Chapter 16: Technology and Information Systems

The purpose of this chapter is to provide an overview of information and technology resources of the publicly funded behavioral health service agencies in Oklahoma, including an assessment of the strengths, resources, barriers and needs that have been identified to date.

A. Existing Resources

State Agency Data Systems. Oklahoma has a history of strong commitment to data system development. As described below, many of the state agencies have developed systems that meet or exceed national standards.

- The Oklahoma Department of Human Services (OKDHS) KIDS data system was the first DHHS-approved Statewide Automated Child Welfare Information System (SACWIS) in the nation. OKDHS also provides eligibility determination for Medicaid and a variety of other state services.
- The Department of Rehabilitation Services (DRS) data system meets national standards for compiling and reporting service recipient data to the federal Health Resources and Services Administration.
- The Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) Integrated Client Information System (ICIS) database has been developed with support from SAMHSA and is based on national mental health (Mental Health Statistics Improvement Program, MHSIP) and substance abuse (Drug and Alcohol Services Information System, DASIS) data standards. In addition, ODMHSAS has developed specialized data collection systems for a number of treatment programs, e.g., Program of Assertive Community Treatment (PACT), children's Systems of Care, and Multi-Dimensional Family Therapy.
- The Oklahoma Health Care Authority (OHCA) Medicaid Management Information System (MMIS) is moving toward meeting Federal Medicaid Information Technology Architecture (MITA) standards. OHCA has developed specialized data systems for Breast and Cervical Cancer services and for O-EPIC, the Oklahoma Employer/Employee Partnership for Insurance Coverage, and a voluntary health insurance program for employees ineligible for other coverage or working for small companies without coverage.
- Oklahoma State Department of Health (OSDH) has developed PHOCIS, Public Health Oklahoma Client Information System, a web-based data system to inform providers and consumers about federal, state and best practice issues, *e.g.*, Individualized Family Service Plans and related services of the Sooner Start early intervention program. In addition, OSDH collects vital statistics (birth and death records) and survey data from students (Youth Risk Behavior Survey) and adults (Behavior Risk Factor Surveillance System), the results of which are made available to other agencies and the public to inform a variety of state and local prevention activities.

- The Oklahoma Department of Corrections (DOC) has a centralized database that contains records for movements of all inmates. While these data include offense information and levels of incarceration, there is no current data collected in a centralized data system regarding mental health needs or program participation. DOC does track program participation, which would include substance abuse treatment programs. Data on DOC program participation has been maintained since July 1, 2001, and contains offender identification, facility, program, starting date, termination date and type of termination. In addition, offenders' needs are entered into the Offender Management System and are used in a variety of ways to justify programs and program delivery.
- The Oklahoma Office of Juvenile Affairs (OJA) data systems main applications are the Juvenile On-Line Tracking System (JOLTS), Case Management System (CMS), HRIS (Human Resources Information System), Juvenile Electronic Management System (for institutions) and the On-line Training Enrollment System. OJA's primary focus is the integration of data within and outside OJA to streamline user data entry, while providing as much information possible to staff and contractors regarding the services and documentation on our clients.

All the state agency partners have developed performance monitoring systems that provide process and outcome indicators for program management and most have them posted on their websites.

Local Provider Data Systems. Many local provider organizations, particularly Community Mental Health Centers (CMHCs), have data systems that meet the Health Insurance Portability and Accountability Act (HIPAA) standards for electronic data collection and transmission, and some also include elements of an electronic health record (EHR). Many substance abuse treatment providers use personal computers or small networks with Internet access to state agency systems that permit on-line entry of treatment and billing data, as well as generation of reports for program monitoring and management. ODMHSAS has purchased modules of the Avatar data system from Netsmart Technologies, a software vendor that will be used by all Department-operated facilities, including hospitals, residential substance abuse programs and CMHCs. The Avatar modules provide a 'clinical workstation' (a computer workstation designed to support automated medical record keeping), and practice management (automated reminders of rules related to professional practice, reimbursement requirements, etc).

Telecommunications. ODMHSAS maintains a telecommunications network among its state-operated facilities, and is with the Oklahoma Corporation Commission to replace lines in the network to significantly increase their capacity to carry data thirty-fold. This will greatly increase the speed of communications and permit other activities, such as video conferencing (see local project, below). OKDHS also maintains a network (ONEnet) among all its state and county offices. In addition, CareerTech, the state's vocational and technical school system, has a network of studios equipped with telecommunications (including video conferencing capabilities). ODMHSAS DUI School management staff and others have begun to use this capacity to provide training and to

conduct meetings, which helps to reduce travel and non-billable, out-of-office time for administrators and clinicians statewide.

B. Strengths

Interagency Projects. Several projects have been developed that share data to improve services and reduce the data reporting burden for consumers and providers, thus making better use of limited financial and human resources. The Joint Oklahoma Information Network (JOIN) is a multi-agency project which was initiated to coordinate data projects among the state's child-serving agencies; it expanded to address adult and child and employment issues when the Oklahoma Employment Security Commission (OESC) joined the project and contributed workforce development funds. JOIN project staff is located at the Oklahoma Commission on Children and Youth (OCCY). The actual data system is housed at the Office of State Finance (OSF) and supported by staff there. JOIN has three major goals:

1. to make referral and service availability information readily accessible to providers and consumers,
2. to support the electronic transmission of referral information from agency to agency to reduce the burden of paperwork for providers and consumers, and
3. to provide a resource for interagency data analysis to support cross-agency policy analysis and program evaluation.

To achieve the first goal, JOIN has purchased information and referral software and has established agreements with the developing '2-1-1' social services information networks around the state. '2-1-1' is an information and referral telephone system that will be accessible to human service providers and consumers throughout the State. Resource information is shared and updated among the networks and JOIN, and JOIN's central database provides a back-up for the 2-1-1 systems. The second goal has not yet been addressed, but a pilot project is underway to address the third goal. Data from four agencies (OKDHS, OJA, DRS and ODMHSAS) have been matched and merged using an algorithm developed at ODMHSAS to identify people served by multiple agencies. The combined dataset will be geo-coded to census tracts and mapped with a "social disorganization indicator" which is composed of community risk factors (e.g., crime rates) and will help identify areas of high need and common interest among participating agencies. Once the pilot has demonstrated the feasibility of the project, and data-sharing agreements have been better defined, the analysis will be expanded to include other agencies' data and more longitudinal data.

Another collaborative, interagency project is the Partnership for Children's Behavioral Health (PCBH). State agencies, local treatment providers, families and other stakeholders collaborate to plan, implement, evaluate and improve services to children with serious emotional and substance use problems and their families. Sharing data is an important element of this effort. Data are collected from a variety of sources and compiled by a project data analyst and university contractor to respond to requests for results from PCBH and the national evaluation of Systems of Care.

The Adult Recovery Collaborative (ARC) partners include OHCA, ODMHSAS and OKDHS (see Chapter 5). The aim of the project is to combine management of adult outpatient behavioral health services and funding (ODMHSAS and Medicaid) and

improve the efficiency of provider billing and payment. There is a commitment on the part of both OHCA and ODMHSAS to retain the capacity to collect data on client characteristics and outcomes for all providers, consistent with the current ODMHSAS client data system. A key element of this transition will be the integration of data across the three agencies, particularly insuring that performance outcomes monitoring data collection reporting functions are maintained in the new system. ODMHSAS is receiving technical assistance from Medstat, a health data research organization, with funding from the federal Center for Mental Health Services (CMHS). Medstat staff has worked with ODMHSAS and OHCA staff (as well as CMHS and Centers for Medicare and Medicaid Services (CMS)); to provide Oklahoma with guidance for the development of 'advanced planning documents' (APDs). APDs can be used to guide design, development and implementation activities, and justify a request for matching funds from CMS for those activities which are eligible under its guidelines for reimbursement of changes to automated systems that support the administration of the Medicaid program. Several workgroups, including a Systems Workgroup and an Outcomes Workgroup, have been meeting to prepare for this system change, to be implemented July 1, 2008.

Innovative Initiatives. Four data and technology projects are paving the way for expanded use of information resources to improve the delivery, management and effectiveness of behavioral health care. At the ODMHSAS Northwest Center for Behavioral Health (NCBH), distance is a barrier to service delivery. NCBH is responsible for public behavioral health services in an area that covers about one fourth of the state. Their administrative office is in Woodward, but they have satellites as far away as Guymon (112 miles), Enid (105 miles) and Ponca City (184 miles). In the past, a person scheduled for a court hearing might have to travel back and forth between one of these satellites and the Ft. Supply inpatient unit multiple times to appear before a judge. By collaborating with criminal justice system partners and installing video conferencing equipment, NCBH has established a 'video court commitment program' which has saved local law enforcement, the courts and NCBH thousands of dollars and many hours of staff time, as well as reducing the trauma of consumers who had been forced to travel many hours in handcuffs to hearings. The program won a Governor's Commendation in 2005 and continues to expand.

In Cherokee County, a multi-agency group was awarded a grant from the federal Agency for Healthcare Research and Quality (AHRQ) to develop a regional health information organization (RHIO) that includes a state-operated behavioral health services center, an Indian Health Services hospital, a local health department and other healthcare providers. Its goal is to permit electronic data sharing among the partner agencies in order to improve the coordination of care for shared clients. It is the first project of its kind in the state; more importantly, it is one of the first projects in the nation to include behavioral healthcare providers and to address the specific data sharing concerns of people with mental and substance use disorders. The consent protocol they establish should inform the JOIN project's referral information goal, as well as move the development of other RHIOs and data sharing projects forward. The Cherokee County RHIO is also developing an information and referral system that will be coordinated with similar JOIN and regional 2-1-1 activities.

As part of their continuing collaboration efforts, ODMHSAS and the Oklahoma Department of Corrections (DOC) identified a need to better identify the mental health and substance abuse treatment needs of offenders entering the prison system, in order to ensure access to appropriate care. ODMHSAS established a web-based query system that allows staff at DOC (with the consent of the inmate) to submit personal identifying information over a secure connection to an ODMHSAS database. Once the query is received at ODMHSAS, a response is sent back indicating whether the person has received Department-funded mental health or substance abuse services. This application has been used less than expected because medication information is not yet available through the link. Nonetheless, it provides a model that ODMHSAS is proposing to use with jails around the state to help identify people who may be candidates for diversion programs, such as mental health court or drug court.

Cross-agency data linkage to better assess needs for and outcomes of care is another initiative at ODMHSAS that has reaped some benefits, but has the potential to have a much larger impact if appropriate data sharing agreements can be established. The Department's data matching efforts started with the children's services collaboration that preceded JOIN. With limited knowledge, but great interagency participation (pre-HIPAA), data from 18 programs across OSDH, OKDHS and ODMHSAS were matched and merged using a deterministic model that relies on an exact match of three individual variables (*e.g.*, gender) to show the overlap of clients across agencies, and to illustrate the geographic distribution of high-use service recipients. Since that time, the Department has used grant funding to support development of a more sophisticated probabilistic matching algorithm that accepts a wider array of identifying variables and accounts for possible coding errors and aliases. This method is the basis for the DOC query project, and is used to match data with several agencies (DOC, OSDH, OHCA, Oklahoma Tax Commission, Oklahoma State Bureau of Investigation, and Oklahoma Department of Public Safety) to collect long-term outcome information about ODMHSAS-funded service recipients. By using the algorithm to match with Medicaid data from OHCA, it also serves as an important tool to plan for, and evaluate the impact of, system changes planned by the Adult Recovery Collaborative and other interagency projects.

C. Needs and Existing Barriers

While Transformation Grant partner agencies have developed significant technological and human resources to meet the information needs of system transformation, there continue to be barriers to fully realizing the technology recommendations put forth in the report of the President's New Freedom Commission on Mental Health (PNFC) (DHHS, 2003), the Institute of Medicine report *Improving the Quality of Health Care for Mental and Substance-Use Conditions* (IOM, 2006), and other sources of guidance for developing information and technology resources that support recovery. The issues related to needs and barriers in Oklahoma's services systems can be summarized in three categories: policies, technology and stakeholders.

Technology Policies. In the vision of the PNFC report, "electronic records will enable essential medical and mental health information to be shared across the public and private

sectors," [r]imbursements will become flexible enough to allow…e-health visits" and "policies will change to support these innovative approaches."

While OHCA has recently enacted provisions of the Uniform Electronic Transaction Act to permit service recipients and providers to use electronic signatures, such uses are not widespread and have not been adopted by other partner agencies.

The IOM report recommends that providers "should establish clinically effective linkages within their own organizations and between providers….with the patient's knowledge and consent." Further, it recommended that "Federal and state governments should revise laws, regulations, and administrative practices that create barriers to the communication of information between providers of health care for mental and substance-use conditions and between those providers and providers of general care." JOIN has established an interagency agreement among its participating agencies, but the default agreement is 'no sharing' without approvals for specific uses. The pilot project described above may help motivate agencies to broaden their participation, but there has been no progress on sharing data for operational purposes, i.e., to facilitate referrals among agencies. The policies for data sharing developed by the Cherokee County RHIO project need to be closely studied and emulated, if appropriate, to advance informed consent. The IOM study further recommends implementing "policies and incentives to continually increase collaboration among these providers to achieve evidence-based screening and care of their patients."

More progress is needed toward allowing and accepting recipient electronic signatures (as is done widely with commercial purchases); consent forms need to be developed to give consumers more options for selecting who sees their information; and data systems need to be revised to automatically accept, operate on and forward consumers' choices, along with their data, as it is shared for treatment and operations.

Using information across multiple data sets by matching individual records is an important strategy for evaluating the performance of provider systems. However, privacy rules can be a barrier. The ODMHSAS data matching experience has led to the development of a protocol that has proved acceptable to privacy monitors in at least one instance—matching ODMHSAS recipient data and OSDH hospital discharge data—by having identifiers removed before any output is generated. More testing of the acceptability of this protocol with other datasets, *e.g.*, DRS and OKDHS child welfare data, needs to be pursued.

A recent SAMHSA-funded technical assistance report to Oklahoma recommended that the state "explore…the possibilities of expanding the range of services that can be provided and reimbursed through telemedicine." Policies to support testing of reimbursement for e-health visits or tele-therapy need to be established. In a state where many people live in rural or frontier areas, access to quality services is a significant barrier that technology could help address. E-health visits or tele-therapy are visits where the consumer and practitioner are in different locations, but communicate through video-conferencing which allows them to see and hear each other simultaneously. The PNFC report encourages it, many providers in other areas are beginning to use technology successfully in this way and, with proper incentives and safeguards, many Oklahoma citizens could benefit.

Technology Practices. As noted above, technology needs to catch up with developments in policy and practice. A central aim of transformation is to give consumers more access to, and more choice about, services and the release of their treatment records. For example, in Oklahoma's Transformation Grant application, it was proposed that ODMHSAS, OKDHS and OHCA "collaborate to test the utility of an ID card for authorizing transfer of referral information, scheduling of services, documentation of service delivery and other functions." Mechanisms like a personal identification card and personal health record (PHR) need to be pursued as options for improving consumers' access to care and information about their care. These mechanisms allow consumers to carry around a card which includes key information (or all information) from their medical record which can be read by an electronic system at an agency that provides medical and behavioral health services.

Another important goal of transformation is to give providers more time with consumers by reducing the burden of paperwork, while continuing to collect information needed for accurate assessment, quality improvement, and management of the service delivery system. Flexibility and security are key to meeting these goals successfully. For example, home-based services reduce the transportation burden on consumers and their families and permit accurate assessment of the home environment, among other objectives. Staff doing home visits must have information resources at hand and the ability to record events as they occur, so access to portable equipment, such as laptop computers and personal digital assistants, is essential. However, technological solutions to maintain the security of information on these devices must be identified and monitored to ensure that consumers' trust in the system is justified. This requires continual updating of security software and staff training regarding security procedures.

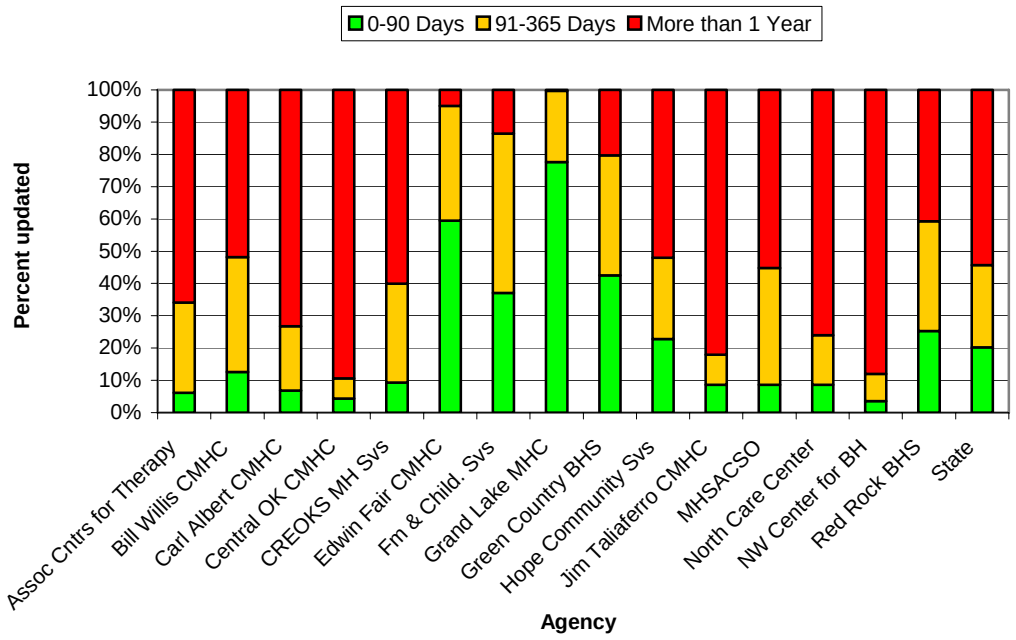
Child-serving agencies report frustration because health information is fragmented and not transportable among the multiple systems that serve children and their families. Recommendations from national reports regarding the need for policies and mechanisms to more easily share information have been noted; service providers, like consumers, need more access to technology and the information it can provide.

Many of the goals of transformation could be facilitated by the adoption of an electronic health record (EHR). The IOM study recommends "Federal and state governments, public-sector, and private-sector purchasers of [mental and substance-use] health care, and private foundations should encourage the widespread adoption of electronic health records, computer-based clinical decision-support systems, computerized provider order entry, and other forms of information technology." ODMHSAS contracts with community mental health centers establish a target date of July 1, 2008 for centers to have an electronic health information system operational. While ODMHSAS is implementing a data system for its state-operated providers that has elements of an electronic health record (the clinical workstation mentioned earlier), and CMS has announced plans to support the development of an EHR, there has been no system-wide adoption of EHR; indeed, national standards for behavioral health elements of an EHR have yet to be adopted. ODMHSAS is also implementing a pharmacy management system that will permit better monitoring of prescribing practices and patterns. Presently there is no state-wide pharmacy data system to ensure that physicians are prescribing properly, consumers are not 'shopping' for medications, and medication costs are being managed. A statewide solution to these issues needs to be identified.

Consumer Use of System Information. There are at least four stakeholder groups that have technology and information needs, and face a variety of barriers to meeting those needs: consumers, providers, state agencies, and others. Consumers need information about the location of services, the quality of services, and about their own service history. The information and referral functions being developed around the state, both on-line and phone- accessible are helping to address service location information needs. Agencies are also beginning to publish more quality indicator data, but the extent to which consumers use this information is unknown. More needs to be done to share such information and to provide toolkits or training on how to use the information to make choices among providers. Information about one's own service history, treatment scheduling, medications, etc., may be addressed by implementation of a statewide pharmacy system and PHR or 'smart card' carrying such information. However, consumers will still need training in the effective use of the information before access to the technology will make a difference in the way people manage their lives.

Data Quality. Despite having a data system built on national standards, and offering training and support for its use, the quality of some of the system's information is low. A recent ODMHSAS performance improvement report (see Exhibit 16.1) shows that data elements necessary for monitoring changes in consumers' functioning are not being updated in the existing data system. Statewide, only 20 percent of elements were updated within 90 days, and more than 50 percent were not updated annually. There is a need for a different kind of training that focuses on how to use data for performance improvement and program management, rather than just defining data to be entered.

Exhibit 16.1. Length of Time Since Last Updated ODMHSAS Client Data Core
Quarter 4 FY04 to Quarter 3 FY03



State agency staff. State agency staff needs more training in the effective use of technology and information for planning, monitoring implementation of changes, and evaluating the impact of system changes. At ODMHSAS, a new Systems Process Coordinator position may help identify opportunities for such interventions.

Other Stakeholders. A variety of reports and tools to generate reports have been developed by individual partner agencies to meet the demands of other stakeholders, including legislators, researchers and the general public. Little work has been done to share technology and methods of organizing and presenting data to meet these needs. Some planning under the Adult Recovery Collaborative and other initiatives has been done, but more collaboration and cooperation could conserve resources and provide more consistent information for these users. For example, the link with DOC to support staff queries and improve treatment for people in prison with mental and substance use disorders could be expanded to support the Medicaid eligibility project these two agencies and other partners are collaborating to implement. As noted earlier, DOC currently has little automated mental health information that would support Medicaid eligibility determination. The current link between the two agencies could be expanded to, not only allow queries, but also permit DOC staff to enter mental health-related assessment and treatment information that could facilitate their work with people while in prison and help the interagency efforts to provide resources after their release that will support their successful transition back to the community and reduce recidivism. Other potential sources of collaboration include OSDH county profile data, Census data, ODMHSAS county data and similar data from OHCA, OKDHS, and other agencies.

References:

DHHS (2003). New Freedom Commission on Mental Health, *Achieving the Promise: Transforming Mental Health Care in America. Final Report*. DHHS Pub. No. SMA-03-3832. Rockville, MD.

IOM (2006). *Improving the Quality of Health Care for Mental and Substance-Use Conditions.* Institute of Medicine of the National Academies, The National Academies Press, Washington, D.C.