



Michigan Health Information Network Initiative

The Value Proposition for Behavioral Health Organizations to Participate in Health Information Networks

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Abstract

Less than a decade ago even the concept of a Regional Health Information Network (RHIO) probably sounded futuristic to most health care professionals, but the fact is there are now operational RHIOs in many parts of the United States. So the question for the behavioral healthcare field is no longer whether community-wide databases and other e-communication systems will exist in healthcare, but rather how they will impact behavioral health professionals' service delivery.

RHIOs have the potential to transform how behavioral healthcare professionals interact with other health care stakeholders including other service providers, third party payors, and with the individuals receiving treatment. Industry experts have estimated many cost and quality impacts such as greater continuity of care, decreased error rates, and more effective, "real time" communications, but privacy and security issues, start up and sustainment costs, and care coordination concerns remain important hurdles.

This report contains a series of interviews from leaders in RHIOs and behavioral health organizations (BHOs) in select markets across the United States. The intent is to describe the experience and the value proposition for BHOs within the emerging dimension of health information networking (HIN).

Background

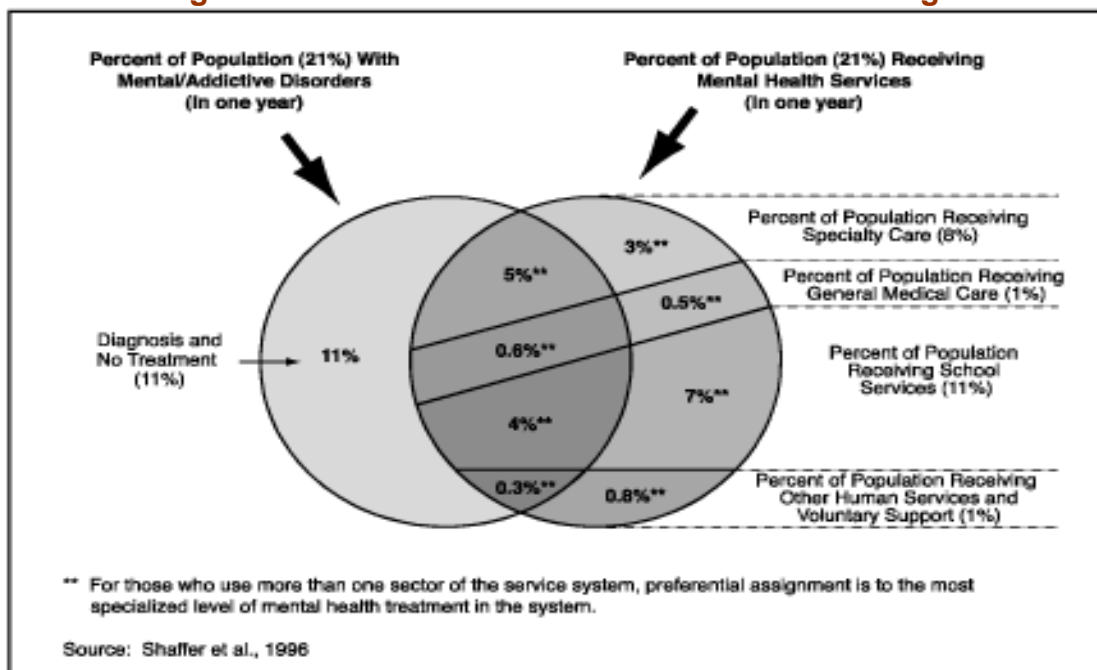
This report will focus on a subset of organizations that provide what is often collectively referred to as behavioral health services. For the purposes of this document the term "behavioral health" is used to describe the organizations and programs that provide specific treatment and supportive services to individuals with mental health, substance abuse, and/or developmental disabilities. There are several reasons why this report focuses on Behavioral Health Organizations (BHOs) and their participation in the development of Health Information Networks (HINs) across the country as follows:

- The cost for treatment, facility care, and supportive services for mental illness, substance abuse, and developmental disabilities combined are over \$120 billion yearly in the United States. (APA, 2004; National Association of State Legislators, 2002)
- The issue of stigma associated with treatment of behavioral health conditions is higher than with virtually any other medical condition. So the concern regarding unauthorized users having access to confidential behavioral health information—and the detrimental impact that represents—is documented in the literature and also echoed by the individuals interviewed in this report.
- The laws around confidentiality of protected health information (PHI) are more stringent with behavioral health treatment than with almost all other health care services provided—this is important to factor in as part of the development of a HIN.
- BHOs have either not been included or have chosen not to participate in Regional Health Plan Organization (RHIO) development in many parts of the country for a number of reasons that will be highlighted later in this document.
- Lastly, the likelihood that behavioral health conditions will impact a typical American family is quite high. National prevalence data estimate:
 - **Mental Illness:** Approximately 26.2 percent of Americans ages 18 and older—about one in every four individuals—suffer from a diagnosable mental disorder in a given year. The primary burden of illness is concentrated in a much smaller proportion (6 percent) who suffer from a serious mental illness (SMI). This means that approximately 1 in every 17 individuals meet criteria for SMI annually. (Kessler et al., 2005)
 - **Substance Abuse:** 18 million Americans (8.5% of the population age 18 and older) suffer from alcohol abuse or dependence. Only 7.1% received any treatment for alcohol problems in the past year. (SAMHSA Report, 2006)
 - **Developmental Disabilities:** The National Health Interview Survey Disability Supplement (NHIS-D, 1995) estimates that the combined prevalence of mental retardation and/or developmental disabilities in the United States to be 14.9 per thousand (1.49%).
 - **Co-Morbidity of Behavioral Health Conditions:** Among those with a mental disorder, the odds ratio of having some addictive disorder has a lifetime prevalence rate of 29%. For those with either an alcohol or other drug disorder, the odds of having another addictive disorder were seven

times greater than in the rest of the population. Among individuals with an alcohol disorder, 37% had a co-morbid mental disorder, and 53% with "other drug" disorders also had a co-morbid mental disorder. (ECA Study, 1992)

This means that at least one out of every four individuals in the U.S. will be impacted by a behavioral health condition in their lifetime and may seek services through various (behavioral health) treatment providers and/or facilities. As **Figure One** highlights behavioral health services are delivered in many locations by a wide variety of service professionals.

Figure One: U.S. Behavioral Health Estimated Usage



Purpose

This report contains a summary of a series of interviews with BHO executives in the United States that are participating in a Regional Health Information Organizations (RHIOs) in their service area. As described in the previous section, behavioral health services are delivered in organizations that may vary significantly in configuration, funding, and scope of benefits provided. The BHOs interviewed for this report fit one of three configurations:

- A Community Mental Health Center serving a portion or all of a state with responsibility to provide specific treatment services to individuals that are severely mentally ill (SMI), severely emotionally disturbed (SED), substance use disorders (SUDs), and/or developmentally disabled. These entities were founded with the passage of the Community Mental Health Centers (CMHC) Act of 1963 (Public Law #88-164). CMHCs were created as safety net organizations to reduce institutionalization and create community-based housing and treatment options. The predominant funding source for CMHCs is Medicaid.

- A Behavioral Health Department inside of a larger Managed Care Organization (MCO) that has responsibility to provide and/or refer beneficiaries to treatment. The Behavioral Health Department executives interviewed have responsibility for both commercial and publicly-funded populations.
- A multi-specialty service organization that provides behavioral health services and other health and human services (e.g. foster care, school-based services, Employee Assistance Programs, etc.) to multiple payors (e.g. uninsured, Medicaid, Medicare, etc.). Readers of this document should note that in some parts of the country Community Mental Health Centers are 501(c)(3) non-profit organizations that deliver services to the most severely mentally ill but have also diversified their array of services and payors in an effort to remain financially viable and to meet other community needs.

As stated, the intention of this report will be to characterize the perceived impact or value proposition that BHOs have for participating in RHIOs in other parts of the country. These perspectives may then be useful to creating dialog, strategic planning, and new or additional involvement between the nine RHIOs and the 46 CMHSPs (Community Mental Health Service Providers), and other BHOs in Michigan. This is not intended to be a technical report about RHIO design and characteristics, however some of this background will be provided as a means to give readers context regarding RHIOs and stakeholder dynamics.

Structure

The following report is divided into four primary sections: 1) Background and overview, 2) interviews with BHO and RHIO executives, 3) lessons learned, and 4) conclusion. The goal will be to provide readers with information that addresses two key areas:

- What are the existing and projected motivations and goals of the BHOs interviewed—taken from the end users themselves—and how does involvement in a RHIO contribute to that value proposition?
- What approaches/modeling may be most useful and/or potentially provide the greatest benefit(s) to Michigan BHOs? The configuration, financial modeling, and operational structures of the various RHIOs discussed in this document vary significantly. Therefore more analysis of the networks that appear to be the most relevant to the Michigan market would be encouraged. There is clearly not a universal model or approach that exists therefore the concept of "no two RHIOs are exactly alike" is important to consider as successes and failures are discussed in the growing body of literature on this topic.

Methods

After conducting preliminary review of the available research, a three-prong approach was used outlined as follows:

- **Step 1:** Contact national HIN experts and RHIO executives across select U.S. markets that have (RHIOs) that are at least partially or fully operable. Determine if there are any BHOs that are participating in their network, find out the level of involvement of those BHOs, and request contact information.
- **Step 2:** Contact key BHO executives directly to discuss the specific experience and value proposition for their organization to participate in a RHIO.

- **Step 3:** Organize findings under key domains to allow readers to more effectively compare/contrast those experiences.

All the information acquired during this analysis and hereafter summarized, will be synthesized in the section entitled **Behavioral Health Organization Interviews**. A summary of the themes and trends identified from the interviews is provided under the **Lessons Learned**. Finally, a set of recommendations synthesized from the research, and from the interviews with BHO and RHIO executives is included as part of the **Conclusion**.



Overview: Health Care in the U.S.

Many changes have occurred in the U.S. health care industry in the past decade. One key trend has been the significant increase in total patient medical data or what the Health Insurance Portability and Accountability Act (HIPAA) refers to as "protected health information" (PHI). Additionally, as consumers of health care services have become increasingly mobile they are seeing more health care professionals than in the past. In combination, these trends have resulted in the creation of numerous partial medical records, or PHI, scattered among providers, institutions, and payors across one or more medical trading areas.

Different medical facilities, and even departments within the same institution, use a wide variety of manual strategies and/or technology for storing PHI that is rarely well-integrated. This complex storage and management of PHI can result in time consuming efforts to obtain a patient's current health records. A RHIO is designed to overcome these limitations and provide all participating healthcare stakeholders electronic access to a patient's PHI within prevailing privacy and security regulations.

The lack of complete and timely access to PHI is costly to the entire healthcare delivery system. All of the key stakeholders are expending additional resources participating in a disconnected healthcare delivery environment. Clearly consumers of health care services are experiencing delays that are detrimental to quality and efficiency of care—and the majority of them know this. A recent "Wall Street Journal" article reported on the results of a poll focused on Americans perceptions regarding the use of electronic health records (EHRs) and related e-communication capacities. According to the study the majority of Americans believe EHRs and e-health strategies can improve health care and that the benefits outweigh privacy risks.

The Harris Interactive/*Wall Street Journal* poll surveyed 2,153 American adults from November 12-14, 2007. Specific survey findings reported in the *Wall Street Journal* included:

- 74 percent of respondents believe that patients could receive better care if doctors and researchers were able to share information more easily via EHRs and HINs.

- 63 percent of those polled believe that the use of EHRs (and e-communication) could significantly decrease the frequency of medical errors, and
- 60 percent believe that the benefits of EHRs outweigh the privacy risks.

RHIOs: A Snapshot

As noted, there is a growing body of literature that describes the potential benefits of a RHIO. There are many such networks that have been able to manage the complex technical and non-technical challenges. These organizations are at the beginning of proving the return-on-investment (ROI) that participating in a RHIO may represent. Several of these successful RHIOs are highlighted as part of the stakeholder interviews in the next section of this report. Although many RHIOs in the United States have succeeded, the majority are struggling to pull in the necessary resources and relationships to launch. The following is a summary of the necessary elements in a "healthy" RHIO according to Doug Emery at eHealth Initiative and the respondents interviewed for this report:

The "Forensics" of a Successful RHIO

<p>Financial: There has to be a viable business plan. A primary reason for failure to launch or sustain a RHIO is the absence of a thorough business plan. What are the proposed start-up costs (implementation, preliminary training, necessary hardware and software) and long-term operational costs (maintenance, upgrades, etc.)?</p>
<p>Regulatory: Is the RHIO compliant with applicable laws and regulations (e.g. HIPAA)? Who controls the information in the system? Who monitors on an on-going basis?</p>
<p>Adoption by Stakeholders: How will the RHIO impact current stakeholders? What will be required of users to engage with the RHIO and for ongoing participation?</p>
<p>Scalability: How complex is the addition of new members? How can new data domains be added across the system? Does the proposed solution offer a natural path for new services and organizations to be included?</p>
<p>Scope: How does the RHIO deal with the challenges related to patient identification? Can it accommodate patient opt-in or opt-out approaches?</p>
<p>Reliability: What is required in order to make the RHIO reliable? In case of failure(s) or technical difficulties, what are the estimated consequences?</p>
<p>Public Relations: How will the general public view an operational RHIO that contains their PHI? What will it take to obtain public support and communicate RHIO advantages?</p>
<p>Flexibility: Can the RHIO support stakeholders' diversity? How will changes made by one stakeholder impact others in an interoperable environment? How much freedom to change can be accommodated?</p>
<p>Integration: How is the medical information integrated? How are duplications and/or data inconsistencies handled? Does the caregiver receive a single integrated patient record or a list of references to partial records stored in different systems?</p>

Interview Format

What are the elements that constitute the value proposition of participating in a RHIO from the perspective of a BHO? There are many ways to attempt to address this question. In an effort to standardize the quantitative and qualitative elements imbedded in the concept of determining value, the structure proposed by the Institute of Medicine's *Crossing the Quality Chasm* was selected as the framework to use for cataloging the health plan interviews. (IOM, 2001) This is the same format used in the previous report completed for the Michigan Health Information Network (MI-HIN) Initiative entitled *The Value Proposition for Third Party Payors to Participate in RHIOs*. (Lakeview, 2008) This uniform approach to formatting the interview responses should be helpful in focusing on the commonalities and distinctions that TPPs and BHOs have in many areas with respect to HINs and e-health.

The IOM report identified specific standards that are necessary elements to ensure quality in the U.S. health system. Five of the domains outlined by IOM were used to structure the BHO and RHIO interviews including: Safety, Effectiveness, Efficiency, Patient-Centeredness, and Timeliness. As part of the 2005 RAND Health HIT Project a taxonomy of sub-elements were proposed that help stratify and detail the general structure proposed by the IOM report. The sub-elements that were added to the key domains are as follows:

I. Safety

- ✓ Reduce adverse drug events (ADEs)
- ✓ Reduce procedural errors (surgery, anesthesia, blood, etc.)
- ✓ Reduce infections, complications
- ✓ Reduce missed opportunities for appropriate care
- ✓ Increase consistency of performance of care systems

II. Effectiveness

- ✓ Reduce mortality
- ✓ Reduce morbidity
- ✓ Increase health status
- ✓ Increase utilization of appropriate care
- ✓ Improve assessment of patient condition / status
- ✓ Provide appropriate preventative care
- ✓ Improve patient compliance

III. Efficiency

- ✓ Reduce costs
- ✓ Increase revenue
- ✓ Cost of HIT systems
- ✓ Enhance provider education

IV. Patient-Centeredness

- ✓ Improve patient satisfaction
- ✓ Increase utilization of patient-centered services
- ✓ Improve patient decision support

V. Timeliness

- ✓ Decreased waiting time at point of care

- ✓ Improve appointment availability
- ✓ Faster response to patient inquiries
- ✓ Faster results turnaround
- ✓ Miscellaneous process delays
- ✓ Reduction of unnecessary duplication (test, questioning, etc.)

The savings and quality impacts identified by various studies document at least some or all of the above-referenced categories. The ability to estimate financial savings and improvements in health care is limited by the availability of information in the published literature that can be translated into quality improvements and/or actual savings attributable solely (or substantially) due to participation in a RHIO.

One of the most referenced documents related to health information technology (HIT) and quality/cost impact is the 2005 RAND HIT Report. Many of the RHIOs and BHOs interviewed for this report were familiar with the RAND study and used it as part of establishing the provisional business case for their network. A summary of the Rand HIT Report has been included as **Attachment C** to this document.

Interviews with Behavioral Health Organizations and RHIO Executives

"The Value Proposition of Participating in a RHIO from a Behavioral Health Organization's Perspective"

Market: Colorado; RHIO is called CORHIO (greater Denver MTA).

Respondents: Kelli Kane, Behavioral Health Department Director for Kaiser Permanente of Colorado; Kim Oberg, Senior Director of Strategic Planning and Development at Kaiser Permanente of Colorado, and current interim Executive Director of the Colorado RHIO (CORHIO).

Kaiser Permanente Health Plan of Colorado (KPCO) is a non-profit health plan that offers commercial, the State Children's Health Insurance Program (SCHIP), and Medicare products throughout much of the state. KPCO provides HMO, PPO, and self-funded options to individuals and employer groups. KPCO is the lead health plan in the development of CORHIO and is the first health plan to participate in the network although other health plans have indicated interest in joining. The Denver market is the pilot site for CORHIO. KPCO and the three largest health systems in the Denver market began exchanging data via CORHIO as of April 2008.

KPCO is an unusual MCO in that a significant portion of the health services provided are through their internally operated groups, clinics, and facilities with physicians and other providers that are employees of KPCO. This managed care model is usually referred to as a "staff model" approach and less common in MCOs. KPCO also provides services to its members via contracted, community-based providers and facilities—this "network model" structure is much more common across the nation. The larger KP system, which operates in 10 states/markets across the U.S., all use this combined "staff" and "network" model.

Because of KP Health Plans combined size, geographic distribution, and huge network of employed and contracted providers, their web-based electronic health record (EHR), is the largest civilian EHR in the world. (KP Press Release, March 2008) KP's EHR was designed with the assistance of Epic Systems and is called HealthConnect. KPCO was the first of the larger network of KP Health Plans to pilot the new EHR in 2004. The goal is to have all 8.7 million members in the KP health plans throughout the country use HealthConnect which includes California, Colorado, Georgia, Hawaii, Maryland, Ohio, Oregon, Virginia, Washington D.C., and Washington State. This means that primary care, behavioral health, specialty, diagnostic, and facility care providers all participate.

Nationally KP Health Plans were one of the first to place a strong emphasis on integrated, comprehensive health care that includes an internally operated behavioral health department. Throughout the 1990s behavioral health services were the portion of the larger MCO benefit that were most often "carved out" or capitated to a sub-contractor. (NASMHPD Report, 2002) Now other large MCOs and indemnity insurance companies (e.g. many of the Blue Cross health plans) have been reinstating their behavioral health benefit as a direct run program or department inside of the larger health plan. This is consistent to the model used at KP in all of its markets/states.

Given KPCO's unique position with HealthConnect, and that they also participate in CORHIO, the following interview discusses both the HealthConnect impacts, and the larger value proposition for KPCO to link with all community providers to provide/administer health services via a RHIO. This interview is specifically focused to behavioral health services, although virtually all of the real and anticipated improvements discussed could be attributed to the larger health benefit of KPCO's members.

The RHIO: CORHIO (www.corhio.org) is a non-profit organization substantially funded through 2009 via a \$5 million state demonstration grant from the Agency for Healthcare Research and Quality (AHRQ). CORHIO was incorporated in March 2007 and has a standing board that consists of executives and medical professionals from universities, health systems, physician groups, and KPCO.

Domain Sub-Elements

<p>Safety</p>	<p>KP has just gone "live" with the CORHIO. However, the behavioral health benefit has not been linked into the larger network yet. Colorado regulations are much stricter than HIPAA as it relates to what can be shared (and by whom) so the medical portion of the data is being entered first. There are many perceived values for KP's Behavioral Health Department to participate in CORHIO, according to Director Kane—many favorable impacts should mirror the positive results that have been experienced with their EHR. Some of the safety impacts of HealthConnect include: 1) Providers being able to access medication and diagnosis history so prescribing the "right" medication happens the first time (e.g. fewer adverse side effects reported); 2) KP uses the web-based capacity of HealthConnect so that authorized users (e.g. providers and patients) can receive warnings and reminders related to FDA drug alerts, follow up appointments, test results, etc. Other safety impacts with HealthConnect include:</p> <ul style="list-style-type: none"> • Participating providers in the Denver market can already access "some" patient data online through HealthConnect after they go through an authorization process. This allows providers to at least "see" real time PHI electronically to aid in the treatment. • Medication errors/adverse reactions have both decreased. • Providers can "see" electronically that medications, appointments, etc. are occurring and dynamically work with patients and other health care professionals when there are problems.
<p>Effectiveness</p>	<p>HealthConnect focuses on patient education, expanding patient access and "control" over his/her own health and health care services, and research-driven protocols. KPCO views CORHIO as another important vehicle to decrease health disparities—this is a central goal of the MCO. KP already has a series of chronic disease initiatives including a depression protocol. These protocols have been documented to improve patient outcomes—having real-time access to data is a necessary to ensuring that effective care is delivered consistently. CORHIO will give KPCO the ability to work with the rest of the health care system to set up community-wide protocols.</p>

Domain**Sub-Elements**

Efficiency	<p>KP anticipates that CORHIO will reduce duplicative and/or unnecessary testing—particularly with emergency room services and diagnostics—and in other parts of the delivery network. This should decrease unnecessary expenses, and improve efficient patient care and related satisfaction related to behavioral health services. Since KP is a partnership between the health plan, health system(s), and provider network, CORHIO should also enhance the ability to educate, monitor and address BHO provider needs more rapidly. Physician offices will be able to diagnose and prescribe "right" the first time. Provider alerts can already be sent out via HealthConnect—and will be sent out via CORHIO in the near future. Some of the other efficiencies with HealthConnect include the web-enabled "personal health record" that KP members can securely access online. They can get immediate test results, make/modify/verify appointments, and send/receive questions to their health care providers quickly.</p>
Patient-Centeredness	<p>KP is a non-profit MCO that has a strong commitment to the concept of comprehensive health care and community benefit. This includes supporting the various safety net programs in Colorado and in other states. Through the technology that HealthConnect has brought to behavioral health services at KPCO—and that CORHIO can bring—KP members have more patient-centered care in the last several years. KP has yet to do a member survey that specifically measures this impact.</p> <p>KP has a national campaign which is called THRIVE that focuses on improving the health of individuals across the nation—this effort focuses on member self-management strategies, informal supports, and a strong preventative health care focus. KP's ultimate goal would be to have RHIOs that can share PHI, with appropriate permissions and firewalls, regardless of where their members seek health care services in the United States and internationally (as a long term goal). KP has several health care registries including one focused to depression—CORHIO should create the necessary cross-system, real-time communication to maximize the success of any of these registries and to allow to future capacity to conduct thoughtful research and improve the protocols used.</p>
Timeliness	<p>KP anticipates that ultimately behavioral health services will be fully linked to CORHIO—within the appropriate regulations and restrictions. Behavioral health providers will be able to provide faster follow up to their patients, and provide or coordinate for needed care more rapidly due to having the capacity (via the RHIO) to access real-time health care information. KPCO knows that their members are receiving more timely and effective care due to the capacity they have created with HealthConnect. Director Kane indicates that (behavioral health) providers and administrators have anecdotally shared how the access they have to PHI via HealthConnect has improved the speed and effectiveness of how they deliver health care.</p>

Market: Grand Junction, Colorado and surrounding counties.

Respondent: Linda Kahl, Medical Supervisor (Psychiatric Services), Colorado West Regional Mental Health, Inc.; Dick Thompson, Executive Director, Quality Health Network (Grand Junction Medical Trading Area RHIO), and John Hopkins, CEO, Rocky Mountain Health Plan.

The BHO: Colorado West Regional Mental Health, Inc. (CWRMH) is a private, non-profit corporation founded in 1970 to provide mental health and substance abuse services to the residents of Western Colorado in a ten-county service area. The largest community in that region is the Metropolitan Service Area of Grand Junction with 139,137 residents. CWRMH is the Community Mental Health provider working with SMI, SED, and more severe SUD conditions. CWRMH also owns/operates an inpatient psychiatric facility, provides Employee Assistance Programs (EAPs), and provides less acute mental health and SUD services to individuals with Medicaid, Medicare, commercial, SCHIP, and some uninsured. SWRMH works closely with Marillac Clinic—since both are part of the behavioral health safety net for the region. This will be described in the next two interviews.

The RHIO: Quality Health Network RHIO (QHN) first became operational in November 2005 after only eight months of planning. All of the health systems and the majority of providers in the Grand Junction market participate in QHN. At this time no other health plans are contributing to the funding of QHN or participating in the exchange. Two significant BHOs are participating in QHN—the Marillac Clinic and CWRMH. Both organizations have been working with QHN since the implementation of the network.

The annual cost to continue with QHN is substantially covered by the largest health systems and Rocky Mountain Health Plan, although QHN has received some state and federal funding. QHN is a non-profit RHIO (www.qualityhealthnetwork.org) that has been recognized nationally for the development of a region-wide diabetes registry. This registry will be available to all participating stakeholders in the RHIO in second quarter 2008.

Domain

Sub-Elements

Safety	CWRMH has a secure site in QHN that they are able to use currently. Give the budget cuts experienced by the CMHCs in Colorado, CWRMH has not been able to "fully" utilize all of QHN's capacities yet There are improvements in patient safety that CWRMH is realizing just being able to look up services that their patients are getting by other providers as follows: 1) Through the e-Rx program CWRMH can now see patients that are drug seeking and work with them more quickly/effectively; 2) the full spectrum of medications and diagnoses are known so patients do not have adverse reactions, duplicative testing, or other errors/duplications; 3) lab results are timely which is particularly important for SMI consumers that have blood levels that require regular monitoring. This enhanced capacity has not resulted in a reduction in staff or other tangible cost savings so far. Ms. Kahl is on the QHN Clinical Committee and see that there are many initiatives (e.g. the diabetes registry) that will continue to improve patient safety due to QHN.
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Domain**Sub-Elements**

Effectiveness	CWRMH reports that their members get more effective care due to QHN. Communication between providers has increased substantially and it is much easier (and more rapid) to see services provided, medications prescribed, and to make an effective action plan due to QHN. No specific studies have been done to determine if (and to what extent) morbidity, mortality, or overall health status have improved by CWRMH due to QHN. Ms. Kahl indicates that their ability to manage complex patients and acute care situations "has to have improved" in the last two years due to QHN. She also believes that patient adherence to medications and effective assessments (e.g. getting the diagnosis right the "first time") have improved due to e-health capacities with QHN. Again, no data have been compiled yet to prove to what extent QHN may have made a difference. Ms. Kahl indicates that the new CEO at CWRMH is supportive of further involvement in QHN if/when the financial environment stabilizes. Ms. Kahl believes that they probably could show improvement in effectiveness and (some) cost savings due to QHN if the right data could be extracted.
Efficiency	The number of duplicative tests and interventions (particularly for diagnostic services) appears to be decreasing due to the ability of behavioral health providers to access PHI through QHN. Patients do not have to wait at pharmacies for prescriptions—the orders are e-sent to the pharmacy more quickly and adverse reactions/contraindicated prescriptions are "caught" and "corrected" usually prior to the patient picking up his/her medications—due to QHN. What level of cost impact this has had is not yet known, but the efficiency and the value to the patient due to this capacity appears clear. CWRMH has not reduced the internal cost of its IT system to date. Ms. Kahl indicates that their psychiatrists and nursing staff have anecdotally reported a high degree of satisfaction due to participating in QHN.
Patient-Centeredness	No findings or discussion have occurred in this area other than a few favorable anecdotes. Ms. Kahl believes that e-health strategies give CWRMH the ability to provide more appropriate "individualized" or "patient-centered" care. She does not believe that most of their patients understand the impact that a RHIO—or other e-health capacities may have in delivering their health care. They have done no surveys to evaluate member satisfaction due to QHN to date.
Timeliness	CWRMH believes that their patients are receiving more timely care due to QHN. This is particularly apparent with patients that are on medications and/or have high acuity/multiple diagnoses—as previously described. No specific analysis has been done to quantify to what extent this has improved, and to try and extrapolate actual cost savings has not been attempted yet.

Market: Grand Junction, Colorado and surrounding counties.

Respondent: Steve Hurd, Executive Director, Marillac Clinic; Dick Thompson, Executive Director, Quality Health Network (Grand Junction Medical Trading Area RHIO), and John Hopkins, CEO, Rocky Mountain Health Plan.

The BHO: Marillac Clinic was founded in 1988 and is an unusual safety net provider in Mesa County, Colorado and nationally. They provide fully integrated health care services, including primary care, behavioral health, vision, dental, and onsite pharmacy services to the uninsured. They do not have designation as a federally qualified health center (FQHC) or Look-alike (FQHC Look-alike). They are funded in the following manner:

- 21 percent patient self pay,
- 23 percent from foundations,
- 25 percent from fundraising efforts, and
- 30 percent from the Sisters of Charity.

Marillac Clinic works closely with CWRMH and with other community providers since patients may go "in and out of" Medicaid eligibility and therefore are entitled to, or excluded from, various services and providers routinely. Marillac Clinic has been participating in QHN for the last two years and also has a shared EHR and internal scheduling capacity. Behavioral Health services provided by the Clinic include: 1) Individual and family counseling, 2) psychiatric assessment, 3) group therapy, and 4) brief behavioral health interventions (in conjunction with primary care).

The RHIO: Information about Quality Health Network (www.qualityhealthnetwork.org) was provided in the previous interview. Marillac Clinic does not pay to participate in QHN per se. Rather, they help pursue funding for QHN via the state of Colorado and various foundations that provide QHN with access to additional dollars that it would not receive otherwise.

Domain

Sub-Elements

Domain	Sub-Elements
Safety	Marillac Clinic provides onsite integrated behavioral health and psychiatric services in a variety of modalities and duration. There are many positive impacts that both QHN and the onsite, integrated health care team approach used have brought to the Clinic. Patients presenting with mental health diagnoses are co-managed by both behavioral health and primary care providers. The ability to see other medical diagnoses and medications (through QHN) means that patients get more effective assessment and treatment. Safety impacts include: Reduction in adverse drug interactions, the improved capacity to manage complex/high need patients, and the ability to see results of diagnostics and specialty care quickly. QHN is perceived by Marillac Clinic, and by the larger provider community, as a critical piece in ensuring that health care information is available for better physician management of all patients regardless of socio-economic status, etc. Since Marillac Clinic's patients tend to be more transient in receiving health care, QHN has been critical to (Marillac) providers being able to sort out safe, effective treatment.

Domain**Sub-Elements**

Effectiveness	<p>Marillac Clinic compiled data as part of a Robert Wood Johnson (RWJ) grant. What they were able to show was that the integrated health care model in combination with their e-health capacities decreased psychiatric inpatient utilization by more than half (from 21.5/1000 patients to 9.3/1000 patients), and Emergency Room utilization decreased from 8 percent to only 3 percent in a four-year timeframe. Marillac Clinic's Executive Director, Steve Hurd, indicates that both their administrative and provider network believe their patients get more effective care due to QHN. No specific studies have been done to determine if (and to what extent) morbidity or mortality rates may have been improved. Similarly, assessments and patient adherence to medications and treatment have improved. Other studies are being developed to isolate and quantify effectiveness. Dick Thompson, Executive Director at QHN, indicates that more concrete research and evaluation of the RHIO will occur over the next 12-18 months—particularly with the diabetes registry. Marillac Clinic is very interested in being able to prove in greater detail the business case of QHN in the future.</p>
Efficiency	<p>Providers (including behavioral health) have reported that there has been a reduction in duplicative/unnecessary health services due to QHN. This has been particularly true with laboratory tests, medications, and other diagnostic services. What level of cost impact this has had is not yet known.</p> <p>Marillac Clinic has not reduced the internal cost of its IT system to date due to participation in QHN. Mr. Hurd indicates that all of their organization is supportive of continuing to work with/participate in QHN. They see this as critical to delivering high quality health care.</p>
Patient-Centeredness	<p>No findings or discussion have occurred in this area other than a few favorable anecdotes. Mr. Hurd believes that Marillac Clinic's integrated, patient-centered and comprehensive approach to care has been further improved with linkage to real-time PHI from other community providers. This could not have happened without a RHIO such as QHN. To date there have been no surveys administered to evaluate patient satisfaction due to QHN.</p>
Timeliness	<p>Marillac Clinic believes that their members are receiving more effective, timely care due to QHN. They are not "wasting their time" at pharmacies or other service providers because they are getting the treatment, referrals, medications, etc. that they need the first time. No specific analysis has been done to quantify to what extent this has improved, and to try and extrapolate actual cost savings may be impossible to determine yet.</p>

Market: Indiana (Bloomington MTA).

Respondents: Dennis Morrison, PhD, CEO of the Center for Behavioral Health (and future CEO of the Centerstone Research Institute); Todd Rowland, M.D., Executive Director, HealthLINC; and, Keith Hepp, CFO and VP of Development, HealthBridge RHIO.

The BHO: The Center for Behavioral Health (CBH) is a private, not-for-profit organization founded 40 years ago as one of the 30 CMHCs in Indiana. CBH has offices in South Central Indiana and serves over 9,000 people annually. CBH provides a full continuum of services, including outpatient psychotherapy, psychiatric services, partial hospitalization programs, residential treatment, and home-based services. CBH serves children and adults with SMI, SED, and/or SUD. In 2006, CBH became only the second behavioral health organization to win the HIMSS (Health Information and Management Systems Society) Nicholas E. Davies Award for excellence in implementation of EHRs.

In December 2007 the CBH announced its intended merger with two other CMHCs (one in Indiana and one in Tennessee) to form Centerstone, which would make it the largest community behavioral healthcare provider in the United States. Dr. Dennis Morrison, the current CEO of the CBH, will transition later in 2008 to become the CEO of the Centerstone Research Institute (CRI). CRI has received about \$37 million in National Research Grants dedicated to decreasing the 17 year science-to-service gap using information technology to get the latest treatment breakthroughs out more rapidly to providers in the field.

The RHIO: HealthLINC, formerly known as the Bloomington E-Health Collaborative (www.healthlinc.org) is a community-based, non-profit Health Information Exchange (HIE) located in, and serving, South Central Indiana. HealthLINC serves a 10 county catchment area with approximately 367,000 residents. (Counties include: Brown, Daviess, Greene, Jackson, Lawrence, Martin, Monroe, Morgan, Orange and Owen.) The key stakeholder organizations represent primary care, specialists, Bloomington Hospital, CBH/Centerstone, and Indiana University.

The Bloomington Hospital (founder of HealthLINC) has now contracted with the HealthBridge RHIO and Axolotl to provide a secure Clinical Messaging solution, technical support, usage reports, consulting, and process implementation assistance. HealthLINC began exchanging data in October 2007. Many of the key providers (including the CBH/Centerstone) are now receiving clinical results through HealthLINC. The longer-term goal will be to have more organizations actually send their data through the network.

HealthBridge (www.healthbridge.org) is a not-for-profit HIN which serves the Greater Cincinnati tri-state area (includes portions of Ohio, Kentucky, and Indiana) is reported to be the largest RHIO in the United States. (HIMSS Report, 2007) Their Clinical Messaging system currently delivers over 2.1 million results (laboratory, radiology, transcription, and ADT) electronically to over 4,000 physicians each month. (HealthBridge homepage, 2008)

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Safety	<p>The CBH has put extensive time and resources into their EHR and into partnership with HealthLINC. They have quantified many safety impacts due to their various e-health capacities including: A decrease in medical/pharmacy errors due to being able to see "real time" all medications their patients are using (and treatment history), automatic drug-drug interaction checking, quicker medication alerts/corrections, and better management of patients with poly-pharmacy and chronic/high need health care conditions.</p> <p>CBH reports they track inappropriate access to PHI and recently fired an employee for accessing confidential information inappropriately. CBH has implemented an e-form Daily Living Assessment (DLA) (Scott and Presmanes, 2001) and incorporated standardized GAF scoring (Global Assessment of Functioning) protocol. CBH providers use the DLA and GAF scoring as part of the determination/justification of a patient's level of severity and treatment needs. This information is available through the EHR—the inter-rater reliability has been consistent and very high. Providers throughout the community that are a part of CBH can access the EHR remotely and use GAF to move a patient through a continuum of care with more precision/reliability. Additionally, CBH clinicians assess each client's problem set every session on a seven-point severity scale. If the clinician chooses "much worse" for any problem, an e-alert asks if a risk assessment is needed. If the clinician says "yes" the system prompts development of a standardized risk management care plan.</p>
Effectiveness	<p>Dr. Morrison believes that both chronic disease management (for their SMI and SUD consumers) and predictive disease management will improve due to the HealthLINC and their internal EHR. No research has been completed yet that measures the impact on morbidity and mortality rates or on overall health status due to these e-health capacities; however 100% of CBH clients have clinical outcomes measures. The ability for the CBH provider network to more effectively assess health care conditions and manage patient adherence to treatment and medications appears to have been improved. CBH/Centerstone is committed to community benefit and financial stewardship—their relationship with HealthLINC and the internal EHR are necessary strategies to ensure that care is effective, high quality and adherent to best practice standards.</p>
Efficiency	<p>Dr. Morrison indicates that there have been reports of reduction in duplicative services. They know that they have saved "thousands of dollars" because no paybacks were made to the state due to Medicaid billing errors. In previous years they have had the usual audit problems due to incorrect coding and/or related documentation. The CBH has not quantified what all of the cost savings have been due to efficiencies achieved through their e-health capacities. The CBH uses an E-Rx program to provide education and alerts—they share this information with other treatment providers who work with their patients. CBH has not reduced the internal cost of its IT system so far but approximately \$300,000 was saved over three years in</p>

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	<p>other personnel costs due to their EHR. One of the goals with HealthLINC will be to help providers enhance the value of their organizational EHRs via automated delivery of electronic results. There is considerable value returned to health care insurance companies that has been incompletely documented at this time.</p>
Patient-Centeredness	<p>The CEO believes that a RHIO and their EHR are helping to deliver individualized care. Most patients of the CBH are not aware of the dramatic change in provider/payor capacity to electronically exchange PHI—no surveys have been done incorporating specific beneficiary satisfaction due to these e-health technologies.</p>
Timeliness	<p>The CEO is confident that both HealthLINC and the EHR have increased the speed (and accuracy) of the way they provide health care to their patients. CBH now sees patients the same day they request to be seen. This includes patients not having to spend as much time waiting for pharmacy and diagnostics (medications are already filled, pharmacists can read the order/higher accuracy, contra-indications have already been "weeded" out, patients are not having to wait for duplicative tests to be performed, etc.). The behavioral health providers are able to give faster follow up with patients—they have the information from test results and specialty care more quickly and can then turn-around that information dynamically. Training and provider education also happens much more rapidly with the EHR and HealthLINC. New employees can be monitored much more easily by their supervisors. When there are problems with charting (e.g. incomplete, not timely, inaccurate, etc.) CBH can now follow up and correct these problems rapidly. Periodic compliance audits can also happen with increased speed and corrective action plans can be instated and monitored with an efficiency and timeliness that was not possible previously.</p>

Market: Massachusetts.

Respondents: Jeff Simmons, MD, Medical Director for the Behavioral Health Department, Blue Cross Blue Shield of Massachusetts (BCBSMA); Robert Mandel, MD, CMO, BCBSMA; Dr. John Straus, MD, Medical Director, Massachusetts Behavioral Health Partnership; and Shaun Alfreds, Institute for Health Policy at University of Massachusetts and Project Director for the HIT initiative for the National Governor's Association (NGA).

The BHO: BCBSMA is a non-profit organization that offers commercial, Medicaid, SCHIP, and Medicare products throughout Massachusetts. They also offer traditional indemnity, self-funded, and managed care options to their employer groups. BCBSMA has been a participant in MASHare since its inception. BCBSMA also provided \$50 million dollars as seed money for a demonstration project aimed at implementing wide-scale Electronic Medical Records (EMRs) in three target Massachusetts markets and verifying the impact of this broad-scale (EMR) interoperability. This initiative is called Massachusetts eHealth Collaborative (MAEHC).

BCBSMA has a Behavioral Health Department which is responsible for managing mental health and substance abuse needs for all of their members. The Behavioral Health Department is involved in many of the internal and external e-health initiatives that BCBSMA has been participating in over the last few years.

The RHIO: MASHare (www.mahealthdata.org) was formed in 2003 as a wholly owned subsidiary of the Massachusetts Health Data Consortium. MHDC began in 1978 as a cross-system partnership of public and private health care organizations. All of the major health plans participate in MASHare and MHDC including: BCBSMA, Harvard Pilgrim Health Care, Tufts Health Plan, Fallon Health Plan, and Neighborhood Health Plan.

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Safety	<p>The Behavioral Health Department (BHD) at BCBSMA has not completed comprehensive research that would support the value proposition of a RHIO to date. BCBSMA has found it difficult to extract the cost savings solely from a RHIO—particularly when they have several e-health initiatives and capacities. BCBSMA is long-standing supporter of MHDC, the e-Rx Collaborative, and MASHare. BCBSMA is the primary funder of the MAEHC pilot sites. They also joined NEHEN in 2007 (New England Health Exchange Network) for e-claims processing—which has shown a small cost savings per claim.</p> <p>Safety impacts: The BHD can track provider performance "real time" which allows rapid problem identification and education/remediation. The CMO of the BHD reports that they do chronic disease management and are starting to do predictive disease management via algorithms to identify patients that are at increased risk for hospitalization. The E-Rx capacity notifies behavioral health providers when there are recalls/problems with various medications. This allows more accurate prescribing and prevention of ADEs. There have been reduced medication costs due to E-Rx—no specific separate cost or quality impacts specific to behavioral health was available.</p>
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Effectiveness	Chronic disease management and predictive disease management have improved due to the various e-health capacities. No research has been completed that measures the impact on morbidity and mortality rates or on overall health status for BHD recipients to date. The MAEHC will have data available at the end of 2008 looking at the pilot sites. The evaluation will include historical impact and comparison against three control-sites that have been paired to the pilot locations. The ability for the provider network to more effectively assess health care conditions and manage beneficiary compliance appears to have been improved. Specific studies in 2008 should be able to help quantify improvements in this area—at least some of this would be attributable to the exchange of data via MAEHC and MASHare. The CMO of the BHD believes that having access to data across the system is the best way to ensure that provider education, performance, and effectiveness is assured. Dr. Simmons also believes that these technologies will be how behavioral health can best prove that it makes a difference in reducing overall medical care costs.
Efficiency	There have been reports of reduction in duplicative services. The BHD uses the E-Rx program to provide education and alerts to the provider network. BCBSMA has not reduced the internal cost of its IT system so far. Many BHD staff and community physicians have reported a high degree of satisfaction due to using E-Rx, MAEHC, and MASHare. The computerized provider order entry (CPOE) has added an efficiency and cost value to the BHD. This allows automated ordering of medications, tests, etc. This has reduced medication errors by 90% and overall errors by at least 50%--psychotropic medications were not measured separately but the assumption is of similar improvements. NEHEN has reduced the cost-per-claim fee—the BHD CMO is not sure by how much.
Patient-Centeredness	Dr. Simmons believes that individualized care and the ability to destigmatize behavioral health are both helped due to RHIOs and other e-health strategies. The ability to see all patient needs—and quickly—allows the physicians to deliver the "right care the first time." Most of BCBSMA beneficiaries are not aware of the dramatic change in provider/payor capacity to electronically exchange PHI. BCBSMA have not completed any surveys which include specific beneficiary satisfaction due to the e-networks.
Timeliness	Dr. Simmons indicates that Rx refills/new scripts, ordering of diagnostics (and the ability to see results) are much faster. Behavioral health providers are able to provide more rapid turnaround to their patients because they can get the information much more quickly, accurately, and easily than with a manual, disconnected health care system. The reduction in duplicative services has also increased the time savings to patients. **The BCBSMA/Tufts Rx study should be available in May 2008 that describes in more detail the quality and actual cost impact to the health plans. The larger MAEHC study will be available in the fall of 2008 that measures other service areas and quality/cost impacts.

Market: Tennessee

Respondents: Doug Varney, CEO, Frontier Behavioral Health; Leesa Jenkins, Executive Director at CareSpark RHIO.

The BHO: Frontier Health was founded in 1957 in Tennessee. Frontier is a regional BHO that provides behavioral health services to persons with SMI, SED, SUD, and DD conditions. Frontier also offers long-term care services for the elderly, foster care, and adoption placement services. They are a private, not-for-profit organization with more than 85 programs in two states. In fiscal 2007, Frontier Health provided services to approximately 62,000 individuals in Northeast Tennessee and Southwest Virginia. Frontier Health was one of the co-founders of the CareSpark RHIO and has made a commitment of time and resources towards its development.

The RHIO: CareSpark (www.carespark.com) is a HIN located in the central Appalachian which includes 17 counties in parts of Tennessee and Virginia. The MTA serves approximately 705,000 residents, has 18 hospitals, and over 1,200 primary care and specialty physicians. CareSpark is completing work on a secure network that will allow physician offices, hospitals, behavioral health organizations, public health departments, pharmacies, laboratories and imaging centers to communicate electronically to improve patient care, safety, and reduce costs. Other capacities which will be added include medication management, diagnostic services, preventative medicine, and disease management protocols.

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Safety	CareSpark is not operational yet however the CEO believes that the positive impacts that they have achieved due to having an EHR will be replicated in the near future as CareSpark begins exchanging data. Mr. Varney indicates that their organization believes the only way to truly integrate care is to be able to send and receive health care data between treatment providers. They believe that their patients—particularly those with complex/high needs—benefit greatly from HIN/EHR. Frontier can track provider performance, and their staff can intervene more quickly due to having real-time information. Outlier tracking has improved with their EHR—it is unknown what the concrete benefit is relative to the cost. The CEO indicates that their EHR gives real time safety information to providers via alerts sent through the system. No specific studies have been done to isolate concrete examples of savings to the health plan.
Effectiveness	The CEO believes that their ability to manage chronic conditions and to adhere to evidenced-based practice protocols have improved greatly with EHR/HIN. No specific analysis has been done to determine if (and to what extent) morbidity and mortality rates may have been impacted. The ability for behavioral health providers to assess health care conditions and manage beneficiary compliance has improved—a full RHIO will benefit patient care even further. Pharmacy is a central area where the CEO has seen EHR/HIN improve prescribing and management of their patients. Duplicative services have been substantially eliminated and ADEs have decreased due to e-health capacity. Patients with multiple diagnoses are not "over-medicated" any longer.

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Efficiency	There has been a reduction in duplicative services as stated previously. Frontier Health envisions that a full-community RHIO would eliminate these costs completely. Frontier has not reduced the internal cost of its IT system so far—this is not likely to happen in the near future even after the RHIO becomes operable. The providers at Frontier have indicated they have a high degree of satisfaction due to using existing e-health capacities. Frontier already uses the EHR—which is web-enabled so viewable remotely via a secure network—as a targeted means to identify and work with providers that may need education and cooperative management of complex patients. The CEO indicates that their organization would like to participate in research studies to isolate and quantify the value impact of participating in a RHIO from a BHO perspective, and that no such (thoughtful) research exists in the United States at this time.
Patient-Centered-ness	The CEO believes that patient-centered care has improved because of e-health capacities. Their organization is very motivated by person-centered planning values, and having real-time, comprehensive information is necessary to achieving this. Most of Frontier's patients are not aware of the dramatic change in their provider network's capacity to exchange PHI. Frontier Health has not completed any patient surveys that include specific satisfaction due to e-health capacities added in the last few years.
Timeliness	Frontier Health believes that patient care has improved due to faster turnaround, reduction in unnecessary tests/services, and faster response following up with patients due to HIN/EHR. They are excited to participate in CareSpark and anticipate many improvements in their current delivery capacities including the speed at which they can deliver accurate, high quality care. No specific analysis has been done to quantify to what extent timeliness has improved with their EHR. They would like to add more of this type of analysis in the near future.

Lessons Learned

Establishing and maintaining a successful RHIO relies on the commitment and interaction of multiple health care stakeholders in a community. The following is a summary of the key themes and experiences—as represented by the BHO and RHIO executives interviewed for this report—that characterize BHOs involvement with RHIOs in select markets:

Governance

RHIOs are required to comply with all prevailing laws and regulations (e.g. HIPAA, state mental health codes, etc.), and be able to address the specific needs of the stakeholders in the (RHIO) network. BHOs and RHIOs in many of the markets interviewed indicate that behavioral health is often "not thought about" when a RHIO is in development. Further, behavioral health may elect to not participate in the creation and/or governance of a RHIO due to one or more of the following concerns:

- Perception of high cost to join or participate in the RHIO,
- Resource limitations (e.g. not enough personnel, priorities are in other areas, etc.),
- Perception that the RHIO is not going to be able to meet their needs, and/or
- They are "not wanted" in the planning process and/or governance of a community e-network.

The BHOs interviewed in this report all indicated that the RHIO is important for all community health care stakeholders, and that the best way to give the RHIO a "comprehensive" health care focus is to participate in the design, priorities, and implementation of the network that will serve their respective communities. All participating organizations join a RHIO with unique perspectives, priorities, financial circumstances, and challenges. BHOs that participate in RHIOs help the network create a "shared organizational language" to reach their joint objectives, and balance the interests of each participant versus the benefits of the system as a whole.

Operational

Each stakeholder organization brings different operational abilities and perspectives to the RHIO. The BHOs interviewed for this report all stress that the best way for their patients to receive comprehensive care is for the (HIN) to be accessible, user friendly, fully integrated to the rest of the health care services—within the appropriate regulatory restrictions and safeguards. This pushes the need for a specialized approach and tools/strategies that allow flexibility while maintaining the participant organizations' interests.

Protected Healthcare Information

Few topics today are more sensitive to public opinion than the management of PHI. This is particularly true with behavioral health PHI. Even for BHOs that are very involved with the RHIOs in their respective communities, several executives indicated that they are either "viewing but not sending PHI" or "sending only limited PHI" through their networks at this time. There are complex issues such as patient privacy, capacity for patients to "opt out" of participating in RHIOs, who "owns" the PHI, and the potential misuse of health data. There can be many benefits for BHOs that participate in RHIOs including efficiencies in practice, cost savings, and quality improvements (e.g. adherence to protocols, provider training/monitoring, etc.). Striking a balance between appropriate

patient protections and the ability to improve practice processes and outcomes is important to manage throughout the development and maintenance of a RHIO.

Financial

Although the benefits of sharing health data are undisputable, some of these benefits are difficult to measure using traditional means. BHOs interviewed for this report, like any other health care stakeholder, all indicated that the RHIO represents a significant value proposition for their respective organizations in terms of quality, efficiency, timeliness, and accountability/integrity of patient care. The belief is that there is also potentially a cost savings to be experienced from participating in a RHIO that will be more definitively proven in the next few years as the industry matures. According to one BHO executive their organization "would rather commit human capital (and some finances) to help shape the structure and priorities of their local HIN than to participate later on after the network has already created certain institutional habits and methods of operation."

All of the RHIO executives interviewed report that it is a constant challenge to find and manage funding, so ensuring that the start-up costs and long-term sustainability (e.g. maintenance, upgrades, expansions, etc.) are both addressed is critical to survival. The BHOs indicate that they believe their local RHIOs appear to have realistic financial plans and that their organization's investment has yielded favorable returns.

Conclusion

The last few years are considered by many health care experts to be the pivotal point at which HINs/RHIOs achieved widespread consensus in the United States. The stated goal of a RHIO is to increase the quality, efficiency, and safety of healthcare, which should mean that all stakeholders—including patients, providers, hospitals, and BHOs—stand to benefit from the establishment of, and participation in, RHIOs.

Although expectations are high there are still many practical concerns that are being sorted out. The executives interviewed for this report all reflect the perspective that the best way to reduce perceived and real risks with a HIN is to actively participate in identifying and seeking solutions. But as more and more initiatives for RHIO formation surface, the challenges that accompany these ambitious projects are becoming painfully apparent. By nature, RHIOs draw together separate organizations that are dynamic, diverse, with a wide array of interests and priorities. These organizations also use a broad array of systems and approaches to clinical information. Therefore there is no single implementation or business model to copy. As a result the vast majority of organizations that participate in forming a RHIO are in uncharted territory.

The challenges facing a RHIO are reflected across wide ranges of expertise, including financial, regulatory, public opinion, information systems architecture, operations and governance. RHIOs are intended to provide universal access to patient data across a disparate network of organizations in a given geographic region. It is self-evident that this level of access to the most up-to-date patient information will drastically change the quality of care and overall patient landscape.

Some cynics might assert that the age of information technology has already passed by the U.S. healthcare industry. There is a great deal of sophisticated machinery but disconnects and delays continue. More optimistic observers would say that healthcare—

just like any other industry—will need to choose its battles carefully. Both perspectives contain some truth. As healthcare data continues to grow, the urgency for a solution becomes more acute. Thoughtful use of information technology beyond the individual provider organization, health system, or BHO walls is an opportunity to truly address this challenge and continue to move forward with a quality oriented, patient-focused health system.

Respondents used for this Report

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Attachment A:

**Michigan Community Mental Health Service
Providers, The Standards Workgroup: Health
Information Technology Final Report (2007)**

HEALTH INFORMATION TECHNOLOGY WORK GROUP FINAL REPORT

PURPOSE OF THIS REPORT

The purpose of this report is to communicate to The Standards Group (TSG) of the Michigan Community Mental Health Service Provider network, the Michigan Department of Community Health, and to other interested stakeholders:

- Progress made by TSG's Health Information Technology (HIT) Work Group toward advancing the state of HIT in the public mental health system
- Recommendations to ensure continued progress in this arena

WORK GROUP MEMBERS

TSG's Board recognized that true progress in the HIT arena would require strengthened communication and understanding between MDCH, MDIT and PIHP CEOs and Information System Leaders. Toward that end, the Board appointed the following state department leaders and PIHP CEO-CIO pairings:

- Kathy Reynolds (Chair), Washtenaw Community Health Organization
- Jeremy Nelson, Washtenaw Community Health Organization
- Robert Sheehan, Clinton-Eaton-Ingham CMH
- Chuck Dougherty, Clinton-Eaton-Ingham CMH
- Alexis Kaczynski, North County CMH
- Dianne Forster, North Country CMH
- Paul Ippel, Network 180
- Jason Radmacher, Network 180
- Bill Riley, Oakland CMHA
- Kathy Haines, MDCH
- Cynthia Kelly, MDCH
- Linda Myers, MDIT
- Joanne Sheldon, The Standards Group (staff)



HIT WORK GROUP CHARGE

TSG's Board approved the following Work Group Background Statement and Scope:

“The pace of change in state and federal HIT has been quickening. Federal, state and regional planning pieces that had been disjointed are now coming together, and there is a sense of momentum. For the public mental health system to maintain/improve its standing as a viable state-wide player in health care delivery in Michigan, it is important that we demonstrate our commitment to operating efficiently, making wise use of limited resources. We also need to take the initiative to ensure we can electronically connect with other health and human service entities, such as public health, Medicaid HMO’s, hospitals etc. It will save money and enhance our effectiveness as a system if we agree on a common set of HIT standards, and select vendors in keeping with those standards.”

The Board identified six broad areas that needed to be addressed:

- *Track and proactively help shape regional, state and national HIT developments and take steps to coordinate and synchronize with those efforts.*
- *Educate public mental health system leaders and HIT Officers about these developments*
- *Create a unified HIT strategic plan for the public mental health system*
- *Work with leaders from all health care sectors to develop a common understanding of the components of a behavioral health electronic medical record as an integral part of a full electronic record.*
- *Develop common, secure platform(s)*
- *Ensure interoperability (both within the public mental health system and other health and human service entities)”*

WORK GROUP ACCOMPLISHMENTS:

A summary of Work Group accomplishments, arranged according to the initial goals defined by TSG’s Board, as follows:



GOAL #1: *Prepare a HIT Strategic Plan that outlines major, relevant HIT issues for the public mental health system and sets a common direction for addressing them. This will involve surveying CMHSP’s to develop baseline knowledge of current system capabilities.*

Accomplishments:

1. HIT Strategic Plan

In order to “get our hands around” this complex, dynamic topic which has such far-reaching implications for the system, the Work Group agreed one of our early priorities would be to establish a strategic plan, with problem statements, recommendations, broad goals, action steps, accountable individuals and target dates identified.

The strategic plan contained the following goals:

- Promote cost efficient and effective information management systems across the state.
- Increase the knowledge of CEOs and CIOs regarding their role in IT decision making.

- Develop base standards and/or core functionality recommendations for IT systems in Michigan.
- Establish consistent communication capability with the rest of the health community.
- Provide decision support/data structure for benchmarking.

A detailed progress report on each goal is contained in *Attachment A*.

2. HIT Survey

The Work Group conducted a survey to ascertain the state of healthcare information systems within the Community Mental Health system. The intent was to ensure the Work Group had an accurate inventory of existing systems as members developed recommendations regarding the future of the public mental health HIT system.

3. CIO Forum

The HIT Work Group recognized that making real progress on the strategic plan would require collective action and information sharing among the Information System Leaders of all 18 PIHPs. As such, the “CIO Forum” was launched in June 2007 to:

- Provide Information Systems leadership by recognizing common objectives, determining which objectives can be accomplished collaboratively, and working together to achieve practical solutions.
- Build consensus and create a unified voice representing and promoting Michigan’s Public Behavioral Healthcare system for all national and statewide Information Systems initiatives, as well as working to build consistent data and content transaction models within Regional Healthcare Exchanges.
- Promote the inclusion of the CIO professional in each PIHP to become a key member of the executive leadership team in his/her respective organization, providing organizational direction and consultation that goes beyond technical acuity and administration.
- Actively pursue training in a variety of arenas, including but not limited to conference planning for information technology topics and presentations within the Board Association.

Overview of the CIO Forum:

- Currently Chaired by Jason Radmacher, CIO of Network 180
- Has met four times, with excellent (80-95%) attendance from all 18 PIHPs, plus MDCH
- Has ratified a Charter (see *Attachment B*)
- Has addressed topics such as: Core HIT competencies for CEOs and CIOs; common HIT procurement strategies; common set of core functions for public mental health HIT systems; common protocol and minimum data set for sharing with RHIOs and Medicaid Health Plans; and Electronic signature/release.
- Will report on a quarterly basis (minimally) to the TSG Executive Committee and Board of Directors
- Minutes are available at the TSG website at www.macmhb.org.



body.

GOAL #2: *Determine strategies for developing and maintaining linkages with important federal, state and regional HIT initiatives, including the Michigan Health Information Network (MiHIN), Michigan's HIT Commission, and SAMHSA's Electronic Medical Record standard-setting*

Accomplishments:

To ensure the public mental health system is actively shaping the next generation of electronic medical records and HIT standards, at the regional, state and federal levels, PIHPs and CMHSPs need to be knowledgeable about these issues, and advocating on the public mental health system's behalf. Toward that end, the Work Group accomplished the following:

1. RHIO Advocacy

Through participation in the MI-HIN Steering and Subcommittees, as well as close association with MDCH's IS Manager (Beth Nagel) the Work Group successfully advocated for the public mental health system to play an active role in shaping RHIOs. In particular,

- The State has agreed to mandate to any future RHIO grant recipient that public behavioral health be at the table before the grantee will receive any funding.
- The State is withholding funds from current grantees that are refusing to allow PIHPs to be at the table.

2. Shaped Federal Electronic Health Record Standards

On behalf of MACMHB, the HIT Work Group provided input to the Certification Commission for Healthcare Information Technology (CCHIT), a recognized certification authority for electronic health records and their networks, on their behavioral health certification standards. This resulted in CCHIT's decision to prioritize behavioral health as among the very first specialty care areas to receive CCHIT focus. TSG HIT members have remained actively involved in shaping the final standards.

3. Impacted Other State and Federal HIT Initiatives

Members are involved with such organizations as SAMHSA's Midwest Data Users Group, the American Health Information Management Association, Mental Health Corporations of America, CHAMPS (which is redesigning Michigan's MMIS), as well as local RHIOs to ensure our voices are heard and that Michigan's public mental health system plays an active role in shaping HIT standards.



GOAL #3: *Plan state-wide educational forums for PIHP Directors, IT officers and state hospital staff to provide immediate training on state and federal developments, as well as updates on Regional Health Information Exchanges (RHIO's)*

Accomplishments:

Together, CIOs and CEOs within PIHPs must demonstrate the knowledge and flexibility to meet changing consumer needs, clinical needs, funding protocols and other state and federal regulatory drivers. Toward that end, the Work Group accomplished the following:

1. Provided 4 state- level trainings to CEOs, CIOs and others

Topics covered included:

- Overview of regional, state and national HIT trends and driving forces
- Successful HIT strategies for the public mental health system
- Strategies for RHIO Involvement/Participation
- Distinguishing a CIO from an IS Manager
- Medical Trading Areas
- A CEO Guide to Behavioral Health Software
- Electronic Health Records
- HIT Return on Investment strategies
- CEO “Road Map”: What should a CEO know about IT? What capabilities should Public Mental Health Information Systems have?

2. Provided Ongoing HIT Updates to public mental health CEOs

- E-mail updates
- Developed and maintained a PIHP/CMHSP Information Management Resource Center on TSG’s web site.

3. Set up ongoing training mechanisms

- Each CIO Forum meeting includes 1-2 presentations by CIOs on PIHP technological innovations and strategies
- The CIO Forum is planning the bi-annual *Improving Finance Outcomes and Quality Through Integrated Information* Conference, which provides cutting edge info on HIT developments.

IV

GOAL #4: *Work with state and federal bodies (including MI-HIN, Michigan’s HIT Commission, and SAMHSA’s EMR standard-setting body) to develop standards for:*

- *A behavioral health EMR as part of an EHR system (including the range of health care providers)*
- *System Interoperability*
- *Secure platform(s)*

Accomplishments

Across the State of Michigan, PIHPs, CMHSPs, and Affiliations are investing significant sums of money in information management systems to meet clinical needs,

administrative needs and needs of third parties. These information systems are provided by a variety of means including national or regional behavioral health software vendors, local contractual programming companies, and CMH/PIHP IT staff. Demonstrating efficient management of HIT resources within the public mental health community is essential to providing quality care to consumers. It will be important to support and encourage commonality in business practices where possible, despite structural differences between PIHPs. Opportunities for standardization and improved efficiency must be explored, while being mindful of areas where standardization is not likely to be possible, given unique structures of individual PIHPs. Toward this end, the Work Group accomplished the following:

1. Developed recommendations regarding ways CEOs can manage their HIT investment to get better value.
 - Available on TSG web site
2. Provided strategies for PIHPs to use in moving to an integrated electronic health record.
 - Available on TSG web site
3. Drafted guideline for core functionality in three areas: Practice management, Managed Care and Clinical Care.
 - Will be finalized February-March 2008 by CIO Forum
4. Used PIHP HIT survey results to develop recommendations regarding HIT system consolidation
 - See Attachment C
5. Drafted core elements of data exchange with RHIOs, Medicaid Health Plans, etc.

FINAL OVERALL RECOMMENDATIONS

1. TSG's Board should empower the CIO Forum and hold it accountable to serve as the vehicle for carrying out the work set forth in this document (including its attachments). The TSG Board should request that the CIO Forum:
 - Prepare a strategic plan outlining and prioritizing the items it will address.
 - Prepare and present quarterly reports on its progress to TSG's Executive Committee and Board.
2. To ensure continued progress is made on increasing CEO awareness of HIT issues, TSG's Board should request that the CIO Forum provide training at CMHSP Directors' Forums at a minimum of twice per year.
3. TSG's Board should approve the following recommendations on systems consolidation developed by the HIT Work Group: (full report is contained in *Attachment C*)
 - Creating efficiencies within affiliations is desirable and should be continued. This initiative is underway or completed in most affiliations, and the CIO

Forum will continue dialog that encourages those that are not on single platforms to pursue this end.

- While overall systems design is driven by the uniqueness of business need, there are opportunities for joint efforts along distinct lines of current platforms and individual subsystems. For those organizations employing similar software, user groups should be established (where they do not already exist) to consider cost and efficiencies for any common areas of system design.
- Regardless of the organizational business model, there are opportunities to address similar approaches in automation initiatives (i.e. eligibility verification through MPHI, interfaces with proposed outcome tools, etc.) For these clearly defined scenarios, the CIO Forum should be charged with finding ways to create efficient designs that can benefit several PIHPs, circumventing each forging its own solutions.
- The CIO Forum should be a conference resource to provide information for future HIT purchasers. The combined experience of senior PIHP HIT professionals should provide guidance and mentorship to help facilitate requisitions in the most cost-effective and efficient manner possible.

Attachment B:

**The Center for Behavioral Health:
Outcomes and Impacts due to EHR**

Attachment B

Extract from the Center for Behavioral Health 2006 Davies Award Application for Electronic Health Records (EHR), Health Information and Management Services Systems (HIMSS). Website: www.himss.org

THE CENTER FOR BEHAVIORAL HEALTH (CBH)

CLIENTS WE SERVE

For those unfamiliar with the behavioral health care business, the types of problems CBH treats can seem foreign. In fact, the problems themselves aren't so different compared to traditional medical patients. The reader might find it helpful to conceptualize our client continuum in three categories: Acute, Chronic, and Addictions.

CBH has built a large continuum of residential services, mainly for clients suffering from some form of serious mental illness such as schizophrenia. Because their levels of impairment vary, we built a wide range of residential facilities ranging from an acute stabilization unit (Transitional Care Facility or "TCF") through group homes with 24-hour oversight, to apartment complexes for those who need little assistance. This is noteworthy because these facilities must be linked into the Electronic Health Record (EHR) since there are often clinical staff on site. At the TCF facility we can quickly stabilize an individual's medications or provide other more acute services without hospitalization. Though the TCF is staffed by nurses and is medically supervised, it is not an inpatient unit.

Many of our services can be provided to a group of clients simultaneously. This is different from most medical procedures and it causes charting challenges in an EHR, especially for programs that have multiple groups each day. The clients attending each group will differ, as will the clinicians running the group. For billing and productivity needs we must bill only for those clients in a particular group; chart their participation; accurately give credit to the clinicians who ran the group; while simultaneously making the charting and billing process as easy as possible.

STRATEGIC OBJECTIVES

CBH had the following goals in mind when we sought to implement our EHR:

- HIPAA Compliance
- Ubiquitous Access of Clinical Records
- No Paper Anywhere
- Development of a Centralized Outcomes Repository
- Improved Security of the Clinical Record

Beyond the above goals, CBH is an organization that has at the core of its mission a commitment to providing measurably better care which drives our commitment to Evidence-Based Treatments (EBTs). We believe this is an important distinction compared to other behavioral healthcare organizations, and arguably, medical care facilities. It also influences our commitment to the EHR which gives us data to better manage the organization and provide better clinical care. This has been a value of ours

since 1989 and it carried over 11 years ago as we worked to improve our information systems infrastructure, culminating with the implementation of our EHR. History has proven to us that paper is not a good solution. Like others we have experienced significant Medicaid paybacks due to inaccurate and inappropriate charting. If Medicaid finds an error they presume the error is present throughout the system and charge accordingly. For example, one audit discovered approximately \$900.00 of errors which Medicaid extrapolated to a \$1.2 million payback. During another audit, CBH lost a client's entire chart and could not document anything. This was a costly error.

Functionality

Lessons Learned:

- Technology and work flow must be addressed together.
- The issues involved in successfully rolling out an EHR are the same regardless of the size of the organization; they just have a different number of zeros.
- Support comes in many packages. Don't limit yourself to the vendor because they are "responsible" or "we're paying them for support." Use consultants and peer organizations.
- Remote users feel particularly entitled to change standardized work processes.
- Be very clear about when people are using a practice system and when they are using the real system. We set up report server for training and some people mistakenly charted real data in it.
- It is impossible to overestimate the amount of training needed.
- End users will impress you and frighten you with their ability to quickly adapt to the EHR or find ways to misuse it. Plan for both.

VALUE

To assess the return value of investing in the EHR, reviewing the target project goals is useful.

Goal: HIPAA Compliance – 100% complete

Value: Besides the obvious value of the CBH CEO not being fashionable in "prison orange" and the substantial penalties associated with HIPAA noncompliance, there is value in being able to ensure clients and their families that their records are secure. We can now do that.

Goal: Ubiquitous Access of Clinical Records – 100% complete

Value: The obvious value is the EHR is accessible everywhere throughout our system of four counties and 24 care sites. We no longer have to worry about having the most recent clinical information when a client goes to different care sites or lives in one of our residential programs. Some components such as Infoscriber are available from any Web browser. This improves management of after-hour client emergencies. Through Web access the on-call physician can access the client's diagnostic and prescription information. Achievement of this goal alone justifies our investment in the EHR.

Goal: No paper anywhere – 99% complete

Value: While this goal may appear synonymous with the goal of ubiquitous access, it is different. We wanted the EHR to be the record. We could have chosen to not integrate paper documents such as inbound correspondence, psychological assessment instruments, and State mandated assessment tools into our EHR and still had an excellent EHR. However, our clinicians would then have to use two “systems” – one electronic and one paper to do their jobs. It was a priority to avoid a two-part system. To the extent legally allowed we have successfully achieved this. Conservatively, 1% of client documents must be maintained in the original paper format for legal reasons.

Besides the obvious benefits of scanning inbound correspondence, we have also identified other benefits of Optidoc. These include electronically archiving our organizations old financial records, storing clinical research articles and old administrative reports developed prior to moving to electronic management tools.

Goal: Improved Security–100% complete

Value: Security is an interesting paradox. Public perception often views electronic systems such as an EHR as less secure than a paper system. Informed practitioners know better. In our organization paper records could be and were left on staff desks in unlocked offices. Charts had to be transported in personal vehicles when a client was seen for services at a different clinic—often on front seats with patient identifying information readily visible. At times charts were temporarily misplaced, locked in a clinician’s office or permanently lost. Portions of records were routinely faxed between clinics to allow the clinician to review recent treatment decisions. These are problems for all community behavioral health care organizations and probably all providers. As described in the Technology section, we have carefully considered security and conscientiously implemented appropriate measures. In reality we all realize no system is 100% secure 100% of the time. However when we were using paper records, someone sufficiently determined, could drive a car through the front door, pick the locks on internal doors and at gun point force employees to get a desired record. During the period we had paper client records, the probability of such a scenario was low so we did not purchase a bank vault for our records. So it is with electronic records. Could someone mount a concerted attack on our system and defeat our security measures? Yes. But is that likely? No, in part because the value of the data is less than the cost of acquiring it. Thanks to the EHR our client information is much more secure than before.

CLINICAL

Medical Staff: While the EHR has added value throughout the organization, the medical and nursing professionals have been especially positive about their EHR experience. Medical Director, Jerry Neff, MD has noted that the medical staff are much better prepared to deal with consults and emergency situations especially in our remote locations. Prior to the implementation of the EHR, the paper record was frequently unavailable or at best, the attending clinician would have only a few faxed, often illegible handwritten notes. Ubiquitous access to a legible record added value throughout the organization but for our medical staff who are asked to see many people with little information, this aspect of the record was particularly beneficial.

A benefit that was unique to our medical staff was the medication history available in Infoscriber and backed up in PsychConsult. According to Dr. Neff, “It is very reassuring to have allergies, past adverse drug reactions and a detailed history of previous and

current medications readily available anywhere and to know that any change of medication will be automatically screened for allergic cross sensitivity, drug to drug interactions, drug to food interactions, or potential problems with pregnant or lactating clients.”

Another aspect of the record that was especially useful to our medical staff was in the area of clinical supervision. In Indiana, Advanced Practice Nurses (APN) with prescriptive authority must have 5% of their prescriptions reviewed by a physician with whom they have entered into a supervisory relationship. In the past, pulling the charts and reviewing a random sample was a laborious process. Now, our physicians and APNs enjoy a much more productive supervision session. Charts can now be truly selected in a randomized fashion while all the clinical information is readily available to determine appropriate diagnostic assessment and medication management, This can occur even when the APN is at one of our remote sites since the record will allow simultaneous review of the EHR.

Another important benefit of the EHR is in the area of risk management. In any system of care, inappropriate diversion of medications must be controlled. One area of vulnerability occurs when “verbal orders” are used to elicit fraudulent prescriptions. By using an e-prescribing system, this risk is significantly mitigated. The security functions in Infoscriber allows our physicians to review any prescriptions written in their names.

Nursing staff reports similar benefits to having an EHR. The medication administration error rate has dropped and it can be measured more accurately. The flexibility of the software allows lab results to be accessed through the Bloomington Hospital portal. Nursing personnel also found tracking new admissions to our many residential facilities much improved with an EHR due to improved accessibility to the record.

Legibility: The first benefit recognized by staff was, not surprisingly, having clinical records that are 100% legible. It would be difficult to overstate the importance of this. We are all aware of the problems all healthcare has with errors in charting and prescriptions. It affects us as well but the real value for us lies in two areas. The first is the ability for all members of a clinical team to be able to read what the others have done. An unreadable note adds no value. The second is the development of decision support tools. Assisting clinicians to link Problems, Diagnosis, Interventions, and Outcomes through the decision support system improves care and makes our clinical charting more defensible to auditors and surveyors.

Ability to measure the amount of time between the client’s first contact with CBH, initial psychological assessment, and first treatment session: The research literature shows a negative correlation between client follow through with treatment and the length of time to the first appointment. We do not want clients to drop out of treatment prematurely for any reason but especially not for something over which we have some control. Based on the data we were able to get out of our EHR, we identified this as a problem and we developed a new walk-in evaluation clinic in which we were able guarantee people would be seen quickly. The results from the EHR showed the average amount of time a client had to wait for an evaluation decreased from 10-12 days to 2-3 days.

Improved accessibility to client charts: Before implementation of the EHR, client records were paper documents that were only accessible to one clinician at a time and access to the chart was tied to a specific program site where the chart “lived.” With the implementation of our EHR client “charts” are electronically available from any service location. Our computer system network is “up” 99.7% of the time according to our system monitor data. The clinician can log on to a computer and access the EHR regardless of where in our system they are located. After hours, our crisis service can easily access the client’s record. If one of our physicians is called at home from an emergency department about a client, the physician can access Infoscriber via the Internet from home to see if the patient is a CBH client, and if so, what medication the client is taking.

Document compliance improved: We have had requirements for timely completion of clinical documentation for years. However, managing it was difficult. In the past we delayed billing to allow clinicians to get their “charting” done. This was expensive since it negatively affected cash flow and because we had to manually monitor this process. It sometimes took two weeks from the date a client was seen for a chart note to appear in the client’s chart. With the EHR that time has been reduced to 24 hours through the use of two reports built into PsychConsult called the Unsigned Case Management Report and Overdue Weekly Summaries Report. Naturally, this improves client care as the EHR provides more up to date client information. The system also notifies clinicians when a document such as a treatment plan in the client record needs updated or requires review using the Treatment Plan Report.

Improved treatment planning: The new treatment plan has arguably some of the most sophisticated decision support technology in the behavioral health care industry. No less than five levels of decision support are imbedded in this system. It is driven by an objective measurement tool that, by itself, fixes a problem common across our industry – unreliable GAF scores. Clinician’s decisions are now guided and more importantly, they have told us that the system is requiring them to think more critically about the treatments they are proposing.

Uniform, categorical way of defining problems and treatments: This provides an analysis of the problems being treated and the treatment outcomes. This allows us to understand what treatment protocols are most effective for different types of mental health disorders and certain types of clients. For example, a certain treatment protocol may work well with female adults but not as well with male adults.

Improved medication management: We now have the ability to flag medications that interact through the prescription writing software integrated into the EHR product. The EHR analyzes the medications prescribed and runs a check for potential drug and food interactions. This is continually updated as new medications are released on the market and others pulled by the FDA.

Improved prescriber supervision: The Infoscriber application provides a variety of reports that benchmark individual prescribers’ prescription trends locally (at CBH) and nationally. We’ve never been able to review this level of detail without doing chart audits. The goal is to provide information to our prescribers to make them better clinicians tomorrow than they are today.

Expedited & data-oriented chart reviews: Unlike a paper chart where onerous time-consuming reviews of records are needed to extract information, we have ready access to information needed to evaluate the effectiveness of programs for different types of clients, clinicians, and treatment protocols.

ADMINISTRATIVE

Ability to track clinician service capacity (productivity) standards: Clinicians and managers are able to track number of client services rendered, and number of no-shows to improve time management and billing efficiency.

Decreased rate for non-billable services: Non-billable services are services that are rendered but the treatment plans were incomplete or failed to prescribe a specific service needed. Consequently, these services are not billed. The EHR document compliance function has dramatically improved quality assurance of our auditing functions. It has decreased the error rate for non-billable services lowering our overall error rate by about 3%. There are still potential sources of human error elsewhere in the process but this is a significant improvement.

UNANTICIPATED BENEFITS

Optidoc Bar Code Functionality: While we were aware that the Optidoc product had a bar code system, it was not a main reason for our purchase of the product. However, as we have explored this functionality, we have found it to be quite useful as an inventory control system for our legacy paper records.

These records have always been tracked using a manual check-in and check-out system. In the future, all legacy paper charts will be bar coded and registered in the Optidoc database. This will allow better management of these records which will be with us for at least another 4 years.

FDA Medication Recall: One aspect of the Infoscriber product that we liked was the ability to track all client medications and to contact clients if a medication was pulled from the market. One example was the Bextra drug recall; Infoscriber identified 8 of our clients for whom other providers had prescribed this drug. Since we had not prescribed Bextra to any of these clients, we were able to contact our client's primary care physician with the recall information. Infoscriber provided an alert that allowed us to proactively coordinate the care of these eight patients in a way we had not anticipated.

HAP enrollment increase: The EHR was largely responsible for our increased Hoosier Access Plan (HAP) enrollments valued at \$450,000.

Electronic Access Savings: We knew the new Electronic Access system we are piloting would improve client flow and documentation. We did not expect it to save \$100,000 in the process.

SO WAS IT WORTH IT?

The EHR cost us approximately \$1.8 million. That does not take into account the number of hours the implementation staff put into this. It was not uncommon for people to be working 50-70 hours during the implementation phase. It would be nearly impossible to calculate the cost of this in person hours. We are three years into the implementation

and as seen on our employee satisfaction data, some employees are still not satisfied with the product.

So, was it worth it? The answer is unequivocally, yes.

The EHR allows us to provide much better quality services than we could otherwise. We are positioned for the future in ways that a paper record would never allow. The culture of the organization has changed so that people now expect to be doing things electronically. Ironically, this may contribute to the lower satisfaction scores because our employees' expectations have been raised. We are very pleased with how far we have come and perhaps the more important question is: would we do it again? The answer to that is also, yes. Would we change things? Of course, but the point is we did it because it was the right thing to do. We would go back to our Board and to our management team and make the case again if we had to. It is that important.

We are very pleased with where we are but we are not satisfied. We will continue to innovate and improve the system. That will not stop because the implementation of an EHR is not a destination, it's a journey.

Lessons Learned

- Remove any sense of NIH (Not Invented Here) in the organization. Visit other places and steal good processes and ideas wherever possible.
- You don't know what you don't know. Allow for unanticipated problems.
- Don't underestimate the value of simply having a legible record.
- Seek out and use the folks who have an interest and talent in computers even if that's not their "real job."
- On-call staff really appreciate secure access to the record at 3 am.
- You should expect the EHR itself to improve quality of care.
- The resistance you experience from staff during implementation will be paid back in appreciation after the implementation.
- Whether you win or not, going through the Davies application process will improve your organization in unanticipated ways.

Attachment C:

**Kaiser Permanente Health Information
Technology Survey- Published Results
(2007)**

Attachment C

Health Care Information Technology Summit Survey Results Revealed

In July 2007 Kaiser Permanente reported on a 10-question phone survey of 1,000 American adults regarding electronic medical records. The margin of error was 3.1 percent.

1. To the best of your knowledge, does your primary care doctor use a:	
	Total
Paper record system	22%
A computer record system	57%
Both (volunteered)	8%
Unsure (volunteered)	13%
2. Which type of medical records system is more efficient?	
	Total
Computer	72%
Paper	19%
Unsure	8%
3. Which type of medical records system is more secure?	
	Total
Paper	47%
Computer	42%
Unsure	10%
4. Before this survey have you seen, read, or heard anything about electronic medical records?	
	Total
Yes	43%
No	57%
5. I'm going to read you some things and, after each one, please tell me if you have ever done that before.	
	Total
Visited a health-related website like WebMD in order to get more information on a health concern	46%
Used a health insurance company's secure website to learn about your health coverage or check the status of a claim	29%
Used a health insurance company's secure website to review your personal medical records, such as past treatment, medications and test results	12%
None of these	46%

6. Now, I'm going to read you the same list and please tell me how interested you are in doing each one – very interested, somewhat interested, not very interested, or not at all interested.

1. Visiting a health-related website like WebMD in order to get more information on a health concern.	
	Total
Totally Interested	62%
Very interested	27%
Somewhat interested	35%
Totally Not Interested	38%
Not very interested	14%
Not at all interested	24%
Don't know/unsure	1%

2. Using a health insurance company's secure website to learn more about your health care coverage or check on the status of a claim.	
	Total
Totally Interested	56%
Very interested	23%
Somewhat interested	33%
Totally Not Interested	43%
Not very interested	15%
Not at all interested	28%
Don't know/unsure	1%

3. Using a health insurance company's secure website to review your personal medical records, such as past treatment, medications and test results.	
	Total
Totally Interested	51%
Very interested	23%
Somewhat interested	33%
Totally Not Interested	43%
Not very interested	15%
Not at all interested	28%
Don't know/unsure (volunteered)	1%

7. If two doctors had exactly the same qualifications, but one used an EMR and the other did not, which ONE would you choose?	
	Total
The doctor using an electronic record system	51%
The doctor NOT using an electronic record system	17%
Don't know/unsure (volunteered)	29%

Refused (volunteered)	3%
8. If two health insurance companies had exactly the same qualifications, but one provided their members with access to an electronic record system and the other did not, which ONE would you choose?	
	Total
The one using an electronic record system	68%
The one NOT using an electronic record system	16%
Don't know/unsure (volunteered)	14%
Refused (volunteered)	1%
9. I'm going to read you a list of benefits that supporters of EMRs talk about and please tell me which ONE is the most important benefit to you.	
	Total
Better treatment in an emergency, especially when the patient cannot communicate with health care providers	31%
An increase in efficiency and a reduction in the overall cost of health care, because shared electronic records are easier to keep and review than paper records	24%
An increase in the ability of health care providers to share and review the same patient records and work together to deliver better care	19%
Reduction in medical errors because health providers will have better, more reliable records	15%
None of these	6%
Don't know/unsure (volunteered)	4%
10. I'm going to read you a statement and please tell me if you agree or disagree with it: <i>"The benefits of electronic medical records, such as better treatment in an emergency and a reduction in medical errors, outweigh any potential risk to patient privacy or the security of patient information."</i>	
	Total
Totally Agree	73%
Strongly agree	21%
Somewhat agree	52%
Totally Disagree	25%
Somewhat disagree	16%
Strongly disagree	9%
Don't know/unsure (volunteered)	2%

Attachment D:

**Rand Health Information Technology
Report (2005)**

(Excerpt from www.rand.org/pubs/monographs/2005_MG409.pdf)

Health Information Technology Can HIT Lower Costs and Improve Quality?

Key findings:

- ✓ **Properly implemented and widely adopted, Health Information Technology would save money and significantly improve healthcare quality.**
- ✓ **Annual savings from efficiency alone could be \$77 billion or more.**
- ✓ **Health and safety benefits could double the savings while reducing illness and prolonging life.**
- ✓ **Implementation would cost around \$8 billion per year, assuming adoption by 90 percent of hospitals and doctors' offices over 15 years.**
- ✓ **Obstacles include market disincentives: Generally, those who pay for Health Information Technology do not receive the related savings.**
- ✓ **The government should act now to overcome obstacles and realize benefits.**

The U.S. healthcare system is in trouble. Despite investing over \$1.7 trillion annually in healthcare, we are plagued with inefficiency and poor quality. Better information systems could help. Most providers lack the information systems necessary to coordinate a patient's care with other providers, share needed information, monitor compliance with prevention and disease-management guidelines, and measure and improve performance.

Other industries have lowered costs and improved quality through heavy investments in information technology. Could healthcare achieve similar results? RAND researchers have estimated the potential costs and benefits of widespread adoption of Health Information Technology (HIT). The team also has identified the actions needed to turn potential benefits into actual benefits.

HIT's Potential Includes Significant Savings, Increased Safety, and Better Health

The RAND team drew upon data from a number of sources, including surveys, publications, interviews, and an expert-panel review. The team also analyzed the costs and benefits of information technology in other industries, paying special attention to the factors that enable such technology to succeed. The team then prepared mathematical models to estimate the costs and benefits of HIT implementation in healthcare.

HIT includes a variety of integrated data sources, including patient Electronic Medical Records, Decision Support Systems, and Computerized Physician Order Entry for

medications. HIT systems provide timely access to patient information and (if standardized and networked) can communicate health information to other providers, patients, and insurers. Creating and maintaining such systems is complex. However, the benefits can include dramatic efficiency savings, greatly increased safety, and health benefits.

Efficiency savings: Efficiency savings result when the same work is performed with fewer resources. If most hospitals and doctors' offices adopted HIT, the potential efficiency savings for both inpatient and outpatient care could average over \$77 billion per year. The largest savings come from reduced hospital stays (a result of increased safety and better scheduling and coordination), reduced nurses' administrative time, and more efficient drug utilization.

Increased safety: Increased safety results largely from the alerts and reminders generated by Computerized Physician Order Entry systems for medications. Such systems provide immediate information to physicians — for example, warning about a potential adverse reaction with the patient's other drugs.

If all hospitals had a HIT system including Computerized Physician Order Entry, around 200,000 adverse drug events could be eliminated each year, at an annual savings of about \$1 billion (see Figure 1). Most of the savings would be generated by hospitals with more than 100 beds. Patients age 65 or older would account for the majority of avoided adverse drug events.

Health benefits: The team analyzed two kinds of interventions intended to enhance health: disease prevention and chronic-disease management. HIT helps with prevention by scanning patient records for risk factors and by recommending appropriate preventive services, such as vaccinations and screenings.

The table shows the estimated effects of increasing five preventive services: two types of vaccination and three types of screening. Together, these measures would modestly increase healthcare expenditures. But the costs are not large, and the health benefits of improved prevention are significant. For example, at a cost of only \$90 million each year, between 15,000 and 27,000 deaths from pneumonia could be prevented.

HIT can also facilitate chronic-disease management. The HIT system can help identify patients in need of tests or other services, and it can ensure consistent recording of results. Patients using remote monitoring systems could transmit their vital signs directly from their homes to their providers, allowing a quick response to potential problems. Effective disease management can reduce the need for hospitalization, thereby both improving health and reducing costs.

Overall Savings Are Large Compared with Costs

Costs include one-time costs for acquiring a HIT system, as well as ongoing maintenance costs. Analysis of other industries indicates that full adoption of new technology requires about 15 years. Because process changes and related benefits take time to develop, net savings are initially low at the start of the 15-year period, but then rise steeply. Figure 2 shows the net potential savings (total savings minus total costs) for HIT implementation over a 15-year period. These savings are from increased efficiency only; health and safety benefits could double the savings.

Market Forces Present Obstacles to HIT Savings and Benefits

Current market conditions place serious obstacles in the way of effective HIT implementation.

- ✓ Relatively few providers have access to HIT. Only about 20 to 25 percent of hospitals and 15 to 20 percent of physicians' offices have a HIT system. Small hospitals and hospitals with half or more of their patients on Medicare are less likely to have HIT.
- ✓ *Connectivity* — the ability to share information from system to system — is poor. HIT implementation is growing, but there is little sharing of health information between existing systems. There is no market pressure to develop HIT systems that can talk to each other. The piecemeal implementation currently under way may actually create additional barriers to the development of a future standardized system because of the high costs of replacing or converting today's non-standard systems.
- ✓ Finally, one of the most serious barriers is the disconnect between who pays for HIT and who profits from HIT. Patients benefit from better health, and payors benefit from lower costs; however, providers pay in both higher costs to implement HIT and lower revenues after implementation. Figure 1 shows one part of the problem: Hospitals that use HIT to reduce adverse drug events also reduce bed-days — and reduced bed-days mean reduced hospital income.

The Government Should Act Now

Government intervention is needed to overcome market obstacles. RAND's recommended policy options fall into three groups: continue current efforts, accelerate market forces, and subsidize change. All three groups rely on the aggressive use of federal purchasing power to overcome market obstacles. Medicare (the Centers for Medicare and Medicaid Services — CMS) is the nation's payment policy leader, the party with the most to gain from HIT's cost and health benefits, and the healthcare system's largest payor. CMS's leadership would send strong market signals for adoption.

Continue current efforts. Actions include: Continue support for the development of uniform standards, common frameworks, HIT certification processes, common performance metrics, and supporting technology and structures. To help allay fears regarding confidentiality, expand liability protection for hospitals using HIT and for providers who comply with federal privacy regulations while using HIT networks. Promote hospital-doctor connectivity by allowing hospitals to subsidize portable, standardized HIT systems for doctors (which would require relaxing the current laws that prohibit such subsidies). These actions call for little or no new federal funding.

Accelerate market forces. Develop targeted investments and incentives to promote HIT. Set up a pay-for-use program for those providers using certified, interoperable HIT systems. Additional actions include: Create a national performance-reporting infrastructure to receive and report comparative performance data. Health plan will fund research on pay-for-performance incentives to providers. Educate consumers about the value of HIT in improving their ability to manage their own health.

These actions require a moderate initial investment in policy and infrastructure development, with larger investments in later years. For example, pay-for-use programs, which are relatively easy to implement, could be followed by broad-based pay-for-performance programs, which require substantially more development.

Subsidize change. Direct subsidies would greatly speed HIT adoption. Subsidies may be particularly important in overcoming barriers to network development. Actions include: Institute grants to encourage the development of organizations, tools, and best practices to help HIT succeed. Make direct subsidies to help selected providers acquire HIT. Extend loans to support the start-up and early operation of HIT networks. Convincing individual physicians and their patients of the value and safety of networking confidential data will be critical. Overcoming these challenges requires ongoing investment in framework, standards, and policy development.

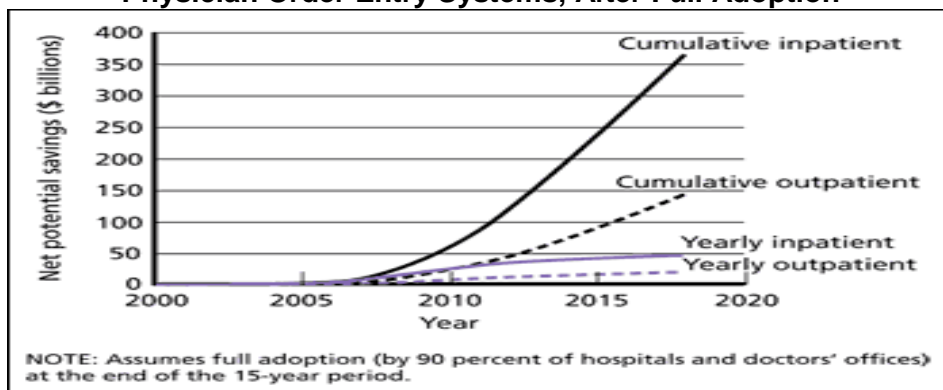
Conclusions

Widespread adoption of HIT and related technologies, applied correctly, could greatly improve health and healthcare in America while yielding significant savings. A range of policy options could be used to speed the development of HIT benefits. Government action is needed; without such action, it may be impossible to overcome market obstacles. Our findings strongly suggest that it is time for government and other payors to aggressively promote the adoption of effective Health Information Technology.

Increasing Prevention Could Save Lives with a Small Increase in Cost		
Service	Annual Cost (in millions)	Deaths Avoided Each Year
Influenza vaccination	\$134–\$327	5,200–11,700
Pneumonia vaccination	\$90	15,000–27,000
Breast cancer screening	\$1,000–\$3,000	2,200–6,600
Cervical cancer screening	\$152–\$456	533
Colorectal cancer screening	\$1,700–\$7,200	17,000–38,000

NOTE: Assumes 100% participation of all persons recommended to receive the service by the U.S. Preventive Services Task Force. This assumption is intended to set an upper bound for potential costs/benefits, not to suggest that 100% is probable.

Figure 2: Estimated Annual Benefits from Inpatient Computerized Physician Order Entry Systems, After Full Adoption



References and Related Reading:

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