How will the new system accommodate those agencies in your community that already have databases? If those agencies are satisfied with their existing system, will the HMIS partners try to leverage the other agencies' participation in the community HMIS? Are there other ways to aggregate data from existing systems with the information in the HMIS to ensure an unduplicated count?
- D) System administration: What type of agency would best serve as the central organization? How will the selection be made? Will the community seek to keep all system administration and project management functions internal or will outsourcing be considered? If so, for which functions?

Step Four: Selecting Software



Software is a Tool, not a Goal

This step presents methods for selection of appropriate HMIS software products. First, communities need to develop criteria and gather information for the review process, next conduct a threshold review to screen out inappropriate products, and then carry out a thorough assessment of the finalists.

Despite the temptation to select and implement a data collection tool right away, communities choosing software must first determine local priorities for the system. Following the processes laid out earlier in this document, particularly planning (Step One) and designing the system (steps Two and Three), will provide the lens through which an appropriate product can be selected. Tools that work well for some communities may not be at all appropriate for others, as regional goals and implementation mechanisms may vary greatly. For example, one community may require interagency data sharing, while another maintains client confidentiality as the primary concern. Another jurisdiction may want an integrated I&R feature. Various software products offer different strengths and weaknesses. Once a community decides their preferences, an appropriate product can be selected based on the analysis presented here.

This step focuses on buying an existing product. Some communities choose to develop their own software. That process is not discussed at length here (see the community example at the end of Step Three for how HMIS software development may be approached).

Stage One: Criteria Development and Information Gathering

Prior to beginning the selection process, a community should convene a review team. In many cases the team will be the technical workgroup that conducted the process in Steps Two and Three. The team should encompass representatives of

all stakeholder groups, including agencies that will use the software at program sites, the organization or government body that will function as central server, and policymakers who will be involved in using the resulting data. Consumers of homeless services should be included in this group because their feedback will be instrumental in determining the appropriateness of the tool and their involvement and acceptance will promote buy-in from program participants. In large communities, the software selection process can involve people who have not been part of the visioning and other processes. In small jurisdictions, the effort may involve tapping many of the same individuals. It is critical to involve future software users—front-line agency staff who will actually gather and input the data. Information technology professionals also play a key role in this process.

Local capacity to conduct technical reviews is essential. Although others in the community may not have experience with HMIS products, local organizations and governmental bodies have likely selected software for other purposes. They may have conducted requests for proposals (RFPs) and subsequent review processes to make these choices. Documents and measurement instruments developed for other purposes may be adaptable to HMIS selection. These organizations may also be a good place to identify

technology advisors to assist with technical reviews if system administration staff have not yet been hired. This resource will ensure that communities do not rely too heavily on vendor presentations to gain understanding of software function.

Criteria development

Communities must determine their priorities for software tools. Based upon the planning and visioning decisions made earlier in the process, these priorities will enable community members to narrow the potential product list to those that meet local requirements. For example, communities that decide to include I&R as part of their system will limit their choices to products that offer a resource database component. Two levels of criteria can be developed.

- ◆ Threshold criteria are the minimal requirements for review. For example, if a community requires that data be hosted by the developer, products offered by vendors that do not provide this service cannot be considered. In many cases, threshold criteria will, at a minimum, include products currently in use by other communities (as opposed to proposals to develop a software product or tools ready for beta testing), tools designed for use by homeless organizations (this criteria may not be necessary for communities that choose to include other types of services), and software designed for large-scale implementation by multiple organizations (although small jurisdictions with a limited number of providers may be able to use products designed for single organizations).

A more detailed list of threshold criteria could include:

- User authentication level security (see Step Three for further discussion of this issue).
 - Collection of all APR-related client-level data using a unique client identifier (see Steps Two and Eight).
 - Ability to aggregate data across multiple agencies and programs to create an unduplicated count (see Steps Two and Eight).
 - Case management functions to capture data over time (see Concepts and Components).
 - Ability to customize the software and add data elements (see Step Two).
 - Capacity to provide user training and live customer support.
- ◆ Indepth criteria are developed after the initial list of potential products has been narrowed to those that meet the threshold criteria. This second level of assessment, discussed under stage two later in this step, will measure those community needs that are more specific and, in some cases, subjective. These could include user-friendliness; information sharing architecture; privacy protections; function; reporting capabilities, including the HUD APR and other national funder requirements; capacity for customization; real-time data access; database robustness; personnel requirements, including local and server skill level; hardware requirements; quality and availability of support; ease of installation; vendor qualifications; and cost. At both the threshold and in-depth levels, communities should consider the extent to which the software will forward the overall community HMIS goals.

Designing the decisionmaking process

The workgroup should come to some agreements before beginning to make software decisions. Once the process of determining how decisions will be made is clear, the group should settle on a formal, approved list of threshold and in-depth selection criteria. The in-depth criteria should be ranked according to priority. The review process should also be clearly laid out and agreed upon, including selection steps, timelines, and documentation plans.

At this stage, before soliciting information from vendors, it is a good idea to make sure that the local CoC governing board approves the criteria and selection process. This legitimacy can protect participants later (for example, from vendor criticism and/or a vocal minority who prefer a different system). Although many team members may have personal knowledge of particular products, the group should make a commitment to openness in the process as well as to following the agreed upon structure. Software reviews can produce surprising results. A product a community raves about may not work at all for another community.

Communities in which the purchase will be made by a government organization need to be aware of any legal constraints and purchasing requirements. For example, State, city, or county agencies may be required to conduct public bidding processes, issue an RFP, give preference to local or minority businesses, or follow other relevant mandates.

Communities required to conduct an RFP need to develop a scoring instrument that quickly eliminates unqualified responses to trim the list to those products that meet the criteria. Others may be able to follow a more intuitive process to hone the overall list. However, it is beneficial for all communities to develop some sort of questionnaire for vendors. This type of process provides an opportunity for vendors to play on an even field and, if it includes the community requirements, can keep developers from applying even though they know that their product does not fit community needs. See the supporting materials section at the end of this step for reference to a sample RFP.

Contracting: A Logistical Note

During the planning process, as the community determines the most appropriate governing structure and system administration entity, workgroups should consider contracting logistics. One legal entity must act as the central administrator of the project for purchasing, hiring, and fiscal purposes. This legal entity must have the authority to execute grant agreements with funders, employment agreements with project staff, and contracts with the various vendors and contractors, including the software developer. This entity will also need to execute the formal policies adopted by the governing board, including agency-system agreements with each participating program site (see Step Seven). Prior to starting the implementation process, communities should become familiar with any purchasing processes required by project funding sources, such as bidding, public notices, and/or formal RFPs. Additionally, depending on the choice of the entity, legal requirements for contracting, hiring, timelines, and liability may vary.

Information gathering

Once agreement has been reached around the relevant screening criteria, communities need to develop a list of potential software products. Resources are available to assist with this process on the HUD HMIS Web site, including *Homeless Management Information Systems: An In-Depth Look* (January 2001). This document includes a list of the known HMIS software products. This inventory may not be exhaustive because the development and enhancement of HMIS is constant, but it does include those systems with established usage in jurisdictions across the country. The report also reviews a selection of those products. Although a great deal of detail is provided on each of the selected products, communities should engage in their own review processes. The guide can be used to narrow the list of potential products according to the threshold criteria discussed above but should not replace indepth local review processes designed to determine the appropriateness of particular tools for meeting specific community needs.

To conduct a thorough review, communities should gather the following information from relevant vendors:

- ◆ Written marketing materials, including pricing and, where relevant, questionnaire responses.
- ◆ Access to a demonstration Web site or program disk.
- ◆ References.

Stage Two: Threshold Review

Using the materials gathered in the first stage, team members should compare the threshold evaluation requirements with the vendor materials to develop a short list of software products that meet the threshold criteria. Reviewing this information as well as viewing the product itself should allow team members to gain a basic understanding of function, architecture, reporting capabilities, security, hardware requirements, cost structure, and available support for each vendor. This initial review can also identify missing information that needs to be collected about those products to be considered in the final product review.

Stage Three: Finalist Product Review

Once the list of potential products has been narrowed to a few that meet the community's threshold criteria, the workgroup should conduct a thorough review of the remaining tools. The review process should employ multiple methods to comprehensively evaluate each of the products in a standardized manner on a range of indepth criteria. By involving stakeholders at all levels and gathering information from a variety of sources, the process will enable local decision makers to make informed choices based on a detailed assessment of the strengths and weaknesses of the various products.

To ensure the objectivity of the process, localities will have to focus on their priorities once the review process is complete. For example, one product may be very user friendly but have poor security features. If a community has decided that confidentiality is the top priority, it may need to sacrifice user friendliness—a lesser priority—by eliminating that product from consideration. The review process should include technical assessment, user testing, vendor and user site visits, and cost analysis.

Before embarking on the reviews, team members should be aware that most software products must be customized to meet local needs. Particularly in large areas with diverse needs, there will likely be data relevant to local planning that are not captured in the existing product. Once a selection has been made, communities can work with vendors to customize the product appropriately.

Technical assessment

The technical assessment of software products should analyze information sharing architecture, privacy protections, database robustness, security features, data elements, capacity for customization, and reporting capabilities. The technical product analysis should be conducted by technical staff (MIS/IT) by installing and testing each product locally. The MIS/IT professionals will have questions that cannot be answered by reviewing the information provided by vendors. Consequently, they will need extensive discussions with the developers to gather responses to particular inquiries. It is also helpful if the MIS/IT reviewers develop an objective technical evaluation tool based on the parameters recorded in the community's system design requirements document (described in Step Three).

The assessment can judge appropriateness of fit based on the software's hardware, personnel, installation, and implementation requirements, including local and server skill level. Reviewers should also plan to conduct tests designed to review the systems' robustness and to determine stability, performance, and scalability of the various products. When reviewing security, team members should assess those features that limit user access, rights to data, and ability to share records across programs and agencies. (See Step Three for a fuller discussion of this issue.)

The data elements review should determine the specificity and exclusivity with which elements and response categories are defined. For example, reviewers can examine income data fields to see whether the software collects transactional data in appropriate data formats. When reviewing data elements, it is important to keep in mind that most vendors and, in some cases, users can add data elements simply (see Step Two for a more detailed discussion of minimum data standards). Communities should determine whether most of the elements they foresee collecting are included and the costs and processes for supplementing the existing variables with others selected by local stakeholders. Reporting capabilities can be assessed by entering data and testing standard report output of the information.

User testing

Local, onsite testing by end users and potential system administrators is critical to the review process. User testing serves as an ideal means through which case managers, direct service providers, and homeless program consumers can gain an understanding of the specific software application. If the community selects a product that does not work well for providers and consumers, implementation problems will likely result.

To conduct this testing, communities can set up a user lab, installing each of the products selected for in-depth review on computers⁶. In the lab, local stakeholders can try the software. Case managers, direct service providers, consumers, program directors, and staff members from the organization that will coordinate the process and function as the central server should use and review each of the systems.

Lab users should be given sufficient time to explore each product, enter dummy data, and generate reports. MIS/IT staff should also use this opportunity to review ease of installation, including documentation and support. Lab users should be asked to complete a questionnaire rating each of the products according to local indepth criteria.

A sample questionnaire is referenced at the end of this step and included in appendix D. This sample instrument captures information in three areas—data entry, usefulness, and output. For purposes of the tool, *data entry* is defined as ease of entry and navigation, logical and consistent flow, and appropriate entry time. *Usefulness* covered appropriateness of questions and available responses, and accessibility. *Output* considered reporting capabilities, usable format, and efficient location of information. Responses can then be analyzed to obtain scores for each category, which can be computed by averaging each of the category results. Reviewers could choose to set a minimum required score in each category—products below that number would not be considered.

Users can also be invited to participate in discussion groups. During these sessions, participants can provide valuable feedback about their impressions of each of the systems—its assets and drawbacks—and

⁶ In communities planning a client/server system, it is usually not feasible to actually set up a server. In these cases, the lab is not able to replicate actual client/server communication process.

their suggestions for the format of the new system. User testing will provide a wealth of information on overall product function.

Meeting with vendors and users

Another stage of the review process involves meeting with vendors and visiting sites where the products are currently being used. Reviewers should plan to meet with product developers, central server staff, end users, and local consumers/peer advocates for each of the final software packages. Vendor meetings will provide team members with an opportunity to learn about the development history and goals of the product, staff communication style, and customer approach. With this approach, the workgroup can also pose technical questions and concerns about function directly to the developers. Finalist vendors can be asked to travel to the community to save on review costs.

Site visits can be used to test the products in process, review system speeds, and gather information on consumer satisfaction, functionality, and the quality and availability of technical support. Again, this part of the review is a good place to include consumers, who bring a unique lens to the assessment process. The review team should plan to visit at least one site for each of the products. When cost hinders more extensive site visits, visits can be replaced with indepth phone interviews with other users. Reviewers should employ a common site visit instrument (see sample tool in appendix E) to evaluate a community's experience with the product.

During user site visits, reviewers should attempt to talk with people who represent a range of user roles, including case managers, central server staff, agency heads, and consumers. They should observe the software in use at service program sites of different sizes and technical configurations, review and measure the speed of the system (how quickly or slowly it responds), watch a client intake, and be given the opportunity to enter some data themselves. Through this process, the review team will gain information on the actual workings of the product in action. Local stakeholders can provide data on their implementation and operational processes as well as their level of satisfaction with the product and vendor. Reviewer questions for case managers and central server staff should focus on:

- ◆ Implementation processes, including:
 - Planned and achieved benefits to stakeholders.
 - Financial and human resource requirements.
 - Training.
- ◆ Structure, including:
 - System configuration.
 - Interface with other management information systems.
 - Security.
- ◆ Product satisfaction, including:
 - Quality and availability of technical support and updates;
 - Reliability.
- ◆ Operations, including:
 - Function.
 - Customization.
 - Reporting.

Difficulties often arise during actual implementation. Products with which communities experienced poor implementation processes should not necessarily be eliminated from consideration. Instead, reviewers

should ask sites about the difficulties they experienced and assess how the vendor responded to the community's challenges and how user feedback was incorporated into product updates. That information will demonstrate the vendor's commitment and responsiveness to users. Good products are those that have been regularly updated on the basis of user feedback.

Cost analysis

A full discussion of the costs associated with implementing and operating an HMIS is included in Step Five: Funding an HMIS. This step focuses on software costs, which represent just a portion of the overall expenses involved in this type of undertaking.

To compare costs across more than one product, workgroups must gather standardized information. Appendix F of this guide contains a tool requesting one-time fixed costs, one-time variable costs, and annual variable costs across a number of expense categories. Vendors should be asked to provide this information for relevant expenses, including site and server licenses; hardware; hosting fees; support and maintenance; and training. This information can then be analyzed according to local needs. To determine actual costs, communities can use the information gathered during the assessment of required infrastructure (Step Three), including the actual number of personal computers, sites, and concurrent users.

With this information, the community can compute and compare cost estimates for various time periods. Comparing projections for the first 12-month period with the second can be helpful because so many costs are initial one-time expenses. In addition, rates for customization, training, and technical support can be compared across products. Since some costs depend on local choices, communities may want to request that vendors price options for various structural models, such as data hosting and service provider agency training. With this information, communities can determine the cost effectiveness of contracting with the vendor for services, as compared to hiring staff. (System management options are described in more detail in Step Six.) Results of the cost analysis can help communities choose from among similar products. In some cases, locales may find that they need to trade cost for system robustness. Often, products built with advanced technology are more expensive than simpler tools that may not be as efficient at handling large amounts of data.

When making these comparisons, workgroups should use the cost data as estimates. Vendor pricing is continually in flux, and most vendors report that they negotiate fees with communities based on local needs. The purpose of the cost comparison is to begin to gain an understanding of the range of software expenses and to assess these across various products. After the community has made a software choice, negotiation can begin and actual expenses can be determined. For example, many communities will have considerable customization and/or conversion costs, but the actual figures can be determined only after extensive needs assessment and negotiation. To go through this process with more than one vendor is not prudent. However, communities should negotiate these costs before entering into a contract.

Final product selection

Based on the results of the indepth review process and following the prescribed decisionmaking structure, team members can recommend a product that best meets community needs. In most cases, the larger planning group must approve this decision. Group members then need to quickly inform as many stakeholders as possible. Inevitably, there will be community members who disagree with the selection. The best protection against criticism is a thorough, objective, inclusive, and well-documented review process.

When the selection process is complete, community members can begin to negotiate a contract with the selected vendor. Data gathered during the review process should inform these discussions. Any final decisions about community requirements will be made as the details are worked out. Concurrently, the community can begin to work with the vendor to prepare for the next steps—funding and implementation.

Supporting Materials

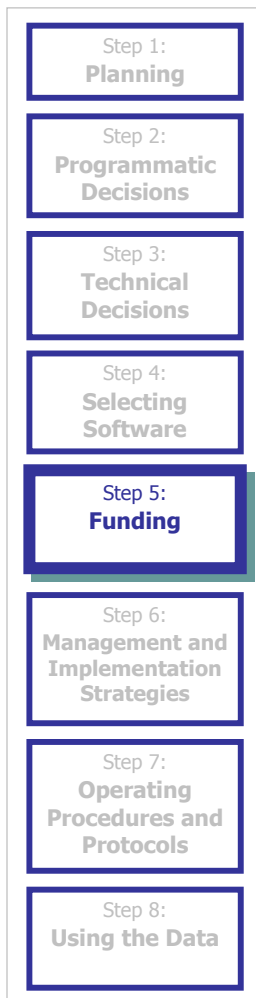
- ◆ See the appendices for the following documents:
 - Sample Lab User Questionnaire (appendix D).
 - Sample Site Visit Instrument (appendix E).
 - Sample Cost Comparison Form (appendix F).

- ◆ *Homeless Management Information Systems: An In-Depth Look*, Center for Social Policy, McCormack Institute, University of Massachusetts-Boston (January, 2001). This report is currently being updated. It will be available on the Web site at a later date. The January 2001 version is available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

- ◆ A sample RFP can be found at www.nhsdc.org.

- ◆ *Homeless Management Information Systems (HMIS) Cost Estimation Guidelines: Cost Framework and Submission Recommendations*, Center for Social Policy, McCormack Institute, University of Massachusetts Boston/Aspen Systems, Inc. (January, 2002). This document provides detailed information on technical cost categories. Available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

Step Five: Funding an HMIS



This step provides a framework to help communities think about the various funding demands and potential resources available to finance the planning, implementation, and operation of an HMIS. This task is complicated by the fact that no set formulas are available to estimate overall or annual costs. Instead, HMIS-related costs vary tremendously based on a community's structure, capacity, and design decisions (see Steps Two and Three). The information provided in this step illuminates the types of costs a community should anticipate and helps stakeholders understand how design and infrastructure decisions affect costs. Similarly, there are no universal funding sources that can be used to support HMIS implementation. However, this step provides information on several frequently accessed resources that a community may want to explore along with suggestions on how to justify the use of each of them.

HMIS Funding Phases

Phase 1—System planning: Planning costs are those incurred while a community establishes the HMIS vision, design preferences, and system requirements. These costs typically include staffing and facilitation of planning committees, meeting expenses, and participant/consumer stipends to support community visioning, goal-setting, conceptual system design, and development of preliminary systems requirements documents.

Phase 2—System selection and implementation: Implementation costs encompass personnel, equipment, software, overhead, and other expenses related to selecting and implementing an HMIS. Staffing needs may include project management, network administration, programming, training and technical assistance, consumer representation/training, and administrative support. Equipment costs include central server(s), site computers, and telecommunications and security hardware. Software costs include purchase or licensing, customization, installation, training, and support. Other expenses include meeting facilitation,

legal consultation, security analysis, and other contractual expertise needed during specification development. Implementation costs will vary widely based on the breadth, depth, and function of the HMIS.

Phase 3—System operation and sustainability: Ongoing costs for operating and using the HMIS will include personnel, contractual services, equipment maintenance, data storage/hosting costs, and overhead expenses. Personnel or contractors can provide system programming, technical assistance and training, data hosting, data analysis, and reporting. The majority of these costs will be incurred centrally although data entry, equipment maintenance, and hardware costs will also be incurred at the program site level. Phase 3 costs are often mitigated by in-kind contributions, particularly if aspects of central server administration can be provided by local government or other partners.

Exhibit #1 Categories of HMIS-related Costs⁷

Potential Cost Items	Planning	Implementation	Operations
Personnel and/or Service Contractors			
Project management	X	X	X
Meeting facilitation	X	X	X
Consumer involvement specialists	X	X	X
Technical consultation	X	X	X
Legal advice	X	X	
Security assessment and set-up		X	
Security testing		X	X
Disaster and recovery			X
System administration		X	X
Programming (customization, interface development, data conversion)		X	X
Data storage/hosting		X	X
Data analysis			X
Technical assistance and training (agency and consumer)		X	X
Administrative support	X	X	X
Equipment			
Central server(s)		X	X
Personal computers and printers		X	X
Networking/ telecommunications		X	X
Security		X	X
Software			
Purchase, development or licensing (server and client licensing)		X	X
Customization		X	
Installation		X	
Support and maintenance		X	X
Training (vendor-sponsored)		X	
Supporting tools (data analysis, reporting)		X	X
Operating Expenses			
HMIS space and overhead	X	X	X
Online connectivity (Internet access)		X	X
Agency participant stipends		X	X
Miscellaneous expenses (meetings, travel, communications)	X	X	X

⁷ Cost categories are fully explained in “MIS Cost Estimation Guidelines.” See supporting materials.

Design Decisions and Community Opportunities Impact Funding Needs

Within each community, there are many structural issues and design decisions that can affect cost. Some of these include the level of existing infrastructure, system administration decisions, the types of programs and geographic area covered, the overall vision and function for the system, the level and type of security measures, whether agency participation is voluntary or mandatory, and the extent of change that will be required of participants. For each of these issues, many beneficial options have an adverse impact on costs. The size of the community and number of participating programs will also contribute to cost. However, their impact will not be as much of an indicator as these other factors. A community can realize significant cost-effectiveness by working with other jurisdictions to share expenses. These cost-savings can far outweigh the cost of the added complexity.

- ◆ Existing infrastructure: Communities can implement an HMIS using existing technology or they can create that infrastructure through the HMIS initiative. Communities that employ existing technology have lower costs than those that create it. For instance, if most of the agencies already have computer equipment and use of a central server from the local government or a community agency, these items will not need to be included in the budget. Conversely, if the community has little or no computer equipment or experience using it, both equipment and extensive basic training will be needed.
- ◆ System administrator: Private nonprofit organizations, government agencies, or independent third parties—such as research institutes or private contractors—can administer systems. Expenses may vary depending on the type of agency, the level of expertise required to administer the system, and the amount of in-kind support that can be provided by the administering body and other partners.
- ◆ Project scope: Communities can choose to focus solely on homeless shelters and service providers in their system or to encompass a wide variety of social service and housing agencies that provide services to homeless as well as housed clients. Broader reaching systems are more expensive, but more partners are available to share costs. Similarly, the system can collect data for a limited jurisdiction—such as a small city—or it can extend to cover a complete county, region, or State. The broader the area, the greater the complexity, security needs, and cost; yet, broader systems can achieve greater efficiency at the central organizational level, and there can be greater opportunity for regional system planning and referrals.
- ◆ System vision and functionality: Some communities implement HMIS to meet local reporting needs. Others aim to improve service delivery throughout the region. The breadth of this vision affects cost. Systems built solely to standardize reporting tools across community programs are simpler and less costly to run but cannot realize many of the other potential HMIS benefits. Those incorporating an I&R function will incur additional costs for database development and maintenance but will reap additional benefits for consumers and case managers. Those attempting to link service providers for streamlined case management and improved service provision are more expensive, but offer greater potential.
- ◆ Security measures: Depending on the type and extent of the security design, HMIS security measures can require substantial start-up and ongoing operational resources. Security is an area in which a community should not under-invest. However, different technology approaches (e.g., Web-based access) may have variable security cost impacts, and system design approaches (shared case management) may affect the level of security required. Follow-up security testing and programming expenses should be anticipated.

- ◆ Type of participation: Government-run systems often mandate participation of publicly funded programs. Systems that allow for voluntary participation can be more costly as they must use outreach strategies and incentives to attain support from all of the local service programs. This work can require a great deal of staff time and energy, but volunteer partners may be more invested. In either case, strategies to assist participants in offsetting start-up and operations costs are important.
- ◆ System change: The level of consensus building and adaptation required within a community can dramatically change the type and costs of planning. Stakeholders may need external facilitation, structured planning and decisionmaking exercises, and designated consensus-building staff to guide the community through the design, implementation, training, and operation stages. Remember that the need for outreach, cultivation of buy-in, and training does not end once the system is in place. Budget planners must account for these costs in ongoing operations budgets as well.

Planning groups must evaluate decision options in relation to community needs and should be open to certain compromises to achieve economies of scale. Design decisions may be limited by resource availability or design can drive resource development. An HMIS requires substantial investment to implement and maintain. This investment is all the more reason to identify community partners, take an adequate period of time to conduct community visioning, and clearly articulate the community's requirements to ensure that the system meets local needs.

Potential HMIS Funding Sources

Many communities face challenges identifying and securing funds for HMIS planning, implementation and operation. In most cases, no single source will fund all phases or all aspects of an HMIS. Some communities have received funding from resources such as those listed below:

Federal grants

The most frequent Federal source for HMISs is the HUD Continuum of Care (CoC) Supportive Housing Program (SHP). With recent changes in program rules, costs associated with **implementing and operating** HMIS are eligible. Communities can now apply for HMIS funding as a stand-alone SHP, cost share by adding an HMIS line item to all other SHP new and renewal projects, or use a hybrid of these methods.

SHP funds can be used to support implementation and operational HMIS costs but cannot be allocated to planning costs. The HUD Community Development Block Grant (CDBG) has also been used in many communities to pay for planning, implementation, and operations. HUD Emergency Shelter Grant (ESG) funds can be used to implement and operate an HMIS at the shelter level (and to support HMIS participation by homeless prevention agencies that may not be eligible through SHP). If the HMIS can produce the required reports, ESG administration funds can be used to support central implementation and operation costs. Also, HUD Housing for Persons with Aids (HOPWA) funds can be used to support an HMIS for HOPWA-funded agencies if the funds are appropriately prorated. Other Federal program or administration funds may be available to cover appropriate costs if the HMIS helps the funded agency meet their program and client reporting requirements.

Other Federal agencies have competitive grant programs that can be used to fund technology innovation or improved access to care. One example is the Technology Opportunities Program of the Department of Commerce.

Funding justification for Federal funds: As discussed in the introduction, the FY01 Senate Report 106-410 outlines the Federal Government's interest in HMIS technology. Once implemented, an HMIS can be used to aggregate appropriate client-level data at local, regional, and national levels to better understand homelessness and the effectiveness of various service strategies. Beyond HUD, many other Federal departments are interested in homelessness and direct resources to address it. Therefore, information generated by an HMIS can lead to more informed public policymaking and resource allocation across many Federal policy areas.

◆ Navigating SHP funding for an HMIS

HUD's SHP is one of the most viable Federal funding options for the implementation and operation of an HMIS. Many communities have successfully accessed SHP grants, and recent changes in the CoC application and project eligibility have made it even easier to use SHP funds for HMIS projects. However, it is important to recognize that HUD may change eligibility requirements with each annual CoC Notice of Funding Announcement (NOFA). Therefore, prior to pursuing this form of funding, a community should review all requirements to make sure that it is eligible for the funds.

A community can apply for a one-, 2, or 3-year SHP grant to fund all costs associated with the implementation and operation of an HMIS. Based on the regulations and 2002 CoC NOFA, communities can submit a stand-alone HMIS SHP application, a shared-cost strategy across all SHP applications, or a hybrid of the two.

- Stand-alone HMIS application. A stand-alone HMIS application strategy is used when a community wants to apply for a single grant to cover all the costs associated with implementing and/or operating a community HMIS. In this funding strategy, the community would structure an application to focus solely on costs associated with the HMIS. In this case, a stand-alone project is considered a Supportive Services Only (SSO) project and requires the standard cash match. The application must be ranked by the local community and competes with all other shelter and service projects for CoC funds.
- Shared Cost HMIS application. Given the competitive nature of the CoC process in most parts of the country, a community can choose to share the costs of implementing and/or operating an HMIS among all SHP applicants. The SHP application allows individual agencies within a continuum the opportunity to include a portion of the overall costs in the project budget as a supportive service costs. This budget line item is subject to the standard supportive service matching requirement. This strategy should only be used if the community as a whole defines an HMIS approach and a lead agency is designated to coordinate the funding from the various agencies and to manage HMIS expenditures.
- Hybrid funding strategy. In most cases, the HMIS funding strategy will require a hybrid approach with a combination of project-specific grants, cost sharing, and funding from other sources. In some cases, this means that all agencies submitting new applications will be asked to budget for HMIS operating costs. For renewal projects, limited by renewal funding caps, a grantee may find difficulty procuring additional funds for an HMIS. When HMIS expansions are required, it may be more practical and less cumbersome to develop a stand-alone HMIS application to fund part of the anticipated HMIS expenses. As with stand-alone applications, bear in mind that a hybrid approach will require community consensus about whether or how the HMIS application should be ranked in relation to the other renewal and new project proposals.

- SHP administration funds. Applicants may request up to 5 percent of each project award for administrative costs, such as accounting for the use of the grant funds, preparing HUD reports, obtaining audits, and other costs associated with administering the grant. State and local government applicants and project sponsors must work together to determine a plan for distributing administrative funds among the applicant and project sponsor (if different). HUD allows communities to use SHP administration funds for HMIS activities that relate to reporting; however, these funds cannot be used to meet the 20 percent match required for an HMIS stand-alone SSO project or a shared cost project.

State and local government grants

Many State and local governments have been supportive of HMIS planning and implementation. Although CDBG and ESG are technically Federal resources, these funds are allocated through a State or local government. ESG funds may be used to support HMIS operations. A number of communities have used CDBG funds to support the planning and/or staffing of an HMIS, particularly in conjunction with the annual CoC planning. Many State governments have shown interest in spearheading statewide or regional systems. In these cases, a lead State agency often provides financial and/or in-kind support to help plan, implement, and administer an HMIS. Frequently, State or local government in-kind support includes staffing, technical system administration, equipment, and space for personnel and system.

Funding justification for state and local funds: States also may be interested in statewide or aggregate local HMIS data to inform resource allocation and policymaking in conjunction with other State welfare, healthcare, education, and housing policies. State agencies and local governments responsible for administering Federal HUD grants may support an HMIS initiative because the data collected through HMIS can fulfill the annual planning and reporting requirements of CDBG, HOPWA, ESG, and CoC grants, including the 5-Year Consolidated Plan and Annual Action Plans. Aside from policy and reporting benefits, local officials are often motivated by an interest in improving service delivery.

Private foundation grants

Private foundations with funding interests in homelessness, systems integration, access to care, capacity building, and technology are often viable funding sources. Ongoing private grants can be used for all phases of HMIS development. One-time grants may be useful for targeted technical assistance and training for agencies and consumers, consumer initiatives to promote involvement and capacity building, and one-time equipment, software, and database development costs. Often one-time or short-term grants are easier to obtain than ongoing operations grants from private funding sources.

Funding justification for foundation funds: Foundations are often receptive when an HMIS can be used to directly improve service delivery, such as through I &R, shared case management, or benefits screening function. Organizational capacity-building grants are often available through community foundations. Some foundations may be interested in local policy studies on homelessness and the use of HMIS for program evaluation purposes.

Cost sharing

Cost sharing is an emerging way of funding HMIS in communities where the participating agencies are supportive of the initiative and/or are mandated to participate. This is generally not effective for large capital expenses but a portion of operating costs can be generated through user fees from participating agencies. Many agencies already pay minimum dues to service organizations and are able to handle an additional small expense. Some communities structure cost sharing as a fixed fee per site (e.g., \$1,000 annually or a specified amount per user). Others use a percentage or sliding scale based on organizational size (e.g., one-quarter of one percent of the organization's annual budget). Others ask agencies to be responsible for equipment maintenance, data entry, and connectivity (Internet or dial-up access) costs.

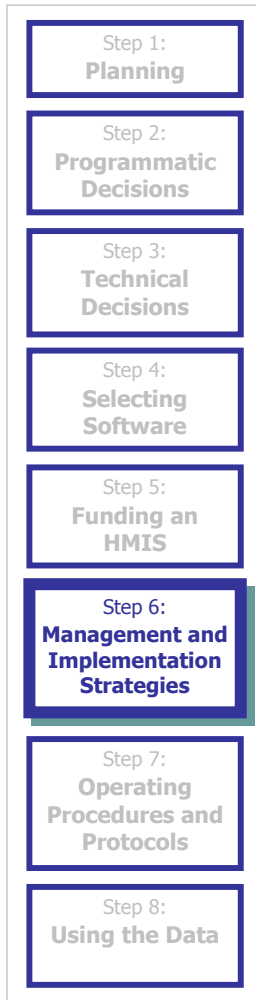
Communities interested in sharing costs through the HUD SHP grant can structure a larger portion of the HMIS budget in terms of shared agency costs, since agencies will not need to fundraise for those revenues.

Funding justification for cost sharing: Many communities believe that agencies will be more invested in a system if they contribute to support its operation. Costs can also be more easily managed if all partners take responsibility for a small portion. Depending on the function of the HMIS, the agency may receive many direct benefits from the system (I&R, case management tracking, reporting, and program evaluation capabilities). If these modules cost more to implement, it may be in the agency's best interests to share in the costs.

Supporting Material

- ◆ *Homeless Management Information Systems (HMIS) Cost Estimation Guidelines: Cost Framework and Submission Recommendations*, Center for Social Policy, McCormack Institute, University of Massachusetts-Boston/Aspen Systems, Inc. (January, 2002). Available on HUD's HMIS Web site at <http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>.

Step Six: Implementing the System—Management and Implementation Strategies



Once software has been selected and negotiation with the vendor has begun, communities can begin to plan for system implementation. This process involves many decisions and several stages. First, communities must settle on a management model, including selection of a local organization to coordinate the system. Then they can develop an implementation strategy and begin execution of the system. Many interrelated operations issues need to be addressed during the same timeframe as system implementation, such as the development of formal standard operating procedures (SOPs). Operational issues are discussed in Step Seven, but they should be thought of hand-in-hand with the tasks discussed in this step. This linkage is particularly true for system management decisions, since structures defined for implementation purposes need to evolve into the operations management structure. This step begins with a discussion of the various management structures, and then moves to implementation strategies, phases, levels, and lessons learned.

Management Models

There are a variety of models for HMIS staffing and management. Although there is no single right way to structure system administration, each model offers advantages and disadvantages that may make it more or less appropriate depending on a specific community's circumstances. Two management types are presented on the following pages. One involves a local organization maintaining primary responsibility for coordinating the HMIS. The other uses outside vendors to carry out much of this work. Both models require that the community identify a central organizing entity to oversee the system and guide HMIS policy development. Many types of entities can be appropriate for that role—a local government, university, not-for-profit, or homeless consortium partner. The matrix on the pages that follow describes the two structures and details some issues to consider.

Identifying the central HMIS organization

Finding the right partner to act as the central HMIS organization is critical to the success of the project. The entity must understand local homeless issues. It must bring certain qualities to the table (e.g., trust, objectivity, organizational stability, and leadership) as well as certain skill sets (project management, technical capacity, and fiscal and contractual competencies). Although some skill deficits can be addressed through staffing alternatives, such as outsourcing with technical contractors; others must be provided through the central organization. Ideally the organization would be generally accepted across the community and viewed as neutral (i.e., without a vested interest in HMIS practices).

Most often, a community identifies an existing agency to act as the central HMIS organization, such as a government/funder, a university/researcher, a provider and/or consortium of providers. As a first step, a community should assess its existing organizations to identify potential central partners.

Some questions to consider include:

- ◆ Is there a natural leader/champion of the process?
- ◆ Does an organization already act in a central coordinating role for planning, funding, or related purposes?
- ◆ Is there an organization that operates a similar kind of system for other networks?
- ◆ Does the proposed organization have a vested interest in the resulting data and/or improved service delivery that might strengthen and sustain their commitment to the project?
- ◆ Is the proposed organization neutral, and do other providers trust it?
- ◆ Does the proposed organization have the appropriate technical and organizational capacity?
- ◆ Can the organization bring in-kind or other resources to help support the project?
- ◆ Are there risks about the proposed organization? Fiscal? Organizational?

In many communities, local government entities or major funders assume this role. These bodies often have access to technical and financial resources as well as in-depth knowledge of the local service provider community. As program funders, however, they may be viewed as suspect by participating agencies. Program consumers may have intensive fears about privacy protections. Conversely, these organizations have the power to enforce participation and thus ensure that the HMIS achieves a high level of data representation.

Universities and research groups are often seen as objective and may have experience with homelessness and technical issues. The primary goal for these organizations is usually attaining quality data from the system. They are not concerned with the distribution of operating funds across service agencies. These types of organizations are usually required to conform to institutional review board policies that protect the privacy rights. It may, however, take longer for community members to become comfortable working with a central organization that is viewed as an outsider.

In other communities, a local not-for-profit consortium partner is the best fit for this role. Again, the organization should be well respected and trusted across the community. Often this group will be a large homeless service provider with internal MIS staff. As such they are familiar with the obstacles that can be faced when implementing an HMIS at the site level. Staff from other local organizations may be more receptive to technical assistance and training from people they view as colleagues. These organizations also have an up-close understanding of privacy concerns as well as relationships with local consumers. However, it is critical that the central organization be respected across the entire community of service providers and policymakers as well as consumers. For example, a large individual shelter may be well known and valued among individual providers but not trusted by family and domestic violence programs. Also, if the HMIS is used to support funding decisions, a service provider may be perceived as having a conflict of interest.

If none of these organizations are appropriate, an independent entity can be created to support the HMIS. However, there are significant challenges to creating and supporting a new entity. Alternatively, a community can look regionally, statewide, or to neighboring jurisdictions to think about creating a shared infrastructure to manage the project that might achieve cost savings and greater organizational capacity.

HMIS staffing roles and responsibilities

Despite the type of central organization and the scope of their role, this group is responsible for all planning, coordination, and management related to the HMIS. The central functions may be undertaken by central organization staff and/or by project consultants.

The primary roles and responsibilities include, but are not limited to the following:

- ◆ Project management (must be provided by a local entity):
 - Provide or coordinate human and financial resources needed to support the quality, accessibility, and function of the system.
 - Monitor progress of implementation process.
 - Facilitate stakeholder forum(s) to inform HMIS operations and policy development.
 - Coordinate establishment of policy and procedures governing HMIS access, use, and data dissemination.
 - Establish, review, and monitor guidelines and procedures of HMIS to ensure security and confidentiality of information within the system.
 - Assure that only trained, designated staff have access to the data. Assign log-on and user licenses to end-users.
 - Monitor security and confidentiality requirements for participating agencies.
 - Monitor integrity of agency input of data into HMIS.
 - Monitor progress of expenditures and coordinate system funding and cost-sharing.
 - If other functions are outsourced, provide oversight of HMIS contractors.
- ◆ System administration (SA):
 - Provide operation, security, maintenance, system auditing, and technical support of HMIS central hardware, software, and connectivity. Penetration testing (testing system security) by an independent entity is encouraged.
 - Set up and manage user accounts, access levels, and passwords (If SA is outsourced, some aspects of account administration may be managed locally.).
 - Host data—storage, back up, and security.
- ◆ Training and technical assistance:
 - Provide technical and user support for HMIS software, including agency account set-up, system monitoring and testing, problem diagnosis and resolution, and routine software and information maintenance.
 - Provide and coordinate ongoing training and technical support for the system. Support the end user in the use of the software, troubleshoot hardware and software problems by phone and onsite.

- Coordinate regular end-user meetings to discuss software updates, data entry, report writing, and system management issues.
- ◆ Communication:
 - Serve as initial point of contact for end-user questions and concerns.
 - Provide ongoing outreach to agency and community leadership to cultivate and maintain support and understanding of HMIS initiative.
 - Maintain contact with software product developer to ensure consistent and uniform communication among product support personnel and community.
- ◆ Reporting:
 - Generate information on the community's homeless and housing situation for community planning, advocacy, and funder reporting requirements.
 - Assist end users in the creation of custom reports and queries.
 - Monitor and approve the dissemination of data collected through the HMIS.
 - Provide regular aggregate data reports to agencies and greater community.

A Note for Small Jurisdictions: It may be possible to divide all of these functions between one or two individuals. These roles require the following HMIS skill sets and knowledge base:

- ◆ Experience in information technology.
- ◆ Knowledge of and experience with relational database management and database administration.
- ◆ Ability to translate among agency information needs, database structure, and functions required.
- ◆ Knowledge of Internet browser interface.
- ◆ Ability to troubleshoot and resolve software and hardware problems
- ◆ Experience in quantitative data analysis.
- ◆ Experience in strategic planning.

Often small jurisdictions may have particular challenges in recruiting staff and justifying the need for a system manager to work full-time on the HMIS. Yet, frequently, it is not realistic or recommended to assign a general staff person to conduct the system administration functions. Instead, small jurisdictions may try to identify other agencies with technology functions that might act as the system administrator on behalf of the HMIS consortium, which can maintain oversight of the policy decisions through an HMIS steering committee (or other advisory structure). Alternatively, it may be especially cost-effective for a small jurisdiction to outsource the data hosting, system administration, and technical support functions to the software vendor or other contractor. Or it may make sense to investigate area interest in a regional or statewide system that can generate system administration efficiencies and share costs among all of the jurisdictions.

Two management models

Jurisdictions around the country have approached staffing an HMIS differently, with some hiring full-time project staff and others using a combination of existing staff to oversee project consultants. There are advantages and disadvantages to both of these approaches, some of which are described below.

- ◆ Central staff

The central HMIS organization hires all system administration staff as direct employees of the organization. The central organization performs central server functions, accounts management, data storage and analysis, system security, site technical assistance, and training. Even with this model, project consultation is often used to supplement staff in particular areas (e.g., system assessment and set up, security testing, and legal expertise). As noted above, this approach requires that the community identify an entity as the central organization, such as a government, university, not-for-profit provider, or homeless consortium partner that is respected by all of the HMIS participants.

- ◆ Outsourcing model or hybrid

The primary HMIS system administration services are outsourced to an outside vendor—frequently an HMIS company or a local contractor. In this model, the central HMIS planning, coordination, and data analysis activities often reside with a community organization (and/or CoC coordinator) that also supervises HMIS contractors. There are endless variations on employee-consultant management schemes. Most often, contractors are used for high-end technical tasks (e.g., programming, data conversion) and/or tasks that can be performed more efficiently in a larger-scale environment (e.g., system administration, data hosting). Consultants can also help manage special projects (e.g., meeting facilitation, data analysis, security testing). One central entity needs to contract with the independent consultants and/or vendors, and strong communication is critical.

Exhibit #2 HMIS Staffing Models

Model Type	Central Staff	Outsourcing Model or Hybrid
Advantages	<ul style="list-style-type: none"> + HMIS planning can be closely aligned with system administration. + Based on ongoing technical assistance and training and data cleaning, project manager has closer working relationship to agencies. Problems can be identified more quickly. + Partner agencies may have more trust in a local organization and approach staff with questions before they become problems. + Central organization may provide in-kind staff support and/or equipment. 	<ul style="list-style-type: none"> + If a strong coordinating entity for homeless issues already exists but lacks appropriate HMIS expertise, technical consultants can provide the necessary skills to support the HMIS within the existing structure. + An outsourcing or hybrid model may offer expertise that is otherwise unaffordable or not available within the community. + If there is not a natural central entity, outsourcing may eliminate difficult power struggles.
Disadvantages	<ul style="list-style-type: none"> - Too often, staff members have excessive work demands and do not have enough time to devote to HMIS operations. - It is difficult to balance staff positions with workload (e.g., quickly hire staff and/or reduce staff if work stabilizes). - Staff turnover can create voids in support and/or staff who are thrust into positions beyond their capacity. - It can be difficult to recruit technical staff at social service wages. - A full-time system administrator may not be needed, but it may not be feasible to get the necessary technical skills from a generalist staff member. 	<ul style="list-style-type: none"> - The pieces may be difficult to juggle if spread across multiple agencies without strong communication. - Community providers may trust so-called experts too readily and may not watch to be sure appropriate security and protections are in place. - Technology, instead of community needs, may drive solutions. - Contractors may not be familiar with or sensitive to local needs. Similarly, it can be hard to know if expert advice is appropriate to meet community needs. - Costs may spiral with scope creep, as business development is part of a vendor's goal.

Implementation Strategies

Once agreement has been reached about the central organization and management model, communities are ready to begin planning for implementation. This step presents four potential implementation approaches, including cutover, parallel, phase-in, and pilot approaches.

◆ Cutover implementation

Cutover implementation is the replacement of an existing system—manual or automated—with a new system at a scheduled point in time. It assumes that the cutover process takes place all at once with the implication that all resources and preparation are in place throughout the network of participating agencies.

Because of their forceful and comprehensive nature, cutover implementations can only be done when the conditions in the community are favorable to the HMIS initiative—there are few or no uncertainties about how to proceed, and willingness and preparation throughout the continuum are evident. Also, system management must be well organized. This type of implementation suits smaller jurisdictions where there is clear consensus about the initiative and scope of the HMIS use and resources are in place.

◆ Parallel implementation

Parallel implementations are characterized by the fact that the community has not yet developed a significant sense of confidence, trust, or understanding of the HMIS. Therefore, the existing methods or systems continue to be operated for a probation period. During this period, current systems (paper and MIS) are used side-by-side with the new HMIS until a level of trust or confidence in the system is reached, justifying replacement of the old system.

In parallel implementations, it is important to provide enough data elements for stakeholders to compare in order to assess performance and results. The new system generally will not become fully operational until a designated group is satisfied with its performance and trusts that the old system can be safely abandoned. The tandem performance requirement is most often due to user-related issues, rather than technology. In parallel implementations, the community must recognize that operating two systems simultaneously places a burden on staff.

The conditions that tend to be more appropriate for this kind of approach are those characterized by small to medium jurisdictions that have a rather simple HMIS scope but have not yet addressed all the issues involved in implementation. For example, although some members of the community may be ready to proceed, consensus has not yet been reached among all of the partners. Planning may have begun with a narrow group of stakeholders. Those who are newer to the process may need some time to implement policies and attain buy-in from their agencies.

◆ Phase-in implementation

Phase-in implementation refers to the process of bringing in the HMIS system in phases over a prolonged period of time. For example, phases can be defined in terms of HMIS components or functions (e.g., I&R, intake, case management). Alternatively, phases can be defined in terms of geography (e.g., city, northern counties, southern counties). Yet another criterion may be program types (e.g., emergency shelters, transitional, permanent, services only).

In phased implementations, the focus of attention is on managing scarce resources to conduct and support the deployment process. This approach is suitable to large continua or groups of continua where planning has been successful and there is a great deal of support for the HMIS initiative. However, the implementation is complex due to the size of the project or funding constraints.

◆ Pilot implementation

Pilot implementation is the process of deploying the HMIS with a particular set of programs to resolve outstanding issues or questions. The pilot's main focus is to produce enough evidence, data, or experience for learning to take place. Once the pilot has proven to produce the requisite evidence, the final design decisions can be made, and implementation can expand to other organizations.

Since pilot implementations are essentially experimental, this approach makes sense when the conditions surrounding the HMIS initiative are complex and uncertain. For example, in a community where the participation of domestic violence programs is critical but privacy and security issues have not yet been resolved, the HMIS could be piloted first with programs for which security is not such a grave issue. These procedures could be further specified while others are beginning to use the system. Conversely, the HMIS could be piloted with the domestic violence programs. When confident in its efficacy, particularly in terms of privacy and security, these programs would then be ready to be spread to the wider community. This strategy also

works well when funding sources have not yet been identified. Results can be used to influence a funder that the effort is, indeed, worthwhile.

An example of a pilot implementation is provided in the community example described at the end of Step Three.

The table below compares these approaches by certain characteristics: the principle behind the implementation approach, the conditions that make the approach applicable, the thrust or driving force behind the initiative, and how resources are or can be deployed.

Exhibit #3 Choosing the Best Approach

	Cutover	Parallel	Phase-In	Pilot
What is the principle?	Old systems are replaced with the new system at one transition point (on a certain date).	Old (i.e., manual) and new systems operate in parallel for a set period of time.	The new system is introduced in phases over an extended period of time.	The system is first tried out within a subset of the population prior to full implementation.
Under what conditions and risks is this approach appropriate?	Conditions are simple and certain. Clear and specific. The risk of implementation is considered low because most of the necessary elements are in place.	Conditions are simple and clear but evolving. The risk of implementation is moderate because there are reasonable resources and procedures in place.	Conditions are complex but certain. Clear but evolving. The risk of implementation is high because there are many constraints.	Conditions are very complex and uncertain. The risk of implementation is high because there are many unknowns.
How does it move forward?	Proceed according to set schedule.	Proceed by comparing and building trust in the new system.	Proceed by managing use of resources.	Proceed by experimentation and learning.
How are resources deployed?	All resources are in place at the time of implementation.	All resources are in place with capacity to handle double operation.	Resources are insufficient to handle cutover implementation. Staff must be optimized.	Required resource levels cannot be defined until all design issues are resolved based on initial operation.

The table below shows specific indicators that a community can use to analyze their implementation environment, in order to identify the most suitable implementation approach. This list of indicators is not meant to be exhaustive, but rather represents key points to guide communities in selecting an implementation strategy.

Exhibit #4 Readiness Indicators

Indicator	Clear and Specifiable	Evolving	Uncertain
Existing system	One system in use at several agencies.	In use at a few or a couple of agencies.	No existing system used by more than one agency.
Consumers	Small number	Small/large number	Large number
Provider agencies	Few, similar	Few heterogeneous or many similar	Many, heterogeneous
Other organizations	One	Several	Many
Jurisdictions	One	One or two	Two or more
Project scope	Single application	Single or several applications	Several applications
Project objectives	Defined	Outlined	Still unclear
Consensus and trust among partners	Clear	Apparent	Nonexistent
Local resources	Identified and available	Outlined	Unidentified
Resource roles	Clear	Unclear	Unidentified
Recommended approach	Cutover	Parallel or Phase In	Pilot

Implementation Levels and Phases

Whether a community elects to begin with a pilot or move directly to cutover implementation, the process will involve a great deal of work on at least two levels—communitywide and site implementation. The implementation process should be carefully managed to coordinate the various aspects of implementation, develop timelines and benchmarks, and monitor progress and barriers. At both the community and site levels, there are several phases of program execution.

Communitywide implementation

At this level, most of the work will be accomplished by the central organization, with a great deal of stakeholder participation. As discussed in Step Seven, this organization will guide member agencies through developing a set of SOPs. This process will describe the detailed workings of the system as well as agency and staff requirements. SOPs concerning issues such as agency participation agreements and agency and central server security protocols must be in place prior to data actually being entered in the system. In addition to policy development, the central organization must either set up its central server(s) or finalize outsourcing agreements with vendors. In most cases, this process will involve resource acquisition, including the following activities:

- ◆ Purchasing, setting up, and testing the central server(s).
- ◆ Set-up and testing of the HMIS application.
- ◆ Customization and testing of these unique features.

- ◆ Networking and connectivity at the central organization, as well as providing support for sites in this area.
- ◆ Hiring and training HMIS personnel.
- ◆ Developing a training curriculum and plan.

After the preparatory work is complete, actual implementation can begin. Implementation provides an excellent opportunity to involve consumers beyond advisory boards and focus groups. Some of the more complex aspects of HMIS implementation may be too technical for the average consumer, but exposing system implementation issues to interested individuals will, over time, produce greater interest in learning more, cultivate peer trainers or advocates, and encourage some to seek training to attain employment in this field.

The first phase, HMIS component implementation, involves introducing participating agencies to each part of the system and taking them through the implementation of each HMIS component. This phase is particularly important in continua where the HMIS initiative includes both I&R and case management. Systems that encompass an I&R component must develop policies for the I&R directory, including updating procedures and training. The case management component will also require training of site personnel, assisting agencies in implementation and report production, and development of reporting specifications at the aggregate level.

In Phase 2, full implementation, the central effort is to transition the majority of the participating agencies into full implementation or regular use. Activities involved in this phase include developing specifications for aggregating and extracting data from the central server, beginning to produce reports, and providing ongoing training and technical assistance to sites.

The third and final phase at the communitywide level is making the system is operational. The activities involved in this phase represent the ongoing level of central work required to maintain the community HMIS. At this point some of the central effort will be devoted to providing operational support to participating agencies but most of the central effort is devoted to data analysis and reporting. Activities include:

- ◆ Assisting sites with complex reports and troubleshooting.
- ◆ Refining basic server administration, security, and backup.
- ◆ Working on upgrades and improvements to the HMIS system.

Site implementation

Preparation at this level begins with the identification of personnel at each site who will be responsible for overseeing the implementation and maintaining communication with the central organization. They can be identified using the information collected in the technical infrastructure assessment survey (Step Three). At each site, SOPs have to be reviewed and agreed upon (Step Seven). Where appropriate, sites need to execute data sharing agreements using the procedures established by the central organization. Agencies need to acquire and install any necessary equipment as well as attain networking and connectivity access. Where appropriate, HMIS software needs to be installed at each workstation. The central organization will provide user names and passwords. Agencies also need to develop procedures for data entry (e.g., Will intakes be done on computer or will overnight staff input hard copies?) Finally, existing data need to be converted to the new system.

After preparation is complete and data entry has begun, sites will enter Phase 1, data collection mode. During this phase, modest amounts of data are collected and a limited number of transactions processed. Agencies in this stage will focus most of their efforts on data entry, and on training staff on the new system and procedures.

Participating agencies proceed to Phase 2, referral and case management mode, when all agreed upon data are entered regularly on many clients and many transactions are recorded. The HMIS is beginning to be used to support service-planning processes. Agencies undergoing Phase 2 focus their time and resources on using the system as a tool to enhance service delivery.

Next, agencies proceed to Phase 3, administrative mode. At this point the HMIS is utilized to support administrative or reporting tasks. For example, nightly bed lists are processed with the system and the HUD APR is generated. Agencies undergoing Phase 3 will normally concentrate some of their effort on using the system to improve administrative and reporting tasks.

Finally, sites reach Phase 4, fully operational, when the system has been reasonably integrated into the daily operations of the agency and the agreed upon coverage has been reached. Agencies in Phase 4 require little assistance from the central organization.

Lessons Relating to Implementation

To ensure the smoothest possible implementation process, community stakeholders should be aware of some of the many natural dynamics that occur during this process. Most of these issues have to do with deliverables and their timing (e.g., when things are expected to happen, but often do not). In most cases, implementation is often more difficult and involved than initially anticipated.

Understanding progress during implementation

The notion of progress in information systems is very elusive. There are many intangibles that consume resources. Some of these intangibles involve the nature and complexity of relationships that are created among implementers, agency staff, administrators, and other interest groups. Activities designed and undertaken to move groups of stakeholders from one state of being to another can be overwhelmingly costly and lengthy. For example, debate and decisions about how to handle confidentiality or data sharing in practice may take considerable time. These tasks are referred to as *soft* activities because they lay the groundwork but do not produce concrete deliverables. Instead, they build trust and later provide direction for system design and content for community SOPs. These activities should be planned for and documented.

Handling delays and unforeseen barriers

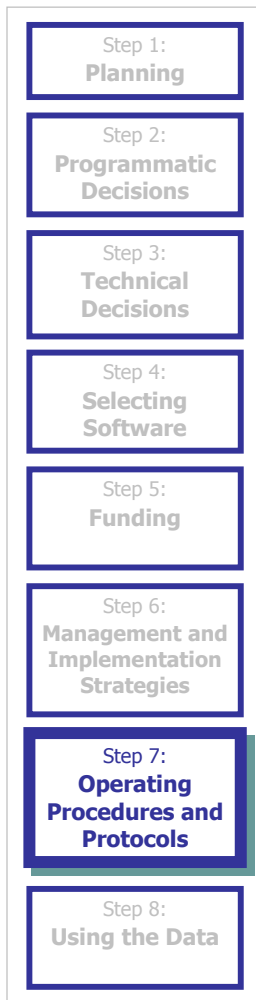
Barriers to implementation will present themselves and delays will occur. For example, equipment may not arrive on time, trained staff may leave the agency, and meetings to complete security protocols at an agency can be cancelled. These examples provide but a glimpse of the many issues that may routinely generate barriers to timely implementation. Instead of allocating extra time for these issues, it is advisable to properly document progress and delays according to each agency's implementation schedule.

Dealing with change

HMIS implementation projects are about change—change in procedures and operations—but most importantly, change in the manner in which information is collected, processed, maintained, and

disseminated. With computer-based applications all of these aspects alter the manner in which administrators, staff, and caseworkers conduct their business. Consumers, and staff relationships with consumers, will be directly affected. Sensitivity to these issues also takes time, and client responses to the new system should be respected. The commitment required by staff responsible for implementation and operation cannot be downplayed. This process must be brought about within the continuum as a whole and within each participating agency over time.

Step Seven: Implementing the System—Operating Procedures and Protocols



From system implementation, communities proceed directly into the overall project goal—operating a functioning HMIS. This step focuses on several tasks that need to be finalized prior to system operation, including development of SOPs, ensuring data accuracy, and stakeholder training. Some of the tasks described in this step need to occur in conjunction with the implementation tasks described in Step Six. All of these tasks build off of a community’s vision, principles, and policies.

A host of operational issues are not discussed in this document because the guide focuses on the implementation process rather than long-term operations. In addition, to these preliminary operations steps, a community also needs to consider system maintenance (all of the activities to sustain the operation of the system) and system modification (ongoing system enhancement activities to improve and expand the system to keep pace with local needs). The HMIS management structure needs to include staff members or consultants with technical expertise to maintain the day-to-day system operations, user support, troubleshooting, and routine maintenance (See Step Six for management models).

Step Seven output:

- ◆ Standard Operating Procedures (SOPs) Manual.
- ◆ HMIS Training Curriculum.

Who Will Develop Operating Procedures and Protocols?

Step Six includes a substantive discussion on system management models, roles, and responsibilities. The management structure determined at the beginning of the implementation process should also assume ongoing operational responsibilities.

Regardless of these management decisions, it is critical to continue to involve HMIS stakeholders in its operation, and in general leadership, advisory, and enforcement capacities. The same stakeholder groups should be represented although the specific individuals need not remain the same. Particular efforts should be made to engage consumer representatives for the governing board and project staff as their perspectives on policies, day-to-day management, training, and consumer participation are important to continued successful operation.

During the implementation and early operation phases, the planning group established in Step One should evolve into a formal governing board. As the vision and principles are codified into formal policies and procedures, the stakeholder group will act as the primary policymaking body and the system manager will implement these policies and procedures.

- ◆ HMIS steering committee (with representation from lead partners, including consumers and agency staff): Responsibilities include developing, monitoring, enforcing, and revising HMIS policies. The committee should design a penalty structure outlining sanctions for partners that fail to comply with written policies, such as limiting or terminating the partner’s rights to access the

system. The entity should also consider an appeals process and structure. Committee responsibilities and sanction policies should be laid out in the SOPs.

- ◆ HMIS system manager (under the oversight of the stakeholder group): Responsibilities should include development of a formal SOPs manual with associated forms and contract documents to actualize steering committee policies; execution and maintenance of necessary agreements with participating agencies and staff members; development and implementation of initial and ongoing training of staff and participating agencies; and ensuring data integrity, analysis, and reporting of data (see Step Eight for use of data).
- ◆ Consumer representatives: Beyond participation on the HMIS steering committee, consumers can be hired as peer trainers to build their understanding of HMIS issues and client rights and alleviate their concerns; and as agency trainers to help agencies understand client confidentiality and improve client sensitivity and effective use of HMIS. Consumers can act as peer advocates to represent clients in disputes and lead consumer advisory groups. They can also be hired as consumer staff representatives to help the system management organization understand consumer issues, integrate them at all levels of system operation, review and monitor operational and project deliverables, and analyze the impact of HMIS on continuum and homeless services users.

Standard Operating Procedures

As discussed previously, communities need to agree on a standard set of guiding principles, policies, and procedures for operating the HMIS. The community should develop an SOPs manual to document specific expectations regarding the use of the system and indicate procedures that should be followed regarding routine and occasional functions. The manual should be developed prior to beginning implementation (it is important to budget time for this activity) and be regularly updated and distributed. Standardized forms used by participating agencies should be included in the manual. Different SOPs may be developed for the various types of users. For instance, one SOPs may ensure consistent procedures are followed by the system administration staff (central organization) while another may focus on end-users (agency staff). A training program should be developed to regularly train and update employees on policies and procedures.

This step provides a brief discussion of several important elements that should be included in an SOPs manual, including a discussion of privacy protection elements and data accuracy issues. See supporting materials for reference to a detailed outline of a sample SOPs manual.

Privacy protection protocols

Agencies may already be familiar with client privacy protocols related to case management and case files. These procedures must be supplemented with HMIS provisions of the policy that include parameters for inputting, revising, aggregating, and sharing client information with others. Protocols should ensure the safety of the most sensitive HMIS information and consumers, including victims of domestic violence.

- ◆ Informed consent

Informed consent is the first component of a sound privacy protection policy. To generate communitywide data about homelessness, some level of data from the HMIS must be aggregated at the regional level. In some cases, dramatic improvements in service delivery can occur through interagency case management. None of these changes should occur at risk of exposing clients' private information without proper consent.

For clients to consent, they must be informed about the system. An appropriate oral explanation should include a description of the HMIS, its purpose, the security mechanisms and privacy measures in place, and benefits for clients. It is also appropriate to provide a written description that echoes the oral explanation for the consumer to keep for review. Consumers can serve as valuable resources in the development of effective oral and written descriptions. A trained peer advocate can help to clarify the distinction between oral and written consent, especially for those with domestic violence, justice system, or particular health concerns. Ideally this distinction would be explained to everyone whose information is entered into the HMIS. Individuals should understand exactly what they are consenting to, including the specific content of the information that will be shared.

After the HMIS has been explained, the intake or case management staff person should request client consent to enter the client information into the HMIS. Most HMIS have a box on the intake form (hard copy and/or digital) that denotes whether oral consent has been received from the client (see appendix G for a sample consumer system description).

Note that some funders (particularly Federal and other government sources) may require for reporting purposes that minimum data elements be collected in tandem with receipt of a publicly funded service. In these cases, consent may be limited to collection of data beyond those minimum elements and questions of how the data are used beyond reporting anonymously to funders. Regardless, individuals should be educated about the system and apprised of their rights.

◆ Written consent

Oral consent to participate in the HMIS does not indicate consent for identifiable client information to be shared among agencies. A community's SOPs should include an information release provision indicating that an agency will not release client identifiable information to other organizations without proper written client consent. The written consent procedure should document the information being shared and with whom it is being shared. To develop this language, communities must ensure that they are in compliance with Federal, State, and local privacy laws.

The client-agency written consent form serves as the initial authorization for inputting client information into the HMIS and governs all subsequent use of that information. Although an agency may have existing client consent forms documenting that a client has given consent to case managers to share confidential information with another agency's case manager, each agency needs to specifically request consent from each client to input the case management record and to subsequently share (anonymously or otherwise) that information. It is critical that the HMIS client consent form explicitly state how the data will be collected, shared, and used, and also the consent must explain a client's right to protect and limit its use (see sample consent form in appendix J).

◆ Interagency data sharing

The community's information-sharing philosophy and procedures should be clearly stated in the SOPS. The procedures should include a three-pronged strategy:

- Written client consent (as discussed above).
- Written interagency data sharing agreements between particular agencies as needed.

- Appropriate data security elements (discussed below, under security enforcement methods). Separate interagency data sharing agreements should be executed between the executive directors of specific agencies interested in exchanging client-identified data.

The agreement should document an agency's interest in interagency data sharing and commitment to abide by the defined privacy controls. The agreement should list the specific sections of HMIS data that will be shared. For example, some agencies may choose to share intake, residential history, and service records but not health information. To ensure that the agreement is effective, peer advocates can be enlisted to check that policies are being followed (see sample data sharing agreement in appendix H).

Developing partner agreements

Just as a community must develop privacy protection protocols, it is equally important to develop formal mechanisms for enforcing compliance among system partners. Consumer awareness of these security measures can reduce fears about entering information into the system. Several types of enforcement are listed below. Because individual behavior is unreliable, the technical solutions (discussed in Step Three) are the first line of protecting client privacy and safety. Therefore, most communities need to use a combination of these enforcement mechanisms with technical mechanisms to support each policy. Specific SOPs should describe each enforcement policy.

◆ Agency-system agreement

One way of ensuring that agency partners are aware of specific policies, procedures, and responsibilities is to require each agency partner to enter into a formal agreement with the central HMIS coordinating entity. Responsibilities of both parties should be outlined in this agreement, especially regarding commitment of resources (e.g., staff, financial, training, technical assistance, standardized reports) and responsibilities (e.g., adherence to all policies and procedures, agreement to enter specified data, frequency of data entry and aggregation). Variations of this agreement, which should be included in the SOPS, can also be required for each HMIS user to ensure that all users agree to comply with the community's adopted policies and procedures (see sample form in appendix I).

◆ User agreement/request for access form

A user agreement is an effective way to make sure that each potential HMIS user is exposed to the user-related policies and procedures. The agreement should provide a description of user-related policies, expectations of use, and penalties for misusing the HMIS. It is helpful for the format to require the potential HMIS user to initial or verify that they understand each policy and/or protocol individually. The agreement can double as a request for access or request for a password to be assigned to a particular individual. To reinforce awareness of the policies and security, password access can be limited to set periods of time, requiring re-certification every year or two. This process also provides a written record of authorized users. User agreements should not replace initial and ongoing user training (see sample form in appendix J).

Initial and ongoing partner training

Training is an important aspect of ensuring appropriate and valid everyday use of the HMIS. Directors of agencies sign agreements, but that knowledge may not always make its way to the front-line staff. A community can require each potential HMIS user to sign a user agreement prior to assigning that individual a password to access the HMIS. This agreement should still be supplemented by user training.

Mandatory training for all staff using the system is an excellent way to emphasize the most important policies and the reasons it is imperative that everyone safeguard the information. Ongoing training programs can also reinforce data-entry standards to support data validity and help all staff fully use the system to support consumers. Peer advocates can play a critical role in these trainings, reinforcing the importance of privacy protection protocols and teaching sensitive interview techniques (see the section on client interviews below). Additional training can be provided to specific groups of users to optimize their use of system features. Training can also be an important way to involve consumers. Training policies should be delineated in the SOPs.

Achieving Data Accuracy

An HMIS is designed to improve existing data-collection mechanisms, enabling communities to gain a better understanding of the characteristics and needs of local homeless populations. However, in order to ensure that HMIS data are accurate, communities must develop policies around the conduct of client interviews, consistency of data collection across different HMIS participants, data-entry features, and data checking mechanisms in the HMIS software. These mechanisms can also be laid out in the SOPs manual.

Client interviews

Data quality and accuracy is improved when client interviews are conducted in a respectful, sensitive, and confidential manner, which includes an explanation of HMIS goals. Consumer involvement in developing this process can offer an insider perspective on how questions should be asked and the timing of data collection. Consumers who have experienced intake procedures during a past or present shelter stay, can understand the discomfort of being asked invasive questions at a vulnerable time and can give insight into subtleties, such as tone of voice, eye contact, and timing, that might enhance or diminish their willingness to provide accurate data. Data accuracy will also improve if consumers receive direct benefits, such as benefits screening, when their data are entered into the HMIS.

Some current HMIS users report that collecting the required information on paper forms is preferable to entering data into the computer during the client interview. This method ensures that personal contact can be maintained when talking to consumers. Data can be entered into the HMIS later. However, other communities report that paper data collection and subsequent data entry contributes to data-entry barriers, particularly for programs that provide services to large numbers of clients each day. Hand-held computer devices, scanable intake forms, and consumer identification cards that can be swiped to record service activity may interfere less with personal relationships and ease data entry.

Community Example #6: Chattanooga, Tennessee

Service providers in Chattanooga, Tennessee, initially feared that using computers to enter data during the client interview might hamper the case manager-client relationship. Instead, they learned that using a paper form was inefficient and decreased time for case management. The case managers found that through training and familiarity with the HMIS software, they were able to maintain a sound clinical approach and ensure accurate data entry. As a result, clinical staff enter all data and the HMIS has replaced virtually all hard-copy information. Case managers input case management notes and other information immediately after the client therapy session thus ensuring that the HMIS is always up to date.

Consistency in data collection

As outlined in Step Two, all participants in the HMIS need to agree to a minimal standard of data elements that are feasible for collection by all. Some of these elements may vary by service population. For example, individual and family programs may all agree to collect basic demographic and historical data. However, family programs may also gather detailed employment and educational information, while individual shelters may not have access to these data. As long as there are enough data for reporting across the whole system, it is appropriate to report additional information for particular populations.

Programs and staff who collect the data need to share common definitions of each data element as well as collection points. For example, communities should agree on whether income figures are collected as monthly or annual amounts. Additionally, all participants need to gather the data at the same points in time. Referring to the income example, communities need to decide whether income amounts will be collected at program entry or some point during service receipt, exit, and/or follow up at a particular point in time (see Step Two for a discussion of data collection points). At the beginning of operation, the system manager should work with the software vendor to produce a data dictionary, which provides consistent definitions of all data fields.

It is critical to consistently assign a unique client identifier to each individual who provides information to the HMIS (see Step Three). This identifier will enable communities to create an unduplicated count of clients served by participating programs during a particular period. Individuals receiving services at different agencies will be identified and entered into the total count as one person.

Data entry

Training of data-entry staff is critical. In addition to explaining the use of the software, this training should stress the importance of accurate data entry, including procedures for double checking the data entered. Ideally, each site would identify a staff member with responsibility for regularly checking the accuracy of the data entered. This verification could be accomplished by checking all records against intake forms and other paperwork or by reviewing a random sample of all data entered.

Data accuracy will be greatly enhanced by having the same person who collects the information enter it into the HMIS. That way data-entry errors based on unclear information collected on the paper form can be avoided. When consumers and service providers receive a direct benefit from collecting and entering data in the HMIS, it promotes timely and careful attention to data collection and entry.

Community Example #7: State of Massachusetts—Outline of Standard Operating Procedures Manual

Section 1: Contractual Requirements and Roles defines the contract requirements of the central server and agency sites and the roles of central server staff, steering committee, and all participating site staff members.

Section 2: Participation Requirements identifies the specifications required for all participating sites and the central server. It also explains all of the contractual documents and requirements that relate to HMIS participation, including interagency data sharing agreements, written client consent procedure for electronic data sharing, confidentiality and informed consent, interview protocol, data collection commitment, information security protocols, connectivity, maintenance of onsite computer equipment, and conversion of legacy data.

Section 3: Training provides curriculum information, frequency, central server commitments, and optional training services.

Section 4: User, Location, Physical and Data Access specifies the security measures, including system access privileges, access levels, system location limitations, data encryption and storage, unique user IDs and passwords, and auditing procedures.

Section 5: Technical Support and System Availability details technical support services, availability, and performance commitments.

Section 6: Stages of Implementation explains the four stages of implementation, beginning with start-up paperwork and ending with full integration of the data system into program operation.

Section 7: Encryption Management specifies the encryption philosophy, approach, and decryption procedures.

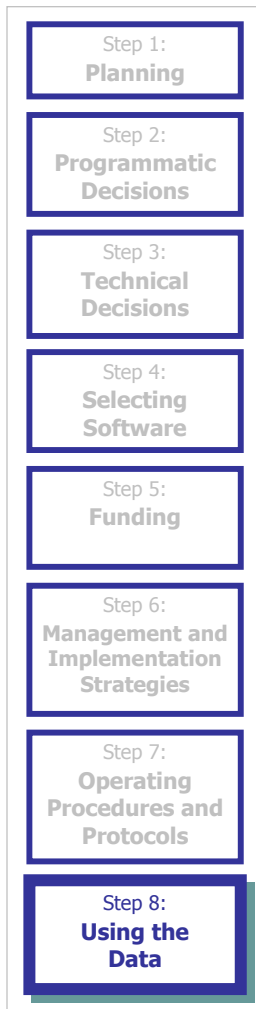
Section 8: Data Release Protocols identifies the coverage specification, release authorization process, and right to deny access to client-identified and aggregate information.

Section 9: Internal Operating Procedures details the procedures that address the internal functions of a Web-based HMIS, such as prevention, detection and eradicating computer viruses; electronic internal communication; backup and recovery procedures; and the disaster recovery process.

Supporting Materials

- ◆ An annotated outline of Massachusetts' SOPs manual is available at http://www.mccormack.umb.edu/csp/csp_tech.htm.
- ◆ For an example of Standard Operating Procedures (SOPs) and related forms, the State of Wisconsin has established a Web site for their HMIS users that may provide a useful model for others. See <http://www.doa.state.wi.us/dhir/boh/servicepoint>.
- ◆ See the Appendices for the following:
 - Sample Client Information Sheet (appendix G).
 - Sample Interagency Sharing Form (appendix H).
 - Sample Agency Participation Agreement (appendix I).
 - Sample User Agreement (appendix J).

Step Eight: Using the HMIS Data



Once the system has been in operation for long enough to produce several client records, communities can begin to realize some of their goals of measuring outcomes. This final step discusses HMIS data; the purpose and uses of this information; and how to use it, including related policies, analysis techniques, and report types. The step concludes with a community example of data use.

Why Use HMIS Data?

Most continua consider the data that will result from the HMIS to be at least one of the primary goals of the system. Data resulting from HMIS can inform program, agency, and communitywide planning. Programs, agencies, and communities can use HMIS data as part of broader evaluations that focus on qualitative issues as well as the hard numbers. If, for example, data show that one service program achieves consistently better client outcomes than other local providers, the community could invest in a broader evaluation to identify best practices used by program staff.

At the program level, HMIS can produce reports on client characteristics, use of services, and outcomes. Some systems also include financial and other management data. Most can be programmed to generate funder reports such as the APR. This information can then be utilized to make program changes, when appropriate. For example, if data show that the majority of participants are experiencing poor outcomes in job retention, program staff could decide to conduct a thorough review of the services in that area and possibly add employment assistance programming.

These benefits are relevant at the agency level, as well. Agencies that run multiple programs can use HMIS information to compare and evaluate the efficacy of various interventions. Over time, it may become clear that one program has a higher success rate in working with particular populations while a program at another site does better with another population. Referral strategies can then be modified to ensure that participants are sent to the programs that will best serve them.

At the community level, these data can inform CoC planning. The data can be used to generate an unduplicated count of clients and to understand their characteristics, factors contributing to homelessness, and use of system resources. The information can identify gaps and duplication in services. Point-in-time information can inform system capacity needs, while longitudinal information can inform program efficacy. Aggregate data may show that the region is doing an excellent job of serving the long-term homeless, for example, but having less success quickly moving people who are episodically homeless into housing. Programs designed to meet this goal could then be created. Geographic analyses could reveal that one town in the continuum is lacking in services while another is inundated with overlapping programs. Additionally, analyses of the prior living situations of particular homeless populations can help CoCs more appropriately target prevention funds.

How to Use HMIS Data

To begin to make sense of HMIS data, communities must develop policies around the release of data, including methods for calculating representativeness. It is also important to develop some basic skills in analysis for developing unduplicated, aggregate data sets. Once data are entered, it is time to turn to this section's discussion of release procedures and report types and strategies.

Data release policies

Once an HMIS has been implemented and data are being entered into the system, data release policies need to be developed. These protocols state the ways in which the data can be used and shared. The policies should specify criteria for data release including:

- ◆ Data coverage: What coverage threshold does the community need to reach before aggregate HMIS data can be released? Generally, data should represent the percentage of the overall homeless population that is considered representative of the larger homeless population. (A local statistician can provide guidance on the level of coverage needed within the community to achieve generalizability⁸. See below for suggested methods for determining existing levels of coverage.)
- ◆ Data anonymity: Data should only be publicly released in anonymous aggregate formats. Additionally, to protect the privacy of the individuals whose information is stored in the system, data should not be publicly released if characteristics of an individual can be inferred due to small sample sizes. There are statistical methods to determine appropriate data suppression policies.
- ◆ Data parameters: What do the data represent and what do they not represent? For example, data may represent homeless emergency shelter users but not homeless people in transitional programs or supportive housing. In many communities, the data represent people who access services but do not include those who reside on the streets. All data releases should be accompanied by data parameters guiding interpretation.
- ◆ Principles of access to aggregate data: Who should have access to the data, in what form should the data be released, and what group maintains decisionmaking authority for these issues? In some communities, data are first released just to local stakeholders and only later, after that group agrees with their accuracy, to the larger public and the media. Program-specific information could be released only if the agency's executive director provides written consent.
- ◆ Data formats: Ideally, once a community is comfortable that the content is accurate and appropriately represented, the data would be released as written reports and as data sets for research purposes.

Calculating data coverage

Once sufficient data have been entered into the HMIS to meet the minimum data coverage requirement in the data release policies, data can be compiled for reports. Two methods for calculating existing system coverage are presented below. One is based on persons served, the other on the number of beds in the system.

⁸ This is a specific statistical term.

Coverage rates based on persons served are determined by calculating the total number of beds in the shelter system and multiplying that figure by the average annual turnover in those beds, thus estimating the proportion of total persons served by the shelter system represented in the data. This method relies on an accurate turnover rate. Many communities use rates from prior studies—often of other regions.

$$\text{Total Beds} \times \text{Turnover Rate} = \text{Total Persons Served}$$

$$\text{Total Records} \div \text{Total Persons Served} = \text{Coverage Rate}$$

For example, if the individual shelter system has 4,000 beds across all of the emergency shelter programs, using a turnover rate of 5 (that is, on average, 5 people are served by each shelter bed over the course of a year), the shelter system would serve 20,000 people over the year. If there were 12,500 individual records for the year, coverage would be 12,500/20,000, or 63 percent.

Coverage rates based on beds involve dividing the number of beds in the overall shelter system by the number of beds for which the HMIS was being utilized.

$$\text{Total Beds in System} \div \text{Total Beds} = \text{Coverage Rate}$$

For example, if the individual shelter system has 4,000 beds across all emergency programs, and the HMIS is being used for 2,600 of those beds, then coverage would be 2,600/4,000 or 65 percent.

Data analysis

To analyze data and produce reports, communities must contract with skilled personnel. It is critical that communities employ paid analysis staff. Communities often neglect to include this critical staff member on their team and find already overburdened team members struggling to produce reports without the requisite skills and experience. Many communities have had success in engaging local universities to assist with data analysis.

Whether using a statistical consultant or a staff member, this work entails compiling databases, cleaning the data for errors and inconsistencies, running data analyses, and writing the requested reports. A statistical consultant can also document the statistical percentages of error and significance levels, thereby further detailing what the data actually represent.

◆ Merging databases

As outlined in Step Three, HMISs can collect data in one system or different databases, which must then be merged for aggregate reporting. There are additional aspects to preparing data for aggregate analyses when an HMIS consists of separate databases. Most importantly, data fields in separate databases need to be defined in the same manner to facilitate merging of the various databases. Unique client identifiers need to be computed consistently across databases to allow for developing an unduplicated count when merging them (see Step Two for a discussion of unique identifiers).

- ◆ Tools for data analysis

Many software programs are available to analyze data. The choice of software depends on the analysis goals. A basic spreadsheet application (such as Microsoft Excel or Lotus) is sufficient to summarize the data for reporting. Statistical programs, such as Statistical Package for Social Sciences or Service and Support, can compute more advanced analyses. Geographic Information System applications, such as Environmental System Research Institute's ArcView, ArcInfo, or MapInfo, can be used to compare data attributes by location information. Another commonly used reporting tool is Crystal Reports, an easy-to-use software product designed to create reports.

- ◆ Types of analyses

There are various types of analyses that can be conducted on HMIS data. Descriptive presentation of the data refers to describing characteristics of clients and their use of services and service outcomes within a defined time period (e.g., calendar year, fiscal year, given night). Once consistent data have been collected over time, trend analyses can be prepared. These analyses can compare information collected in different years or point-in-time information on a summer night with a winter night. HMIS data also lend themselves to statistical analyses, such as testing hypotheses about the relationship of client characteristics and service use to a variety of program outcomes. Geographic analysis can help communities understand relationships between attributes and location, such as service need and service availability or homelessness and poverty indicators.

Prior to release, analysis results should be presented for feedback to service providers and consumers. Some communities mandate this process in their data-release policies. This inspection serves as a validity check for the compiled information.

Data reports

An HMIS can generate many different kinds of reports. However, reports can only be created for the data that are tracked and only about the information that is entered. Some reports may be preprogrammed in an off-the-shelf HMIS or developers and local MIS staff can create community and agency-specific reports. Regardless, software should include a customizable reports module so staff can be trained to generate additional reports as needed. In addition, data can be used to forecast bed availability and generate need-based reports.

Consumer involvement at this stage can enhance the meaning of client responses and the understanding of the analytical findings. At times, data paint a picture that omits important nuances and lead to misinterpretation. Anecdotes and real experiences (qualitative data) lend substance to the hard facts—humanizing the data. For example, discussions with consumers can illuminate gaps in service usage that data cannot explain and increase understanding about where people go and what they do when there is no service available.

- ◆ Client reports

At the client-level, reports relate to program referrals, benefit eligibility, and case management. Client reports can be used as a tool that can be printed with program referral information and standard client intake information to simplify subsequent intake processes. Benefit eligibility reports can be generated after all necessary client information has been entered into the HMIS. For example, in its early stages the Massachusetts HMIS project included a linkage to MicroMax benefits-eligibility software. This product enabled case managers to produce reports listing the

benefits clients could apply for as well as methods for maximizing those benefits. In the future the community plans to further develop this tool so that benefit applications can be printed and even submitted directly from the software. Case management and client progress can be assessed across programs that agree to share information or across programs within one agency. These types of reports should be programmed into the software.

◆ Program/agency reports

Standard progress reports such as the APR, HUD's ESG report, Federal Emergency Management Agency (FEMA), and others requested by public and private funders can be easily generated from the HMIS database as long as the information is included in the universe of data fields (Step Two). Reports for Federal homeless grants are often preprogrammed in HMIS packages. In addition, the data can be used to substantiate grant applications for additional funds and in agency annual reports. Further, data can be used for program evaluation. As an example, a 2-year indepth evaluation of the Boston Transition-To-Work Collaborative was completed. All of the quantitative data for this evaluation were collected using the community's HMIS. These data were then supplemented with qualitative interviews to provide a fuller picture of program participants' experiences.

◆ Communitywide reports

In addition to client and program/agency reports, data can be aggregated to represent unduplicated client-level information in larger service areas. For example, data could be aggregated at the city, county, and/or State levels. System-wide reports can affect local policies (see community example below). If all communities respond to the congressional directive, the information can be aggregated to better understand the extent and experience of homelessness at State and national levels. This information could then be used on a broad level to influence national policies and funding.

Community Example #8: Franklin County, Ohio—A Model of System Change Fueled by HMIS Data

The Franklin County, Ohio (City of Columbus) experience demonstrates that significant programmatic change can occur as a result of analyzing HMIS data. A longitudinal view of homelessness in the county showed that there were two distinct types of single male shelter users—each with different service and housing needs. The study found that 15 percent of the city's homeless men used more than 56 percent of the system's resources, while the remaining 85 percent stayed in the system only for short transitional periods. The long-term shelter users often required additional services, including mental health and substance abuse treatment. Identification of the specific characteristics and needs of the chronically homeless men enabled community members to devise a new strategy, entitled Rebuilding Lives. As a result of the study, the task force recommended that the city and county develop service-enriched supportive housing for long-term users of the system thus freeing shelter resources for those requiring short-term support. These findings formed the basis of a communitywide strategic plan regarding homelessness.

Supporting Materials

- ◆ Several reports using HMIS data are available from the Center for Social Policy, McCormack Institute, University of Massachusetts Boston. They can be downloaded from the Center's Web site at http://www.mccormack.umb.edu/csp/csp_tech.htm.
- ◆ Sample Access to Data policies are also available on that Web site.

Using the Data Exercise #1: Achieving Data Accuracy

Goal

Establish procedures to verify that the information input into the HMIS is accurate.

- ◆ Is the design of the data-entry form user friendly, minimizing opportunity for errors?
- ◆ Are there direct benefits to staff and consenting consumers for providing complete and accurate data for entry into the HMIS?
- ◆ How will case managers and data-entry staff be trained to minimize repetitive data entry or inconsistencies in interpretation?
- ◆ How will the accuracy of data be verified? Who will do this? Some HMISs have built-in queries that help detect and correct data-entry errors and omissions.
- ◆ When the information is aggregated, how will conflicting data be reconciled?
- ◆ How will adjustments be made for missing information to assure accuracy of analysis and reporting?

Glossary

Aggregate data: Communitywide data that are de-identified and can be used for analytical purposes.

Annual progress report (APR): A standard Federal reporting form used by the U.S. Department of Housing and Urban Development for CoC homeless grant programs.

Antivirus programs: Computer programs that detect and rid computer systems of electronic viruses and thus prevent and/or mitigate file corruption and data loss.

Application service provider (ASP): A company that provides a range of computer application services, including hosting software applications. Clients access the software via the Internet, often using a secure connection. In this model, the ASP is responsible for maintaining and upgrading the software on an ongoing basis.

Application software: Computer programs designed to accomplish specific tasks or transactions. HMISs are application software.

Application virus: A program written to damage or otherwise adversely affect a computer system and its operations. Viruses can propagate through networks, floppy disks, e-mail, and so forth, and are designed to be difficult to detect.

Audit trail: A system that monitors, records, and reports on the activities of computer program end users.

Back end: The server portion of the HMIS, which provides supporting technology. This technology is normally inaccessible to end-users and is more tightly controlled because it contains all of an HMIS's data.

Batch system structure: A network structure that allows program sites to upload (transfer) data to a central data repository periodically (in batches) where they are aggregated with data from other programs.

Central server: A computer or group of computers that contains the main application software or aggregate data in a distributed HMIS.

Central server organization: The organization that manages, maintains, and monitors HMIS data and operations. This organization usually provides ongoing technical assistance to participating agencies.

Certificate authority: A third-party organization or company that issues digital certificates used to create digital signatures and public-private key pairs. The Certificate Authority guarantees that the individual granted the unique certificate is, in fact, whom he/she claims to be. Certificate Authorities are critical to data security and electronic commerce because they guarantee that the two parties exchanging information are whom they claim to be.

Client computer: The equipment that the end user utilizes to access the HMIS, also called a workstation. Most often referred to as a desktop personal computer, it is normally connected to a server to access information.

Client confidentiality: Except as provided by law or incorporated in properly executed consent, a client's right to guaranteed privacy of the personal information that is stored within the HMIS.

Client consent: Oral permission to participate in the HMIS (or, in the case of information that is required by program funders, acknowledgment that the information is being collected, stored, and aggregated for reporting purposes within the HMIS). Written consent is written permission to share personal information that is stored in the HMIS with another agency. The HMIS client consent form should explicitly state how the data will be collected, shared, and used, and explain a client's right to protect and limit its use.

Client-level data: Data about an individual HMIS client.

Client/server system: Architecture in which the client and server computers are connected via a LAN or WAN. The client computer handles the user interface and may perform some or all of the application processing. A database server maintains the databases and processes requests to extract data or update the database.

Communications server: A dedicated server that remote users can connect to through communications devices such as modems.

Computer operating systems: Computer programs that manage end user interaction with the system. Microsoft Windows is an example of an operating system.

Computer networking: The process of connecting multiple computers to facilitate easy sharing of files or programs. Networked computers can share common resources such as a printer or a database.

Concurrent users: The number of computer users accessing a system simultaneously.

Connectivity: The technology used to upload/download data files to/from other computers or to link to the Internet.

Consent form: The consumer's written authorization to have their data input in an HMIS and/or shared with other agencies.

Consumer(s): An individual or family experiencing homelessness, threatened with the imminent prospect of homelessness, or with a former experience of homelessness, **and** accessing services within the CoC.

Continuum of Care (CoC): A coordinated approach at the local level to deliver services to persons who are homeless. A CoC generally includes a full range of emergency, transitional, and permanent housing and service resources to address the various needs of homeless persons. HUD issues an annual Notice of Funding Availability (NOFA), known as the CoC grant, to local communities for housing and service funds.

Coverage: The proportion of shelter users that is represented in the data.

Customization: The extent to which a software program can be modified to meet a particular local or program need.

Cutover startup: Replacing an existing automated or manual system with a new HMIS at one point in time. The old system is removed and the new system begins operation instantaneously.

Database: A collection of information organized so that a computer program can quickly select desired pieces of data. You can think of a database as an electronic filing system.

Database administrator (DBA): The personnel responsible for monitoring, maintaining, and servicing HMIS data files.

Database applications: A class of computer programs (DBMS) that manage large amounts of data.

Data conversion/migration: The process of moving data from one data system to another.

Data dictionary: A document that defines data elements.

Data encryption: The conversion of plain text into masked data by scrambling it using a secret code that hides its meaning to any unauthorized viewer. Computers encrypt data by using algorithms or formulas. Encrypted data are not readable unless they are converted back into plain text via decryption.

Data sharing agreement: An agreement among participating agencies about the sharing of consumer data. The agreement should define which agencies will share what data elements under what particular circumstances.

Data warehouse: A system for storing, retrieving, and managing large amounts of data. Data warehouses contain a wide variety of data that present a coherent picture of conditions at a single point in time.

Disaster and recovery: Services involved in planning and preparing for contingencies to address HMIS continuity during catastrophes. Preparation can include setting up onsite and off-site backup systems, a change-over process when a backup server is needed, backup power supply and communication link preparedness, and recovery of lost data.

Distributed architecture: Systems designed utilizing a distributed architecture share resources among multiple computers. An HMIS based on this model functions over a LAN, a WAN, or the Internet.

End user: The participating agency staff person who will be using the HMIS to enter and/or extract data.

Extranet: The extension of an organization's intranet onto the Internet to allow selected members of the public to access the organization's private data and applications.

Firewall: A hardware and/or software system that enforces access control between two networks.

Front end: The portion of a HMIS with which the end user interacts.

Function: The specific capabilities or features that the HMIS performs.

Generalize: The extent to which information on a sample can be used to describe the general population.

HIPAA: The Health Insurance Portability & Accountability Act of 1996. Specifically, this law calls for the standardization of electronic patient health, administrative, and financial data; unique health identifiers for individuals, employers, health plans, and healthcare providers; and security standards protecting the confidentiality and integrity of "individually identifiable health information," past, present, or future.

Homegrown: A software program developed for a local community, not a commercially available product.

Homeless Management Information System (HMIS): A computerized data collection system that stores information about persons experiencing homelessness, collected throughout the community from the various agencies that provide services to these individuals. Client-level information collected from each program can be aggregated with data from other programs using a unique client identifier to determine unduplicated systemwide information, such as the overall level of homelessness, service effectiveness, and unmet community needs.

Host: A computer system or organization that plays a central role, normally providing data storage and/or application services to participating agencies. Many HMIS software providers offer this service as an option for communities that do not have the expertise or prefer not to store the information locally.

Information and referral: Electronic databases of local resources.

Internet service provider (ISP): Any company that provides individuals or organizations with access to the Internet.

Intranet: A network or group of networks communicating with each other using Internet technology. An intranet is often used within agencies for internal communication, and is only available to an organization's staff, as opposed to customers or the general public.

Local area network (LAN): A network that is geographically limited, allowing easy interconnection of computers within offices or buildings.

Logon process: The procedure by which a computer network authenticates a user.

Longitudinal data: Information collected about particular individuals over time.

Modem: A data communications device that transforms digital signals to analog, transmits the analog signals over conventional telephone lines, and carries out the reverse transformation at the destination, to enable remote computer communications.

Network: Several computers or computer systems linked to one another.

Network administration: The personnel responsible for setting up, operating, and maintaining the HMIS data communications network.

Outsourcing: The practice of contracting out a component or all system operations and maintenance to a third party.

Parallel startup: Running both old and new systems simultaneously for a period of time, during which results are compared. When users are comfortable that the new system is working correctly, the old system is eliminated.

Participating agency: An agency that operates an HMIS.

Phase-in startup: Slowly replacing components of the old system with those of the new one; this process is repeated for each portion of the HMIS until the new system is running and performing as expected.

Pilot startup: Running the new system for a subgroup of users rather than all users.

Productivity tools: Computer programs said to increase the efficiency of office workers such as word processing, spreadsheet, and database management programs.

Public key infrastructure: A system of digital certificates, Certificate Authorities, and other registration authorities that verify and authenticate the validity of each party involved in an Internet transaction. (See Certificate Authority.)

Real-time: Pertaining to the current moment. Technology that allows a user to receive data during the actual time that it is entered into the system.

Record-level encryption: Data encryption that occurs at the field (data element) level within an information record.

Replacement factor: An estimation of the number of current personal computers that require substitution or significant upgrade.

Representative: The extent to which the data reflect the population served.

Request for proposal (RFP): A process used to solicit applications to provide a particular service or product.

Robustness (database): Refers to a product or a system that holds up well under exceptional conditions. Robust software products have very low failure rates.

Seat: A computer workstation.

Secure Socket Layer (SSL) protection: A communications protocol used to secure sensitive data. SSL is normally described as wrapping an encrypted envelope around message transmissions over the Internet.

Security: Absolute protection of the client and program information stored in the HMIS from unauthorized access, use, or modification.

Security probe: Commonly referred as “penetration testing,” consists of actively testing various aspects of the HMIS’s network security. Results are used to suggest future security improvements.

Server computer: A computer that provides a service for other computers connected to it via a network. Servers can host and send files, data, or programs to client computers.

Site: A location that uses an HMIS and at which services to homeless and at-risk consumers are provided.

Site preparation: Preparation for installation of a new HMIS.

Software license: The right of an organization or individual to use or access a computer program developed by a third party, for a fee.

Software license agreement: Agreement between the developer of a software product and its users that specifies the rules under which software distribution, installation, and usage can occur.

Software release: A version of a software product that is available on the market.

Standard operating procedures (SOPs): Standard methods for conducting tasks or processes, documented to ensure consistency among all participants.

Structured query language (SQL): A database language used to manipulate relational databases. SQL was adopted as an industry standard in 1986.

Systems implementation: A stage in the HMIS project during which the various system components (hardware, software, databases, etc.) are created or acquired, assembled, and put into operation.

Technical capacity: The documented sets of technical skills and resources available for undertaking an HMIS project.

Technical requirements: The documented sets of technical skills and resources necessary for undertaking an HMIS project.

Two-tier/three-tier: Client/server architecture in which the user interface runs on the client computer and the database is stored on the server. The actual processing can occur on either the client or the server computer. Newer client/server architecture, known as three-tier, introduces a middle tier where the processing occurs.

Undisclosed locations: Sites, such as shelters for victims of domestic violence, which have chosen to hide their location in order to protect program consumers.

Unique client identifier (ID): A code associated with a single individual that can be used to create an unduplicated client count, but which cannot be used to identify that individual.

Vendor developed: A commercially developed software system.

Web browser: Software that provides a graphical interface to the Web.

Web-enabled application: Application software designed to operate as an Internet application. Users access the system with a Web browser such as Netscape or Internet Explorer.

Web server: A computer that delivers (serves up) Web pages.

Wide area network (WAN): A network that is not geographically limited, and can link computers in different locales and extend over large distances. A WAN is often used to connect computers that are not located in the same office or building.

World Wide Web (WWW): An Internet information management system. On the WWW, all information is represented to the user as a hypertext object in HTML format. The client program, or browser, runs on the user's computer and provides basic navigation, data entry, and validation.

Appendix A: Privacy Protection Resources

Privacy Protection Resources

HIPPA

<http://www.hhs.gov/ocr/hipaa/>

<http://www.nationalpartnership.org/Content.cfm?L1=5&L2=6>

<http://www.hep-c-alert.org/links/hippa.html>

<http://www.rx2000.org/KnowledgeCenter/hipaa/hipfaq.htm>

http://www.benefitsnext.com/content/cats.cfm?cats_id=6

Confidentiality

<http://www.hhs.gov/ocr/part1.html>

<http://aspe.hhs.gov/datacncl/privcmte.htm#goal>

“Confidentiality: A Manual for the Exchange of Information in a California Integrated Children’s Services Program” by James Preis, JD

available from: Cathie Wright Center at (916) 657-3995

“Beyond the OECD Guidelines: Privacy Protection for the 21st Century” at

<http://www.anu.edu.au/people/Roger.Clarke/DV/PP21C.html>

<http://users.erols.com/dewolf/definitions/defindex.htm>

Privacy news groups/other resources

Personal data privacy news daily mailing list.

[mailing_lists_automated_administrator@moreover.com]

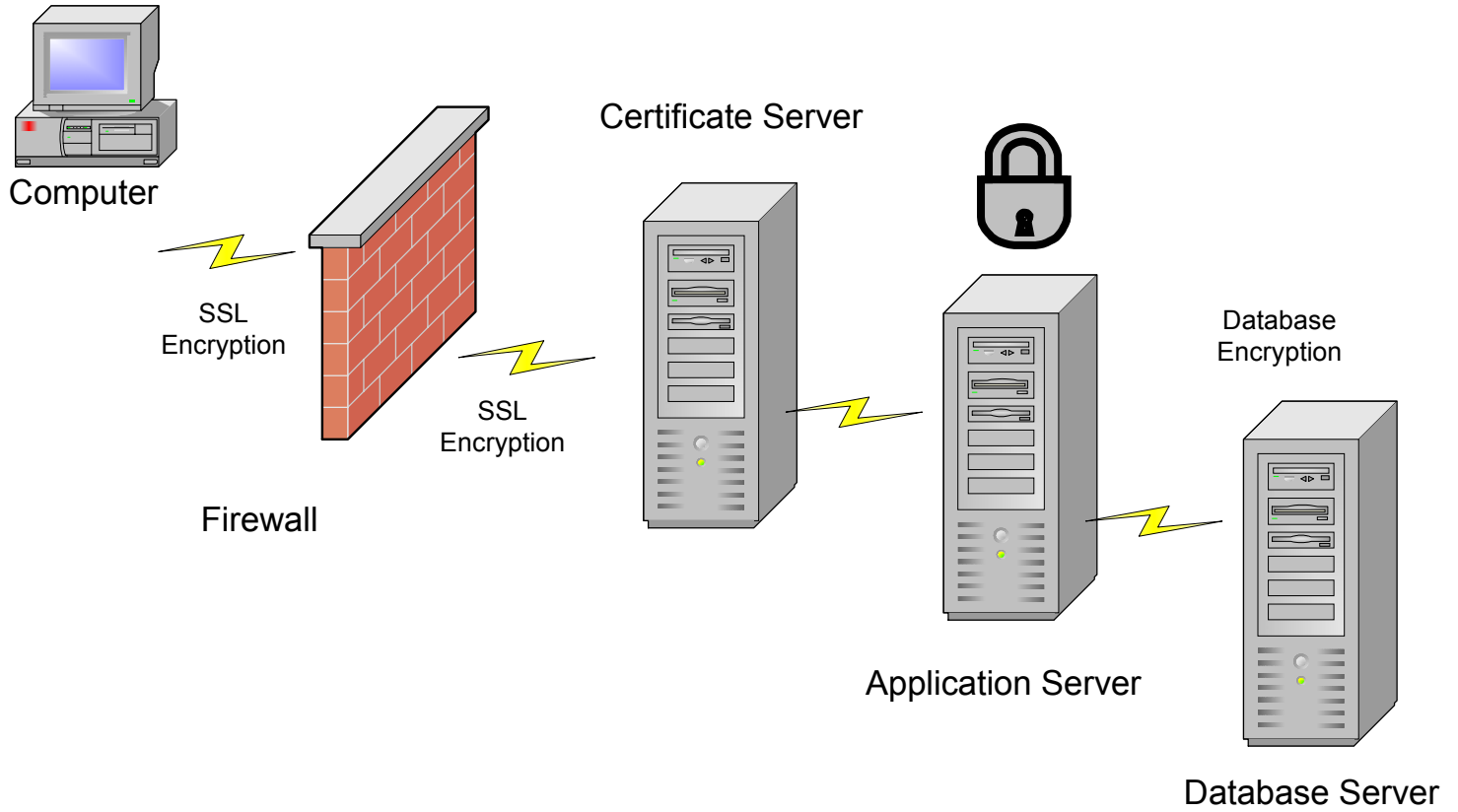
<http://www.ctg.albany.edu/projects/hims/himsmn.html>

<http://www.hipaadvisory.com/live/>

<http://www.epic.org>

Appendix B: Sample Security Layout

Web Based Security Model



Appendix C: Sample Technical Assessment Survey

Continuum of Care

Technical Capacity Survey

Statement of objectives

The questions contained in this document are designed to obtain a better understanding of the overall technical capabilities currently available within the network of homeless agencies and providers in continuum of care. The objective is to understand what must be done to facilitate agencies and providers to engage in the HMIS Initiative.

Return to

Please fax or mail this completed survey by <date> to:

Name
Organization
Address 1
Address 2
City, State, Zip Code
Fax:
Phone:

General

1. Organization name: _____
2. Please answer based on your personal knowledge or information you can easily obtain. Will your answers reflect? (Check one)
 - Your organization as a whole
 - One agency
 - Other _____
3. How many sites form your entire organization/agency? (Check one)
 - 1
 - 2 – 5
 - 6 – 10
 - More than 10

4. Type of organization (Check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Emergency Shelter for Individuals | <input type="checkbox"/> Emergency Shelter for Families |
| <input type="checkbox"/> Transitional Housing for Individuals | <input type="checkbox"/> Transitional Housing for Families |
| <input type="checkbox"/> Permanent Housing for Individuals | <input type="checkbox"/> Permanent Housing for Families |

5. Approximately how many clients does your organization serve

per month? (Check one)

- 1 – 20
- 21 – 50
- 51 – 100
- 101 – 500
- More than 500

per night? (Check one)

- 1–20
- 21– 50
- 51 – 100
- 101–5

Programs

6. Please list the major programs that your organization operates and the percentage of clients that access those programs.

Program	% Capacity
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Technical

7. What is the total number of computers in your organization? (Check one)

- None
- 1 – 5
- 6 – 10
- 11 – 20

- 21 – 50
- More than 50

8. Overall, what is the age of the computing equipment at your organization? (check one)

- Less than a year
- 1 – 3 years
- 3 – 5 years
- More than 5 years
- Don't know

9. Does your organization have access to: (Check all that apply)

- The Internet for electronic mail?
- The Internet for data searching and/or file transfer?
- A network to connect computers within your immediate vicinity (e.g., same building)?
- A network to connect computers across multiple sites within your organization/agency?

10. Please estimate the percent of time computers are used on:

Agency/Program administration (e.g., bookkeeping financial management) (Check one)

- 0–33%
- 34 – 66%
- 67 – 100%

Report generation (e.g., reports to funding agencies, grant management) (Check one)

- 0 – 33%
- 34 – 66%
- 67 – 100%

Client-related applications (e.g., case management, services provided, bed lists, rosters, meals, etc.) (Check one)

- 0 – 33%
- 34 – 66%
- 67 – 100%

11. For client-related applications, how often is data entered into the system? (Check one)

- Daily
- Weekly
- Monthly
- Quarterly
- Other (please specify) _____

12. Personal computer users at your organization use the equipment for (Check all that apply):

- Word processing
- Spreadsheet analysis
- Database use (e.g., maintaining records of services, referrals, etc.)
- E-mail
- Don't know

13. Are computers used at your organization to upload/download data to/from government or funding agencies?

- Yes
- No

14. What keeps you from acquiring, or making better use of computer or networking technology? (Check one for each line)

	Major	Minor	Don't
	Inhibitor	Inhibitor	Know
Belief that the technology is useful	_____	_____	_____
Hardware and software costs	_____	_____	_____
Difficulty in getting started	_____	_____	_____
No personnel qualified to do it	_____	_____	_____
Other (please specify)	_____	_____	_____

15. Does your organization make use of database packages? (Check one)

- Yes (If yes, please answer the following question.)
- No

16. What database package(s) does your organization use? (Check all that apply)

- Access
- Paradox
- Oracle
- SQL Server
- FoxPro
- FileMaker
- Other (please specify) _____

Staff

17. Approximately how long has your organization used computer systems other than personal productivity tools (e.g., word processing)? (Check one)

- 1 – 2 years
- 3 – 5 years
- 6 – 10 years
- More than 10 years

18. How many individuals in your organization operate computers as part of their job? (Check one)

- None
- 1 – 4
- 5 – 10
- 11 – 20
- More than 20

19. How many of the following positions use computers at your organization? (Indicate actual number of individuals)

- _____ Case workers
- _____ Counselors
- _____ Intake workers
- _____ Administrators
- _____ Health workers
- _____ Other (please specify) _____

20. What percentage of the staff working at your organization ... (Indicate each percentage)

- _____ Need basic computer or systems training?
- _____ Have some training?
- _____ Are up with computers?
- _____ Are experts?
- _____ Do not require training?

21. What tactics do you think could help your organization to successfully benefit from this initiative? (Check one for each line)

	Major	Minor	Don't
	Contributor	Contributor	Know
Joint implementation planning	_____	_____	_____
Training on the specifics of the process	_____	_____	_____
Access to funds for technology	_____	_____	_____
Concerns regarding confidentiality	_____	_____	_____
Privacy protection and data sharing	_____	_____	_____
Other (please specify) _____			

Procedures

22. Please indicate what policies and procedures your organization currently uses regarding client-related data manipulation and use. (Check all that apply)

- Client data consent for data collection
- Interagency data sharing agreement
- Formal/documented intake process
- Secondary assessment process
- Collection of client identifiable information
- Collection aggregate data only
- Other (please specify) _____

Comments

23. Please express any additional comments.

Thank you.

Appendix D: Sample Lab User Questionnaire



Computer Lab Questionnaire

Please fill out one questionnaire per software system. While rating, please take into account the knowledge that with proper training these products will be much easier to handle. This questionnaire is meant to gather your overall impression of the product and rate your response on a few key aspects. Feel free to make any additional comments. Thank you for taking the time to join us in testing these systems.

Category I: Data Entry

1. How easy was it for you to enter information?

1	2	3	4	5
Not at all		Somewhat		Extremely

2. How easy was it for you to navigate through the system?

1	2	3	4	5
Not at all		Somewhat		Extremely

3. Did the information flow in a logical and consistent manner?

1	2	3	4	5
Not at all		Somewhat		Extremely

4. Keeping in mind that you were working with new software, did you feel that the amount of time it took to enter information was appropriate?

1	2	3	4	5
Not at all		Somewhat		Extremely

Category II: Usefulness

1. Did this system ask the right questions for your program?

1	2	3	4	5
Not at all		Somewhat		Extremely

2. Did it let you put in the appropriate answers?

1	2	3	4	5
Not at all		Somewhat		Extremely

3. Could you find what you wanted and needed easily?

1	2	3	4	5
Not at all		Somewhat		Extremely

Category III: Output

1. Does this system have the reporting capabilities that you need?

1	2	3	4	5
Not at all		Somewhat		Extremely

2. Were the reports in a format that you could use?

1	2	3	4	5
Not at all		Somewhat		Extremely

3. Can you locate and pull up information as efficiently as you would like?

1	2	3	4	5
Not at all		Somewhat		Extremely

Category IV: Overall

1. Did you enjoy using this system?

1	2	3	4	5
Not at all		Somewhat		Extremely

2. This system was good, except:

3. Please add any additional comments:

Thank You

Appendix E: Sample Site Visit Instrument

DATA SYSTEM COALITION SITE VISITS

SOFTWARE _____ VENDOR _____

SITE/AGENCY _____ CITY _____

PERSONS INTERVIEWED _____

COALITION REVIEWER _____ DATE _____

Guidelines for Site Visits:

- Attempt to talk with users of the software who represent a range of “user roles,” (for example, case managers, central server staff, agency heads, and consumers, if feasible).
- Attempt to observe the software in use at service program sites of different sizes and technical configurations.
- Review and measure the speed of the system. (How quick or slow is the system?)
- Arrange to watch a client intake.
- Enter some data yourself.

Questions: (Some questions can best be answered by a case manager while others can best be answered by central server staff. The goal is to have all the questions answered.)

System Configuration:

1. What kind of agency/system is your implementation designed for?
2. What geographic coverage are you attempting?
3. How are you using the software?
4. How long have you used it?
5. How many sites?
6. How many clients (homeless persons/families, program sites, agencies)?

Satisfaction with the software:

1. In what ways does the software meet your needs? In what ways does it fall short?
2. What do like about the product? What do you dislike?
3. What features do you hope to see in the next version of the software?

Function:

1. What is the ease of use for end users with this software? (10=very easy to 1=very hard)
2. How do the end users feel about the product?
3. Does the software allow a single agency to contain more than one site? Can each site have its own multiple programs? For example: a single agency may include shelters in different neighborhoods or counties. One of those shelters might operate a drug rehab program and a job-training program in addition to providing shelter beds. How would the software track which program(s) a client participated in?
4. For residential programs, how does the software handle overflow and seasonal variations in the number of beds available while still calculating occupancy rates and capacity?

Technical support from the software developer/vendor:

1. What has the support been like? (Rate your satisfaction: 10=very satisfied to 1=very dissatisfied)
2. How fast is the response time when you need help?
3. How courteous is the support staff?
4. Who from your system is allowed to call the software developer for TA or troubleshooting?

Customizability:

1. Describe the features of the software that allow for customization.

2. Who does the customizing? A local technical person? A local, less technical staff person? The software developer?

3. If the developer customized your system:

What was the customization and what were the costs?

How quickly was the customization completed?

How satisfied were you with the outcome?

Local Technical Support and Financial Requirements:

1. What local technical support (human expertise/hardware/etc.) is required at the central site?

2. What technical support (human expertise/hardware/etc.) is required at service program sites?

3. What are the financial costs for operating your system (Central Server costs, service program costs, other costs)?

Benefits:

1. How have clients benefited from using this system?

2. How have service programs benefited?

3. How has the community benefited in its understanding of clients and services?

4. How do you think clients perceive the whole system?

Reports:

- | | | |
|--|-----|----|
| 1. Does this produce the HUD Annual Progress Report? | YES | NO |
| If yes, what is the process like? | | |
| How long does it take? | | |
| How accurate is the information? | | |
| 2. Have you done reporting or data analysis across an entire community? | YES | NO |
| If yes, how did it go? | | |
| Can we have a copy of any published results? If so, whom should we contact? | | |
| 3. How satisfied are you with the functionality of the software for aggregate-level data analysis at the Central Server level, including transport of data from program sites to Central Server? How does it work? | | |
| 4. Does the software produce a meaningful Length of Stay Report? | YES | NO |
| If yes, how does it define and measure a client's length of stay? | | |
| How is an "exit" defined for a service program? | | |
| How is "visit" defined for overnight shelters and housing programs? | | |
| 5. Are you able to calculate an average turnover rate? | YES | NO |
| 6. What system reports do you find useful? | | |
| 7. How easily can you customize your own reports? | | |

Reliability of software:

- | | | |
|---------------------------------------|-----|----|
| 1. Do you find the software reliable? | YES | NO |
| 2. Does it crash? | YES | NO |
| 3. Are the data it produces reliable? | YES | NO |

Implementation process:

1. How smooth has your implementation process been?
2. In what ways has the software contributed to or deterred your implementation?
3. Have you adapted your system to fit the software application or has the software been adapted to fit your system?
4. Where are data being hosted?
5. What entity is in the Central Server role?

Interface with other management information systems:

1. To what extent, if any, are any sites using the software in conjunction with or interfacing with another local product (homegrown or otherwise)?

If yes, what needed to be done to create this interface? How well does the interface work?

Appendix F: Sample Cost Comparison Form

Cost Comparison Form

Product 1:

Expense/Type	One-Time Fixed Costs	One-Time Variable Costs	Annual Variable Costs	Variable Factors (cost varies by X)*
Site Hardware				
Site Software (License)				
Server Hardware				
Server Software (License)				
Support and Maintenance				
User Training				
Administrator Training				
Installation				
Conversion from Existing Database				
Data Storage				
Other:				
Other:				
Other:				

Hourly Rates

Customization				
Training				
Technical Support				

*i.e., per user, per location, per concurrent user, etc. If variable is unknown to consortium members, provide estimate (e.g., per class with estimated number of classes per user; per day with estimated number of days, etc.)

Notes: (Include any details on volume discounts here.)

Appendix G: Sample Client Information Sheet

Sample Client Information Form

This **HMIS PROJECT** administers a computerized recordkeeping system that captures information about people experiencing homelessness, including their service needs. The programs in the **AGENCY NAME** have decided to use the **HMIS PROJECT** as their data management tool to collect information on the clients they serve and the services they provide.

This process is beneficial because you will not have to complete an additional intake interview. Intake information can be shared, with your written consent, from your service program to the **COLLABORATING AGENCY**.

If you consent, we have the ability to share your information with the **COLLABORATING AGENCY** to be used for an initial intake assessment. You can choose to share all or part of the information that you have shared including basic demographic information, residential, employment skills/income, military/legal, service needs, goals, and outcomes. Your information will be shared electronically via a secure, encrypted, Web-based system to the agencies of your choice. This will not take place unless you provide written consent. No medical, mental health, or substance use history will be shared unless you provide express written consent below. Your record will be shared for a period of no more than 5 years from today's date.

The information you share with the **COLLABORATING AGENCY** will be used to access services that will help you obtain and maintain permanent housing. You can choose to have any information that you have shared deleted from the system at any time as well as request a document containing information about who has viewed or updated your client record. The information that you provide, combined with that provided by others, will be used without identifying information for reporting requirements and advocacy.

We here at **AGENCY NAME** have an interagency agreement with the **COLLABORATING AGENCY** regarding clients that are served by both agencies. Both programs also have an agreement with the **HMIS Project** and have completed security procedures regarding the protection and sharing of client data.

Appendix H: Sample Interagency Sharing Form

Standard Client Authorization

To Release and Exchange Basic Information with the Clearinghouse⁹

Name of Agency:

Client's Last Name:

First Name:

Middle Initial:

Date of Birth:

Social Security Number (optional):

The Continuum of Care Clearinghouse Project is a shared homeless and housing management information system. The Clearinghouse is administered by the nonprofit organization Community Council of Central Oklahoma to help improve homeless and housing services. The Clearinghouse does this by allowing **authorized personnel** at Clearinghouse Member Agencies to share client information needed for service delivery, to use an online directory of community services, and to track demographic trends and service patterns. The Clearinghouse operates over the Internet and uses many security protections to help ensure the confidentiality of your records.

I understand that all information gathered about me is personal and private and that I do not have to participate in the Clearinghouse. I have had an opportunity to ask questions about the Clearinghouse and to review the basic identifying information this release authorizes the Clearinghouse Member Agencies to share. I also understand that information about nonconfidential services provided to me by Clearinghouse Member Agencies may be shared with other Clearinghouse Member Agencies. Unless I make a formal request to a Clearinghouse Member Agency that I no longer want to participate in the Clearinghouse, this release will remain in force for 3 years from today and will expire on _____(d/m/y).

I authorize _____ as a Clearinghouse Member Agency, to share my basic identifying information and nonconfidential service information with other Clearinghouse Member Agencies. I authorize that a copy of this original will serve as an original for the purposes stated above.

Client's Authorizing Signature

Date (d/m/y)

Based on the above information, I authorize basic identifying information and nonconfidential service transactions of my dependent(s) to be shared with the Clearinghouse.

Legal Guardian's Authorizing Signature

Date (d/m/y)

Legal Guardian's Printed Name

Date (d/m/y)

⁹ The original of this Client Authorization for Release form should be kept on file at the Agency. Upon a form's expiration date, the file should be kept for five years.

Name of Dependents that the Legal Guardian Authorizes to Participate in the Clearinghouse:

_____	_____	_____	_____
Name	DOB	Name	DOB

_____	_____	_____	_____
Name	DOB	Name	DOB

_____	_____
Agency Representative's Signature	Date (d/m/y)

_____	_____
Agency Representative's Printed Name	Date (d/m/y)

Description for Informed Decision: ___ Verbal Explanation
 ___ Interpreter
 ___ Written

Basic identifying information this release authorizes to be exchanged among Clearinghouse Member Agencies:

Date and Time of Intake into the Clearinghouse System

Permission for Information Release

First Name

Middle Initial

Last Name

Alias

Social Security Number

Driver's License ID

U.S. Citizen Status

Immigration Status

Registered to Vote

Address

Home Telephone

Work Telephone

Emergency Contact and Telephone

Date of Birth/Birthday

City and State of Birth

Sex

Race

Primary Language

Marital Status

Other notes/comments (**CANNOT** include confidential information such as TB diagnosis, drug and alcohol information, mental health information, etc.)

Household Relationships

Basic Identifying Information on Household Relationships (same questions as above)

This release also authorizes Clearinghouse Member Agencies to share relevant, nonconfidential information about services provided with other Clearinghouse Agencies, such as:

Shelter stays

Food

Clothing

Transportation

Employment

Housing

Childcare

TB Clearance Status

Utility Assistance

Authorizing Person's Initials

Date (d/m/y)

Appendix I: Sample Agency Participation Agreement

Continuum of Care Clearinghouse/Homeless Management Information System

Partnership Agreement

Between

Community Council of Central Oklahoma, Inc.

and

This agreement is entered into on _____(d/m/y) between Community Council of Central Oklahoma, Inc., hereafter known as the “Council,” and _____(agency name), hereafter known as “Agency,” regarding access and use of the Continuum of Care Clearinghouse, hereafter known as the “Clearinghouse.”

I. Introduction

The Clearinghouse is a shared homeless database that allows authorized personnel at Clearinghouse Member Agencies throughout Oklahoma City to share information on common clients. Goals of the Clearinghouse include: ability to expedite client intake procedures, improved referral accuracy, increased case management and administrative tools, and the creation of a tool to follow demographic trends and service utilization patterns of families and individuals experiencing homelessness or those families and individuals on the verge of homelessness.

The project is administered by the Council, the area’s leading health and human services planning agency. The Council houses the central server that hosts the Clearinghouse and limits access to the database to Member Agencies participating in the project. The Council intends to protect Clearinghouse data to the utmost of its ability from accidental or intentional unauthorized modification, disclosure, or destruction, and the Council does this by utilizing a variety of methods to guard the data.

Ultimately, when used correctly and faithfully by all involved parties, the Clearinghouse is designed to benefit multiple stakeholders, including the community, homeless service agencies, and the consumer of homeless services, through a more effective and efficient service delivery system.

II. Confidentiality

- A. The Agency will uphold relevant Federal and State confidentiality regulations and laws that protect client records, and the Agency will only release confidential client records with written consent by the client, or the client’s guardian, unless otherwise provided for in the regulations or laws. A client is anyone who receives services from the Agency and a guardian is one legally in charge of the affairs of a minor or of a person deemed incompetent.
 - 1. The Agency will abide specifically by Federal confidentiality regulations as contained in the Code of Federal Regulations, 42 CFR Part 2, regarding disclosure of alcohol and/or drug abuse records. In general terms, the Federal regulation prohibits the disclosure of alcohol and/or drug abuse records unless disclosure is expressly permitted by written consent of the person to whom it pertains or as otherwise permitted by 42 CFR Part 2. A general authorization for the release of medical or other information is **not** sufficient for

this purpose. The Agency understands that Federal rules restrict any use of the information to criminally investigate or prosecute any alcohol or drug abuse patients.

2. The Agency will abide specifically with the Health Insurance Portability and Accountability Act of 1996 and corresponding regulations passed by the U.S. Department of Health and Human Services. In general, the regulations provide consumers with new rights to control the release of medical information, including advance consent for most disclosures of health information, the right to see a copy of health records, the right to request a correction to health records, the right to obtain documentation of disclosures of their health information, and the right to an explanation of their privacy rights and how information may be used or disclosed. The current regulation provides protection for paper, oral, and electronic information.
3. The Agency will abide specifically by Oklahoma State law, which in general terms requires an individual to be informed that any and all medical records she/he authorizes to be released, whether related to physical or mental health, may include information indicating the presence of a communicable or venereal disease. The Agency is required to inform the individual that these records may include, but are not limited to the inclusion of information on diseases such as hepatitis, syphilis, gonorrhea, tuberculosis, and HIV/AIDS.
4. The Agency will abide specifically by Oklahoma Title 43A, Mental Health Law. In general terms, this law prohibits agencies from releasing any information that would identify a person as a client of a mental health facility, unless client consent is granted.
5. The Agency will provide a verbal explanation of the Clearinghouse and arrange for a qualified interpreter or translator in the event that an individual is not literate in English or has difficulty understanding the consent form(s).
6. The Agency will not solicit or input information from clients into the Clearinghouse unless it is essential to provide services or conduct evaluation or research.
7. The Agency will not divulge any confidential information received from the Clearinghouse to any organization or individual without proper written consent by the client unless otherwise permitted by relevant regulations or laws.
8. The Agency will ensure that all persons who are issued a User Identification and Password to the Clearinghouse within that particular agency abide by this Partnership Agreement, including the confidentiality rules and regulations. The Agency will ensure that each person granted Clearinghouse access at the Agency receives a Clearinghouse operational manual.¹⁰ This manual will include information on how to use the Clearinghouse as well as basic steps to ensure confidentiality. The Agency will be responsible for managing any of its own requirements that individual employees comply with Clearinghouse confidentiality practices, such as having employees sign a consent form stating their understanding of and agreement to comply with Clearinghouse confidentiality practices.¹¹ It is understood that those granted Agency Administrator access within each Clearinghouse agency must become a Certified Clearinghouse Agency Administrator through training provided by the Council.

¹⁰ One copy of the original and updates are provided by the Council.

¹¹ Sample form provided by the Council.

9. The Agency understands that the file server—which will contain all client information, including encrypted identifying client information—will be physically located in a locked office with controlled access at the offices of the Council, 21 East Main Street, Suite 101, Oklahoma City, OK 73104–2400.
- B. The Agency agrees to maintain appropriate documentation of client consent or guardian-provided consent to participate in the Clearinghouse.
1. The Agency understands that informed client consent is required before any basic identifying client information is entered into the Clearinghouse for the purposes of interagency sharing of information. Informed client consent will be documented by completion of the standard Clearinghouse Client Authorization to Release and Exchange Basic Information for the Clearinghouse form.¹²
 2. The Client Authorization form mentioned above, once completed, authorizes basic identifying client data to be entered into the Clearinghouse, as well as nonconfidential service transaction information. This authorization form permits basic client identifying information to be shared among all Clearinghouse Member Agencies and nonconfidential service transactions with select Clearinghouse Member Agencies, based on relevance.
 3. If a client denies authorization to share basic identifying information and nonconfidential service data via the Clearinghouse, identifying information shall only be entered into the Clearinghouse if the client information is locked and made accessible only to the entering agency program, therefore, precluding the ability to share information. A second option for agencies and clients, when clients do not provide authorization to share data, is to use the anonymous client function. If either of these choices is not selected, the Clearinghouse will not be used as a resource for that individual client and her/his dependents.
 4. The Agency will incorporate a Clearinghouse Clause into existing Agency Authorization for Release of Information form(s) if the Agency intends to input and share confidential client data with the Clearinghouse. The Agency’s modified Authorization for Release of Information form(s) will be used when offering a client the opportunity to input and share information with the Clearinghouse beyond basic identifying data and nonconfidential service information. The Agency will communicate to the client what information, beyond basic identifying data and nonconfidential services will be shared if client consent is given. The Agency will communicate to the client that while the Agency can restrict information to be shared with select agencies, those other agencies will have access to the information and are expected to use the information professionally and to adhere to the terms of the Clearinghouse Partnership Agreement. Agencies with whom information is shared are each responsible for obtaining appropriate consent before allowing further sharing of client records. The Council will conduct periodic audits to enforce informed consent standards, but the primary oversight of this function is between agencies.
 5. If a client denies authorization to have information beyond basic identifying data and beyond nonconfidential service transactions both entered and shared among the Clearinghouse, then this record must be locked and made available only to the entering agency program, therefore, precluding the ability to share information. A second option for agencies and clients when clients do not provide authorization to share data, is to use the anonymous client function. If either of these choices is not selected, the

¹² See attached

Clearinghouse will not be used as a resource for information beyond basic identifying data and beyond nonconfidential service transactions for that individual client and her/his dependents.

6. The Agency agrees to place all Client Authorization for Release of Information forms related to the Clearinghouse in a file to be located at the Agency's business address and that such forms be made available to the Council for periodic audits. The Agency will retain these Clearinghouse related Authorization for Release of Information forms for a period of 5 years, after which time the forms will be discarded in a manner that ensures client confidentiality is not compromised.
 7. The Agency understands that in order to update, edit, or print a client's record, the Agency must have on file a current authorization from the client as evidenced by a completed standard Clearinghouse Authorization to Release form pertaining to basic identifying data, and/or a modified Agency form with a Clearinghouse Clause pertaining to confidential information.
 8. The Agency understands the Council does not require or imply that services be contingent upon a client's participation in the Clearinghouse.
- C. The Agency and Council understand the Clearinghouse Project, and the Council as administrator, are custodians of data and not owners of data.
1. In the event the Clearinghouse Project ceases to exist, Member Agencies will be notified and provided reasonable time to access and save client data on those served by the agency as well as statistical and frequency data from the entire system. Then, the information collected by the centralized server, located at the Council will be purged, or stored. If the later occurs, the data will remain in an encrypted and aggregate state.
 2. In the event the Council ceases to exist, the custodianship of the data will be transferred to another non-profit for administration, and all Clearinghouse Member Agencies will be informed in a timely manner.

III. Data Entry and/or Regular Use

- A. User identification and passwords are not permitted to be shared among users.
- B. If an Agency has access to a client's basic identifying information, nonconfidential service transactions, and confidential information and service records, it will be generally understood that a client gave consent for such access. However, before an agency can update, edit, or print such information, it must have informed client consent, evidenced by a current standard Clearinghouse Authorization to Release form in writing pertaining to basic identifying data and/or an Agency-modified form with a Clearinghouse Clause pertaining to confidential information.
- C. If a client has previously given permission to multiple agencies to have access to her/his information, beyond basic identifying information and nonconfidential service transactions, and then chooses to eliminate one or more of these agencies, the Agency at which such desire is expressed will contact its partner agency/agencies with whom the client previously granted permission for information exchange and explain that the record, or portions of the record, will no longer be shared at the client's request. The agency where the request is made will then either close the entire record, or simply lock out portions of the record to the other agency or agencies.

- D. In the event that a client would like to rescind consent to participate in the Clearinghouse completely, the agency at which her/his desire is expressed, will work with the client to complete a brief form,¹³ which will be sent to the System Administrator to inactivate the client.
- E. The Agency will only enter individuals in the Clearinghouse that exist as clients under the Agency's jurisdiction.
- F. The Agency will not misrepresent its client base in the Clearinghouse by entering known, inaccurate information (i.e., Agency will not purposefully enter inaccurate information on a new record or to override information entered by another agency).
- G. The Agency will consistently enter information into the Clearinghouse and will strive for real-time, or close to real-time, data entry.
- H. The Agency understands that with a current standard Clearinghouse Authorization for Release form on file, it can update, edit, and print a client's basic identifying information.
- I. The Agency understands that a modified agency Authorization to Release Information form, with the added Clearinghouse Clause, permits it to share confidential client information with select agencies.
- J. The Agency understands that assessment screens are only allowed to be edited by the individual that originally enters the data, whether that individual is employed by the Agency or another Member Agency. The Agency will create a separate assessment, as needed, to indicate a change in a client's status, updates, and to edit incorrect information.
- K. Discriminatory comments based on race, color, religion, national origin, ancestry, handicap, age, sex, and sexual orientation are not permitted in the Clearinghouse.
- L. Offensive language and profanity are not permitted in the Clearinghouse.
- M. The Agency will utilize the Clearinghouse for business purposes only.
- N. The Agency understands the Council will provide initial training and periodic updates to that training to assigned Agency Staff about the use of the Clearinghouse; this information is then to be communicated to other Clearinghouse Staff within the Agency.
- O. The Agency understands the Council will be available for TA within reason (i.e., troubleshooting and report generation). Standard operating hours in which TA will generally be available are 9:30 a.m.–5:30 p.m. on Monday through Friday. Staff can be reached during nonstandard operating hours via pager.
- P. The Agency will keep updated virus protection software on Agency computers that access the Clearinghouse.
- Q. Transmission of material in violation of any United States Federal or State regulations is prohibited and includes, but is not limited to: copyrighted material, material legally judged to be threatening or obscene, and material considered protected by trade secret.
- R. The Agency will not use the Clearinghouse with intent to defraud the Federal, State, or local government, or an individual entity, or to conduct any illegal activity.

¹³ Form provided by the Council

- S. The Agency recognizes the Continuum of Care Clearinghouse Committee (Committee) to be the discussion center regarding the Clearinghouse, including Clearinghouse process updates, policy and practice guidelines, data analysis, and software/hardware upgrades. The Agency will designate an assigned Clearinghouse Staff member to attend Clearinghouse meetings regularly, and understands that the Council will continue to be responsible for coordinating Committee activities.

IV. Reports

- A. The Agency understands that it will retain access to all identifying and statistical data on the clients it serves.
- B. The Agency understands that access to data on those it does not serve will be limited to basic identifying information and nonconfidential service data. Therefore, the agency understands that, with rare exception,¹⁴ a list of all persons in the Clearinghouse along with basic identifying information and nonconfidential service data can be generated.
- C. Reports obtaining information beyond basic identifying data and nonconfidential services on individuals not served by the Agency are limited to statistical and frequency reports, which do not disclose identifying information.
- D. The Agency understands that before nonidentifying systemwide aggregate information collected by the Clearinghouse is disseminated to nonClearinghouse Member Agencies, including funders, it shall be endorsed by the Clearinghouse Committee or Data Subcommittee and/or the Council.¹⁵

V. Proprietary Rights of (insert vendor name) and Database Integrity

- A. The Agency will not give or share assigned user identification and passwords to access the Clearinghouse with any other organization, governmental entity, business, or individual.
- B. The Agency will not cause corruption of the Clearinghouse in any manner or way. Any unauthorized access or unauthorized modification to computer system information or interference with normal system operations, whether on the equipment housed by the Council or any computer system or network accessed by (insert vendor name), will result in immediate suspension of services and the Council and/or (insert vendor name) will pursue all appropriate legal action.

VI. Hold Harmless

- A. The Council makes no warranties, expressed or implied. The Agency, at all times, will indemnify and hold the Council harmless from any damages, liabilities, claims, and expenses that may be claimed against the Agency; or for injuries or damages to the Agency or another party arising from participation in the Clearinghouse; or arising from any acts, omissions,

¹⁴ An example of "rare exception" in which basic identifying information would not be available to all Clearinghouse Member Agencies is if the anonymous client function is used and identifiers such as name, DOB, and Social Security Number are not entered into the system. A second example would be if the basic identifying data and service transactions are locked to only the entering agency, in which case such information would be available only in aggregate form.

¹⁵ The Clearinghouse Committee will serve in part to protect the confidentiality of clients and the integrity of the data by requiring certain methods of data analysis be utilized.

neglect, or fault of the Agency or its agents, employees, licensees, or clients; or arising from the Agency's failure to comply with laws, statutes, ordinances, or regulations applicable to it or the conduct of its business. This Agency will also hold the Council harmless for negative repercussions resulting in the loss of data due to delays, nondeliveries, misdeliveries, or service interruption caused by the Agency's or another Member Agency's negligence or errors or omissions, as well as natural disasters, technological difficulties, and/or acts of God. The Council shall not be liable to the Agency for damages, losses, or injuries to the Agency or another party other than if such is the result of gross negligence or willful misconduct of the Council.

- B. The Agency agrees to keep in force a comprehensive general liability insurance policy with combined single limit coverage of not less than five hundred thousand dollars (\$500,000). Said insurance policy shall include coverage for theft or damage of the Agency's Clearinghouse-related hardware and software, as well as coverage of Agency's indemnification obligations under this agreement.

VII. Terms and Conditions

- A. The parties hereto agree that this agreement is the complete and exclusive statement of the agreement between parties and supersedes all prior proposals and understandings, oral and written, relating to the subject matter of this agreement.
- B. Neither party shall transfer or assign any rights or obligations without the written consent of the other party.
- C. This agreement shall remain in force until revoked in writing by either party, with 30 days advance written notice. The exception to this term is if allegations or actual incidences arise regarding possible or actual breaches of this agreement. Should such situations arise, the Council may immediately suspend access to the Clearinghouse until the allegations are resolved in order to protect the integrity of the system.
- D. This agreement may be modified or amended by written agreement executed by both parties with 30 days advance written notice.

Use of the Clearinghouse constitutes acceptance of these Terms and Conditions.

Executive Director's Signature
Name and Address of Agency:

Date (d/m/y)

Executive Director Printed Name

Date (d/m/y)

Nancy Del Regno

Date (d/m/y)

Executive Director

Community Council of Central Oklahoma, Inc.

21 East Main Street, Suite 101

Oklahoma City, OK 73104-2400

Appendix J: Sample User Agreement

USER AGREEMENT

Agency Name

Statement of Confidentiality¹⁶

Employees, volunteers, and any other persons with access to the Continuum of Care Clearinghouse/Homeless Management Information System are subject to certain guidelines regarding use of the Clearinghouse. The Clearinghouse contains a range of personal and private information on individuals and all such information must be treated carefully and professionally by all who access it.

Guidelines for use of the Clearinghouse include:

- ◆ Personal User Identification and Passwords must be kept secure and are not to be shared.
- ◆ Informed client or guardian consent, as documented by a **current** standard Clearinghouse Authorization to Release form, is required before entering, updating, editing, printing, or disclosing basic identifying information and nonconfidential service transactions via the Clearinghouse.
- ◆ Only general, nonconfidential information is to be entered in the “other notes/comments” section of the Client Profile on the Clearinghouse. Confidential information, including TB diagnosis, domestic violence and mental and/or physical health information, is not permitted to be entered in this section.
- ◆ Informed client or guardian consent, as documented by a **current** Agency-modified Authorization for Release of Information form with a Clearinghouse Clause, is required before entering, updating, editing, printing, or disclosing information beyond basic identifying nonconfidential information and service transactions.
- ◆ Confidential information obtained from the Clearinghouse is to remain confidential, even if my relationship with _____ (agency name) changes or concludes for any reason.
- ◆ Information beyond basic identifying data, which includes all assessment screens (all screens beyond profile, agency, and community fields), is not to be edited. If an update or correction is needed, a new assessment must be created.
- ◆ Only individuals that exist as clients under the Agency’s jurisdiction may be entered into the Clearinghouse.
- ◆ Misrepresentation of the client base by entering known, inaccurate information is prohibited.
- ◆ Client records are not to be deleted from the Clearinghouse. If a client or guardian of a client chooses to rescind consent to participate in the Clearinghouse, her/his file shall become “inactive.”
- ◆ Discriminatory comments based on race, color, religion, national origin, ancestry, handicap, age, sex, and sexual orientation are not permitted in the Clearinghouse. Profanity and offensive language are not permitted in the Clearinghouse.
- ◆ The Clearinghouse is to be used for business purposes only. Transmission of material in violation of any United States Federal or State of Oklahoma regulations or laws is prohibited and includes material that is copyrighted, legally judged to be threatening or obscene, and considered protected by

¹⁶ The original Statement of Confidentiality should be kept on file at the Agency. Forms on individuals no longer employed by the Agency should be kept on file for five years.

trade secret. The Clearinghouse will not be used to defraud the Federal, State, or local government or an individual entity or to conduct any illegal activity.

- ◆ Any unauthorized access or unauthorized modification to computer system information or interference with normal system operations will result in immediate suspension of your access to the Clearinghouse and may jeopardize your employment status with _____ (agency name).

Failure to comply with the provisions of this Confidentiality Statement is grounds for immediate termination. Your signature below indicates your agreement to comply with this statement of confidentiality. There is no expiration date of this agreement.

Signature Date Witness Signature, Title Date

Printed Name Date Witness Printed Name Date

Bibliography of References and Supporting Materials

HMIS Bibliography

Culhane, D., S. Metraux, and S. Raphael. 2000. *The Prevalence of Homelessness in 1998: Results from the Analysis of Administrative Data in Nine U.S. Jurisdictions*. Philadelphia, PA: Center for Mental Health Policy and Services Research, University of Pennsylvania.

Homeless Management Information Systems: An In-Depth Look. January 2001. Boston, MA: Center for Social Policy, McCormack Institute, University of Massachusetts-Boston. See pages 91–117 for information on data elements. Available on HUD's HMIS Web site:
<http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>

Homeless Management Information Systems (HMIS) Cost Estimation Guidelines: Cost Framework and Submission Recommendations. January 2002. Boston, MA: Center for Social Policy, McCormack Institute, University of Massachusetts-Boston/Aspen Systems, Inc. Document provides detailed information on technical cost categories. Available on HUD's HMIS Web site:
<http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>

Safe Harbors Design Project. February 2001. Prepared for the City of Seattle, King County, and the United Way of King County. Available on HUD's Web site:
<http://www.hud.gov/offices/cpd/homeless/hmis/index.cfm>

Sample HMIS Request for Proposals (RFP) is available at the National Human Services Data Consortium Web site: www.NHSDC.org

State of Massachusetts: Annotated outline of Massachusetts' SOPs is available on:
http://www.mccormack.umb.edu/csp/csp_tech.htm

State of Wisconsin HMIS Web site: <http://www.doa.state.wi.us/dhir/boh/servicepoint>