California HealthCare Foundation

Behavioral Health IT:
Toward Seamless Care for California's Kids

March 2009

Behavioral Health IT:
Toward Seamless Care for California's Kids

Prepared for
California HealthCare Foundation

by
Thomas C. Tinstman, M.D.
Steven DeMello
Health Technology Center

March 2009

About the Authors

Thomas Tinstman is a senior adviser, and Steven DeMello is executive director and a senior adviser, at the **Health Technology Center,** a nonprofit research organization and network of experts in San Francisco that specializes in innovations and technologies in health care.

About the Foundation

The **California HealthCare Foundation** is an independent philanthropy committed to improving the way health care is delivered and financed in California. By promoting innovations in care and broader access to information, our goal is to ensure that all Californians can get the care they need, when they need it, at a price they can afford. For more information, visit www.chcf.org.

Contents

I. Executive Summary

A COMPLEX NETWORK OF PUBLIC AND private entities fund and deliver behavioral health care in California. As in many other states, the network is characterized by fragmentation and poor coordination of services, due in part to reliance on paper records. Information systems tailored specifically to behavioral health care could improve the efficiency and effectiveness of these services in a number of ways.

California's 58 counties, with guidance and funding from the state, are implementing a variety of behavioral health information technologies. To get a sense of progress to date and major hurdles, the authors — who focused on care for children and adolescents, given their diverse demographics and needs — reviewed state data and the literature, and interviewed numerous experts. They found that each county is following an independent path toward adoption, that most are implementing a basic electronic health record, and that the lengthy process entails many difficult challenges, some of which are unique to behavioral health care. However, this effort also presents many opportunities — among them, to standardize data and terminologies, build county collaboration, adopt consumer-centric information technologies, establish privacy and security policies, develop outcomes measures, set reporting standards, and share knowledge.

II. Introduction

About one-third of the nearly 660,000 California residents who received mental health care from counties in fiscal 2005–06 were children and adolescents.[1] State agencies that fund mental health services for this population, and counties that provide them, are in the early stages of a monumental task: implementing county-level information systems that will link behavioral health care records produced by a multitude of public and private agencies and organizations. Given that mental health services are highly fragmented, the goal is to improve access to them, enhance care coordination and continuity, make evidence-based care easier to deliver, enable outcomes measurement, and manage costs.

This report examines the current status, challenges, and opportunities for behavioral health information systems, particularly electronic health records (EHRs) and personal health records (PHRs), that support government-sponsored mental health services for children and adolescents in California.[2,3] It focuses on children and adolescents because they are the most diverse segment of the mental health care population. That diversity, the variety of health services children and adolescents receive, and related issues arising from a separate but parallel justice system, make information management an especially complex undertaking.

The authors reviewed state data and the literature, and interviewed numerous experts (Appendix A), to better understand the evolution of behavioral health information systems in California, implementation progress at the county level, and the related challenges and opportunities.

III. Background

Behavioral health care in California is highly decentralized. Under state mandate, the 58 counties are responsible for, and have a great deal of autonomy in, delivering services. Each renders services through a Health and Human Services Agency. Some counties combine mental health services and alcohol and drug programs in one behavioral health agency, while others have separate agencies. The state is responsible for oversight, Medi-Cal reimbursement, and funding from other sources. Mental health services covered by Medi-Cal include hospitalization and institutional treatment, rehabilitation services, targeted case management, medication management, and services provided by psychiatrists, psychologists, and licensed clinical social workers.

Figure 1 illustrates the complex web of government entities, subdivisions, and providers at the state and county levels that interact and play a role. They include mental health providers, social service and foster care agencies, schools, alcohol and drug programs, and juvenile justice courts. All are struggling with three critical needs:

- To shift from paper records to electronic records to deliver and document services, document consumers' complete care history, and receive payment;
- To link records across service providers to track and coordinate care;
- To leverage special computer applications, such as decision-support tools and data analysis software, to make behavioral health services more effective and avoid waste, duplication, and errors.

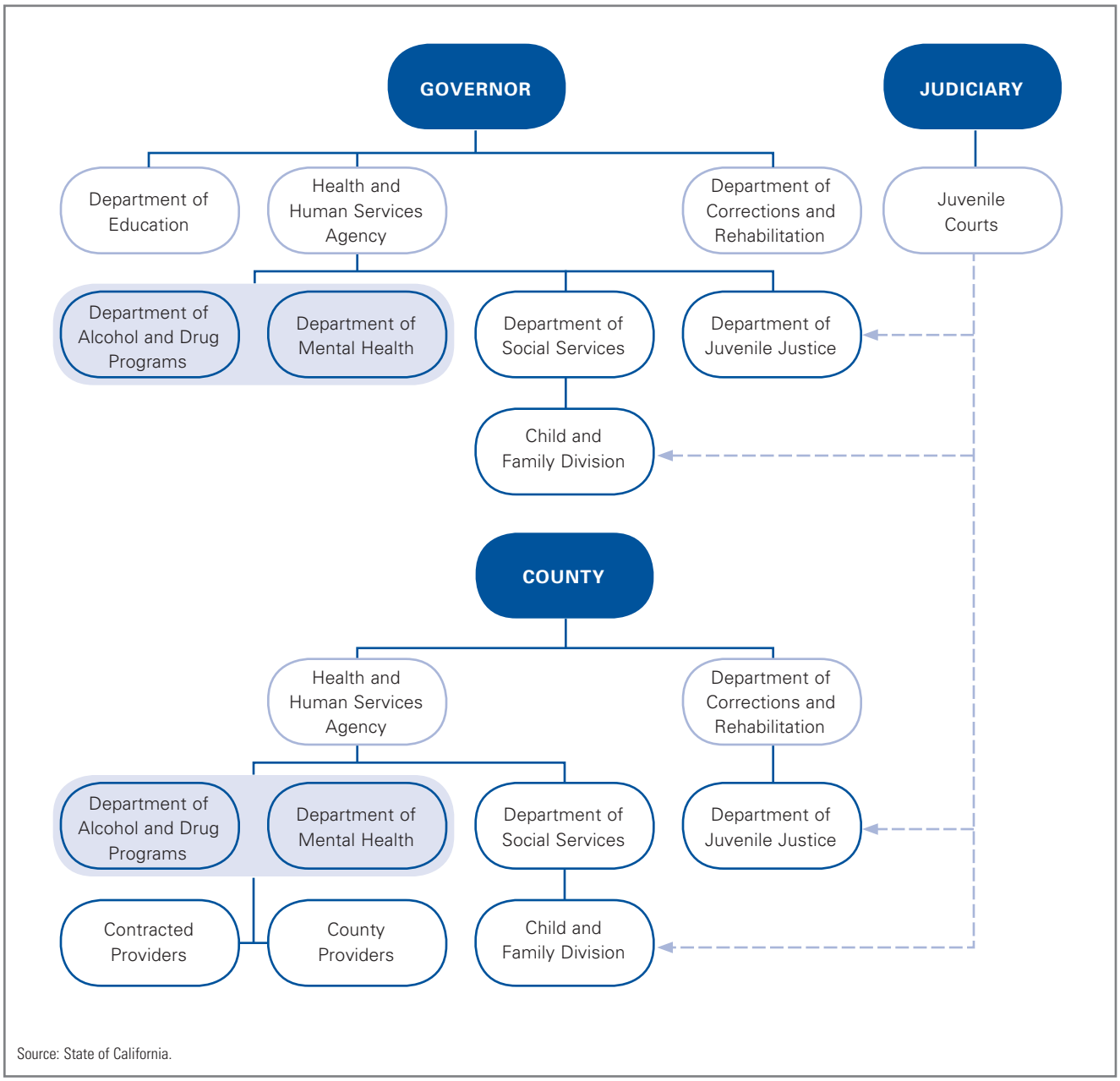
Counties are charged with meeting the mental health needs of their residents by developing and coordinating comprehensive programs. There are three basic delivery models: Counties administer clinics and programs themselves, they contract with service providers, or they combine these two approaches — the most common strategy. In the dual model, the way that a county divides service responsibilities depends on its administrative philosophy and the availability of private contractors.

Behavioral health services for children and adolescents pose unique challenges:

- The services they need are identified by others, typically parents or schools;
- A third party — a parent, a guardian, or the state — decides if care is necessary and which services are appropriate;
- The family and school have important roles in assembling a care plan, and must be included in related communications;
- The child or adolescent, parents, school staff, and service providers all monitor the care plan;
- Privacy is particularly complex from a legal standpoint, given the number of decisionmakers and persons employed by others who may have access to confidential information.

Government agencies, providers, payers, and consumers have both unique and common information needs regarding behavioral health care. But coordinating all of these entities and their functions can be very difficult, partly because paper records are scattered and often not readily accessible

Figure 1. Behavioral Health Care in California



Source: State of California.

as consumers move from one point of service to another.

Information Systems for Behavioral Health Care

Behavioral health information systems are "technologies that utilize user-centered design principles and interactive capabilities to facilitate information sharing and to empower children and families…. Active patients lead to improved outcomes and reduced costs."[4]

These systems could enhance service delivery by automating the process and integrating consumer data with knowledge about evidence-based care

so that everyone in the care network has access to important information when and where they need it. There are potential benefits for all stakeholders. Consumers would benefit from better service and improved continuity and quality of care. Providers could offer more efficient and effective care and have a greater ability to measure quality and collect reimbursement. Payers would benefit from having clear and complete claims. Finally, population managers, including public health officials, would have access to more accurate and timely aggregate health information.

Automation involves using an electronic health record, practice management system, or other technology to collect, process, and store information about a consumer during each step of behavioral care. At a minimum, this information should include the time, date, and location of service and relevant clinical data regarding diagnoses or interventions. The electronic information is then available during subsequent encounters at other locations to render additional services, and also available for purposes of billing, managing services, planning, and policymaking. Data must be processed and stored in a way that enables different types of users to view subsets of data related to each of these activities.

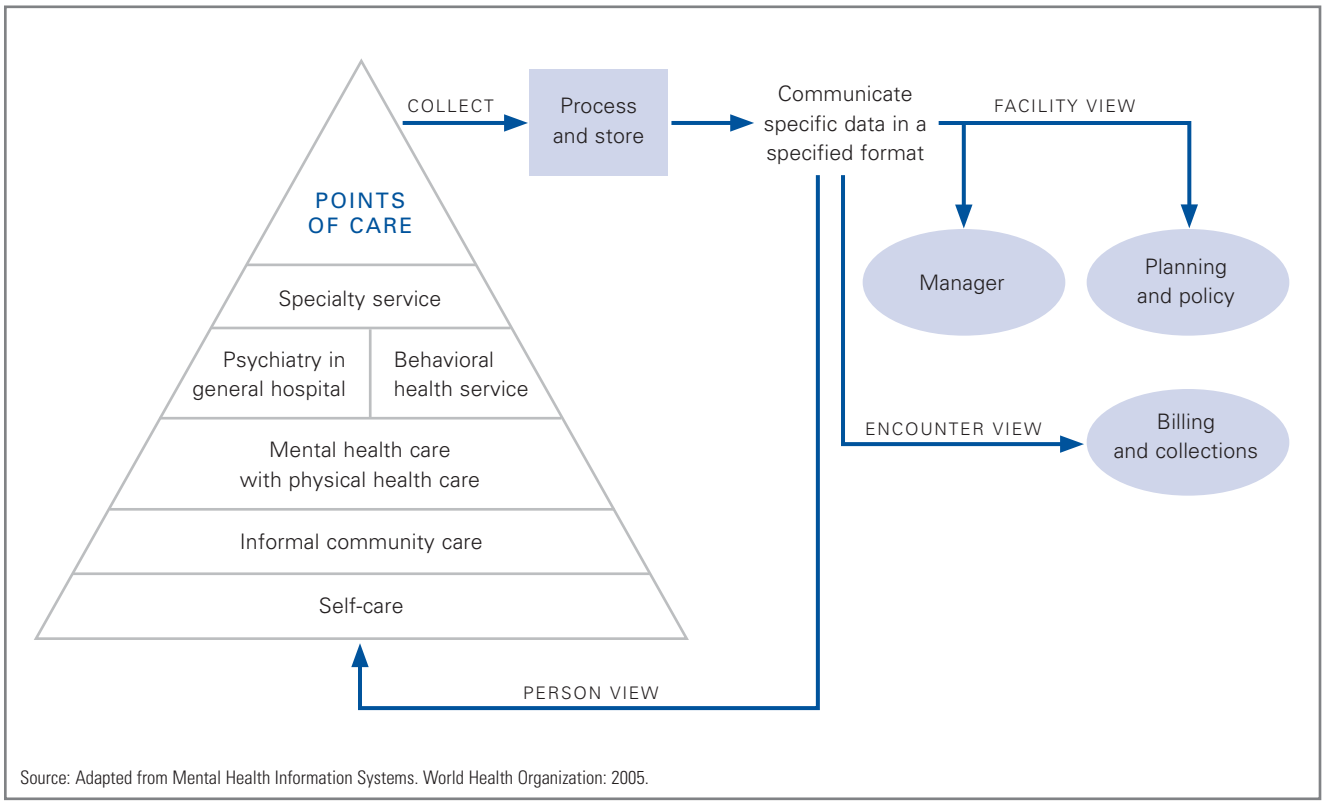
For example, those who provide services to individuals must have a consumer-centered view of the data. They need to see the consumer's history, update his or her record, create a new care plan, and submit orders and requests. Good continuity of care dictates that records be accessible for any type of service and at all service locations. To perform billing, other users must have an encounter-centered view. They need to attach any necessary documentation and manage the account between claims submission and payment. To manage services, some users must have a service- or facility-centered view of the data so they can improve services, ensure quality, and reduce costs. Planners and policymakers want a system-centered view, one perhaps defined by the organization's scope or by county or state boundaries. Their focus is likely to be service access, outcomes, epidemiology, or efficiency.

Good continuity of behavioral health care means stakeholders have access to consumers' history and can create and modify care plans. Statewide, there are a variety of ways to achieve this technologically. One is to implement a master information system that incorporates all the points of service. Another is to implement multiple but identical systems at all service locations, enabling information exchange; when agencies are done with shared files, they return them to the home system. A third option is to develop interoperability standards so different types of information systems are compatible and can share information. A fourth alternative is PHRs, a consumer-centric solution. The consumer — and anyone whom he or she designates — can access this record online and view or add information.

A related continuity issue is whether the information system should be interfaced or integrated with systems that clinicians use to provide physical health care. The World Health Organization (WHO) and the United Kingdom — which has more experience with electronic records for behavioral health than the United States and also is more advanced than the United States in terms of mental health services — recommend integration.[5] At a minimum, there should be a continuity-of-care record accessible to both clinicians and behavioral health care providers that includes the consumer's history, problem, medication lists, and allergies (to reduce the risk of adverse drug events).

The WHO has developed a general model of a behavioral health information system (Figure 2). The model illustrates the various types of services (from least-common specialty services at the top of the

Figure 2. A Behavioral Health Information System Model



Source: Adapted from Mental Health Information Systems. World Health Organization: 2005.

pyramid to most-common self-care at the bottom), where they are delivered, and the types of data views that facilitate behavioral health care.

Behavioral vs. Clinical Systems

There are similarities and differences between EHRs in the clinical and behavioral arenas. Major functions such as registration, scheduling, documentation, ordering, and billing are the same, but the systems use different vocabularies—"patient" versus "consumer," for example—and diagnostic terminologies. In addition, there is much more descriptive text in behavioral health care regarding assessments and interventions, and such care entails fewer laboratory tests, imaging studies, and prescriptions.

Based on lessons learned from the adoption of EHRs for clinical health care (see box on next page), behavioral health information systems should collect, at the point of service, all data necessary for care and for billing, service management, planning, policymaking, and other tasks. If there are unique data requirements related to payments and/or reports for state and federal agencies, they must be identified before design and implementation. These data become the key elements for all electronic transactions. Establishing and managing them over time is a major challenge; those that billing staff, planners, and policymakers focus on may offer little or no value in terms of service delivery. Therefore, behavioral health information systems must include a governance structure—one or more authoritative persons who take into account the interests of all parties in creating and maintaining the data elements.

Lessons Learned from Clinical Information Systems

In recent decades, information systems for delivering physical health care have evolved from architectures focused on accounting, billing, registration, scheduling, and other provider-centric tasks to architectures that are more patient-centric.

Unlike legacy systems, electronic health records (EHRs) capture patient data beginning at the point of care and, in some cases, enable patients to view or add information. EHRs and other technologies, such as personal health records, Web portals, and doctor-patient email, engage patients in their care.

There are important lessons from the evolution of clinical information systems for the design, implementation, and operation of behavioral information systems.

The design should:

- Be customer-focused;
- Include transparent data definitions so everyone understands them;
- Support standardized, systematically organized medical terminologies that computers can process;
- Track workflow beginning at the point of service;
- Enable configurations to support role-based work;
- Reuse data from the point of service for billing and retrospective reporting for management, planning, and policymaking;
- Have an intuitive user interface.

Implementation should:

- Rely on skilled and experienced project managers;
- Begin at the point of service and work toward billing and reporting;
- Enable workers to configure the system and redesign workflow based on their needs;
- Include training based on knowledge about how adults learn;
- Include technical and educational support—and perhaps allow for a larger workforce or smaller caseloads—during the inefficient start-up phase.

Operations should include:

- Unique identifiers for clients, individual service providers, and facilities;
- Adequate "help desk" support;
- Software support, content maintenance, and retrospective reporting based on data.

Sources: The authors and Stead, W.W., Lin, H.S. (eds). *Computational Technology for Effective Health Care: Immediate Steps and Strategic Directions.* Washington, D.C.: National Academies Press, 2009.

Impetus for IT Adoption

Several factors are driving the adoption of information systems in both behavioral and clinical health care. First, consumers, lawmakers, payers, and coalitions such as the National Alliance on Mental Illness are demanding better care at lower cost. The deteriorating economic climate could spur such demands and, given the rise in unemployment, place a greater burden on government-sponsored behavioral health care services. Second, the Centers for Medicare & Medicaid Services is rapidly moving to require that hospitals report clinical outcomes, not just demographic and billing data, to assess the value of the care they provide.[6] EHRs can efficiently capture the kind of data that enable outcomes measurement. It is reasonable to expect that this

value-based approach will ultimately migrate to other areas of federally sponsored health care, including behavioral health.

In addition to these drivers, impetus for behavioral health technology in California is coming from two major sources: the Mental Health Services Act (MHSA) and the California Behavioral Systems Coalition Project.

Mental Health Services Act

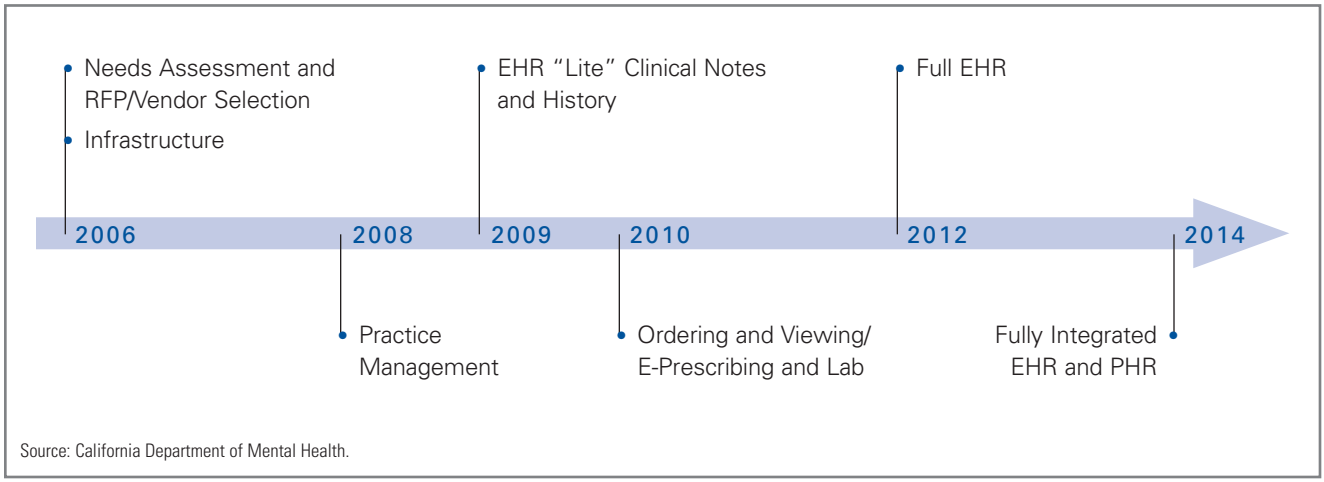
The MHSA (Proposition 63), which state voters approved in November 2004, directs the California Department of Mental Health to "look beyond 'business as usual' to help build a system [in which] access will be easier, services are more effective, out-of-home and institutional care are reduced, and stigma toward those with severe mental illness or serious emotional disturbance no longer exists."[7] The law imposed a 1 percent tax on Californians earning more than $1 million a year to pay for improvements in six general areas: capital facilities and technology, community planning, community services and support, prevention and early intervention, innovative programs, and workforce education and training.[8] By the end of fiscal 2007–08, the tax had generated more than $4.1 billion, nearly $2 billion of which has been distributed. It will yield an estimated $1 billion in 2008–09.[9]

The information technology (IT) portion of the MHSA seeks to:

- Empower consumers and families by giving them tools to securely access health information in "a wide variety of public and private settings";
- "Modernize and transform clinical and administrative information systems to improve quality of care, operational efficiency, and cost-effectiveness"; and
- Develop an integrated information systems infrastructure that enables all counties to access and exchange information securely.[10,11]

Building on the MHSA, the state Department of Mental Health established an eight-year technological roadmap for counties that has been guiding them from needs assessment and vendor selection in 2006 to adoption of EHRs integrated with personal health records by 2014 (Figure 3).[12] The law includes substantial funding specifically for information systems within the capital facilities and technology category: 10 percent of total revenues in each of the fiscal years 2005–06, 2006–07, and 2007–08.[13]

Figure 3. California's Behavioral Health Information System Roadmap



Source: California Department of Mental Health.

To help counties that had not already selected a vendor, the Department of Mental Health developed a request for proposals based on MHSA guidelines (Appendix B).

California Behavioral Systems Coalition Project

This project, which began in early 2003 and informally concluded in the spring of 2008, was a joint endeavor by 27 counties to replace legacy information systems primarily designed for practice management and reporting in behavioral health care. Many of these systems are more than 20 years old and comprise outdated hardware and software. Each of 11 large counties designated a project representative, and 16 small counties, working as a single entity, designated one representative. Through collaboration, participating counties sought to reduce the cost of identifying and evaluating information system vendors nationwide and enable individual counties to efficiently select the most suitable system for their needs.[14]

As originally envisioned, the project was to encompass three phases: requests for information and proposals from vendors, product selection, and collaboration on implementation.[15] The coalition completed the first two phases; it may not embark on the third because some counties, as early adopters, are already completing implementation and some are focusing instead on other, non-technological initiatives related to the MHSA.

IV. Findings

Although there is a wide range of published articles on behavioral health care and on information systems, very few address behavioral health information systems specifically. However, numerous articles cite the disarray in U.S. mental health services generally—challenges that information systems could potentially help overcome. A 2008 report by an American Psychological Association task force noted that:

> The most salient characteristic of the children's mental health system is, unfortunately, its fragmentation and lack of coordination of services. In addition to creating considerable burden on families, it is inefficient for states, providers, and systems and destructive to the shared goal of service integration. At least six separate sectors or administrative structures constitute the "system" serving children with psychological problems: the mental health sector; education; child welfare, including foster care and adoptive services; substance abuse; general health; and juvenile justice. These sectors themselves are asymmetrical, in that each offers a range of programs with varying levels of restrictiveness and no consistent standards for access or discharge, and sometimes parallel, in that services offered in one sector are not coordinated with services in another sector.[16]

California is not moving toward a single statewide IT system; rather, each county is taking an independent path in following the state's roadmap to adoption. Furthermore, none of the counties is implementing a behavioral health information system that, aside from some billing tasks, will integrate with clinical systems (the Department of Mental Health did not require this as a condition for funding under the MHSA). Nor are counties implementing solutions that would be interoperable with behavioral health care systems outside their own jurisdictions.

According to the Department of Mental Health, as of mid-2008:

- 69 percent of California's 58 counties had selected a vendor for an EHR or practice management system;
- 80 percent of those that had selected a vendor chose one of two companies, Netsmart or Anasazi Software. The remainder selected another vendor;
- 68 percent of counties with a selected vendor will implement an EHR "lite," a basic electronic record that includes assessment and treatment plans, clinical notes, and document images;
- 20 percent were implementing a Web-based practice management system that will enable electronic billing (for transactions with both private contractors and the state) and scheduling;
- Among those with a selected vendor, 13 percent had not begun implementation;
- No counties have progressed to electronic ordering and viewing of laboratory tests and results or to e-prescribing. Few are pursuing a full EHR or an EHR fully integrated with a PHR.[17]

Because the vast majority of counties have chosen information systems from Netsmart or Anasazi and all are in the early stages of selection or implementation, this would be a good time to

create standards regarding data, identifiers for each participant in behavioral health care, outcomes measurement, and reporting. Such standards would make it easier for counties to share consumers' core information. For the counties that have not yet selected a product, the state could limit their choice to either Netsmart or Anasazi and thereby foster more uniform adoption.

Challenges and Opportunities

Interviews with mental health and IT staff at the county and state level in California and elsewhere revealed numerous challenges (see box) that are impeding the adoption of behavioral health information systems. However, lessons learned from the implementation of EHRs in clinical settings, the author's own research, and advice from interviewees suggested that there are opportunities to overcome some of these challenges.

Challenges for Behavioral Health IT

- Little evidence that EHRs improve outcomes
- Resource limitations in small counties
- Scattered records
- Uncoordinated behavioral health and related services
- Fragmentation of service delivery (by one or more counties, contractors, or both)
- No unique identifiers for consumers and service providers/locations
- Absence of standards for data, data sets, messaging, terminologies, reporting, PHRs
- Pressure to adopt business-oriented rather than care- and consumer-oriented IT
- No consensus on privacy/security policies and confusion about HIPAA requirements
- No standard outcomes measures
- Unique but sometimes overlapping data requirements by payers and government agencies
- Workforce resistance
- Initial decline in productivity during adoption
- Poor knowledge sharing among counties

Resource Limitations in Small Counties

Challenge. The population of individual California counties ranges from a few thousand to millions. Small counties are at a disadvantage in adopting innovative behavioral health information systems because they have limited funding and resources. One particularly daunting challenge is recruiting and retaining qualified staff to implement and operate such a system.

Opportunity. If small counties collaborate, they may be able to achieve an economy of scale that would make purchasing, implementing, and operating a behavioral health information system more feasible. For example, New Mexico's 33 counties are all participating in one of 15 local collaborations that span government boundaries.[18]

Scattered Records

Challenge. Appropriate and secure stewardship of mental health records is challenging because many counties deliver mental health services both directly and, through contractors, indirectly. Access to consumers' entire history at the point of service is essential. Traditionally, a consumer's record has been kept at the most common point of service, such as a general care clinic, a specialty care clinic, or some other service location. This decentralization means the record may not be readily accessible to others who need it.

Opportunity. Information systems enable ubiquitous access to records. If individual counties or county collaborations were to centralize their systems, and if the state required this, it would further ensure better continuity of behavioral health services. Alternatives include a federation of decentralized electronic tools (a model that Kaiser Permanente has instituted in the clinical arena), a centralized continuing care record

only, or personal health records. Apparently, no behavioral health care providers in the United States have adopted any of these alternatives.

Poor Coordination of Services

Challenge. The California Department of Mental Health and many counties have separate departments for mental health services and alcohol and drug programs. A significant number of people receiving alcohol and drug services also need mental health services, but the separation of these entities makes it difficult to coordinate treatment at the two points of care.

Opportunity. Behavioral health information systems would make it easier to coordinate both types of treatment.

Different Delivery Models

Challenge. The delivery of behavioral health care by counties, contractors they designate, or both creates inefficiencies, as they typically have different information systems. If a county requires that contractors use its system, as Kern and San Diego counties do, contractors may have to double-enter information—first into their own system and then into the county's. But this arrangement also is more likely to yield better results than one in which the county lets contractors manage information among their multiple service points. The situation is even more complicated when contractors work with multiple counties, which can inhibit access to services, scheduling, and continuity of care.

Opportunity. Behavioral health information systems offer an opportunity to improve access, scheduling, and care continuity, and to simplify operations within counties. If appropriately designed, the system would collect consumer data at one time and point of service for re-use in billing, reporting to state and federal agencies, and other administrative processes.

Non-Uniform Identifiers

Challenge. Correct identification of consumers, families, and service providers and locations is critical for maintaining accurate records. Entities in the behavioral health network use names, numbers, or other disparate means of identification. Meaningful information sharing will be hampered in the absence of standard unique identifiers.

Opportunity. A universal identification system, preferably at the state level, would be best. It would improve the accuracy of records, billing, and reporting. At the very least, individual counties need standard unique identifiers within their jurisdictions.

No Technological Standards

Challenge. There are currently no requirements for technological standards related to messaging, data definitions, essential data elements, or terminologies, which makes it difficult to implement and operate behavioral health information systems. When the state sought information from technology vendors about their products, the requests did not specify compatibility with any particular messaging protocol, such as Health Level 7, the most common one. Information systems that do not support the same protocol will not be compatible and, after implementation, will require a substantial investment to make them interoperable. Likewise, a lack of standard terminologies will make electronic communications and data reconciliation among systems difficult and increase the amount of information processing necessary for reporting to outside agencies.

Opportunity. Many counties in California are in the early stages of selecting and implementing a behavioral health information system. Because adopting standards is easier on the front end than the back end, there is an opportunity for effective system configuration that will ultimately benefit both consumers and service providers.

Business Pressures

Challenge. Business-oriented practice management, including billing, collections, and other administrative tasks, is key for service providers. Indeed, as Figure 3 illustrates, the Department of Mental Health's roadmap considers adoption of an electronic practice management system to be a relatively early goal. Counties might be tempted to push this organization-centric rather than consumer-centric function to include reporting about services rendered. However, experience in the design and implementation of clinical EHRs has shown that this approach is more likely to spur resistance among EHR users and to reduce efficiency at the point of care.

Opportunity. The point of service is where care begins. It also frames the overall quality of care. Consumer data collected there is typically sufficient for billing, reporting, and all other administrative purposes; if they are not sufficient, the data requirements may be inadequate. Knowledge gained from clinical EHRs could guide the state in encouraging counties to adopt information systems that focus first on the point of service. In this design, standardized data definitions, data elements, and terminologies make subsequent administrative tasks easier.

Security and Privacy Issues

Challenge. Concerns about how best to manage security and privacy in the electronic era are common. This is especially true in behavioral health care because of the sensitive nature of information. Confusion about how the Health Insurance Portability and Accountability Act applies only adds to service providers' anxiety. Together, these factors and aversion to political risk lead to overly restrictive county policies governing information sharing, which in turn compromise continuity of care.

Opportunity. California could take a leadership role in bringing together state and national authorities to establish guidelines that would help county managers create legal and effective security and privacy policies oriented to high-quality services. Enforceable, accountability-based security and privacy techniques, such as electronic logs that automatically track who is accessing information, are generally better than access restrictions.

No Outcomes Measures

Challenge. Standardized measures for assessing behavioral health outcomes do not currently exist. Some states, but not California, have made minimal progress in this regard.

Opportunity. Behavioral health information systems can facilitate outcomes measurement by collecting data at the point of service; there is no need to later abstract data from records. But this is possible only if the state were to require counties to assess specified diagnoses at certain times during an episode of care using validated instruments. In addition, counties would have to agree to apply standardized terminologies to all clinical concepts in each instrument, and to reduce the variation in the types of instruments that service providers use.

No Reporting Standards

Challenge. Service providers juggle a variety of different data standards and definitions when they communicate with each other, interact with payers, and report to county, state, and federal agencies such as Medi-Cal and Medicare, each of which requests overlapping but unique data sets. Government agencies do not coordinate their efforts or consider the impact that their reporting requirements have on service providers, including the complexity of data abstraction. They also change the requirements without giving providers ample time to adjust. A lack of reporting standards means providers must gather as much data as possible, some of it superfluous, at the point of service. These factors will make the design of electronic interfaces more complex and, in turn, reduce service efficiency and increase workforce resistance to behavioral health IT.

Opportunity. The state could establish one department to serve as a gatekeeper and clearinghouse for all reports that county-level service providers must submit. A state gatekeeper could specify which data must be reported, and all reports to any state agency would derive from this information. A proof of benefit would have to accompany any state request for data or any request for a report deviating from the specified data elements. According to interviewees, counties would need at least 18 months to change the core data elements.

No PHR Requirements

Challenge. Integrating personal health records with behavioral health information systems will be difficult in the absence of PHR standards. Until issues related to data ownership and record stewardship are resolved, service providers will be reluctant to share personal information with PHRs hosted by third parties. The lack of consensus on privacy policies regarding behavioral health information about children and adolescents relates to PHRs as well as other electronic tools.

Opportunity. The state and other stakeholders could work cooperatively to set data standards and requirements for information ownership and stewardship in a way that fosters adoption of a wide array of PHR platforms.

No Knowledge Sharing

Challenge. Counties in the forefront of adopting behavioral health information technology do not have the time or staff to capture, document, and distribute the lessons they have learned—knowledge that could be of value to other counties in earlier stages of adoption. Nor, apparently, are there any resources to help counties implement such technology at the point of service.

Opportunity. The state could provide technological expertise, equipment, and additional funding to help counties meet their IT goal. It could synthesize lessons learned from leading-edge counties and make the information available to others through online instruction and electronic libraries.

V. Conclusion

Behavioral health care for children and adolescents in California, as in many other states, faces many serious short-term challenges, among them greater demand for services, more complex health conditions and treatments, and less funding. California's evolution as a decentralized network of mostly county services fosters locally appropriate solutions, but it also increases the complexity and fragmentation of care. Various structural and legal issues exacerbate the situation.

Many experts have hailed information technology as an important element in transforming health care generally and mental health care in particular. EHRs, Web-based practice management systems, PHRs, and other electronic tools geared to behavioral health could improve the efficiency, coordination, and continuity of care, as the adoption of EHRs in various clinical settings has demonstrated.

California has played a prominent role among states in advancing the use of behavioral health IT, partly due to funding available under the Mental Health Services Act for critical infrastructure and partly to collaboration by counties in the California Behavioral Health Coalition. However, the trajectory of progress to date suggests that implementing multiple, heterogeneous solutions may fall short of leveraging the full potential of technology to improve the quality of care and streamline service delivery.

Some of the challenges that the state and counties face also present opportunities to maximize the clinical and administrative benefits of IT investments and the impact they have on communities. Although a collaborative, standards-based approach to IT adoption, rather than a county-by-county approach without statewide standards, would add complexity and cost to the task, it would make successful initial deployment—and continuous improvement over time—significantly more likely. Importantly, this strategy could also put in place the infrastructure necessary to assess consumer needs and the performance of behavioral health care providers statewide. Such information would support planning for improved child and adolescent services.

Appendix A: Interviewees

Nina Antoniotti, R.N., Ph.D.
Director
Marshfield Telehealth Clinic
Marshfield, Wisconsin

John Bain
Chief information officer
Carlsbad Mental Health Center
Carlsbad, New Mexico

Angelica Bernstein
Account executive
Anasazi Software
Phoenix, Arizona

Janet Biblin, M.P.P., M.P.H.
Decision support manager
Alameda County Health Care Services Agency
San Leandro, California

Alex Briscoe
Assistant director
Alameda County Health Care Services Agency
San Leandro, California

Bruce Bronzan
Chief executive officer
Trilogy Integrated Resources
San Rafael, California

Noel Clark
Chief executive officer
Carlsbad Mental Health Center
Carlsbad, New Mexico

Mike Gorodezky, M.S.W., Ph.D.
Consultant
BHIS Consulting
Santa Barbara, California

Len Gray
Project manager
Sacramento County Information Technology Services
Sacramento, California

Tracy Herbert
Program manager for research, evaluation, and performance outcomes
Sacramento County Division of Mental Health
Sacramento, California

David Kears
Director
Alameda County Health Care Services Agency
San Leandro, California

J.D. Kleinke
Chairman and chief executive officer
Omnimedix Institute
Portland, Oregon

Stephen Mayberg, Ph.D.
Director
California Department of Mental Health
Sacramento, California

Mark Refowitz
Director
Orange County Department of Mental Health
Santa Ana, California
President
California Mental Health Directors Association
Sacramento, California

Rusty Selix, J.D.
Executive director
California Mental Health Association
Sacramento, California
Executive director
California Council of Community Mental Health Associates
Sacramento, California

Henry Tarke, L.C.S.W.
Assistant deputy director
San Diego County Department of Mental Health
San Diego, California

Kacey Vencill
Business analyst
Sacramento County Information Technology Services
Sacramento, California

Dan Walters
Manager, technical services
Kern County Department of Mental Health
Bakersfield, California

Appendix B: Specifications for IT Vendors

In September 2008, the California Department of Mental Health released functional requirements that vendors' information systems should meet when counties seek proposals. There were three sets of requirements—for consumer and family empowerment, modernization and transformation, and functional needs.

REQUIREMENTS		
CONSUMER/FAMILY EMPOWERMENT	MODERNIZATION AND TRANSFORMATION	FUNCTIONAL NEEDS
Provide accurate and current information about a consumer's mental health history to the service provider, the consumer, and the family, when appropriate.	Enable review of treatment and recovery information in a standardized format, allowing the development of decision-support tools for measuring quality indicators (based on national, state, and county standards) to improve care.	Infrastructure
Promote consumer/family awareness and empowerment by emphasizing education and preventive care, and by providing an interface for exchanging data with a personal health record.	Enable more efficient communications with consumers/families and service producers by reducing the time spent on common administrative procedures.	Practice management
Ensure access to mental health information that enables consumers to be informed and make sensible choices in the mental health system.	Enable integrated outcomes measurements that assess services and their cost-effectiveness.	Clinical data
Promote informed, collaborative decision-making processes for consumers/families and service providers.	Enable collaborative decision-making with consumers/families and service providers in all aspects of the mental health system.	Computerized physician order entry
Help service providers record and monitor consumer needs and provide a way to report utilized treatments so the data can be used to improve service quality and recovery.	Automate core business functions—billing/claims, assessments, workflow, etc.	Full EHR
Enable consumers to securely view and enter comments or data in their records, and to share their journey with a designated family member, friend, and service provider.	Aid decision-making by providing access to health record information where and when users need it and by incorporating evidence-based decision support.	Full EHR and PHR
Provide complete and accurate health information that is crucial in reducing medical errors.	Give service providers secure, real-time access to accurate, consumer-centric clinical information that can be communicated via interoperable behavioral and medical health information systems using standards developed by organizations such as the Certification Commission for Healthcare Information Technology and Health Level 7.	
Improve care coordination, such as that related to medication history, lab results, and other clinical information.	Enable different information systems to share information on a secure network within and between counties, such that counties, contract service providers, hospital emergency departments, laboratories, pharmacies, and consumers/families can all securely access information.	

Source: CA BH-EHR Request for Information (RFI). California Department of Mental Health: September 17, 2008 (www.dmh.ca.gov/prop_63/mhsa/technology/rfi.asp).

Endnotes

1. These statistics do not include Yolo County, which has provided data only up to April 2004. Statistics and Data Analysis. California Department of Mental Health: 2007 (www.dmh.ca.gov/statistics_and_data_analysis/docs/statewide_production_rpt/csi_annualreport_fy0506_final_1.pdf).
2. Altarum. *Environmental Scan of the Personal Health Record (PHR) Market.* October 2006 (www.hhs.gov/healthit/ahic/materials/meeting11/ce/envscan_phrmarket.pdf).
3. Gearon, C.J. *Perspectives on the Future of Personal Health Records.* California HealthCare Foundation: June 2007 (www.chcf.org/documents/chronicdisease/phrperspectives.pdf).
4. D'Alessandro, D.M., Dosa, N.P. "Empowering children and families with information technology." *Archives of Pediatrics & Adolescent Medicine* 2001;155(10): 1131–6.
5. Mental Health Information Systems. World Health Organization: 2005 (www.who.int/mental_health/policy/mnh_info_sys.pdf).
6. *Roadmap for Implementing Value Driven Healthcare in the Traditional Medicare Fee-for-Service Program.* Centers for Medicare & Medicaid Services: 2009 (www.cms.hhs.gov/qualityinitiativesgeninfo/downloads/vbproadmap_oea_1-16_508.pdf).
7. Vision Statement and Guiding Principles for DMH Implementation of the Mental Health Services Act. California Department of Mental Health: February 16, 2005 (www.dmh.ca.gov/prop_63/mhsa/docs/vision_and_guiding_principles_2-16-05.pdf).
8. Mental Health Services Act. California Department of Mental Health (www.dmh.ca.gov/prop_63/mhsa/docs/mental_health_services_act_full_text.pdf).
9. Mayberg, S.W. *Mental Health Services Expenditure Report. Fiscal Year 2008-2009.* California Department of Mental Health: January 2009 (www.dmh.ca.gov/prop_63/mhsa/publications/docs/revised_leg_report_format_final_1-7_%20v11.pdf).
10. CA BH-EHR Request for Information (RFI). California Department of Mental Health: September 17, 2008 (www.dmh.ca.gov/prop_63/mhsa/technology/rfi.asp).
11. Mental Health Services Act Capital Facilities and Technological Needs Component. Enclosure 1. California Department of Mental Health: May 2008 (www.dmh.ca.gov/prop_63/mhsa/technology/docs/cf_and_tn_enclosure1.pdf).
12. CA BH-EHR Request for Information (RFI). California Department of Mental Health: September 17, 2008.
13. Mental Health Services Act. California Department of Mental Health (www.dmh.ca.gov/prop_63/mhsa/docs/mental_health_services_act_full_text.pdf).
14. Jarvis, D., Gorodezky, M.J. *Phase I Final Report.* California Institute of Mental Health, California Behavioral Systems Coalition: January 2004 (www.cimh.org/portals/0/documents/specproj/cbs/cimh-cbs-phaseireport.pdf).
15. Ibid.
16. APA Task Force on Evidence-Based Practice for Children and Adolescents. *Disseminating Evidence-Based Practice for Children and Adolescents: A Systems Approach to Enhancing Care.* American Psychological Association: August 2008 (www.apa.org/releases/ebpcareport0608draftfinal.pdf).
17. Conversion to Electronic System. California Department of Mental Health: July 31, 2008 (www.dmh.ca.gov/prop_63/mhsa/technology/docs/ehr_project/ehrbaselinemap2008-07-31.pdf).
18. *2008 Behavioral Health Collaborative Annual Report.* New Mexico Behavioral Health Collaborative: 2008 (www.bhc.state.nm.us/pdf/2008bhcannualreport.pdf).

California
HealthCare
Foundation

1438 Webster Street, Suite 400
Oakland, CA 94612
tel: 510.238.1040
fax: 510.238.1388
www.chcf.org