From Intake to Analysis:

A Toolkit for Developing a

Continuum of Care Data Quality Plan

HUD HMIS TA Initiative

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1. INTRODUCTION

This document provides Continuums of Care (CoCs), Homeless Management Information System (HMIS) lead agencies, and homeless service providers with guidance and tools needed to develop a community-level HMIS data quality plan. The guidance and tools provided in this document will assist in the development of a data quality plan and protocols for ongoing data quality monitoring that meets requirements set forth by the Department of Housing and Urban Development (HUD). Once a community has implemented regular data quality monitoring protocols, it can move toward producing reliable data for homeless planning, assessing client and program outcomes, and evaluating efficient use of funds. When possible, data quality best practices from other communities are provided for reference.

The toolkit is divided into four sections:

- 1. Introduction. This section provides basic information and definitions on data quality, data quality plans, and data quality monitoring protocols.

- 2. Developing a Data Quality Plan. This section contains guidance, sample data quality benchmarks, and community examples of data quality plans.

- 3. Developing Data Quality Monitoring Protocols. This section provides guidance and tools for developing data quality monitoring protocols, including information on data quality reports, guidelines for monitoring data quality, and methods for improving data quality. Also included in this section is a brief description of a Data Quality Monitoring Tool, a spreadsheet that enables CoCs to calculate data quality rates and monitor progress on data quality benchmarks.

- 4. Appendices. A glossary of commonly used terms, sample data quality reports, and other reference materials and tools are included in the Appendices.

This toolkit is intended to be a dynamic document and will be updated to reflect future changes to HUD's HMIS Data and Technical Standards, as well as other data quality requirements published in the CoC Notice of Funding Availability or to support the generation of the Annual Homeless Assessment Report (AHAR).

1.1 HMIS Data and Technical Standards

An HMIS is a locally administered, electronic data collection system that stores longitudinal person-level information about the men, women, and children who access homeless and other human services in a community. Each CoC receiving HUD funding is required to implement an HMIS to capture standardized data about all persons accessing the homeless assistance system. Furthermore, elements of HUD's annual CoC funding competition are directly related to a CoC's progress in implementing its HMIS.

In 2004, HUD published HMIS Data and Technical Standards in the Federal Register. The Standards defined the requirements for data collection, privacy safeguards, and security controls for all local HMIS. In March 2010, HUD published changes in the HMIS Data Standards Revised Notice[1] incorporating additional data collection requirements for the Homelessness Prevention and Rapid Re-Housing Program (HPRP) funded under the American Recovery and Reinvestment Act (ARRA). Additional Data Standards are currently under revision to incorporate new privacy and technology industry standards. More information on

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[1] HMIS Data Standards Revised Notice, U.S. Department of Housing and Urban Development, March 2010, http://www.hudhre.info/documents/FinalHMISDataStandards_March2010.pdf .

HMIS and the March 2010 HMIS Data Standards Revised Notice are available online at www.hmis.info.

For communities to meet the requirements specified in the HMIS Data and Technical Standards, it is strongly recommended they implement a formal procedure to monitor the ongoing quality of the data entered into the HMIS. This document will present models of how any CoC implementing an HMIS can develop a data quality plan and monitoring protocols.

1.2. What is Data Quality?

Data quality is a term that refers to the reliability and validity of client-level data collected in the HMIS. It is measured by the extent to which the client data in the system reflects actual information in the real world. With good data quality, the CoC can "tell the story" of the population experiencing homelessness.

The quality of data is determined by assessing certain characteristics such as timeliness, completeness, and accuracy. In order to assess data quality, a community must first think about what data quality means and document this understanding in a data quality plan.

> **"Garbage in, Garbage Out"**
>
> Individuals working in most any field have heard the phrase "garbage in, garbage out," when referring to data collection. It is well known that the reports generated from a system are only as good as the data that is entered into the system. That is why establishing benchmarks for data quality and implementing ongoing monitoring protocols is critical to ensuring communities have valid and reliable data to make sound informed decisions.

1.3. What is a Data Quality Plan?

A data quality plan is a community-level document that facilitates the ability of the CoC to achieve statistically valid and reliable data. A data quality plan is generally developed by the HMIS Lead Agency with input from community stakeholders and is formally adopted by the CoC. At a minimum, the plan should:

- Identify the responsibilities of all parties within the CoC that affect data quality.

- Establish specific data quality benchmarks for timeliness, completeness, and accuracy.

- Describe the procedures that the HMIS Lead Agency will take to implement the plan and monitor progress to meet data quality benchmarks.

- Establish a timeframe for implementing the plan to monitor the quality of data on a regular basis.

In short, a data quality plan sets expectations for both the community and the end users to capture reliable and valid data on persons accessing the homeless assistance system.

Collecting data in the human service field can be challenging; clients presenting for services are often distraught, scared, or confused. It may be difficult to obtain accurate information from them, but case managers and others working with these clients need to understand the importance of obtaining accurate information from all clients they serve. Without good information, it is difficult to assess a client's needs and determine the appropriate level of services for each homeless individual or family.

A plan that sets data quality expectations will help case managers better understand the importance of working with their clients to gather timely, complete, and accurate data. For example, most homeless providers collect information on a client's military service history, or

veteran status. Knowing whether a client has served in the military is an important piece of information; it helps case managers make appropriate referrals and alerts them to specific benefits the client may be eligible to receive – benefits that could help the client become permanently housed. If the case manager ***does not*** know the veterans status of a client, a piece of their story is missing.

Looking at a particular data element and assessing how many client records have blank or missing data helps analyze how reliable the data is. The more clients with missing or incomplete information, the less valid the data is to make generalizations about the population served.

Each component of a data quality plan includes a benchmark – a quantitative measure used to assess reliability and validity of the data. A community may decide to set the benchmark for a missing (or null) value for a certain data element at 5%. This would mean that no more than 5% of all the client records in the system should be "missing" a response to a particular data element.

Appendix B provides sample data quality reports gathered from various communities, as well as information on data quality benchmarks for HUD reporting purposes. These sample documents should be used to provide a framework for CoCs developing their own data quality plan.

1.4 What is a Data Quality Monitoring Plan?

A data quality monitoring plan is a set of procedures that outlines a regular, on-going process for analyzing and reporting on the reliability and validity of the data entered into the HMIS at both the program and aggregate system levels. A data quality monitoring plan is the primary tool for tracking and generating information necessary to identify areas for data quality improvement. Most data quality monitoring plans outline the procedures and frequency by which data is reviewed. The plan highlights expected data quality goals, the steps necessary to measure progress toward the goals, and the roles and responsibilities for ensuring the data in the HMIS is reliable and valid.

Section 3 of this toolkit provides further guidance on developing a data quality monitoring plan. Appendix B provides sample reports to be used as a framework for CoCs developing their own data quality monitoring plan.

2. DEVELOPING A DATA QUALITY PLAN

This section of the toolkit describes the components of a data quality plan and the benchmarks that will measure the reliability and validity of the data collected in the HMIS. The information presented below is intended to serve as a guide for facilitating the development of a data quality plan. Key stakeholders from an HMIS or data quality committee will be required to discuss and make decisions on the various components to be included in a local data quality plan. Each component of a data quality plan is presented below and highlights:

- The **rationale** behind its inclusion;
- **Factors to address** for the relevant component**;**
- **Special issues and exceptions** to be considered;
- **Sample benchmarks** as a starting point for discussion; and where possible
- **Community examples** from CoCs across the country.

CoCs need only include the benchmarks in their data quality plan; the other parts (rationale, factors to address, special issues and exceptions, and community examples) are intended to guide the plan's discussion. In addition, because this toolkit is meant to enable the CoC to develop its own data quality plan, it is imperative that the CoC review each component, discuss its relevance or appropriateness, and decide if it should be included in the community's measures of data quality. The CoC may even decide that more components and benchmarks are needed. A glossary of terms has been provided in Appendix A to assist in development of the data quality plan.

Once the data quality plan has been developed, the community will then develop a strategy to train and educate end users on the plan, to review and monitor compliance with and adherence to the plan, and to outline sanctions if the benchmarks in the plan are not met.

<u>Again, it is important to note that the sample benchmarks and community samples are for reference only. They should be used as a starting point for discussion and should not be construed as the final, HUD-prescribed method for creating a data quality plan. Each community is different and has different data quality needs. The data quality plan should be tailored to meet those needs, while at the same time adhering to HUD's HMIS requirements.</u>

2.1. Components of a Data Quality Plan

<u>Component 1: Timeliness</u>

Rationale:	Entering data in a timely manner can reduce human error that occurs when too much time has elapsed between the data collection (or service transaction) and the data entry. The individual doing the data entry may be relying on handwritten notes or their own recall of a case management session, a service transaction, or a program exit date; therefore, the sooner the data is entered, the better chance the data will be correct. Timely data entry also ensures that the data is accessible when it is needed, either proactively (e.g. monitoring purposes, increasing awareness, meeting funded requirements), or reactively (e.g. responding to requests for information, responding to inaccurate information).
Factors to address:	Document the expectation for entering HMIS data in a timely manner, specifying the number of hours or days by which data must be entered. Include timeliness benchmarks for all types of programs that enter data into the HMIS, including Emergency Shelter, Transitional Housing, Permanent Housing, Safe Haven, Outreach, Prevention, HPRP, or any other programs in the CoC.
Special Issues and Exceptions:	A CoC may want to adopt different timeliness benchmarks for different types of programs. For example, a CoC may require that emergency shelters enter data on a daily basis to facilitate up-to-date information on bed utilization. Outreach programs may also have a shorter benchmark, since clients may engage and disengage from service in a single encounter. On the other hand, the CoC may determine that a seven day benchmark for transitional and permanent housing programs is reasonable, since clients in those programs are longer term residents.

Sample Benchmark: All data shall be entered into the HMIS in a timely manner. To that end, the following timeliness benchmarks are set forth:

- Emergency Shelter programs: All Universal Data Elements entered within two days of intake.

- Transitional Housing: All Universal and Program-Specific Data Elements entered within seven days of intake.

- Permanent Housing: All Universal and Program-Specific Data Elements entered within seven days of intake.

- Outreach programs: Limited data elements entered within two days of the first outreach encounter. Upon engagement for services, all remaining Universal Data Elements entered within two days.

- HPRP and Prevention programs: All Universal and Program-Specific Data Elements entered within two days of intake.

Community Sample - Timeliness:
Cincinnati, OH[2]

- *Client Basic Demographic Data is to be entered into HMIS system within two working days of a residential intake. (Residential = emergency shelter stay, transitional housing stay, permanent service enriched housing stay).*

- *Limited basic demographic data is to be entered into HMIS system within two working days of the first substantial outreach encounter. (Substantial encounter to be defined by outreach workers.)*

- *Services and special issues data is to be entered into the HMIS system within one week of the client exiting a housing stay or receiving a services only service.*

Community Sample - Timeliness:
Maricopa County, Arizona[3]

- *Intake data should be entered into the Maricopa HMIS Project within 2 working days of the intake process.*

- *Shelters only: Clients who stayed in shelter during the previous 24-hour period must be entered into the HMIS Bed List within 24 hours.*

- *Complete and accurate data for the month must be entered into the Maricopa HMIS Project by the fourth working day of the month following the reporting period. For example, data for the month of April must be entered into the HMIS by the fourth working day of May.*

- *Clients input into the HMIS via a data integration process will not follow the above deadlines and instead will be input into the HMIS in accordance with guidelines setup with each individual data integration project.*

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[2] *Cincinnati/Hamilton County, Ohio, HMIS Policies and Procedures, http://www.hmis-cincinnati.org/Forms/HMISPoliciesandProcedures.pdf.*

[3] Maricopa County, Arizona, HMIS Project Data Quality Plan, http://www.cir.org/hmis/Documents/MaricopaHMISProjectDataQualityPlan.pdf.

Component 2: Completeness

Rationale:	Partially complete or missing data (e.g., missing digit(s) in a SSN, missing the year of birth, missing information on disability or veteran status) can negatively affect the ability to provide comprehensive care to clients. Missing data could mean the client does not receive needed services – services that could help them become permanently housed and end their episode of homelessness.
Factors to address:	Document the expectation for HMIS data collected to be complete, as defined by a program type. Completeness expectations include All Clients Entered and each of the HUD data element sets.
Special Issues and Exceptions:	HUD has not prescribed allowable percentages for null/missing data or levels of Unknown, Don't Know, and Refused responses. CoCs may determine acceptable ranges, based on community needs and acceptable data analysis practices that balance data collection limitations with commonly accepted levels for reliability. For instance, generally accepted data analysis practices require a minimum of a 65% response rate for data to be generalized to a population. However, a CoC that has identified a trend, such as an increase in homelessness among veterans, may require a much more stringent expectation, such as no less than 5% of incomplete data for the Veteran Status data element. (Charts for documenting the CoC's acceptable percentages of missing or incomplete data for the HMIS Universal and Program-Specific Data Elements are provided in Appendix B.)
Sample Benchmark:	All data entered into the HMIS shall be complete.

The Continuum's goal is to collect 100% of all data elements. However, the Continuum recognizes that this may not be possible in all cases. Therefore, the Continuum has established an acceptable range of null/missing and unknown/don't know/refused responses of between 2 and 5 percent, depending on the data element and the type of program entering data.

Complete HMIS data is necessary to fully understand the demographic characteristics and service use of persons in the system. Complete data facilitates confident reporting and analysis on the nature and extent of homelessness, such as:

- Unduplicated counts of clients served at the local level;

- Patterns of use of people entering and exiting the homeless assistance system; and

- Evaluation of the effectiveness of homeless systems.

In effect, complete data tells the full "story" of homelessness to the agencies, the Continuum, and the general public.

Complete data also helps CoCs meet funded compliance requirements. In the HUD 2009 Continuum of Care funding application, applicants were asked to "indicate the percentage of unduplicated client records with null or missing values on the date that the point-in-time count was

conducted." This demonstrates HUD's commitment to completeness of data and accurate reflection of the true picture of homelessness in the Continuum.

Community Sample - Completeness
Columbus, Ohio[4]

CSB data entry standards require that all data is completely and accurately entered in the HMIS by the 4th working day of the month, after which there is a period of Quality Assurance reviews. It is the Site Administrator's responsibility that data is entered completely and accurately on an ongoing basis through agency-level Quality Assurance policies and procedures.

If data is found to be incomplete or incorrect during the Quality Assurance period, it is permissible to make changes up through the last day of the designated cure period. After compliance has been achieved, no changes or corrections to the data which has been reviewed should be necessary.

For example, if the data for the variable veteran status is unknown for less than 5% of clients during the month, the data is complete. If unknown is greater than or equal to 5%, the data is incomplete and must be corrected.

Component 2.1 Completeness: All Clients Served

Rationale:
In general, it is a HUD expectation that all clients receiving homeless assistance, including those served by the new HPRP will have their service delivery documented in the HMIS[5]. If a program only enters data on a few of their clients, it is difficult to determine whether the data accurately reflects what is happening with all of the clients in the program.

Factors to address:
Document the expectations for the inclusion of data on all clients served by a program in the HMIS.

Special Issues and Exceptions:
Some programs, because of the nature of the client population they serve, are limited in the collection of data, specifically client identifiable data elements. This could be due to physical location constraints (e.g. outreach efforts conducted on the street) or consent limitations (e.g. unaccompanied youth). Therefore, a CoC may set a different *All Clients Served* benchmark for different program types. Exceptions to the benchmark are generally expressed as a percentage of allowable "anonymous" records a program type may have.

Sample Benchmark:
All programs using the HMIS shall enter data on one hundred percent (100%) of the clients they serve.

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[4] *Columbus, Ohio, Client Tracking and QA Standards Data Dictionary,*
http://www.csb.org/files/docs/Resources/ClientDataMgt/CSP/6-12-
09/FY%202010%20CSP%20Client%20Tracking%20and%20QA%20Standards%20_Data%20Dictionary.pdf.

[5] U.S. Department of Housing and Urban Development, HMIS Data Standards Revised Notice, March 2010, Page 3.

Component 2.2 Completeness: Bed Utilization Rates

One of the primary features of an HMIS is the ability to record the number of client stays or bed nights at a homeless residential facility. Case managers or shelter staff enter a client into the HMIS, assign them to a bed or unit, and the client remains there until they exit the program. When the client exits the program, they are also exited from the bed or unit in the HMIS.

The formula for calculating bed utilization is:

$$\frac{\text{Number of Beds Occupied}}{\text{Total Number of Beds}}$$

Looking at a program's bed utilization rate, or the number of beds occupied as a percentage of the entire bed inventory, is an excellent barometer of data quality. It is difficult to measure data quality if the utilization rate is too low (below 50%) or too high (above 105%).

Low utilization rates could indicate that the residential facility was not very full, but it could also mean the HMIS data is not being entered for every client served. High utilization rates could mean the bed provider was over capacity, but it could also mean the program has not properly exited clients from the system.

One method of examining utilization rates is the HMIS Bed Utilization Tool, a spreadsheet that helps CoCs track the percentage of beds that are occupied in the system, either on a particular night (the Tool uses the last Wednesday of the month) or as an average over a period of time.

In the Bed Utilization Tool, the CoC enters bed data from its Housing Inventory Chart and the number of persons that were housed each month over a 12 month period. The Bed Utilization Tool then calculates and graphs the utilization rates. The bed utilization tool is available at http://www.hmis.info/Resources/1057/HMIS-Bed-Utilization-Tool-2008-2009.aspx.

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[6] *Cincinnati / Hamilton County, Ohio, HMIS Policies and Procedures, http://www.hmis-cincinnati.org/Forms/HMISPoliciesandProcedures.pdf.*

Component 3. Accuracy

Rationale: To ensure that the data that is collected and entered accurately. Accuracy of data in an HMIS can be difficult to assess. It depends on the client's ability to provide the correct data and the intake worker's ability to document and enter the data accurately.

Factors to address: Document expectations for collecting and entering accurate data. If monitoring of accuracy is to be conducted, include an outline of how the monitoring is to occur, by whom, and what data sources take precedence.

Special Issues and Exceptions: Accuracy is best determined by comparing records in the HMIS to paper records, or the records of another provider whose information may be considered more accurate. For instance, a Social Security Number that is in question may be compared to a paper case file or an SSI benefit application, where the data is perceived to be more accurate.

Sample Benchmark: The purpose of accuracy is to ensure that the data in the CoC's HMIS is the best possible representation of reality as it relates to homeless people and the programs that serve them.

To that end, all data entered into the CoC's HMIS shall be a reflection of information provided by the client, as documented by the intake worker or otherwise updated by the client and documented for reference. Recording inaccurate information is strictly prohibited.

Community Sample - Accuracy:
Fresno / Madera County (CA)[7]

Information entered into the HMIS needs to be valid, i.e. It needs to accurately represent information on the people that enter any of the homeless service programs contributing data to the HMIS. Inaccurate data may be intentional or unintentional. In general, false or inaccurate information is worse than incomplete information, since with the latter, it is at least possible to acknowledge the gap. Thus, it should be emphasized to clients and staff that it is better to enter nothing (or preferably "don't know" or "refused") than to enter inaccurate information. To ensure the most up-to-date and complete data, data entry errors should be corrected on a monthly basis.

Community Sample - Accuracy:
Fresno / Madera County (CA)[8]

- *Data in the Maricopa HMIS Project must accurately reflect client data recorded in the agency's client file and known information about the client and services provided to the client. For example, 'Exit Date' should be the date the client physically exited the shelter.*
- *Data for active clients should be reviewed and updated monthly.*

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[7] Fresno/Madera County, California, unpublished HMIS Data Quality Procedure.

[8] Fresno/Madera County, California, unpublished HMIS Data Quality Procedure.

Component 3.1 Accuracy: Consistency

Rationale: To ensure that data is understood, collected, and entered consistently across all programs in the HMIS. Consistency directly affects the accuracy of data; if an end user collects all of the data, but they don't collect it in a consistent manner, then the data may not be accurate.

Factors to address: Document the expectations for collecting and entering HMIS data consistently. Consistency benchmarks should include developing companion documents that describe the intake forms, data entry methods, wording of questions, and intake and data entry training schedules. These documents should be cross-referenced with the most current HUD HMIS Data Standards.

Special Issues and Exceptions: The CoC should review training procedures to ensure that intake and data entry staff has a common understanding of each data element, its response categories, and meaning.

Sample Benchmark: All data in HMIS shall be collected and entered in a common and consistent manner across all programs.

To that end, all intake and data entry workers will complete an initial training before accessing the live HMIS system. All HMIS users must recertify their knowledge of consistency practices on an annual basis.

A basic intake form that collects data in a consistent manner will be available to all programs, which they can alter to meet their additional needs, provided the base document does not change.

A document that outlines the basic data elements collected on the intake form, their response categories, rationale, and definitions will be made available in paper and via the HMIS website as a quick reference to ensure consistent data collection.

New agencies that join the CoC are required to review this document as part of the HMIS Agency Agreement execution process.

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[9] Columbus, Ohio, <u>Client Tracking and QA Standards</u>, *http://www.csb.org/files/docs/resources/ClientDataMgt/csp/FY%202009%20MP2%20CSP%20Client%20Tracking%20and%20QA%20Standards.pdf*.

Component 4: Monitoring

Rationale: To ensure that the CoC's HMIS data quality plan is monitored.

Factors to address: Document the expectations for monitoring activities of the HMIS data and the methods data quality will be monitored. Include a statement on the expectation of the CoC that the providers meet the benchmarks in the data quality plan.

Special Issues and Exceptions: This section is not the data quality monitoring plan. Rather, this section outlines the general guidelines applicable to monitoring activities and sets forth expectations and tasks in general terms. The CoC may also outline the frequency of monitoring activities and reference to the data quality monitoring plan. Note that the monitoring plan itself exists as a separate document, since it is date specific, time limited and is updated at least annually. (A sample monitoring plan is included as part of the Data Quality Monitoring Tool.)

Sample Benchmark: The CoC recognizes that the data produced from the HMIS is critical to meet the reporting and compliance requirements of individual agencies and the CoC as a whole. As such, all HMIS agencies are expected to meet the data quality benchmarks described in this document.

To achieve this, the HMIS data will be monitored on a monthly basis to quickly identify and resolve issues that affect the timeliness, completeness, and accuracy of the data. All monitoring will be done in accordance with the data quality monitoring plan, with full support of the CoC membership.

Component 5: Incentives and Enforcement

Rationale: To reinforce the importance of good data quality through incentives and enforcement.

Factors to address: List and describe the incentives and enforcement measures for complying with the data quality plan. Include the provision for access to data quality reports and a protocol for resolving data quality problems.

Special Issues and Exceptions: Possible incentives for meeting the data quality benchmarks could include, but are not limited to, recognition in newsletter articles or CoC meetings, certificates of achievement, or bonus point incentives for funding streams. The CoC may consider approaching **funders** who have the ability to impose sanctions or penalties, such as suspending the agency's ability to draw down grant funds for failing to meet the benchmarks.

Sample Benchmark: The purpose of monitoring is to ensure that the agreed-upon data quality benchmarks are met to the greatest possible extent and that data quality issues are quickly identified and resolved.

To ensure that service providers have continued access to the expectations set forth in the data quality plan, the following protocol

will be used:

1. <u>Access to the Data Quality Plan:</u> The data quality plan will be posted to the CoC's public website.
2. <u>Access to Data Quality Reports</u>: The HMIS Lead Agency will make available by the 15th of each month data quality reports for the purposes of facilitating compliance review by participating agencies and the CoC Data Committee.
3. <u>Data Correction:</u> Participating agencies will have 10 days to correct data. The HMIS Lead Agency will make available by the 30th of each month revised data quality reports for posting to the CoC's public website.
4. <u>Monthly Review</u>: The CoC Data Committee will review participating agency data quality reports for compliance with the data quality benchmarks. The Committee will work with participating agencies to identify training needs to improve data quality.
5. <u>Public Review</u>: On the last day of each month, the HMIS Lead Agency will post agency aggregate data quality reports to the CoC's public website.
6. <u>CoC Review</u>: The CoC Data Committee will provide a brief update on progress related to the data quality benchmarks at the monthly CoC meeting.

Agencies that meet the data quality benchmarks will be periodically recognized by the CoC Data Committee.

For agencies that fail to meet the data quality benchmarks, the CoC may ask the agency to submit a written plan that details how they will take corrective action. The plan will be submitted to, and monitored by, the CoC's Data Quality Subcommittee. Should the problem persist, the Data Quality Subcommittee may make a recommendation to suspend the agency's ability to enter data into the HMIS, and will contact any appropriate state and federal funders.

Community Sample - Monitoring
State of Wisconsin[10]

All agency administrators must ensure that the minimum data elements are fulfilled for every program utilizing the HMIS.

Programs that do not adhere to the minimum data entry standards will be notified of their deficiencies and given appropriate training on how to correctly enter data.

Programs continuing in default will have HMIS access to those programs suspended until such time that Commerce HMIS staff feels the program could begin correctly entering information.

After the two initial warnings, a program still not adhering to the minimum data entry requirements will be made permanently inactive and licenses will be revoked until the agency can demonstrate to HMIS staff that minimum data requirements are capable of being fulfilled.

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[10] *Wisconsin Statewide HMIS, <u>WISP Minimum Data Entry Requirement</u>,*
<u>http://commerce.wi.gov/CD/docs/wisp/SOP_O_MinimumDataEntry.pdf</u>.

The above examples of key components to include in a data quality plan should assist any CoC to develop protocols and practices for ensuring the reliable collection and entry of data into the HMIS. Once a data quality plan is developed, procedures for ongoing and regular monitoring need to be established. Section 3 provides an overview of steps required to develop a data quality monitoring plan.

3. DEVELOPING A DATA QUALITY MONITORING PLAN

Once a CoC has finalized a data quality plan, it can develop a data quality monitoring plan, a set of procedures that outlines a regular, on-going process for analyzing and reporting on the reliability and validity of the data entered into the HMIS at both the program and aggregate system levels. This is the primary tool for tracking and improving data quality over time. When the data quality benchmarks are met, reporting will be more reliable and can be used to evaluate service delivery, program design and effectiveness, and efficiency of the system. Assessing data for compliance with community-level benchmarks can be cumbersome and involves identifying the roles and responsibilities of all parties within the CoC that affect HMIS data quality.

3.1. Establishing Data Quality Benchmarks and Goals

To determine the baseline data quality, the CoC must generate a report of null/missing and unknown/don't know/refused data elements and record the rates for each program type. (A sample report is in Appendix B.) This initial report represents the baseline. Progress is measured by generating monthly data quality reports and comparing them with the baseline. There are three questions to ask when setting goals:

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[11] *Seattle/King County, Washington, Standard Operating Policies and Procedures,* http://www.safeharbors.org/.

- What is the data quality now? (the baseline)

- What should the data quality be? (the goal)

- What are the interim goals?

For example, the initial missing data report may show that only 10% of the programs in the HMIS are compliant with the benchmarks set forth in the data quality plan. With the baseline established, the CoC sets a goal that 85% of the programs will meet the benchmarks.

Since it is unrealistic to expect this goal could be met by the following month, the CoC sets interim goals that gradually increase until the benchmark is met. Using the above example of a 10% baseline and an 85% goal, the CoC may set interim goals that raise the compliance by 15% each month, i.e. the goal for the second month is 25% compliance, the third month is 40% compliance, the fourth month is 55% compliance, and so on.

3.2. Defining Roles and Responsibilities

Once a community has defined their data quality goals, it is important to identify who will monitor the goals and what specific tasks are necessary to ensure high-quality data.

The CoC needs to determine the tasks (or activities) for the monitoring plan. Tasks are the steps needed to accomplish the interim, as well as the overall goals. They are placed in logical order for completion, may overlap, and are often repeated on a monthly basis. The CoC may designate the responsibility for the tasks to various committees and subcommittees, such as:

- CoC Executive Committee: The CoC Executive Committee provides authorization for, and oversight of, the Data Quality Subcommittee. They will support the efforts of the Subcommittee by enforcing the incentives described in the data quality monitoring plan.

- Data Quality Subcommittee: The Data Quality Subcommittee is responsible for oversight of the HMIS Lead Agency. They will review monthly data quality reports, work with providers to identify steps necessary to correct data and/or data collection processes, keep a running monthly spreadsheet that identifies the changes in compliancy levels, work with the HMIS Lead Agency to identify training needs, report problems with providers to the CoC Executive Committee, and report on progress to the general CoC membership.

- HMIS Lead Agency: The HMIS Lead Agency is responsible for two functions: 1) generating and distributing data quality reports to authorized parties; and 2) conducting training, including one-on-one training on how to correct the data entered into the system. The HMIS Lead Agency performs these functions under the guidance of the CoC's Data Committee, or in its absence, the CoC Executive Committee.

- Providers: Providers are responsible for entering and correcting data in accordance with the data quality plan. The provider's Executive Director should oversee intake and data entry workers to ensure quality data collection and entry practices.

Clearly documenting the roles and responsibilities of each entity will provide a clear structure under which data quality can be monitored and addressed directly with providers not meeting identified goals.

3.3. Establishing Timelines

Setting timelines are relative to a CoC's specific need. For example, a CoC may have a goal of contributing data to the 2010 Annual Homeless Assessment Report (AHAR). To do so, their

timeline to achieve compliance would begin on (or before) October 1, 2009 and end on September 30, 2010, i.e., the first and last day of the AHAR collection period, respectively.

Using this example, the Data Quality Monitoring Plan would be to highlight the specific tasks and data quality procedures that should be generated on a monthly basis. It is a best practice to always have the tasks due on the same day, even if it may fall on a weekend or holiday. This will avoid confusion around due dates. It is also a best practice to have all monthly tasks completed by the date of the CoC's monthly meeting so that task leads can present and review monthly data quality monitoring findings.

3.4. Calculating Compliance Rates

Compliance rates are determined at the Program and Program Type levels. At the <u>Program Level</u>, compliance rates are determined by evaluating the completeness of the required data elements to the acceptable ranges specified in the data quality plan's completeness benchmark. All programs who meet the completeness benchmark are included in the "Number of Programs who Meet the Data Quality Benchmark for (Data Element)" portion of the following calculation:

$$\frac{\text{Number of Programs who meet the Data Quality Benchmark for } \underline{\text{(Data Element)}}}{\text{Number of Programs}}$$

For example, if there are 100 programs in the HMIS, and 75 of them meet the completeness benchmark for Veteran Status, the calculation would be:

$$\frac{75}{100}$$

Some manual review of this data is necessary to effectively evaluate programs based on their special populations. For example, a general emergency shelter may have a 10% null/missing acceptable rate for Veteran Status. An emergency shelter that only serves youth under 18 would not be expected to meet this rate because none of the youth would meet the minimum age for military service. Provided they meet all of the other data quality benchmarks for Emergency Shelters, the youth shelter would also be included in the "Number of Programs who Meet the Data Quality Benchmark for (data element)" regardless of their response rates for Veteran Status.

In this manner, higher performing programs can offset lower performing programs. Using this methodology, the CoC may meet their monthly goal for a program type, even if not all programs within the program type meet the data quality benchmark.

3.5. Establishing Timeframes for Data Quality Reports

Most CoCs have had an HMIS for several years. Without an active data quality plan, it is conceivable that no one knows whether the data entered into the HMIS is timely, complete, or accurate. However, it would be unreasonable to ask providers to go back three, four, or more years to correct the data in the system. Therefore, the CoC should choose a reasonable start date for its data quality monitoring plan to begin.

For many CoCs, it is reasonable to ask providers to go back either 6 months or to go back to the most recent AHAR collection period (although this may be difficult for high-volume providers with a lot of client turnover). If, for example, a CoC wants to submit data for the 2010 AHAR,

then the CoC will require the providers to review and correct all active records that were in the system on October 1, 2009. This is because October 1, 2009 is the first day of the 2010 AHAR collection period, and the CoC wants to make sure that all records are compliant from that point forward.

Maintaining data quality levels requires ongoing assessment and intervention. It is recommended that CoCs update their data quality monitoring plan at least on an annual basis, so that that the Data Committee, HMIS Lead Agency, and providers can continually add tasks, update goals, and meet benchmarks.

4.0 Resources and Tools

Using the sample documents provided here in Appendix B, a community should be able to guide a process to develop a data quality plan and ongoing monitoring procedures. A companion Excel spreadsheet has been provided to assist with the development of a data quality monitoring tool.

This **Data Quality Monitoring Tool** includes:

- Instructions

- Data Quality Plan: This tab allows the CoC to create a task list, assign task leads, and set target and completion dates for their data quality monitoring plan. This tab contains a sample plan for use as a starting point for discussion.

- Data Quality Benchmark Rates: In this tab, the CoC records the acceptable rates of null/missing and unknown/don't know/refused Universal Data Elements. Sample acceptable rates are included as a starting point for discussion.

- Data Quality Program-Level Reports. In this tab, the CoC lists the programs using the HMIS, then inputs the percentage of null/missing and unknown/don't know/refused values for each program (The inputs are generated by running a null/missing data report in the HMIS). The spreadsheet automatically returns a Yes or No value of completeness, based on the acceptable rates entered in the DQ Plan Rates – UDEs tab. These program-level reports allow the CoC to monitor the completeness rates of each individual program and quickly identify potential problems.

- Data Quality Monthly Progress Report. The CoC uses this tab to measure monthly progress towards compliance goals for each program type (e.g. Emergency Shelter, Transitional Housing, etc.) in the system.

By using the data quality monitoring tool, CoCs will systematically move agencies toward compliance with the data quality plan.

In the event the CoC requires additional technical assistance in developing a data quality plan, please submit a request for assistance at www.HMIS.Info.

APPENDIX A: TERMS AND DEFINITIONS

Data Quality Benchmarks – Quantitative measures used to assess the validity and reliability of the data. These include measures for:

- **Timeliness** – Is the client information, including intake data, program entry dates, services provided, and program exit dates entered into the HMIS within a reasonable period of time? *Example: Client information is entered within 2 working days of intake.*

- **Completeness** – Are all of the clients receiving services being entered into the HMIS? Are all of the appropriate data elements being collected and entered into the HMIS? *Example: All programs using the HMIS shall enter data on 100 percent of the clients they serve. Example: Missing information does not exceed 5 percent for the HUD Universal and Program-Specific Data Elements for all clients served.*

- **Accuracy** – Does the HMIS data accurately and consistently match information recorded on paper intake forms and in client files? Are HMIS data elements being collected in a consistent manner? *Example: 95 percent of data entered into an HMIS must reflect what clients are reporting. Example: HMIS users will record the full, legal name of the client (first, middle, last) into the system. Do not use nicknames or aliases.*

Data Quality Monitoring Plan -- A set of procedures that outlines a regular, on-going process for analyzing and reporting on the reliability and validity of the data entered into the HMIS at both the program and aggregate system levels. A data quality monitoring plan is the primary tool for tracking and generating information necessary to identify areas for data quality improvement.

Data Quality Plan – A community-level document that facilitates the ability of a CoC to achieve statistically valid and reliable data. A data quality plan is generally developed by the HMIS Lead Agency with input from community stakeholders, and is formally adopted by the CoC. At a minimum, the plan should:

- Identify the responsibilities of all parties within the CoC that affect data quality.

- Establish specific data quality benchmarks for timeliness, completeness, and accuracy.

- Describe the procedures that the HMIS Lead Agency will take to implement the plan and monitor progress to meet data quality benchmarks.

- Establish a timeframe for implementing the plan to monitor the quality of data on a regular basis.

Data Quality Standards – A national framework for ensuring that every Continuum of Care can achieve good quality HMIS data. It is anticipated that HUD will propose Data Quality Standards that 1) establishes administrative requirements and, 2) sets baseline data quality benchmarks for timeliness, completeness, and accuracy.

Homeless Management Information Systems (HMIS) -- A locally administered, electronic data collection system that stores longitudinal person-level information about the men, women, and children who access homeless and other human services in a community. Each CoC receiving HUD funding is required to have a functional HMIS. Furthermore,

elements of HUD's annual CoC funding competition are directly related to a CoC's progress in implementing its HMIS.

HMIS Data Elements

- o **Program Descriptor Data Elements (PDDE)** – data elements recorded about each project in the CoC, regardless of whether the project participates in the HMIS. PDDEs are updated at least annually. HUD's Program Descriptor Data Elements as set forth in the HMIS Data Standards Revised Notice, March 2010, Data Elements 2.1 through 2.13.

- o **Universal Data Elements (UDEs)** – baseline data collection that is required for all programs reporting data into the HMIS. HUD's Universal Data Elements are set forth in the HMIS Data Standards Revised Notice, March 2010, Data Elements 3.1 through 3.15.

- o **Program Specific Data Elements (PDEs)** – data provided about the characteristics of clients, the services that are provided, and client outcomes. These data elements must be collected from all clients served by programs that are required to report this information to HUD. HUD's Program-specific Data Elements are set forth in HMIS Data Standards Revised Notice, March 2010, Data Elements 4.1 through 4.15H.

- o **Annual Performance Report Program Specific Data Elements** – the subset of HUD's Program-specific Data Elements required to complete the SHP Annual Performance Report (APR) set forth in the HMIS Data Standards Revised Notice, March 2010, Data Elements 4.1 through 4.14

HMIS Data Quality – Refers to the reliability and validity of client-level data. HMIS data quality can be measured by the extent to which the client data in the system reflects actual information in the real world.

HMIS Reports

- o **Annual Homeless Assessment Report (AHAR)** – HUD's annual report to Congress on the nature and extent of homelessness nationwide.

- o **Annual Performance Report (APR)** – A reporting tool that HUD uses to track program progress and accomplishments of HUD homeless assistance and HPRP Programs on an annual basis. Formerly known as the Annual Progress Report.

- o **Quarterly Performance Report (QPR)** – A reporting tool that HUD uses to track progress and accomplishments of HPRP funded programs on a quarterly basis.

APPENDIX B: DATA QUALITY REPORTS

Sample data quality reports can be used by communities to develop their own data quality monitoring plan. While it may be useful to review and adapt what other CoCs have done, each CoC must develop their own data quality plan with input from key stakeholders. The following data quality reports are included:

- Null/Missing and Unknown/Don't' Know/Refused Reports on Universal Data Elements by AHAR Program Type

- Universal Data Elements by Program Type – Benchmark for % Null/Missing and Unknown/Don't Know/Refused

- Program Data Elements by Program Type – Benchmark for % Null/Missing and Unknown/Don't Know/Refused

- Universal Data Elements by Client ID Report

- Length of Stay Report by Client ID

- Intake and Exit Data Entry Date Timeliness Report

- Bed Utilization Tool

- Sample 3 Month Data Quality Monitoring Plan

Specific data quality reports should not be part of the data quality plan. This give some flexibility to change the reports as needs arise without having to change the data quality plan itself.

Please note that any Client IDs listed in these reports have either been altered or omitted. Communities that intend to publish or distribute client-level data quality reports should make sure to de-identify all information.

Null/Missing and Unknown/Don't Know/Refused Report

Universal Data Elements by Program Type
This report shows the percentage of null/missing and unknown/don't know/refused responses in the HUD Universal Data Elements that are present in the different program types of homeless bed providers. The first two categories (Emergency Shelter and Transitional Housing) are used to create the Annual Homeless Assessment Report.

AHAR Category	3.1 Name		3.2 SSN		3.3 DOB		3.4 Race		3.5 Ethnicity		3.6 Gender		3.7 Veteran Status		3.8 Disabling Condition		3.9 Residence Prior to Program Entry		3.10 Zip Code of Last Perm Address		3.11 Housing Status		3.12 Program Entry Date		3.13 Program Exit Date	
	Null/ Missing	%Anonymous	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Null/ Missing	Unknown/ Don't Know/ Refused	Avg Length of Stay	Bed Utilization Rate
Emergency Shelter	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Transitional Housing	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Permanent Housing	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Safe Haven	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Services Only	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Outreach	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Prevention																										
Rapid Re-housing																										

Universal Data Elements by Program Type – Standard for % Null/Missing and Unknown/Don't Know/Refused

This chart is used by the Continuum to record their agreed-upon acceptable rates of missing data for Universal Data Elements. This chart is the foundation for data quality, and serves as the initial point of reference to measure the data quality of the various program types entering data into the HMIS. The community may want to revise the percentages once the monitoring process begins.

Universal Data Element	ES		TH		PH		SSO		Safe Haven		Outreach		Prevention		Rapid Rehousing	
	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused
3.1[12] Name																
3.2 Social Security Number																
3.3 Date of Birth																
3.4 Race																
3.5 Ethnicity																
3.6 Gender																
3.7 Veteran Status																
3.8 Disabling Condition																
3.9 Residence Prior to Program Entrance																
3.10 Zip Code of Last Permanent Residence																
3.11 Homeless Status																
3.12 Program Entry Date																
3.13 Program Exit Date																
3.14 Personal Identifier (Unique ID)																
3.15 Household Identifier																

The header over the program type columns reads: **Universal Data Elements by Program Type — Benchmark for % Null/Missing and % Unknown/Don't Know/Refused (percentage not greater than)**

[12] Numbers correspond to data elements listed in the HMIS Data Standards Revised Notice, U.S. Department of Housing and Urban Development, March 2010, Page 40

Program-Specific Data Elements by Program Type – Benchmark for % Null/Missing and Unknown/Don't Know/Refused

This chart is used by the Continuum to record their agreed-upon acceptable rates of missing data for Program-Specific Data Elements. This chart serves as the initial point of reference to measure the data quality of the various program types entering data into the HMIS. The community may want to revise the percentages once the monitoring process begins.

Program Specific Data Element	Program Specific Data Elements by Program Type Benchmark for % Null/Missing and % Unknown/Don't Know/Refused (percentage not greater than)															
	ES		TH		PH		SSO		Safe Haven		Outreach		Prevention		Rapid Rehousing	
	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused
4.1[13] Income and Sources																
4.2 Non-Cash Benefits																
4.3 Physical Disability																
4.4 Developmental Disability																
4.5 Chronic Health Condition																
4.6 HIV/AIDS																
4.7 Mental Health																
4.8 Substance Abuse																
4.9 Domestic Violence																
4.10 Destination																
4.11 Date of Contact																
4.12 Date of Engagement																
4.13 Financial Services Provided																
4.14 Housing Relocation Services Provided																

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[13] Numbers correspond to data elements listed in the HMIS Data Standards Revised Notice, U.S. Department of Housing and Urban Development, March 2010, Pages 64

Program-Specific Data Elements by Program Type (cont'd)

Program Specific Data Element – Optional Data Elements	ES		TH		PH		SSO		Safe Haven		Outreach		Prevention		Rapid Rehousing	
Program Specific Data Elements by Program Type Benchmark for % Null/Missing and % Unknown/Don't Know/Refused (percentage not greater than)	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused	% Null / Missing	% Unknown / Don't Know / Refused
4.15A Employment																
4.15B Education																
4.15CGeneral Health Status																
4.15D Pregnancy Status																
4.15E Veteran's Information																
4.15F Children's Education																
4.15G Reason for Leaving																
4.15H Services Provided																

Universal Data Elements by Client ID

This report shows the percentage of null/missing and unknown/don't know/refused responses in the HUD Universal Data Elements present in each client in a particular program in the HMIS. This report is provided to providers to identify specific client records that have null/missing data or unknown/don't know/refused responses. Client identifiable reports, including those with an identifying unique ID, should only be available to and reviewed by the specific program entering the data and the HMIS System Administrator, unless specific data sharing consents have been obtained from clients.

Community Sample – Universal Data Elements by Client ID:
State of Vermont[14]

Universal Data Element Completeness
HMIS Data Quality Report
Version Based on Entry Exit Records
Date Range: 5/1/09- 6/1/09

ID numbers of clients with null value where answer is required

ID #	SSN	DOB	ETH	RACE	GEN	VET	DISABL	PLS	ZIP	NAME
24783	ok	ok	Ok	ok	ok	**null**	ok	**null**	ok	ok
38914	ok	ok	Ok	ok	ok	**null**	ok	**null**	ok	ok
93843	ok	**Null**	null	**Null**	null	**null**	**null**	**null**	**null**	ok
69182	ok	**Null**	null	**Null**	null	**null**	**null**	**null**	**null**	ok
39485	ok	ok	Ok	ok	ok	ok	ok	ok	**null**	ok
47304	ok	**Null**	null	**Null**	null	**null**	**null**	**null**	**null**	ok
58449	ok	ok	Ok	**Null**	null	ok	ok	ok	ok	ok

ID numbers of clients with "don't know" or "refused" recorded in required UDEs

ID #	SSN	DOB	ETH	RACE	GEN	VET	DISABL	PLS	ZIP	NAME
38294	**DK or R**	n/a	n/a	n/a	ok	ok	ok	ok	ok	n/a
87639	ok	n/a	n/a	n/a	ok	ok	**DK or R**	ok	ok	n/a
48273	ok	n/a	n/a	n/a	ok	ok	ok	ok	**DK or R**	n/a
47123	ok	n/a	n/a	n/a	ok	ok	ok	**DK or R**	ok	n/a
70438	**DK or R**	n/a	n/a	n/a	ok	ok	ok	ok	ok	n/a
68403	ok	n/a	n/a	n/a	ok	ok	ok	ok	**DK or R**	n/a
37582	**DK or R**	n/a	n/a	n/a	ok	ok	ok	ok	ok	n/a

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[14] State of Vermont, Unpublished HMIS Data Quality Management Council Data Report.

Length of Stay Report by Client ID (LOS)

The Length of Stay report shows a client roster and how long they have stayed in the program. Clients who have unusually long lengths of stay are a data quality flag, as it is possible that the client has not been properly exited from the HMIS.

Community Sample – Length of Stay Report: State of Indiana[15]

Indiana Housing and Community Development Authority				
Training - Emergency Shelter (ES-R00-00)				
Length Of Stay Report by Client ID				
07/02/2009 to 07/02/2009				
#	Client ID	Admission Date	Discharge Date	Length of Program Stay
1	57930	6/9/2009		1
2	69456	5/11/2009		52
3	38487	4/27/2009		66
4	28302	2/20/2009		132
5	02927	2/12/2009		140
6	49372	2/12/2009		140
7	38493l	1/15/2009		168
8	11480	1/15/2009		168
9	45732	1/15/2009		168
10	11345	11/11/2008		233

In this example, the program is an Emergency Shelter, but Client #10 (ID 11345) has a 233 day length of stay. Perhaps the client is still in the program, but it is also possible that the client left the program without being exited from the HMIS, given the shorter lengths of stay for the other clients list on the report.

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[15] Indiana Balance of State, Unpublished Length of Stay Report.

Intake and Date Entry Date Timeliness Report

This report gives the CoC the ability to monitor the time it takes between the client intake occurring and the date the data was actually entered into the HMIS. Assessing the length of time between client serve dates and data entry dates assists the CoC understand the extent to which the provider is using the system. It can also be used to assess whether a program is meeting the timeliness benchmark set forth by the CoC.

Community Sample - Timeliness Report
Cincinnati, OH[16]

HMIS Monitoring Report by Client ID
Start date = 1/1/2009, End date = 8/27/2009
Program Name: Demonstration – TH Program

Client ID	Intake Date	Exit date	Days between intake and HMIS data entry	Days between exit and HMIS data entry
38153	9/12/2008	1/26/2009	0	0
75786	8/17/2009		0	
49679	11/18/2008	8/6/2009	1	0
66805	7/29/2008	3/19/2009	0	0
70452	2/2/2009		0	
47931	5/9/2008		0	
67764	9/2/2008	3/28/2009	0	0
65775	1/12/2009		2	
66179	6/18/2009		0	
70215	12/17/2008	2/13/2009	0	3

In this example, the majority of intake and exit dates were done in real time, matching what actually happened in the real world. One client, ID 49679, has a one day lag between the actual intake date and the date it was recorded in the HMIS. Perhaps the case manager simply forgot to enter the data. A second client, ID 70215, has a three day lag between the actual exit date and the date the exit data was recorded in the HMIS. Since February 13, 2009 was a Friday, perhaps there were no HMIS users in the building when the client left the program, and the exit data could not be updated until staff returned the following Monday.

If the CoC's HMIS is unable to generate this report, it should consider alternative ways to monitor intake and exit date timeliness.

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[16] Cincinnati/Hamilton County, OH, Unpublished HMIS monitoring report.

Bed Utilization Tool

The Bed Utilization Tool spreadsheet helps CoCs track the percentage of beds that are occupied in the system, either on a particular night (the Tool uses the last Wednesday of the month) or as an average over a period of time.

Low utilization rates (below 50%) may mean that the bed provider was not full on that particular night, but may also mean that HMIS data is not being entered for every client served. High utilization rates (above 105%) could mean that the bed provider was over capacity on that particular night, but may also mean that the program has not properly exited clients from the system.

In the Bed Utilization tool, the CoC enters bed data from its Housing Inventory Chart and the number of persons that were housed each month over a 12 month period. The Bed Utilization Tool then calculates and graphs the utilization rates. The bed utilization tool is available at http://www.hmis.info/Resources/1057/HMIS-Bed-Utilization-Tool-2008-2009.aspx.

Community Sample – Data Quality Monitoring Plan:
State of Vermont[17]

This report shows a 3 month portion of an unpublished Data Quality Monitoring Plan from the State of Vermont. The Monitoring Plan identifies one task – to achieve 85% compliance with the benchmarks set forth in their Data Quality Plan, the necessary tasks to achieve the goal, the lead person responsible for the task, target date, and completion dates. (The full plan is included as part of the companion Data Quality Monitoring Tool.)

Task ID	Task List	Community Task Lead	Target Date	Completion Date
1	85% of HMIS Participating Agencies Achieve Data Quality Standard Compliance		8/17/2010	
	Month 1: Goal: Assess Baseline of Compliance; Compliance Rate = 0%		9/9/2009	
	-All Data Entered by Providers for previous month	Participating Providers	8/15/2009	8/15/2009
	-Data Quality Reports Generated and Distributed to Providers and aggregate DQ Reports to Quality Management Council for review	Richard Rankin	8/25/2009	
	-Data Quality Reports Reviewed by Quality Management Council	Daniel Blankenship/ Jamie Preston	8/31/2009	
	-Providers Correct Data in system	Participating Providers	8/30/2009	
	-Revised Data Quality Reports Generated and Published to the CoC Public Website	Richard Rankin	9/1/2009	
	-Data Quality Progress Report Developed	Daniel Blankenship/ Jamie Preston	9/4/2009	
	-Presentation of Data Quality Progress Report at General CoC Meeting	Daniel Blankenship/ Jamie Preston	9/8/2009	
	-Assess Training Needs and present Training Schedule/Plan at General CoC Meeting	QMC/ Richard Rankin	9/9/2006	
2	Month 2: Goal: Implement Training and Support; increase Compliance Rate to 7%		10/20/2009	
	-All Data Entered by Providers for previous month	Participating Providers	9/15/2009	
	-Data Quality Reports Generated and Distributed to Providers and aggregate DQ Reports to Quality Management Council for review	Richard Rankin	9/17/2009	
	-Data Quality Reports Reviewed by Quality Management Council	Daniel Blankenship/ Jamie Preston	9/20/2009	
	-Providers Correct Data in system	Participating Providers	9/30/2009	
	-Training Conducted	Richard Rankin		
	-Revised Data Quality Reports Generated and Published to the CoC Public Website	Richard Rankin	10/1/2009	
	-Data Quality Progress Report Developed	Daniel Blankenship/ Jamie Preston	10/9/2009	
	-Presentation of Data Quality Progress Report at General CoC Meeting	Daniel Blankenship/ Jamie Preston	10/20/2009	
	-Provide Update on Trainings conducted, remaining Training Needs, and present Training Schedule/Plan at General CoC Meeting	QMC/ Richard Rankin	10/20/2009	

[17] State of Vermont, Unpublished HMIS Data Quality Monitoring Plan.

3	Month 3: Goal: Conduct Training and Support; increase Compliance Rate to14%		11/17/2009	
	-All Data Entered by Providers for previous month	Participating Providers	10/15/2009	
	-Data Quality Reports Generated and Distributed to Providers and aggregate DQ Reports to Quality Management Council for review	Richard Rankin	10/17/2009	
	-Data Quality Reports Reviewed by Quality Management Council	Daniel Blankenship/ Jamie Preston	10/20/2009	
	-Providers Correct Data in system	Participating Providers	10/31/2009	
	-Training Conducted	Richard Rankin		
	-Revised Data Quality Reports Generated and Published to the CoC Public Website	Richard Rankin	11/1/2009	
	-Data Quality Progress Report Developed	Daniel Blankenship/ Jamie Preston	11/9/2009	
	-Presentation of Data Quality Progress Report at General CoC Meeting	Daniel Blankenship/ Jamie Preston	11/17/2009	
	-Assess Training Needs and present Training Schedule/Plan at General CoC Meeting	QMC/ Richard Rankin	11/17/2009	

APPENDIX C: DATA QUALITY RESOURCES

There are other data quality resources that were not discussed in this toolkit. These resources include:

- AHAR Data Quality: Tips and Strategies

  http://hmis.info/Resources/289/AHAR-Data-Quality-Training.aspx

- AHAR Memo on Improving Missing Data Rates

  http://hmis.info/Resources/852/AHAR-Update-July-2007.aspx

- HMIS Self-Assessment Evaluation

  http://hmis.info/Resources/759/HMIS-Self-Assessment-Process-Guide.aspx

- Garbage In, Garbage Out: Strategies to Ensure Data Quality

  http://hmis.info/Resources/768/Garbage-In,-Garbage-Out-Strategies-to-Ensure-Data-Quality.aspx

- Technical Guidelines for Unduplicating and De-Identifying HMIS Client Records

  http://hmis.info/Resources/305/Technical-Guidelines-for-Unduplicating-and-De-identifying-HMIS-Client-Records.aspx

- AHAR Data Quality: Tips and Strategies:

  http://hmis.info/Resources/344/Enhancing-HMIS-Data-Quality.aspx

- Submit a question through "Ask the Expert" on:

  www.hmis.info

- Request Technical Assistance:

  www.hmis.info