

# Successfully Navigating Multiple Electronic Health Records When Using Telepsychiatry: The NC-STeP Experience

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Telepsychiatry is a viable option for providing psychiatric care to those who are currently underserved or who lack access to services, but barriers to its widespread utilization remain. Use of different electronic health record systems (EHRs) by various health care systems is one such barrier. Utilization of different EHRs makes it difficult for providers to review patient data and to document clinical encounters. This column describes a Web

portal developed by the North Carolina Statewide Telepsychiatry Program that connects participating hospital emergency departments and remote psychiatric providers, allowing them to share secure electronic health information regarding patient encounters across different EHRs.

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For a successful clinical encounter, a provider needs to see a patient as well as review his or her health record. That is true whether the clinical encounter takes place face to face or via telepsychiatry. Obtaining access in real time to patient's health records, including lab results and other pertinent clinical information, may not be straightforward, however, if the provider does not have the ability to view the patient's electronic health record (EHR). This is often the case when the patient and provider are in different health care systems that use different EHRs.

An EHR is defined as a computing system that provides medical record functionality, such as review and entry of notes and other health information, results management, order entry, decision support, electronic communication and connectivity, patient support, administrative processes and reporting, and population health (1). Ideally, telepsychiatry providers can fit into the existing clinical workflow by receiving communication from the referring physician and transmitting the findings of the telepsychiatry consultation back to the physician. With the increase in utilization of telepsychiatry, however, care provided by a psychiatrist or by a group of psychiatrists is often spread across multiple health care systems, making it likely that a psychiatrist will encounter more than one EHR. For patients cared for by providers in various health care organizations, electronic record data and functionality will be spread across more than one EHR system, requiring providers to have access to and be conversant with these multiple EHRs.

## Launch of the Statewide Telepsychiatry Program

The East Carolina University Center for Telepsychiatry was tasked by the state of North Carolina with developing a

statewide telepsychiatry program in 2013. The state had seen a steady increase in emergency department (ED) admissions related to behavioral health issues and extended lengths of stay in EDs, ranging from many hours to multiple days. According to a study by the Centers for Disease Control, in 2010 patients with mental illness made up about 10% of all emergency room visits in North Carolina, and people with mental disorders were admitted to the hospital at twice the rate of those without a mental disorder (2).

The North Carolina Statewide Telepsychiatry Program (NC-STeP) was launched in October 2013. The program links hospital EDs that lack access to mental health professionals with psychiatrists and other mental health professionals. These offsite providers initiate assessment and treatment for patients who present to the EDs during mental health or substance abuse crises. The program utilizes secure, real-time, interactive audio and video technology to enable mental health professionals to evaluate, diagnose, and treat individuals needing care at any remote referring site.

The program has grown rapidly to its current network of 65 hospitals statewide, with 15 more likely to join by the end of the year. As of December 31, 2017, a total of 28,853 psychiatry assessments had been completed since program inception, including overturning 3,307 involuntary commitments. These reversals represent a cumulative return on investment of \$17,857,800 in savings from preventing unnecessary hospitalizations.

From the outset of the conceptual design of NC-STeP, there was a realization that the program was unlikely to interact with only one EHR, given that there were 108 hospitals with

one or more EDs in North Carolina in 2013, when NC-STeP went live. A survey of the hospitals found that 75% used one of three EHRs—EPIC, Meditech, and Cerner. EPIC, used by just over 50% of hospitals, was the most widely used. It became apparent to the program that it needed a technology solution to exchange clinical information across various EHRs. The solution would need to provide an efficient experience for the patient and the point-of-care provider, a reliable document exchange for the psychiatric provider, and effective record keeping for the billing and government entities.

### Navigating Multiple Electronic Health Records

There is a learning curve for clinicians in getting accustomed to viewing and interacting with clinical data in an EHR. It requires training and experience to completely review information for a particular patient. Time spent on the EHR has an inverse correlation with the number of patients seen and, hence, productivity and revenue generation. This problem is further compounded if the clinician must navigate multiple EHRs in multiple health care systems.

Requiring that providers learn to search for data in more than one EHR is not a practical solution to this problem. In fact, it is possible to enable clinicians to see all the data they need by using the EHR with which they are most familiar. For example, all the data can be transmitted from one EHR to another, creating interfaces from source systems to both EHRs.

The best option may be to participate in a health information exchange (HIE), a concept introduced by President Bush in his 2004 State of the Union address (3). HIEs permit organizations to share electronic clinical data according to recognized data and communication standards (4). With an HIE, multiple health care organizations that are involved in the patient's care can view and interact with the patient's health information. Making it possible for patients' health records to follow the patients wherever they receive care is foundational to efforts to improve the coordination, efficiency, and outcome of health services. HIEs have also been viewed as a solution to the fragmentation of data in health care (5).

The secure exchange of clinical data among providers via an HIE has the potential to improve quality, safety, and efficiency (6–8). However, establishing operational HIEs has not been easy, given that health care is currently provided by various organizations and providers that have their own information systems and EHRs. A substantial investment of resources is needed to develop an environment that allows health care information to follow the patient. So far, adoption of HIE in the United States has been meager. In 2009, monetary incentives for developing the exchanges were earmarked by the Health Information Technology for Economic and Clinical Health Act. Yet, according to a 2013 study, only 30% of hospitals and 10% of ambulatory practices participated in one of 119 operational HIEs available across the United States (9).

More research is needed to identify, and understand, barriers to HIEs, although research has already identified

some barriers to the development of HIEs. These barriers include the need for standards governing data exchange, security concerns, economic loss to competitors, and the growth of federated systems (10).

### The Solution: NC-STeP Portal

At the time NC-STeP went live, a fully functional HIE was not available at the state level in North Carolina. To meet its needs, the program envisioned a telepsychiatry portal that supported all the health information technology functions required of the telepsychiatry network, including scheduling appointments for patients and preparing work schedules for providers, exchanging clinical data for patient care, and collecting encounter data to support the needs of network managers and billing agents to facilitate timely referrals and program reporting.

The portal was conceptualized as a group of distinct but related technologies that could serve as the primary interface through which data regarding patient encounters were reviewed and created. Most of the components of the portal existed at the time and were readily available. However, for the telepsychiatry network to be successful, these components needed to be integrated to work as a whole.

The NC-STeP portal provides the overall solution to facilitate secure, real-time interactive patient care. The portal serves as a Web-based hub that connects participating hospital emergency departments (ED) and remote psychiatric providers to share secure electronic health information regarding patient encounters. The portal also facilitates scheduling, status tracking, and reporting on each patient encounter as well as delivers the data necessary for the billing agent to process charges for each consultation and for administrators to operate the program.

One of the main benefits of the portal is that it provides a single platform for conducting telepsychiatry assessments across EDs and providers, regardless of the EHR vendor or whether an EHR is available to the ED or the provider. The portal takes advantage of a secure messaging capability shared by all EHRs that are certified as stage 2 or higher by the Medicare and Medicaid EHR Incentive Programs. These EHRs can exchange direct messages containing demographic, clinical, and billing data with the portal. The data are prepared by using consolidated clinical document architecture (C-CDA) and are sent as attachments to the direct message.

The portal can parse data from the C-CDA and add them to the portal's relational database, where they are displayed in the user interface and processed in the reporting system. Some of the data elements usually found in a C-CDA include patient demographic characteristics, data needed for billing, reason for visit, encounter details, results of workup, treatment provided, and plans for care. The portal provides flexibility in data entry to accommodate the needs of users while embracing technological standards established by the EHR Incentive Programs. [A figure depicting the general

outline of the workflow for the portal is available in an online supplement to this column.]

Once received by the portal, patient data are organized and presented to the provider for the assessment process. Upon completion of the assessment, the results are immediately available via the portal. An automated courtesy phone call, return direct message, or a fax of the results can be pushed to the ED, if desired, upon completion of the consult. The results, as well as all the demographic, clinical, billing, and assessment data, are available in the portal to authorized users.

### Parameters to Consider in Custom-Designed Solutions

When an HIE is not a viable or available option, a custom design of health information technology can perform many of the same functions as an HIE. When designing such a system, it is important to remember that it is usually cost-effective and efficient to select “shovel-ready” tools, to automate solutions as much as possible, to cause the least amount of disruption to existing provider workflow, and to make the system as self-sustaining as possible. Such a solution should be able to support future telepsychiatry and telemedicine applications. Such a solution should also be as much a part of the existing workflow as possible.

A solution for improving telepsychiatry consultations and referrals typically must address three domains: scheduling and tracking of patients and providers, exchanging clinical data for patient care, and data collection and analysis.

*Scheduling and tracking of patients and providers.* The referring and consulting sites must coordinate a list of patients waiting to be scheduled for telepsychiatry consultation. A scheduling module should serve as the central component of the portal. The module also should serve as an active list of patients in need of consultation, providing the core knowledge of who has been seen and when, where, and under what circumstances; how long it took to receive consultation recommendations (regarding diagnosis and treatment); overall length of stay; and the final disposition of patients. It should track patients from the beginning through the end of an episode of care on the telepsychiatry network and record important data for use by providers and network managers, monitoring stages of referral and consultation. Such a scheduling module must be based on standards, must be as automated as possible, and must be secure and easy to use.

*Exchanging clinical data for patient care.* The solution must allow consultants to review a patient’s chart and record the consultation report in the chart regardless of what EHR is being used at the referring site. At a minimum, such a telepsychiatry network should support a directed exchange, such as the Direct Protocol, with a “specified, simple, secure, scalable, and standards-based way for participants to send authenticated, encrypted health information directly to known, trusted

recipients over the Internet.” The Direct Protocol allows users to send and receive authenticated, encrypted health information between known and trusted recipients, regardless of the originating application, system, or platform.

*Data collection and analysis.* The solution must enable sufficient data collection and analysis to support the routine operation of the network, the requirements of the external entities, billing operations, and research needs. The data collection system should be as seamless as possible and have limited interruption in provider and biller workflow. Once downloaded, the data set must be easily imported into standard spreadsheet and database programs, such as Excel. The portal should also support role-based access to reporting, referring sites, consultant sites, and network managers, who all require different levels of access to the portal in order to be HIPAA compliant.

### Conclusions

Telepsychiatry is a viable and reasonable option for providing psychiatric care to those who are currently underserved or who lack access to services. Although the current technology is adequate for most uses and continues to advance, barriers to its widespread utilization remain. One such barrier involves working with health care systems that utilize different EHRs.

In this column, we describe our experience with successfully resolving this problem by establishing a Web portal that connects participating hospital emergency departments and remote psychiatric providers, allowing them to share secure electronic health information regarding patient encounters. The portal also facilitates scheduling, status tracking, and reporting on each patient encounter as well as delivers the necessary data for the billing agent to process charges for each consultation and for administrators to operate the program. The portal effectively bridges the needs of the multiple actors in the telepsychiatry virtual encounter and can be implemented in other systems where clinical providers work with multiple EHRs. It provides an efficient experience for the patient and the point-of-care provider, a reliable document exchange for the psychiatric provider, and effective record keeping for the billing and government entities. It does so while respecting the idea that the purpose and fit of telecare services in the wider care system should drive introduction of information-sharing technology and not the other way around.

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