

Characteristics of State Mental Health Agency Data Systems



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Mental Health Services
www.samhsa.gov

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Acknowledgments

This report was prepared by the National Association of State Mental Health Program Directors Research Institute (NRI) for the Substance Abuse and Mental Health Services Administration (SAMHSA) of the U.S. Department of Health and Human Services (DHHS) under Contract No. 280-03-3205. The authors of the report are Theodore C. Lutterman, Bernadette E. Phelan, Ph.D., Azeb Berhane, Robert Shaw, and Verda Rana. Joanne Atay, M.A., of the Center for Mental Health Services (CMHS), SAMHSA, served as government project officer. The authors would like to acknowledge and thank the State Mental Health Agency Information Technology Directors for their time and effort in submitting information used to generate this report and in reviewing and commenting on the report.

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Recommended Citation

Lutterman, T., Phelan, B., Berhane, A., Shaw, R., Rana, V. (2008). *Characteristics of State Mental Health Agency Data Systems*. DHHS Pub. No. (SMA) 08-4361. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration.

Originating Office

Survey, Analysis and Financing Branch, Division of State and Community Systems Development, Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, One Choke Cherry Road, Rockville MD 20857.

DHHS Publication No. (SMA) 08-4361

Printed 2008.

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Executive Summary

State mental health agencies (SMHAs) are responsible for funding and providing mental health services to more than 6 million persons every year. The backbone of their service infrastructure is the information technology (IT) systems that support SMHA functions such as paying providers for services rendered, assessing clients' access to care, evaluating the quality of care provided, planning for adequate system capacity, and monitoring outcomes. SMHAs vary widely in their IT system capacities and structures. This report reviews the current status of mental health IT in the States and their efforts to improve these critical systems.

All SMHAs have information technology systems that are used to identify and count mental health clients and measure system performance. However, States' information technology systems vary widely in terms of the types of information collected and their ability to link data between hospitals and community mental health providers. SMHA IT systems usually have the capacity to receive records and/or process payment claims from their contracted service providers, which may range from large State psychiatric hospitals running the latest electronic health record systems (EHRs) to small community mental health clinics and consumer-operated programs that may have extremely limited information systems capacity. Additionally, in many SMHAs, major portions of the IT system rely on older "legacy" information systems that are proprietary and difficult to integrate into emerging information standards.

This report reviews the current IT capacities of SMHAs and describes their activities and challenges in enhancing their IT capacities. Information discussed in this report was

collected through the 2007 State Mental Health Agency Profiles System (IT Component) and is based on the responses from the 50 States, the District of Columbia, and four territories (the Federated States of Micronesia, Palau, Puerto Rico, and the U.S. Virgin Islands). Hereafter, the 55 entities will be referred to collectively as "States."

Key Findings

SMHA Information Technology and Structure

- Every State devotes staff to mental health information management functions. Thirty-seven States reported spending a total of \$99,564,957 for mental health information management functions in fiscal year 2007. The median State spending was \$517,667 with a range from \$84,552 in Iowa to a \$44,900,000 in New York.
- In 27 SMHAs (53 percent), all or part of the IT infrastructure is located in a larger umbrella agency's IT department. In 24 States (47 percent), the mental health IT infrastructure is operated entirely within the SMHA.

- Depending on the organization of the SMHA within State government, some mental health information management may be combined with substance abuse services IT (30 States), while in others it is combined with mental retardation/developmental disability services (14 States) or a combination of all three areas (10 States).
- SMHAs and State psychiatric hospitals use a variety of IT platforms, often using multiple platforms, including Microsoft SQL, and Oracle. Often the State's community mental health IT system is separate from the State psychiatric hospital platform.
- Twenty-one States (42 percent) maintain a legacy system for mental health information, and out of these, 12 States use the legacy system for storing, processing and reporting data.

State Models for Client Level Data

- Fifty-one States (93 percent) have a unique client identifier or a method of unduplicating clients across State psychiatric hospitals and community-based service providers. Of the 51 reporting States, 31 (56 percent) use the same identifier for both State psychiatric hospitals and community mental health providers.
- Thirty-four (64 percent) of the reporting SMHAs that maintain a client-level database receive unique client information from all community providers. Providers send these client-level data to the SMHA at a wide variety of intervals, ranging from instantly linked (10 States) to monthly (20 States) to every 2 years (1 State).
- Most of the information needed for SAMHSA's National Outcome Measures (NOMs) is maintained as client-level data;

however, there is wide variation in the State practice of updating client information. Although most States collect client information at time of admission, this information may be updated at discharge, at varying time intervals, or not updated at all.

Mental Health Encounter/Claims Level Data

- Fifty-one SMHAs receive client level encounters/claims data at the State level; 34 States (64 percent) receive client level data for all individual encounters, while 19 (36 percent) receive data for only a certain percentage of total encounters.
- Thirty-nine States maintain some information on the psychiatric medications of clients. Of these, 32 (82 percent) maintain client level information about medication. The level of detail collected, however, varies widely, ranging from all prescriptions in 22 States (56 percent) to summary level information in 8 States (21 percent) to only aggregate information in 9 states (23 percent).
- Thirty-one (57 percent) of the reporting SMHAs receive and analyze Medicaid paid claims files. There is variation in how SMHAs receive these claims files, with 12 (22 percent) States reporting they receive data from a data warehouse run by a separate agency, 22 (41 percent) use data linking, while 10 States (19 percent) have no method of linking Medicaid paid claims to SMHA client data files.
- In addition to Medicaid claims files, SMHAs link the client-level data with data from other State agencies. Linking with the alcohol and drug abuse service agency is the most frequent (19 States). Other State agencies with which data

are linked include criminal justice, health, employment, child welfare, juvenile justice, and education.

Electronic Health Records (EHRs) in SMHAs

- Almost all (46) reporting States (94 percent) are either implementing or considering the adoption of EHRs in their State psychiatric hospitals and/or community mental health systems. Five States have already implemented a complete EHR system in their State psychiatric hospitals, while 18 States have implemented some EHR components but do not yet have all parts of EHRs implemented. Twenty-one States reported that EHRs are installed (in full or part) in community mental health provider agencies.
- Twenty States have agreements about sharing EHR client-level data between provid-

ers; however, there is some variation about these agreements.

- Twenty-one (55 percent) of the reporting States have implemented an electronic pharmacy/medications ordering system.

These findings demonstrate that SMHAs are devoting considerable resources and effort to implementing EHR systems, building data warehouses, linking multiple data systems, and enhancing their information systems capacity. However, some SMHAs are also continuing to work with legacy computer systems and often with fragmented data systems.

While SMHAs report compiling common client data elements, there are inherent variations in the data collected and in the operational definitions used across the States. Caution should be exercised when interpreting and comparing data across States.

1.

Overview

“Since 1773, providing services for persons with serious mental illness in the United States has been the responsibility of State governments,” (Torrey, Earman, Wolfe, & Flynn, 1990, p. i).

State mental health agencies (SMHAs) are the part of State government responsible for operating and funding services for adults with serious mental illnesses and children and adolescents with serious emotional disturbances. SMHAs serve as a safety net, providing mental health services to the most vulnerable individuals. SMHAs are also responsible for planning and developing comprehensive community-based mental health systems, and in most States serve key public health functions including mental health awareness and promotion, anti-stigma programs, and suicide prevention. In 2007, SMHAs provided services to more than 6 million persons (2 percent of the U.S. population) and spent more than \$30 billion on these services (equivalent to \$5,000 per person served).

Critical to the mission of SMHAs are monitoring the public mental health service system for service gaps; ensuring that persons with mental illness receive timely, appropriate, and needed services; reimbursing mental health providers for services provided; and building accountability performance targets and outcome measures. Having modern information systems that can count clients, measure outcomes, track system performance, facilitate care coordination, and at

times even reimburse for services is fundamental to the SMHA's ability to fulfill these functions. Thus, information technology (IT) plays a major role in facilitating SMHA achievement of its core missions. However, little has been reported about SMHAs' IT system capacities, organization, and directions.

SMHA service systems are complex and vary widely from State to State. In every State, the SMHA is responsible for operating inpatient psychiatric beds (usually in State psychiatric hospitals) and supporting a community based mental health system that is either State operated or State funded. In most States, the bulk of community mental health services are provided by local not-for-profit community mental health agencies that receive substantial portions of their funding from the SMHA; however, the majority of their funds come from other sources. For example, in fiscal year (FY) 2005, SMHA-funded community mental health programs received 50 percent of their funding from Medicaid, a State-Federal health insurance program for the poor or disabled that reimburses local providers for the services they render to clients (National Association of State Mental Health Program Directors Research Institute, Inc., 2007).

Each community mental health agency funded by the SMHA usually maintains its own information management system, billing system, and clinical records. The SMHA information management systems rely on data reported by these local community mental health agencies, store these data in the central SMHA data system, and produce reports that portray a comprehensive picture of services provided statewide.

1.1 National Initiatives Impacting Mental Health IT Systems

Recent Federal initiatives have focused attention on the capacity of State mental health IT systems to generate common outcome measures for States and national reporting of State data. These initiatives are as follows:

1.1.1 The President's New Freedom Commission (PNFC) on Mental Health

In 2002, President George W. Bush commissioned the New Freedom Commission on Mental Health to study the mental health service delivery system, and “to recommend improvements to enable adults with serious mental illnesses and children with serious emotional disturbances to live, work, learn, and participate fully in their communities” (Bush, G. W., 2002). The report of the President's New Freedom Commission on Mental Health (PNFC, 2003) recommended “a fundamental transformation to the Nation's approach to mental health care” (p. 1). To guide this transformation of mental health services, the PNFC established six major goals for transforming mental health services. Goal 6 focuses on improving the use of technology to improve access to care and the quality of mental health services:

Goal 6: Technology is Used to Access Mental Health Care and Information

6.1 Use health technology and telehealth to improve access and coordination of mental health care, especially for Americans in remote areas or in underserved populations.

6.2 Develop and implement integrated electronic health record and personal health information systems.

SMHAs are in the front lines of implementing the goals of the President's New Freedom Commission. SMHAs have continuously been working to enhance their use of technology to improve care through the adoption of 21st century health information technologies such as electronic health records (EHRs), data warehouses, probabilistic record linking, and development of personal health records. However, to date not all States have been able to replace old “legacy” information systems. Without newer, more expensive technology it is difficult to collect all the information needed to measure outcomes or track system performance.

1.1.2 Institute of Medicine Report

In 2006, the Institute of Medicine (IOM) released its report, *Improving the Quality of Health Care for Mental Health and Substance-Use Conditions*, which reviews the status of mental health and substance abuse services and proposes a series of action steps using the framework of the earlier IOM report, *Crossing the Quality Chasm* (2001). The IOM found that in comparison to general health care “mental health IT is less well developed and less commonly used for clinical care support” (p. 60). The IOM report identifies a series of action steps to improve the use of mental

health information and outcome measures, promote the use of electronic health records, and enhance the electronic exchange of mental health information between providers and payers.

The IOM report includes a series of specific recommendations, among them recommendations 4-2 and 4-3 (monitoring quality of care and outcomes), 5-1 and 5-4 (linking and sharing service and outcome information among providers), and 6-1, 6-2, 6-3, and 6-4 (use of the national information infrastructure, including electronic health records, and clinical decision support systems), that reflect the importance of improving the IT and care monitoring of mental health and substance use services. State mental health agency data and IT needs are specifically identified as key areas for ensuring the provision of high-quality mental health services. The need for SMHA IT systems to collect high-quality process and outcome measures, to share these data electronically with other providers and systems, and to support the adoption and utilization of electronic health records by mental health providers is highlighted.

1.1.3 SAMHSA's National Outcome Measures (NOMs)

In 2004, SAMHSA announced 10 NOMs for mental health and substance abuse. The NOMs, which are to be measured across all SAMHSA-funded programs, promote the use of information to improve services for persons with mental illnesses and substance use problems. The NOMs were selected to provide data for program accountability, with recovery and resiliency as the tenets in providing mental health services.

The mental health NOMs include measures of how well clients are managing their illnesses and living and working in the com-

munity, with a focus on recovery and resiliency-oriented measures. These NOMs are improved functioning for persons receiving mental health services; obtaining and keeping a job or enrolling and staying in school; decreased involvement with the criminal justice system; securing a safe, decent, and stable place to live; and having social connectedness to and support from others in the community such as family, friends, coworkers, and classmates. Two other NOMs directly address the availability of treatment: increased access to mental health services and decreased inpatient rehospitalizations for mental health treatment. The final three NOMs examine the quality of services provided: client perception of care, cost-effectiveness, and use of evidenced-based practices in services.

SAMHSA uses a set of common data tables—the Uniform Reporting System (URS)—to generate the mental health NOMs for the Community Mental Health Block Grant. To facilitate SMHA reporting of the URS data used for the NOMs, CMHS/ SAMHSA has provided grants to 49 States, the District of Columbia, and 8 U.S. territories to support enhancing and modifying their mental health IT systems.

1.1.4 State-Level Systems

In addition to the SAMHSA NOMs initiative, many SMHAs have their own State-level performance and accountability systems that use the SMHA IT systems to generate outcome measures. In 43 States, the outcome measures of interest are specified by SMHA administrators, and in four States (Arizona, the District of Columbia, Hawaii, and Texas) the SMHA has agreed to court mandated outcome measures as a result of civil lawsuits. These additional data requirements often complicate the IT enhancement

undertaken by States. The varied data requirements from multiple sectors (funding institutions as well as political bodies) usually result in the SMHA collecting numerous client data and outcome measures, thereby burdening the entire system.

1.2 Types of Client Information Maintained in SMHA IT Systems

Every SMHA is collecting information about mental health clients. However, the level of detail and the content of the information about clients vary widely from State to State. The following are some categories of data that the States collect:

1.2.1 Encounter/Claims Data

Since October 16, 2004, all electronic claims records must be compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) transaction code standards.

Claims records contain details on specific clinician-client treatment interaction (procedure codes, provider ID, and billing amount); hence they do not always contain information on the overall client well-being, such as employment status, living situation, criminal justice contacts, and satisfaction with services, required for the NOMs reporting.

Encounter records are similar to claims records, except they may not include the actual billing amount. Encounter records are often reported instead of claims records when managed care, capitated or other financing strategies are used that do not require a billing claim be filed for each service event.

1.2.2 Client-Level Outcome Data

Client-level outcome data systems maintain information specific to each individual client enrolled for services, and are often updated at specified time intervals.

- Client-level outcome systems maintained by SMHAs often do not include encounter/claims data, but instead focus on a series of key client demographic variables: age, gender, race, ethnicity, primary language spoken, and service-related items: diagnosis, level of functioning, symptoms, current employment status, current living situation, school attendance, criminal justice involvement, serious mental illness/serious emotional disturbance status, and marital status.
- Client-level outcome data systems maintain much less information about specific clinicians and service events, and instead focus on client status.
- Client-level variables that can change (such as employment status or living situation) are often (but not always) updated on a regular basis. States vary widely regarding how often these measures are updated, with annual updates most typical.
- Some States collect outcome measures only for some identified “priority” population or persons receiving a specific mental health service such as assertive community treatment (ACT) or targeted case management.
- SAMHSA’s NOMs for both mental health and substance abuse rely on this type of client outcome data.

1.2.3 Provider Databases

Many SMHAs require providers to submit information annually or more often about their operations, staffing, services, and financing. These provider reports may be linked to client data or may be used by the SMHA. For example, providers could report on the race/ethnicity and primary languages of both their clinicians and their clients. The

SMHA could use this information to assess cultural competence and potential health disparities without requiring the provider to submit information about specific clients.

1.2.4 Client Survey Data

All SMHAs conduct client surveys for adult clients and children and their families to ascertain their perspectives on the quality, appropriateness, and outcomes of services. In most States these client surveys are conducted as anonymous surveys that cannot be linked to other administrative or clinical information systems. A few States are using surveys coded “confidential” in which individual responses can be linked to administrative databases.

1.2.5 Client Sample-Based Data

In a few States, the SMHA does not receive client-level data on all clients but instead has developed a sample-based procedure for understanding care provided. This approach relies on a sample being drawn to gather detailed client-level information on some clients that can then be extrapolated to represent the overall system without placing on providers the costs and burden of reporting detailed client-level information on all clients. One State collects detailed data on all clients served during a 2-week window. In other States, the level of reporting varies, with providers of high-cost services (such as ACT Teams), reporting more detailed client-level data and providers of other community services reporting less detail.

1.2.6 Linked Data Systems

Several States have used advances in data warehouse technologies and data-matching statistical approaches to augment the client-level data collected from providers. For example, Vermont has been a leader in using population probabilistic estimation procedures to supple-

ment its SMHA IT system with data from corrections, public health, and other State agencies. This procedure can generate outcome measures for the SMHA without requiring mental health providers to collect and report data on arrests or employment status. Using existing data compiled by other State agencies has the additional benefit of facilitating cooperation between State agencies in providing services to mental health clients and informing the agencies of the overlap in services between agencies.

1.3 Report Organization

Section I provides a brief overview of State Mental Health Agencies.

Section II reviews the methodology used for collecting the information for this report, as well as the limitations of the information.

Section III discusses the overall structure of mental health IT systems in State government.

Section IV examines the extent to which SMHAs maintain client-level data systems, the content of their client-level database, and how frequently client data are updated.

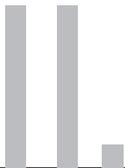
Section V reviews the encounter/claims data contained within the SMHA information systems. It also reviews the level of medication/pharmacy information maintained by SMHA information systems.

Section VI discusses the SMHA activities in linking databases with those of other State agencies. Often, data derived from this activity can generate outcome measures and provide opportunities to better coordinate the delivery of mental health services across State government.

Section VII reviews the implementation of electronic health records within SMHA systems. This section includes a review of SMHA activities to share electronic health information, both between providers and with clients through personal health records.

Section VIII briefly summarizes the findings of the report.

Appendix 1 provides definitions of terms used in this report.



Study Approach and Limitations

This section briefly describes the study approach and limitations of this report.

2.1 Study Approach

The National Association of State Mental Health Program Directors Research Institute, Inc. (NRI) maintains several databases about SMHAs. The SMHA Profiling System (SPS) provides a central database of information describing the organization, funding, operation, services, policies, statutes, and clients of SMHAs. This database describes each SMHA's organization and structure, service systems, eligible populations, emerging policy issues, number of clients served, fiscal resources, client issues, information management structures, and the research and evaluation it conducts. Questions within each component are designed to address specific needs of SMHA managers and others interested in public mental health systems, and to support decision making, policy analysis, research, and evaluation.

Individual State responses to the Profiles are available on NRI's Web site at www.nri-inc.org. On the Profiles Web site, users can access State responses by keyword, by State, and by special topical reports (Center for Mental Health Services, 2006).

To better understand the current IT landscape of SMHA systems, CMHS partnered with the SMHAs' national research organization, NRI. To provide a comprehensive

review, NRI used the Profiling System to gather the relevant and necessary information by greatly expanding the SMHA Information Management (IT) Component of the 2007 cycle.

The expanded IT component was designed to gather information from SMHAs about how their IT systems are organized and staffed, types of data elements maintained, and the frequency of data updates. Staff from CMHS as well as an expert advisory panel reviewed and provided valuable insight into the development of the revised IT profiles component. The component was then reviewed by State IT staff in several States before being finalized.

Once NRI finalized the IT component of its SPS, copies of the component were sent to all SMHA commissioners/directors and to their agency's information systems contact persons for completion during late spring of 2007. States were offered several methods of data submission: they could input the requested information through the NRI-developed SPS online data entry system or complete the questions on the form itself and either fax, mail, or e-mail the completed form to NRI.

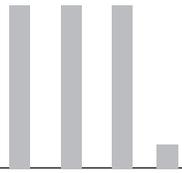
All 50 States, the District of Columbia, and four U.S. territories (the Federated

States of Micronesia, Palau, Puerto Rico, and the Virgin Islands) submitted responses to the IT component (Connecticut submitted two forms—one for the adult State department and the second for the children’s State department).

Compiling information directly from each SMHA’s office responsible for maintaining the SMHA’s IT infrastructure provides a significant strength in that information about these technical systems comes directly from the persons building and using them.

2.2 Limitations

While there was a high response rate from the States, the completion rate for individual items varied across States. Some States did not answer all questions asked; therefore, some data/information used in this report is based on response from less than the total number of reporting States.



SMHA Information Technology, Structure, and Architecture

This section describes the structure of State mental health agencies' information technology systems. It reviews the organizational locations of the information system architecture and implementation of electronic health records (EHRs).

3.1 SMHA Organizational Location Within State Government

SMHAs are designated by the Governor and/or State legislature in each State and are typically organizationally located as a division within a larger Department of Health or Department of Human Services (35 States). In 13 States, the SMHA is an independent cabinet-level agency.

Over the past 30 years, a number of SMHAs have been reorganized within State government, from independent departments to divisions within a larger umbrella agency. The logic behind this change is often to foster collaboration and coordination with the SMHA's new "sister" divisions in the umbrella organization. In particular, Medicaid and State health divisions are often part of the same agency.

Given the recent changes in the administrative structure of most SMHAs it is important to understand where the operational control of the mental health information technology system lies. In many States where the SMHA is a part of a larger umbrella

agency, the SMHA's IT system is under the control of the umbrella agency's centralized information systems. Even where the SMHA is a cabinet-level department, a centralized State IT department in the Governor's office may have a major role in determining the software, hardware, and types of data that the SMHA can collect and the reports it can generate.

Moving SMHA IT functions into a system coordinated across State divisions within a larger umbrella agency can have benefits by providing the opportunity for better data sharing; better integration of services and coordination of care can result.

3.2 Mental Health Information Technology Staffing and Budgets

In 2007, 52 States reported a total of 986 full-time equivalents (FTEs) devoted to mental health information management functions. The number of FTEs devoted to mental health ranged from a low of 1 in North Dakota and West Virginia to a high of 227 in New York. Of the total number

of FTEs reported, 853 (87 percent) are located within the SMHA and 131 (13 percent) are located in an umbrella agency outside the SMHA.

Thirty-seven States (60 percent) were able to report expenditures for mental health information management functions. These States reported spending a total of \$99,564,957 for mental health information management functions in FY2007. The median State spending was \$517,667, with a range from \$84,552 in Iowa to \$44,900,000 in New York. State expenditures for mental health IT functions represented an average of 18 percent (median of 14 percent, ranging from 1 percent in Maryland to 59 percent in Missouri) of SMHA expenditures for central office and other support activities such as research and training, and represented 0.5 percent (median of 0.2 percent, ranging from

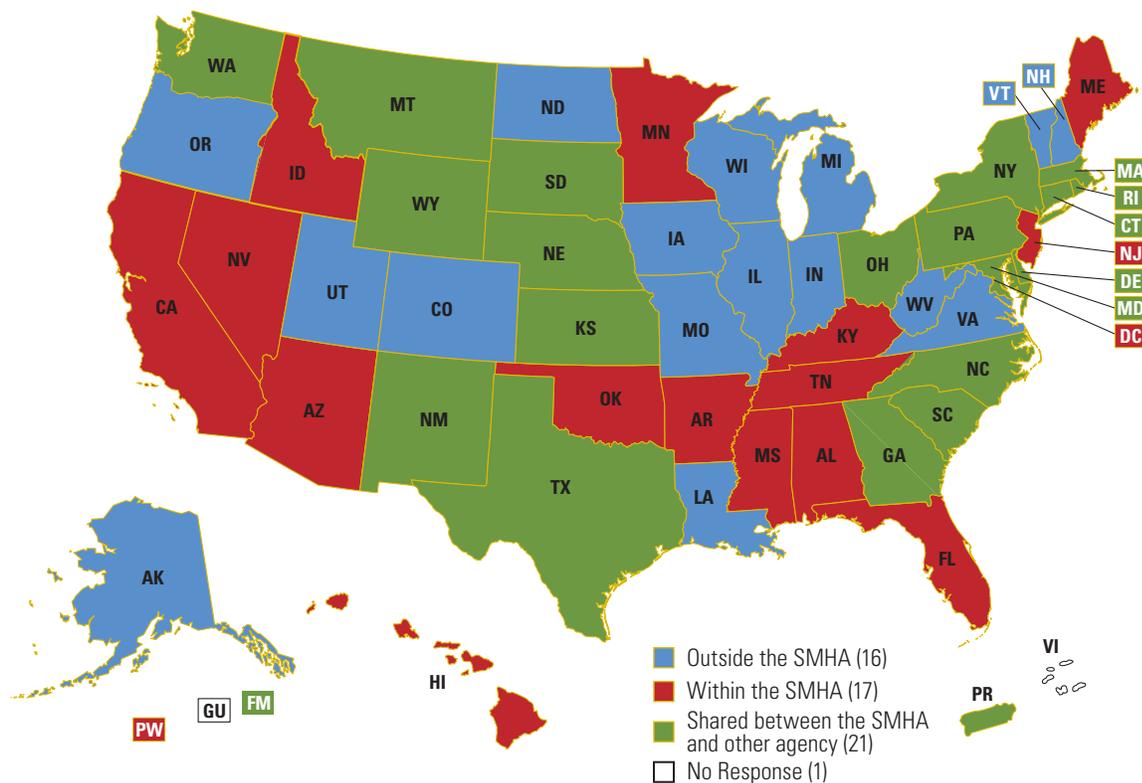
0.1 percent in Pennsylvania to 2 percent in Oklahoma) of total SMHA-controlled expenditures for mental health services (National Association of State Mental Health Program Directors Research Institute, Inc., 2007).

3.3 Organizational Location of the Management and Operations of Computers for the SMHA

In 34 (67 percent) of 51 reporting States, the management and operation of computers are part of an umbrella agency that either runs computer hardware systems for the SMHA or funds and controls hardware acquisition, or does both. Figure 1 depicts the location of the management and operation of computers in each State.

In 17 of the 54 reporting States (31 percent), the management and operation of computers are located within the SMHA,

Figure 1: Location of the Management and Operation of Computers



while in 16 States (30 percent) these functions are located outside the SMHA in an umbrella agency. In 21 States (39 percent) these functions are shared between the SMHA and other agencies.

In 34 (64 percent) of the 53 reporting States, data management, such as updating data and quality control, are located within the SMHA. Similarly, 40 (73 percent) out of 55 States reported that generating data and performance reports as well as data analysis functions are located within the SMHA. The warehousing of SMHA data that are linked with other State agency data is within the purview of the SMHA in 20 (45 percent) of the 44 States reporting. This function is shared between the SMHA and another agency in 12 States (27 percent), while in 12 (27 percent) other States it is located outside the SMHA.

Table 1 depicts the organizational locations of the SMHAs data management function.

3.4 Mental Health Information Management and Its Level of Integration with Substance Abuse and Developmental Disability

A total of 34 States (67 percent) reported an integrated mental health data system with

substance abuse or developmental disability agencies or both. Thirty States (59 percent) have integrated mental health and substance abuse data systems, while 14 States (27 percent) have integrated mental health and developmental disability systems. Ten States (20 percent) reported having integrated all three service areas: mental health, substance abuse, and developmental disabilities. Texas and Idaho pointed out that they are in the early stages of integrating the mental health information management functions with substance abuse (Texas' mental health information management is currently integrated with mental retardation/developmental disabilities). Sixteen States (31 percent) reported that their mental health information management functions are only for mental health and are not combined with any other disability services.

3.5 SMHA Information Systems Architecture

SMHA information systems usually have two different components:

1. State psychiatric hospitals, which are operated by State government and staffed by State employees. States have operated such hospitals for more than 150 years.

Table 1: Organizational Locations of Information Management Functions

Information Management Functions	Locations					
	Within the SMHA		Outside the SMHA (in Umbrella Agency)		Shared Between SMHA and Other Agency	
	# of States	%	# of States	%	# of States	%
Management and operation of computers	17	31%	16	30%	21	39%
Data management, such as updating and quality control	34	64%	4	8%	15	28%
Generating data and performance reports, analysis of data	40	73%	1	2%	14	25%
Data warehouse of SMHA data linked with other State agency data	20	45%	12	27%	12	27%

In these inpatient facilities, the SMHA has complete control over client data and medical records.

2. Community mental health systems, which are usually contracted with either private not-for-profit community-based providers or with county or city governments. Since community mental health services are usually funded but not operated by the SMHA, community mental health providers have their own information management systems and report data periodically to the SMHA as a funding program.

The information systems of many SMHAs reflect the duality of two different mental health service systems. Furthermore, the two different IT systems may contain vastly different levels of client information. To coordinate care and monitor performance across their entire system, SMHAs are working to merge, or at a minimum, develop the capacity to link, the two IT systems.

3.6 Databases

State Mental Health Agencies: SMHAs use a variety of IT platforms, often using multiple platforms within the agency. Various Microsoft products, IBM mainframe, UNIX, and AIX are the most popular platform systems. Microsoft SQL (used in 26 States) and Oracle (7 States) are the two most widely used database software programs. An additional nine States are using both Microsoft SQL and Oracle. Other software in use includes SPSS, Access, Cache, Sybase, IMS, and DB2.

State Psychiatric Hospitals: In 40 States the State psychiatric hospitals have separate IT architecture from the SMHA. Much like the SMHAs, State psychiatric hospitals use multiple platforms in their IT systems. Microsoft

SQL (used in 10 States) and Oracle (4 States) are the two most popular database software programs (an additional 4 States are using both SQL and Oracle). State psychiatric hospitals use a variety of other software programs including Cache, Access, Linux, Informix, and Sybase.

3.6.1 Legacy Information Management Systems

In 21 of the 50 reporting States (42 percent), the SMHA maintains or uses legacy systems. Of these 21 States, 12 States (57 percent) use legacy systems to store, process, and report mental health data, 3 States (14 percent) use them to access old data files not migrated to the new system, and 6 States use legacy systems for both functions.

3.6.2 Application Software

The SMHAs and State psychiatric hospitals use a variety of State-owned and proprietary application software for recording client information, analyzing data, generating report, and processing claims and encounters. Application software used in the SMHAs and State psychiatric hospitals includes Lotus, SPSS, Crystal Reports, SQL, SAS, Excel, COBOL, Oracle, Access, COGNOS, Avatar, Java, and a variety of home-grown programs.

3.6.3 Source Code of the Application Software for Recording Client Information

State Mental Health Agencies: Forty-six States reported 72 software applications for recording client information, of which 43 (60 percent) are State owned, 12 (17 percent) are combined State owned and proprietary, and 17 (24 percent) are proprietary.

State Psychiatric Hospitals: Thirty-two States reported 42 software applications used for

recording client information, of which 22 (52 percent) are State owned, 18 (43 percent) are proprietary, and 2 (5 percent) are combined State owned and proprietary.

3.6.4 Source Code of the Application Software for Data Analysis

State Mental Health Agencies: Forty-five States reported 70 software applications used for data analysis, of which 20 (29 percent) are State owned, 43 (61 percent) are proprietary, and 7 (10 percent) are combined State owned and proprietary.

State Psychiatric Hospitals: Twenty-six States reported 78 software applications, of which 30 (38 percent) are State owned, 42 (54 percent) are proprietary, and 6 (8 percent) are combined State owned and proprietary.

3.6.5 Source Code of the Application Software for Report Generation

State Mental Health Agencies: Forty-five States reported 68 software applications, of which 21 (31 percent) are State owned, 39 (57 percent) are proprietary and 8 (12 percent) are combined State owned and proprietary.

State Psychiatric Hospitals: Twenty-seven States reported 34 software applications, of which 13 (38 percent) are State owned, 18 (53 percent) are proprietary, and 3 (9 percent) are combined State owned and proprietary.

3.6.6 Source Code of the Application Software for Processing Claims/ Encounters

State Mental Health Agencies: Thirty-five States reported 45 software applications, of which 19 (42 percent) are State owned, 19 (42 percent) are proprietary, and 7

(16 percent) are combined State owned and proprietary.

State Psychiatric Hospitals: Twenty-three States reported 27 software applications, of which 13 (48 percent) are State owned, 13 (48 percent) are proprietary, and 1 (4 percent) is combined State owned and proprietary.

3.7 Data Flow

3.7.1 Data Flow Between SMHAs and Community Mental Health Providers and/or County Mental Health Providers

Twenty-eight of the 41 reporting SMHAs use a Web-based interface or data transfer system to collect data from local providers, while 13 (32 percent) reported that data collection from the local providers is largely or entirely manual or paper based.

3.7.2 Data Flow Between State Psychiatric Hospitals and Community Mental Health Providers

Thirty-two States (69 percent) reported data interchange between the State and community mental health providers and/or county mental health authorities. In 10 of these States (31 percent), data flow between the State psychiatric hospital and community providers is Web based, while in 12 States (38 percent) data exchanges follow certain protocol or processes. Ten States (31 percent) reported that there is no data flow between State psychiatric hospitals and community mental health providers.

3.8 Data Edits

State Mental Health Agencies: Forty-three of the 49 reporting SMHAs are using standard edits in their data system to check data submitted by local providers prior to acceptance in the SMHA data system.

State Psychiatric Hospitals: Seventeen of the 28 reporting States use standard data edits in their State psychiatric hospital data system.

The questions about State ownership and control over source codes for software applications are important because they reflect the extent to which State governments are able to modify the software applications without having to pay outside providers to do so. If the State controls the software code, the State is responsible for making changes to the software to meet new data requirements (such as for SAMHSA's mental health NOMs). If the ownership of the software code is proprietary, the SMHA must often pay private providers to make such changes. In some instances, the relatively small size of mental health IT systems may result in SMHAs having fairly low priority among large software vendors in getting code changes implemented.

IV.

State Models for Client-Level Data Collection

This section reviews the IT capacities of SMHAs related to client-level data and describes the capacity of States to generate unduplicated client-level information across their public mental health system.

Most SMHA IT systems maintain client-level data on clients treated in both the State psychiatric hospitals and community systems. These data systems often include client-level data for the entire community-based mental health system. States use a combination of unique identifiers and various database linking algorithms to develop unduplicated client-level data sets across SMHA entities and systems, and increasingly across Medicaid and other State agencies serving mental health clients.

States range from having regularly reported client-level data including detailed encounter-level information, to relying heavily on periodic client samples and aggregate reporting without routine reporting of client-level data from community providers to the SMHA. States that have client-level data vary widely regarding the specific data elements collected and how frequently these data are updated.

4.1 SMHA Use of Unique Identifiers

Many information systems use unique client identifiers to develop unduplicated counts

of clients, who may receive services at multiple community and hospital providers throughout their course of treatment or who may have multiple episodes of care. States use unique identifiers primarily to maintain client records unique for each individual. Unique identifiers are used to match encounter or payment records with the client's clinical, demographic, and other information throughout the course of the client's treatment.

Fifty-two out of 55 States (95 percent) reported that they have either a unique identifier or a method of unduplicating clients across their State psychiatric hospitals and community-based service providers. Forty-one (41) States (79 percent) use an assigned identifier (a unique identifier that does not use any portion of the client's record in its creation), 25 States (48 percent) include the social security number (SSN) as an identifier (either using SSN only or SSN and a combination of other identifying data), 16 States (31 percent) use a constructed identifier (an identifier formed by using parts of an individual record, such as

4.3 Frequency of Client-Level Data Transmission From Mental Health Service Providers to SMHA IT Systems

Client-level data are sent to the SMHA from local providers at a variety of time intervals. Out of the 53 reporting States, 20 (38 percent) receive data from providers monthly, 10 (19 percent) receive data instantaneously through direct interface between the providers and the SMHA, 8 (15 percent) receive data on both a daily and weekly basis, and 3 (6 percent) receive data annually (see table 2).

Table 2: Frequency of Client-Level Data Transmission to the SMHA

Frequency	Number of States	% of States
Monthly	20	38%
Instantly—linked	10	9%
Weekly	7	6%
Daily	8	13%
Quarterly	5	15%
Annually	3	19%

4.4 Frequency of Client-Level Data Update Submission From Providers to the SMHA

SMHAs ask local community mental health providers update individual client data elements at specified times. As depicted in table 3, 41 States receive client-level information at admission, 20 receive updates annually, and 25 receive updates at other intervals, ranging from biweekly to semi-annually. Only 6 States receive updates on client outcomes post discharge.

Table 3: Frequency of Client-Level Data Update

Frequency	Number of States	% of States
At admission	41	77%
At discharge	34	64%
Other period	25	47%
Annually	20	38%
Post discharge	6	11%

4.5 SMHA Receipt of Client Data From County/Local Government and Managed Care Organizations (MCOs)

SMHAs obtain client-level or aggregate client data from a variety of sources. In 41 States, data are received directly from local providers. Data received directly from local providers are often sent at the client level; however, in seven States local providers submit aggregate data to the SMHA. In 11 States, the SMHA receives client-level data via county/city mental health government agencies, while in 1 State the SMHA receives aggregate data. In these instances, local mental health providers submit data to the city/county mental health authority, which in turn submits data to the SMHA. In many States, a Medicaid managed care organization (MCO) waiver covers some behavioral health services. In 9 States, the MCOs submit client-level data to the SMHA, while in 24 States the SMHA receives client-level data in the form of Medicaid paid claims, with additional data to supplement reporting (see table 4).

Table 4: Sources of Mental Health Data

Sources of Data	Receiving Client-Level Data		Receiving Aggregate Data	
	N	%	N	%
Directly from Local Providers	41	77%	7	13%
County/City Authorities	11	21%	1	2%
Managed Care Organizations	9	17%	0	-
Medicaid Paid Claims data	24	45%	0	-

4.6 SMHA Relation to Local Providers to Receive CMHS Uniform Reporting System (URS) and Other Client Data

In 33 States, the SMHA contractually requires local entities to provide data to the SMHA. In 16 States, the SMHA offers financial support to local providers to report URS data, while 10 States provide financial assistance for reporting other client data. SMHAs also provide training in 28 States and technical assistance in 26 States to local entities on the reporting and use of data. SMHAs give local providers feedback reports showing the results of URS (22 States) and other data (27 States) (see table 5).

Table 5: Relation of SMHA to Local Providers to Receive URS and Other Client Data

Relationship	Number of States	% of States
Contractually requires local entities to report data	33	62%
Provides training to local entities to report data	28	53%
Provides reports based on other client data	27	51%
Provides technical assistance to local entities to report and use data	26	49%
Provides reports based on URS data	22	42%
Provides financial support for URS data reporting	16	30%
Provides financial support for other data reporting	10	19%

4.7 SMHA IT Systems Contents

SMHAs collect a variety of information at the client level. The types of information include basic client information, outcomes-related information, billing and service encounter data, and information about the service providers and clinicians delivering care. The most frequently collected data elements are the client’s date of birth, living situation, employment status, and mental health diagnosis.

A few client-level data elements do not need to be updated at multiple time points, and can instead be collected at admission (such as a client’s date of birth, gender, race, ethnic origin or SSN). However, most client-level data elements can change over time. For example, a client’s diagnosis may change as he or she moves through treatment. The location where clients live may change frequently, and clients’ symptoms and level of functioning are likely to change as they receive mental health services.

SMHAs collect many of the same data elements on clients they serve, but not all SMHAs collect these data elements at the same intervals. SMHAs were asked how often they require various client-level data to be updated. Although most States receive the majority of these measures at admission, many States tend to select specific measures to be updated periodically—mostly data elements used for the NOMs and other State and Federal priority data requirements.

Most of the NOM-related measures are maintained by SMHAs as client-level data, but States vary widely regarding how often they update the client information. Several States reported that they do not update the measures at all and maintain only admission status. For example, eight States (15 percent) reported that they receive living situation

data only at admission, and an additional eight States (15 percent) reported that they receive an update only at discharge—they do not update a client’s living situation while the client is receiving services.

4.8 SMHA Pattern of Admissions and Discharges

The SMHAs report on more than 6 million individuals served through their mental health systems each year. The nature of serious mental illnesses and serious emotional disturbances means that many clients in the public mental health system remain on the rolls for long periods, and thus have neither an admission nor a discharge record during any particular 12-month period. This has major implications for measuring outcomes of mental health services, in that outcome systems that assess change in client status from admission to discharge will exclude more than half the clients served by SMHAs each year.

Twenty SMHAs reported data on the profile of clients in State data systems by admission and discharge status within a year. The 20 reporting SMHAs served more than 2 million clients, with a median of 45,833 clients and a range from 5,957 in Delaware to 657,522 in California. The data from these States show that 961,096 (44 percent) of the clients served during the year were admitted to services during the year, with a median of 22,735 clients and a range from 2,904 in Delaware to 335,536 in California. According to the reported data, 1,203,137 (56 percent) were already clients at the start of the year, with a median of 26,265 clients and a range from 3,053 in Delaware to 321,986 in California. There were 891,015 (41 percent) clients in services for the entire year (they were neither admitted nor discharged during the year), with a median of 18,132 clients and a range 2,500

clients in Delaware to 294,540 clients in New Jersey.

The reported data suggest that many clients of the SMHAs are active recipients of services for longer than a year. Clients who were already on the mental health service rolls at the start of the year are significantly likely to be on the rolls at the end of the year (74 percent), while clients who were admitted into services during the year were more likely to be discharged during the year (49 percent of admissions).

Even among the clients admitted into public mental health services during the year, 51 percent were still active clients at the end of the reporting year.



Mental Health Encounter/Claims Data

This section briefly reviews the encounter/claims data, as well as the medication/pharmacy information, maintained by the SMHA information management systems.

Most SMHAs receive encounter data that include descriptions of the transactions between the provider and client. Many SMHAs report analyzing Medicaid paid claims records to identify mental health services and clients, and some SMHAs are regularly matching or linking SMHA client data with Medicaid paid claims records.

Fifty-one States reported that they receive client-level claims/encounter data; of these, 10 States (20 percent) receive a combination of client-level claims/encounter data and aggregated provider level data. Three States (6 percent) reported that they receive only aggregated claims/encounter data from providers.

Thirty-four States (64 percent) reported that they receive client-level encounter data for all individual encounters, while 19 States (36 percent) reported that they do not receive all mental health encounters. In those 19 States, medications, case management, and crisis and treatment services are the most common types of encounters for which the SMHAs receive data (see table 6). In 8 States, the SMHA receives claims/encounter data only for services the SMHA paid for (i.e., encounters for services that are not paid by the SMHA are not submitted to the SMHA).

Table 6: Types of Encounter Data Received by SMHAs

Types of Encounters	Number of States	% of States
Case management	15	79%
Medications	14	74%
Treatment services (counseling, therapy, etc.)	14	74%
Crisis services	13	68%
Inpatient/residential	11	58%
Partial hospitalization	9	47%
Support services (transportation, respite, etc.)	9	47%
Other services	3	16%

Forty-seven States reported that they link encounter data to other client data using a unique client identifier. Several States use a combination of SSNs, authorization numbers, and other client IDs to link data. Most States report that they receive client identifiers, information about the type of service (using several different coding schemes), and dates of service as components of the encounter data. Place and duration of service, treating clinician/provider, and diagnosis (using several diagnosis schemas) were frequently collected elements in encounter records as well. Thirty-two States (63 percent) reported that they link these encounter

service types with Medicaid and/or other agency data.

5.1 Medications/Pharmacy Information

Thirty-nine out of 52 reporting SMHAs (75 percent) maintain information about some of the psychiatric medications clients use. Often, these data come from either Medicaid paid claims or prescriptions (23 States, or 44 percent) or from SMHA-paid prescription claims (24 States, or 46 percent). In 12 States (23 percent), other sources of information about medications are maintained.

In 32 States (62 percent), client-level information about medications is maintained. This information is sometimes linked to other client-level mental health data. In 22 States (56 percent), this includes detailed information about each prescription. In eight States (21 percent), summary-level information is available for individual clients (information about the types of medications a client receives, but not at the individual prescription level). In nine States (23 percent) aggregate data about medications are available, but not at the client level.

As depicted in table 7, the most common medication information maintained by SMHAs is the types of medications, quantity of drugs prescribed, and dates of prescription. States also maintain information about payments for medications, number of prescriptions written and medications delivered.

Table 7: Types of Medication Information Maintained by the SMHA

Medication Information	Number of States	% of States
Type of medication, quantity of drug prescribed, date of prescription	26	50%
Payments for medications	19	37%
Number of prescriptions written by prescribing clinicians	18	35%
Medications delivered or purchased	18	35%

VI.

Linking SMHA Client Data With Other State Government Agency Databases

This section discusses the SMHA activities in linking databases with other State agencies. Often, data derived from this activity can generate outcome measures and provide opportunities to better coordinate the delivery of mental health services across State government.

The President's New Freedom Commission on Mental Health found that the provision of mental health services is highly fragmented, with clients having to negotiate a complicated system to receive the different services and supports they need. The commission found that this fragmentation is a major impediment to providing high-quality care. Within State government, mental health services and essential supports are being provided by a broad array of agencies. It is essential for specialty systems such as SMHAs to gain a better understanding of the role of these other State agencies (OSAs) in providing mental health services in order to reduce fragmentation. The State profiles system asked SMHAs with which OSAs they are linking client-level data and how these data are being used.

6.1 Medicaid

Forty-five States (83 percent) reported that they have access to Medicaid paid claims

files. In 31 States (57 percent), the SMHA receives Medicaid paid claims files to analyze mental health services paid for by Medicaid. In 12 States (22 percent) the SMHA has established a central data warehouse run by a separate agency that combines SMHA data with Medicaid data. Twenty-two SMHAs (41 percent) utilize other mechanisms, such as a direct link to a paid claims contractor database, to link Medicaid paid claims data files with SMHA data, while 10 (19 percent) SMHAs Medicaid paid claims data are not linked to mental health data.

Of the States that link Medicaid paid claims data with SMHA client data, 14 reported linking data on a monthly basis and 7 reported linking data on an ad hoc basis.

SMHAs use linked Medicaid and mental health data for the following:

- For analysis of mental health services (36 States)

- For administrative purposes (28 States)
- For policy analysis (29 States)
- To identify fraud and abuse (11 States)

Fourteen SMHAs are working with their State Medicaid Agency to combine data systems. In seven States, the SMHA is working with the State Medicaid Agency to utilize the Federal Centers for Medicare and Medicaid Services’ (CMS) Medicaid Information Technology Architecture (MITA). For example, Oklahoma has been developing a new information system around the MITA standards, while in Indiana, Maryland, Missouri, Ohio, and Rhode Island, the SMHA and Medicaid agency are exploring potential MITA-related collaborations for their data systems.

6.2 Linking SMHA Data With Other State Agency Data

In addition to linking mental health client data with Medicaid, many SMHAs reported efforts to integrate or match client-level mental health data with other State government agency client databases (see table 8). The most frequently linked data are for substance abuse services (often in States

where the SMHA is responsible for both mental health and substance abuse services). While many SMHAs link their client-level data with other OSAs (such as criminal justice, health, employment, and child welfare), this procedure is not routine and usually happens only for designated special projects. Only Medicaid and substance abuse (alcohol/drug abuse) client files are regularly integrated or matched with mental health records in more than 10 States.

The availability of linked or integrated client-level data from OSAs suggests that SMHAs have recognized the importance of this activity. The information from OSAs that provide significant levels of mental health services will, in the future, become crucial for accurately understanding overall State government expenditures on mental health. The interagency database linking likewise help inform the mental health NOMs, in particular the employment and criminal justice NOMs. As more States build State data warehouses and routinely link client-level data across systems, linked systems data may become more useful in calculating the NOMs.

Table 8: Other State Agencies With Which SMHAs Link Data

Other State Agency	Update Frequency		Purpose			Agency Responsible		
	Regularly	Special Projects	Analysis of Mental Health Services	Admin Purposes	Policy Analysis	SMHA	OSA	Other
Alcohol and drug abuse	19	9	22	22	20	21	8	7
Criminal justice	5	16	14	13	10	13	5	1
Health	5	14	12	10	6	11	2	1
Employment/vocational rehabilitation	4	11	12	8	7	12	3	0
Child welfare	5	12	12	12	11	12	3	3
Juvenile justice	0	9	7	6	3	9	2	0
Education	1	4	4	4	3	3	1	0

VII. Electronic Health Records in SMHAs

This section reviews the implementation of electronic health records within SMHAs. It includes a review of SMHA activities to share electronic health information, both between providers and to clients, through personal health records.

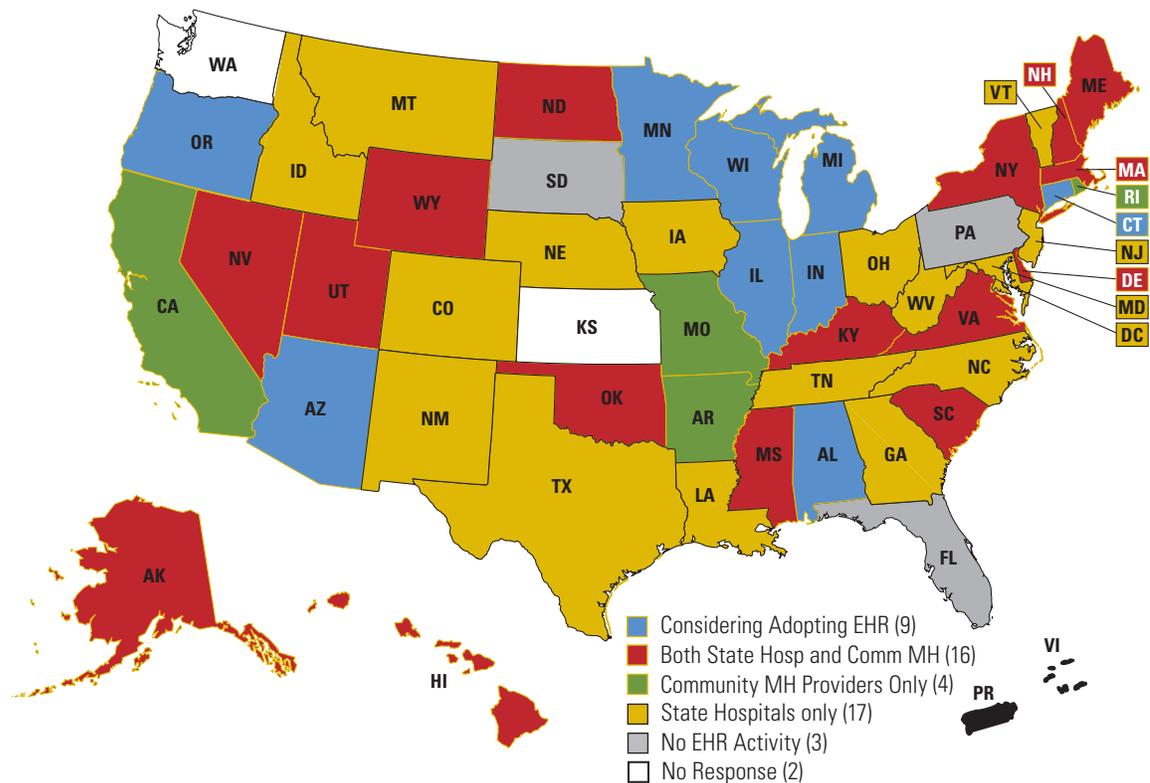
7.1 Implementation of Electronic Health Records

Forty-six of the reporting 49 States (94 percent) are implementing or considering the adoption of an electronic health record (EHR) in their State psychiatric hospitals

and/or community mental health system (see figure 3).

Five States (11 percent) reported that they are already operating an EHR with all components in their State psychiatric hospitals, while 18 States (40 percent) reported that they have EHR with some components

Figure 3: Implementation of EHRs



implemented. Ten additional States (22 percent) reported that they are installing an EHR system in their State psychiatric hospitals, and 12 States (27 percent) are currently considering the adoption of an EHR in their State psychiatric hospitals (see figure 4).

Twenty-one (58 percent) States reported they have EHRs operating in the community mental health providers that are part of the SMHA-funded or -operated system, and 3 States (8 percent) reported that EHRs are being installed. An additional 12 States (33 percent) are considering the adoption of an EHR in their community mental health provider systems. In 4 States (11 percent), a single EHR system is used for all community mental health providers (all of which are operated by the SMHA), while in 32 States (89 percent), community providers use a variety of EHR systems.

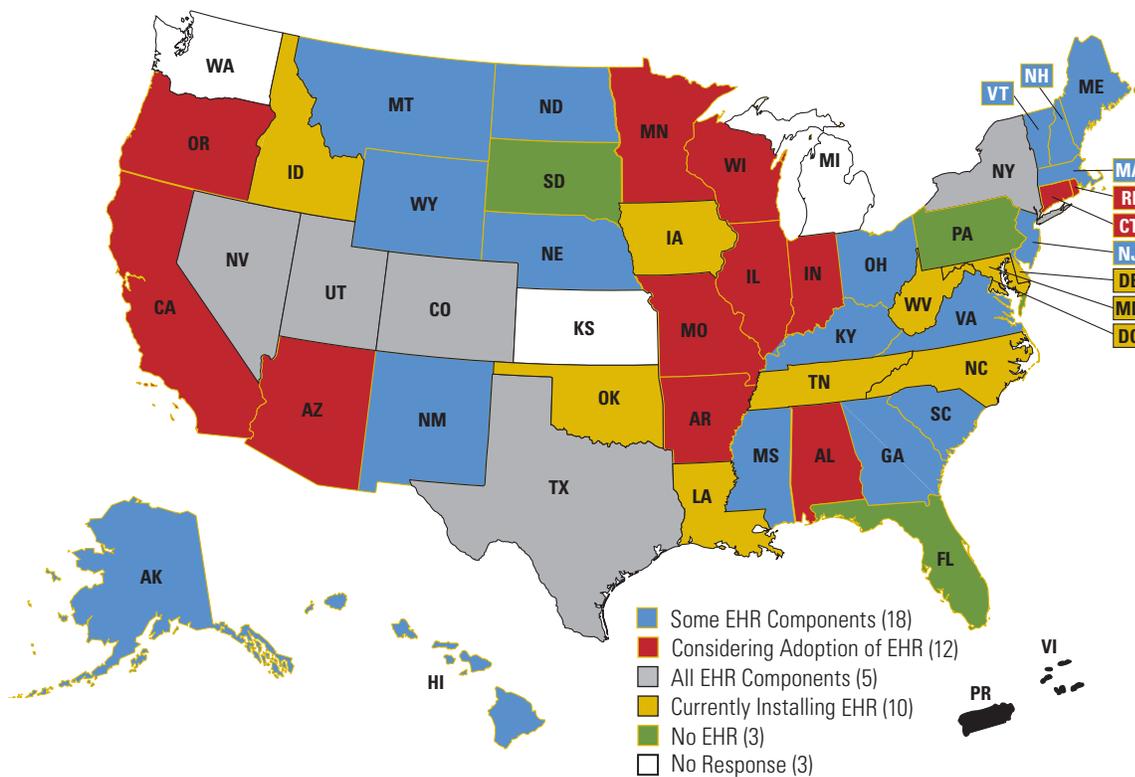
7.2 Implementation of EHR Components

Some components of EHRs have been implemented in either State psychiatric hospitals or community programs, or in both. The most commonly implemented components are patient admission, discharge, transfer, billing, reporting, progress/case documentation, and pharmacy. The least implemented components are exchanging client information with other providers and external consultation (see table 9).

7.3 Sharing EHR Information

Twenty States have agreements that allow the sharing of EHR client data between providers to improve care. In 18 States, these agreements allow the sharing of client EHR information among the State psychiatric

Figure 4: EHR Status in State Psychiatric Hospitals



hospitals within the SMHA system. In North Dakota, South Carolina, Texas, Utah, and Virginia, these agreements allow sharing information between community mental health providers and State psychiatric hospitals, while New York allows the sharing of EHR client information between State psychiatric hospitals and general hospitals. Colorado and Massachusetts have agreements to allow sharing of EHR client information between health maintenance organizations (HMOs) and other managed care (MC) firms that are part of the public mental health system and the SMHA (see table 10).

Table 9: Uses of EHR Components

EHR Components	State Hospitals		Community Providers	
	N	%	N	%
Patient admissions, discharge, transfers	27	84%	16	76%
Pharmacy	23	72%	5	24%
Billing as part of EHR system	23	72%	14	67%
Reporting	20	63%	16	76%
Progress/case documentation	18	56%	17	81%
Treatment planning	16	50%	14	67%
Physician order entry	17	53%	5	24%
Clinical assessments	17	53%	15	71%
Scheduling	12	38%	12	57%
Dietary	14	44%	2	10%
Medication algorithms	9	28%	2	10%
Exchanging client info with other providers	3	9%	5	24%
External consultations	2	6%	4	19%
Other EHR functions	1	3%	3	14%

Table 10: Sharing EHR Information

Sharing EHR Information Between	N	%
State hospitals within the State	18	55%
Community providers & State hospitals	5	16%
Community providers	5	17%
HMOs, other MC firms & the SMHA	1	3%
State hospitals & general hospitals	1	3%

Thirteen States have a regional health information organization (RHIO) that includes mental health in its plans to share electronic health information. A number of other States are beginning to assess the inclusion of mental health information in a RHIO.

7.4 Benefits of Using EHRs

SMHAs reported a variety of benefits from implementing and using EHR systems. The major benefits include improved reporting capabilities (15 States), enhanced quality assurance (14 States), improved productivity (12 States), and reduced billing errors (11 States).

7.5 Electronic Pharmacy/Medication Ordering System

Twenty-six States reported that they have implemented an electronic pharmacy/medications ordering system in their State psychiatric hospitals, while five States have implemented this system in their community mental health providers. The electronic pharmacy/medications ordering system software being used includes HCS, Meta, Mediworx/Pyxis® system, QSI, Quadramed, and WORXS.

7.6 Medication Administration Recording (MAR)

Eleven States reported that they have implemented the MAR system in their State psychiatric hospitals. None reported having the MAR system in community providers.

7.7 Electronic Personal Health Records (PHR)

SMHAs are in the early stages of implementing PHRs. Missouri reported that it is in the process of implementing a PHR, and Oklahoma is designing a PHR system for mental health clients. The SMHAs in California, Missouri, New Jersey, Ohio, and Utah are working with other providers to support PHRs, while Connecticut's Children's Mental Health Department, Maryland, and Virginia are planning to implement PHR systems.

VIII. Summary

State mental health agencies are expending substantial resources in terms of staff, time, and money to improve their mental health information systems. Although a few States collect aggregate data, most SMHAs maintain client-level data on most, if not all, of the clients who receive public mental health services. However, not all SMHAs receive client-level data for every client served by the community mental health programs they fund. In some States, local community mental health service providers submit client-level data to the SMHA only for persons whose care was paid for by the SMHA or Medicaid (they do not report private pay clients). In other States, client-level data are reported to the SMHA only for some client groupings (e.g., adults with serious mental illness or adults in ACT services).

In some States, SMHA client-level data are based on enrollment and discharge information that is useful to generate outcome measures such as the NOMs, but they may not include detailed encounter-level information. Many of the client status measures included in State client datasets (such as employment status, living situation, and functional status) are collected at admission and then periodically updated, although the frequency of updating varies widely by State.

SMHAs are increasingly working to analyze Medicaid paid claims records and to link or match these files with their own client-level data. However, the methods used to link these systems are developed individually by each State and vary widely in how often data are matched or analyzed. A number of States have expressed interest in the new CMS MITA initiative as a potential resource to facilitate integrating SMHA-mental health client data with Medicaid claims data.

SMHAs are also working with many other State government agencies to link datasets to understand the movement and overlap of clients between State government systems. However, States are not conducting and updating these data linkages with other agencies as often as they do with Medicaid files.

Most States are implementing or planning to implement electronic health records in their State psychiatric hospitals and to support their implementation in community mental health providers. States are optimistic that the real-time clinical records of EHRs can reduce the burden of maintaining separate administrative data systems and improve the ability of mental health programs to report outcomes. However, at this time, few States have fully addressed the requirements of sharing information between EHRs. Most EHR systems are proprietary and do not have common protocols to share data with other EHRs. As a result, in many States

individual providers are implementing and maintaining EHRs that contain data that could be used to provide a much more robust picture of public mental health services, but the rules, agreements, and systems to share this information between providers and the SMHA have not been fully developed. This inability to share and combine EHR information may limit the capability of States to use the EHRs to improve their capacity to answer the outcomes and services questions that are being asked.

The separate IT architectures maintained by State psychiatric hospitals and community mental health systems in a number of States as well as the wide variety of database platforms in use are indicative of the critical need for database integration between the State psychiatric hospitals and community mental health systems. Only a few State psychiatric hospital systems report using more

modern databases, such as SQL, as the basis of their IT architecture. The continued reliance of some SMHAs on expensive and hard-to-modify legacy data systems is a factor that policy makers must consider when establishing new data requirements.

SMHA IT systems are the focus of major changes across the States. With leadership from CMHS/SAMHSA through their Data Infrastructure Grants, and work on data sharing and “interoperable” data systems such as Medicaid, health, and corrections, SMHA IT capacities are rapidly moving in a positive direction. Many States are now working to make mental health information on services and outcomes available to clients and their families. The next area of focus for many SMHAs is helping clients to build and use their own personal health records to empower clients to take better charge of their own treatment.

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Appendix 1:

Definitions

Data Warehouse: A term coined in 1990 by Bill Inmon, who defined it as “a subject-oriented, integrated, time-variant and non-volatile collection of data in support of management’s decision making process.” The function of a data warehouse is to consolidate and reconcile information from across separate agencies and data systems and provide a context for reporting and analysis. Data in a warehouse are organized so that all the data elements relating to the same real-world event or object are linked together. For State governments, this means that data warehouses link client data from multiple State agencies and data systems. In a State data warehouse, an individual client’s Medicaid, mental health, vocational rehabilitation, employment status, and criminal justice data can all be combined to provide a comprehensive view of the client’s service use and costs.

Discharges: States vary in their practice and concept of discharge. For clients in State hospitals, discharges are easy to define as when the person is discharged and leaves the inpatient facility. However, in community mental health services, where some clients may be in services for many years, discharges are harder to define. Some States consider clients discharged only when they are given a medical discharge as a result of treatment completion. However, since many clients cease coming in for services before they complete treatment, they are never given a medical discharge. Most States have procedures to make an

administrative discharge after a client does not appear for services for an extended period, which ranges from 90 to 180 days.

Electronic Health Record (EHR): EHR is a secure, real-time, point-of-care, client-centric information resource for clinicians. The EHR aids clinicians’ decision-making by providing access to client health record information where and when they need it and by incorporating evidence-based decision support. The EHR automates and streamlines the clinician’s workflow, closing loops in communication and response that result in delays or gaps in care. The EHR also supports the collection of data for uses other than direct clinical care, such as billing, quality management, outcomes reporting, resources planning, and public health disease surveillance and reporting.

Encounter/Claims Data: Encounter/claims data are defined as information about the contact between a client and a plan or a provider in which a covered service is provided. Encounter databases are information systems that are used to track the delivery of specific providers (and in the case of claims data, with specific billing amounts). Mental health claims data systems are used to bill fee-for-service systems such as Medicaid or other reimbursement-driven systems. Claims-based records contain information specific to each client-clinician interaction.

Health Insurance Portability and Accountability Act (HIPAA): HIPAA was passed by

Congress in 1996 and includes three major sections relevant to public mental health information systems:

The Transaction and Code Set: A standard set of allowable codes and record layout for all electronic billing records. The HIPAA Transaction standards are applicable to Medicaid paid claims records and all other health care billing records. HIPAA Transaction and Code standards became effective in 2004.

Privacy Rules: HIPAA Privacy Rules are designed to protect the privacy of all electronic medical records. The HIPAA Standards regulate consent procedures and how electronic health data can be shared among providers, payers, researchers, and government. The Privacy Rules became effective in 2003.

Security Standards: HIPAA Security Standards are designed to complement the HIPAA Privacy Rules and regulate how healthcare providers must ensure the security of electronic health information. The Security Rules were issued in 2003 and became effective in 2005.

Legacy System: The Sci-Tech Dictionary of *Answers.com* defines legacy system as “a computer system that has been in operation for a long time, and whose functions are too essential to be disrupted by upgrading or integration with another system.”

Medicaid Information Technology Architecture (MITA): An initiative of the Center for Medicaid and State Operations (CMSO) that is intended to foster integrated business and IT transformation across the Medicaid enterprise to improve the administration of the Medicaid program.

National Outcome Measures (NOMs): A set of mental health outcome measures selected

by the Substance Abuse and Mental Health Services Administration that covers 10 areas of mental health systems. The NOMs were selected to provide data on program accountability, with recovery and resiliency as a focus for serving consumer populations.

Personal Health Record (PHR): A collection of important information about a person’s health or the health of someone else they care for, such as a parent or child. The information comes from a variety of sources and may include medical records, family health history, Advance Health Care Directive (formerly called Durable Power of Attorney for Health Care or a Living Will), and any other health information.

State: For the purposes of this report, the term State refers to any of the 50 States, the District of Columbia, the Federated States of Micronesia, Palau, Puerto Rico, and the Virgin Islands.

State Mental Health Agency (SMHA): The State or territory government agency responsible for preparing the Mental Health Block Grant applications to CMHS and for the provision of mental health services in the State. In several States, two separate State government agencies are responsible for the provision of mental health services: the Adult Mental Health Services Agency and the Children’s Mental Health Services Agency. In the development of this report, both the Adult and Children SMHAs were asked about their IT system and the types of client-level data they maintain. Connecticut sent two responses, one for the Adult SMHA and another for the Children’s SMHA.

Substance Abuse and Mental Health Services Administration (SAMHSA): A Federal agency whose mission is to build resilience and facilitate recovery for people with or at risk for substance use and/or mental disorder.

Uniform Reporting System (URS): A Federal reporting system used by SMHAs to compile and report annual data from each State as part of the Community Mental Health Block Grant. The URS, comprising 21 tables developed by the Federal government in consultation with SMHAs, compiles annual State-by-State and national aggregate information, including numbers and sociodemographic characteristics of persons served by the States, the outcomes of care, use of selected evidence-based practices, client assessment of care, and insurance status. SAMHSA uses these tables to calculate the 10 mental health NOMs for State and national reporting.

DHHS Publication No. (SMA) 08-4361
Printed 2008

