HEALING HANDS

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Maintaining integrated systems of care at multiple points of service presents communication challenges for homeless health care providers. Electronic information systems facilitate service coordination among remote sites and multiple providers serving the same clients. They can also enable HCH projects to measure with greater accuracy the number of clients they serve, the services they provide, and service outcomes. Better data empower them to demonstrate the value of their programs, improve services, meet reporting requirements of funders, and advocate more persuasively for public policies that affect homelessness.¹

In the following articles, clinicians and information specialists report the benefits and risks of sharing client information within and among agencies by means of electronic medical records (EMRs) and homeless management information systems (HMIS). They also discuss the implications of new federal imperatives under the Health Insurance Portability and Accountability Act (HIPAA) to protect patient confidentiality, and new financial incentives for HUD Supportive Housing Program grantees to collect community-level homeless data, including unduplicated counts of homeless service users.

Improving Outreach, Assessing Outcomes with EMRs

An electronic medical record (EMR) is a longitudinal computer database containing demographic, diagnostic, and therapeutic information about individual patients. Typically, a single institution or agency controls this information, which is accessible only to authorized personnel.

EMRs are used primarily as clinical tools to facilitate and improve patient care, rather than to support administrative functions such as billing, insurance claims, and reporting to accreditation agencies or funders. Optimally, electronic information systems should integrate all of these functions; but only the most expensive commercial products (such as Epic) now have the capacity to do so. These systems are beyond the financial reach of most HCH projects unless they are affiliated with government agencies or major medical centers.

Although EMRs have been technically feasible for 30 years, until the mid 1990's they were implemented only in a few academic medical centers and VA hospitals, primarily because of the expense and technical expertise required to develop and maintain them. Since then, more and better electronic patient record systems have become commercially

available at lower prices. Several products can be used in ambulatory care settings, and a few can be customized to meet the unique needs of homeless

health care, as the following examples illustrate.

When **Dr. Jim O'Connell** goes to the clinic at the Pine Street Inn shelter in Boston, he takes his laptop computer with him. First he

connects to the Boston Health Care for the Homeless Program's computer network using a dial-up modem, and authenticates himself

with a username and password. Then he logs onto the HCH electronic medical record using a standard Web browser on his PC, where he has immediate access to current information about his patients, wherever they have been seen within the HCH service system. O'Connell enters his medical notes into the EMR during patient encounters, then prints out a hard copy to leave in the shelter's clinic chart for nurses to see. Records stored there are available

Direct access to the EMR without a dial-up modem is possible from five main clinic sites connected to the system by a wide area net-

only to medical personnel.

work (WAN). "This isn't cheap," says information systems director **Peter Malloy**. "We pay \$400 – \$800 per month depending on bandwidth to maintain each of five WAN TI connections, for a total monthly cost of over \$2,000." Nevertheless, the investment is worth it, he says, because the EMR is critical to clinical operations in several busy clinics.

CARE COORDINATION One advantage of this Web-based system is "real time" data entry and retrieval. That is, authorized clinicians using the system can retrieve data just entered from other locations, Malloy explains. This helps providers keep track of their patients' primary diagnoses, medications, service access, and health outcomes. To protect client confidentiality, only HCH medical and mental health care providers have direct access to the electronic record; other clinicians working at remote service sites can see print-outs of notes written at their site, but not information from other sites. BHCHP provides services at over 60 sites including shelters, motels, racetracks, soup kitchens, hospital clinics, two respite care units, and the streets of Boston — too many locations to shuffle paper back and forth. Thanks to the EMR, which has been on-line for six years, their ambulatory care information system is virtually paperless.

OUTCOMES ASSESSMENT Besides

functioning as a care coordination tool, the EMR is used to assess clinical outcomes. For example, Dr. O'Connell and Stacy Swain, MPH, analyzed EMR data to investigate whether HAART (highly-active antiretroviral therapy) for HIV infection is as effective for persons who are homeless as for those who are housed. Over 400 HCH patients were seen more than once during the previous three years, with over 150 prescribed HAART. The percentage of HCH patients with successful treatment outcomes (viral loads decreasing to below detectable limits and CD4 counts increasing by more than 50%) was similar to housed patients treated at Massachusetts General Hospital.

The Boston HCH project's EMR was designed in 1994 by the Laboratory of Computer Science at Mass. General before many such systems were commercially avail-

able.² Last year, Boston Medical Center received a \$5.9 million grant to install Logician, a commercial EMR, in eight neighborhood health centers including Health Care for the Homeless. This new system is expected to be operational by the end of 2003. It will be a major change for the HCH,

"Moving from paper to an electronic medical record is a huge task, especially if clinicians have to transfer the information themselves. It felt awful for the first few months; now I don't know anyone who would give it up. We do a better job of protecting patient confidentiality with the EMR than we do with paper records."

Jim O'Connell, MD

Boston Health Care for the Homeless Program

but with significant advantages: Logician permits the development of customized templates, and will help them to collect better data in a more standardized way, resulting in more reliable information retrieval. In addition, BMC will run the server and provide technical support at an affordable price.

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The New York Children's Health Project at Children's Hospital, Montefiore Medical Center, was the first project to use an electronic medical record in mobile vans. according to medical director Peter Sherman, MD. The HCH project has 11 mobile sites with multiple EMR users at each site. After examining over 30 commercial products, they finally chose PenChart because of its applicability to ambulatory care settings, the fact that it can be customized for use with pediatric patients, and its affordable price. Implemented in December 1999, the information system features a clipboard-sized, hand-held computer known as a "pen tablet" and a computer database server to which the tablets are wirelessly connected via Ethernet software, explains program director Michael Lambert, MBA. The Children's Health Fund's National Child Health Network uses a similar system.3

Clinicians record demographic, medical and psychosocial information on the pen tablets during patient encounters, prompted by standardized questions and guidelines. Clinical notes are generated automatically from the data entered. This information is downloaded onto the server in each mobile unit, and subsequently onto the master server back at Children's Hospital, where the EMR resides. Information on the mobile servers is updated daily. They had to invest in heavyduty servers for these mobile units, able to withstand transport on vans that bounce up and down, which are more expensive than fixed-site EMR equipment.

Dr. Sherman recommends the use of electronic medical records in homeless health care for a number of reasons:

BETTER OUTREACH EMRs enable HCH clinicians to transport a tremendous amount of patient information in a compact way — particularly when they are working in the field without access to office charts. In most cases, clinicians don't have long-term relationships with patients who live in shelters or on the streets; without a patient chart, it's difficult to remember details about their medical or personal histories.

BETTER FOLLOW-UP EMRs also facilitate tracking of patient referrals, which is especially important in multidisciplinary

"A mobile electronic medical record enables you to have patient information at your fingertips at multiple sites, which you can communicate to all members of the clinical team."

Peter Sherman, MD, New York Children's Health Project

health care. If a client doesn't show up for an appointment, the clinician makes a notation in the electronic record, which triggers further outreach efforts.

"Our EMR allows HCH providers to do better patient follow-up based on more comprehensive information about medical and psychosocial issues," says Sherman. "At every first encounter, patients are asked how many times they have been in a shelter and why, and whether they have adequate food and health insurance. They are also asked about their prior access to health care and where they received it. The medical history template has been customized to prompt clinicians to ask questions about domestic violence and illnesses that are highly prevalent among homeless people. As a result, we can collect health-related information that is tailored to the community we serve in a more consistent way."

BETTER DATA Electronic records enable HCH providers to generate more and better individual and aggregate data about homeless patients. "Increasingly, grantors and insurance companies are expecting clinicians to justify their health care decisions based on outcomes data, not just process data," says Sherman. Among the outcomes he is interested in measuring are the effects of domestic violence on children, and adherence to asthma treatment guidelines for children living in shelters. "Better data allow us to deliver much better health care and to be better advocates for our patients," concludes Sherman. "EMRs enable us to rely on more than anecdotes to explain to policy makers and the general public the serious health conditions of people experiencing homelessness."

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Dr. David Buck, assistant professor of family and community medicine at Baylor College of Medicine and medical director for **Healthcare for the Homeless-Houston** (HHH), has initiated the use of an EMR⁴ with three fundamental goals:

- Improve outreach and engagement with homeless people who do not seek care in clinics or emergency rooms;
- Improve data sharing among outreach workers; and
- Build effective partnerships among homeless service agencies to promote develop-

ment of more integrated medical and behavioral health services.

HHH currently uses an Internet-based EMR called Encounter in their clinic. They also use a "mini-EMR," specially designed by HealthLink for outreach clinicians, who use palm pilots (PDAs) to collect client information that is downloaded periodically onto an Access spreadsheet. The cost of programming these palm pilots alone (\$80,000 – \$120,000) would be prohibitive, if this service had not been donated, says Buck. Like other homeless

tional outcomes. Few of these clients have received medical care, explains Dr. Buck. This approach to client engagement is based on self-efficacy theory, participatory action research, and an empowerment model articulated by Paulo Freire. The EMR is used to document and track progress toward meeting goals that are set by homeless clients themselves, such as getting a "gold card" that allows them to access services at county clinics, or obtaining substance abuse treatment. The HHH outreach team provides mostly case management. They use the EMR to monitor

access to services that homeless clients want, which may eventually result in improved clinical and functional outcomes.

"We use the EMR to document patient goals, evaluate client involvement in goal setting, and monitor and identify barriers to goal achievement," explains Lynn Kelly, FNP, who helped to implement the system in 2000. Kelly corrects demographic errors in the electronic record, trains other clinicians to use it, and develops strategies to standardize data so they can be used for clinical research. She is also working on customized templates for podiatry and dental care.

There are a few drawbacks to this system. It contains a lot of billing information HHH doesn't need, says clinical services manager Regina Knight Richie, and tracking unduplicated numbers of clients served is a laborious process requiring a series of data retrieval operations. They must use "free text" fields to create customized templates, which aren't as sophisticated as the ones that came with the system. Because the mini-EMR is too slow to use during

patient encounters, PDAs are being replaced with IPAQ "pocket PCs." HHH plans to convert the clinic EMR to a server-based system using Epic software, beginning in 2003, to promote a seamless flow of information between health care safety net organizations in Houston.

ADVICE FOR HCH PROJECTS CONSIDERING AN EMR

- Know your information & equipment needs.
- Examine the system's reporting capabilities.
- Involve end-users in system selection, development, and implementation, including physicians, other clinicians, and administrators.
- When you've seen one system, you've seen one.
 - Observe the product in an environment as similar to yours as possible.
 - Talk to folks who are actually using the software.
- Think about how to train your staff.
 - The more training at the front end, the better the results.
 - Immersion is the best teacher; it gets easier once you get your feet wet.
 - Provide hands-on training; use multiple teams and role-playing; do as much pilot testing as possible.
 - Make a tutorial booklet for every user with a video that can be viewed online.
- Educate patients about the EMR's purposes and how you will protect their personal health information. Evaluate any patient education pieces included with the software.
- No implementation is flawless. Be prepared to work hard, make changes, and keep learning!

Boston HCH Program, The New York Children's Health Project, & Healthcare for the Homeless-Houston

health care providers, HHH has been the beneficiary of important alliances with larger and wealthier partners, including Baylor College of Medicine and UT Medicine-Houston.

GOAL-DIRECTED CARE A unique aspect of the outreach EMR is that it is designed to monitor achievement of client-specified goals, rather than clinical or func-

HMIS: Byting Off More Than We Can Chew?

omeless services management information systems (HMIS) take Lelectronic data sharing a step farther than most electronic medical records by involving non-clinical service providers and multiple agencies of different types in collecting data and accessing information about homeless clients. EMRs and HMIS have distinct but overlapping purposes. The primary purpose of the former is to optimize the care of individual patients, while the primary purpose of the latter is to maximize the cost-effectiveness of homeless services.

Although the explicit purposes of these collaborative efforts among homeless service agencies may vary from community to community, HMIS share some common objectives, including the following:

- Increase access to and coordination of homeless services;
- Identify gaps in the homeless service system;
- Improve service quality and adequacy for homeless clients;
- Promote the most appropriate and cost-effective use of services;
- Enable more accurate calculations of the prevalence of homelessness in local communities and nationwide; and
- Provide an empirical basis for service planning and evaluation, funding decisions, and public policy.

FEDERAL IMPERATIVES A

number of these objectives have been influenced by federal policy. For example, developing the capacity to produce unduplicated counts of homeless clients is now an explicit expectation of HUD Supportive Housing Program grantees, and HMIS are the means by which this capacity is to be demonstrated. In the FY 2001 **HUD** Appropriations Act, Congress made the cost of implementing and operating a HMIS and analyzing its data a new eligible activity under the HUD-McKinney-Vento Supportive

Housing Program. In addition, Congress directed the Department of Housing and Urban Development to "take the lead in requiring every jurisdiction to have unduplicated client-level data within three years."5

Congressional intent was specified in the following passage of the FY 2001 Senate Report:

...HUD must collect data on the extent of homelessness in America as well as the effectiveness of the McKinney homeless assistance programs in addressing this condition. ...[I]t is essential to develop an unduplicated count of homeless people, and an analysis of their patterns of use of assistance (...both targeted and not targeted to homeless people),

including how they enter and exit the homeless assistance system and the effectiveness of assistance.5

HUD responded to this directive by requiring all Supportive Housing Program grantees to create the capacity to produce unduplicated counts of homeless service users across a jurisdiction, by service use, by 2003. In addition, HUD supported the development of two technical assistance documents — an assessment of existing HMIS software and an implementation guide — to help communities establish interagency information systems.6

HMIS involve special obligations and risks for participating agencies. Stringent new federal restrictions under the Health Insurance Portability and Accountability Act (HIPAA) require health-related organizations that handle certain transactions (such as medical

> claims) electronically, including two years after it is published.

federally qualified health centers, to protect the privacy and security of their clients' personally identifiable health information. Final details on the privacy and security sections of the HIPAA regulation are still under review by HHS.^{7,8} Compliance with the privacy rule is required by April 2003, and with the security rule,

HCH CONCERNS To understand more clearly why HCH providers might have some concerns about participating in homeless management information systems, we talked to Linda Reeder, BSN, BSIE, MBA, an independent consultant on clinical information systems, case management, and HIPAA, based in Seattle, Washington. Reeder is providing technical assistance to developers of the Safe Harbors HMIS, a joint project of Seattle, King County, and United Way of

King County. 10 She acknowledges that many clinicians have reservations about any information system that shares client data among agencies, for the following reasons:

Privacy Most clinicians prefer to retain personal control over very sensitive client information — such as mental illness, substance abuse, HIV infection, and physical or sexual abuse — and are fearful of sharing it with anyone except other health care providers in their agency, observes Reeder. One security breach of an HMIS risks a much broader invasion of privacy than a misplaced patient chart or even misuse of an intra-agency EMR. "Sharing control of sensitive

RECOMMENDATIONS FOR HMIS PARTICIPANTS

- Develop a centralized system to inform clients of your privacy policy and their rights. A collaborative effort among HMIS participants is needed so that each agency isn't re-inventing the wheel.
- Use one standard for all agencies that share health information. To safeguard client privacy, urge social services agencies not bound by HIPAA to be voluntarily compliant.
- Educate your agency about HIPAA. Get buy-in from senior management. Form a HIPPA Committee with a chairperson and members that represent a cross-section of the organization. Read the HIPAA regulations and consult resources on the Web to help you understand them. Here are some helpful ones:
 - U.S. Department of Health and Human Services links to all HIPAA regulations, proposed and final, as well summary and background materials: http://aspe.os.dhhs.gov/admnsimp/
 - Maryland Health Care Commission Guide to Privacy Readiness includes a checklist of items for meeting HIPAA privacy regulations: http://www.mhcc.state.md.us
 - American Academy of Family Physicians -A Problem-Oriented Approach to the HIPAA Security Standards:9 http://www.aafp.org/fpm/20010700/37apro.html

Linda Reeder, Safe Harbors Project, Seattle, Washington Peter Malloy Boston Health Care for the Homeless Program "People and processes present more serious risks to

patient confidentiality than technology does."

Linda Reeder, Seattle/King County, Washington

health information with other agencies requires a cultural change," she says. "There has been lots of discussion about limiting access to information on a need-to-know basis through tiered levels of access, but details about how that will happen are complex to figure out, and it makes people nervous."

HCH clinicians confirm this concern. "Information sharing among agencies is a slippery slope," remarks Jan Caughlan, LCSW-C, HCH, Baltimore. Her project has resisted participating in the city's homeless database because of patient privacy concerns. One worry is that shelters might ban clients with latent TB or other communicable diseases. An unintended consequence of HMIS, which are supposed to improve access to homeless services, might be to restrict service access even further, she warns. HCH clinicians wonder how well HIPAA privacy regulations will be implemented and enforced.

Jim O'Connell, MD, Boston HCH Program, is concerned about the implications of HIPAA privacy requirements for all communications with non-clinical members of the informal networks that make homeless health care work — shelter workers, paraprofessional outreach workers, even police. Under the original privacy rule, health care providers were required to obtain written client consent before sharing their health-related information in any way — via paper,

electronic information systems, or even word of mouth. In March, HHS proposed modifications in the HIPAA privacy rule that would, among other things, remove patient consent requirements hindering access to care or efficient delivery of health care, while strengthening requirements for

providers to notify patients about their privacy rights and practices.⁸ Final decisions on these proposed changes will be made soon.

"It will be trickier to meet notification and consent requirements with homeless clients, given their mobility and literacy and language issues," observes Linda Reeder. "Homeless people are harder to locate than housed people, and social service agencies have limited resources to invest in preparing written materials they can understand." Web-based technology does have the capacity to protect patient confidentiality. But technology isn't the most serious issue. "The real challenges are people and process issues — training personnel and setting up standard procedures — which will be both expensive and time-consuming." Peter Malloy, IS director at the Boston Health Care for the Homeless Program, agrees: "HIPAA is not an IS project. Only 20% of HIPAA involves information systems. The rest is about developing new policies and procedures and educating staff."

Accountability "Web technology enables a non-redundant count of the client base, more reliable data, and the formation of a data warehouse where data are stored and analyzed," says Reeder. "But Web-based HMIS make some people feel they have lost control over their own data and patient privacy. Some HMIS participants will have new reporting requirements, and the new system will hold them to a higher level of accountability." Although HCH grantees are already required to report unduplicated numbers of homeless clients, all homeless assistance providers are not. This has been a significant issue for some shelter providers, who have strongly resisted participating in HMIS.

Medical vs. Social Services Models HIPAA presupposes a medical model of service (involving insurance claims, payments, and enrollment in health plans), in contrast to a social services model (involving bundled payments or payments for related services including education, outreach, training and transportation which don't necessarily depend on enrollment in a health plan). "Many HCH providers are a complex mixture of both models," says Reeder. "But the social services model doesn't exactly fit into the HIPAA structure. Nevertheless, HCH projects are bound to comply with HIPAA if they perform certain business transactions electronically (e.g. submit claims) or accept payments from Medicaid and other government programs." This is another reason for their anxiety.

Agency Diversity Agencies providing different kinds of services are bound or not bound by HIPAA requirements to different degrees. In HMIS, agencies of many different types with different obligations under the law must learn to work together to share information appropriately. "This is a challenge in any attempt to share clinical information among medical and social support programs," says Reeder. "Legal entity definition is really important because of the impact it has on disclosures of information, contracts and other practices." Some larger hybrid agencies with both medical and social services components (such as state health agencies) can be sponsors,

providers, payers, even clearinghouses, all at the same time. Some programs may decide to be voluntarily compliant with HIPAA to simplify their interactions with other covered entities."

Data Management Homeless service

agencies have different cultures and clienteles, even if they generally perform the same function. They collect different kinds of data at different levels of detail on different time schedules, driven in part by an array of funding sources and reporting requirements. This is especially true of FQHCs. And they must follow different laws and regulations regarding how the data they collect are handled. There are data collection, storage, and disclosure requirements they must address in addition to HIPAA regulations. "People aren't focusing enough on the additional program-specific or legally mandated data elements they are already collecting that will have to be integrated with the various data elements required by HIPAA," warns Reeder. This will exert additional pressure on HCH projects.

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In February 2002, the Nashville Consortium of Safety Net Providers launched Bridges to Care, "a program of information and care coordination" for uninsured residents of Nashville, Tennessee." Bridges to Care links uninsured patients to an ongoing source of primary care (a "medical home") which serves as a conduit to other clinical services provided by consortium members, including 16 primary care clinics, 15 behavioral health providers, two dental care providers, and seven hospitals. These safety net providers are linked by means of a common electronic information system, designed to facilitate referrals, coordinate care, and track service utilization. The project received a HRSA Community Access Program (CAP) grant to support the development of this combined clinical and administra-

A PUBLICATION OF THE HCH CLINICIANS' NETWORK

tive database. The Web-based application has been custom-designed by a local contractor with a national client base.

Client inclusion in the database is voluntary. To participate, applicants must be uninsured, reside in Nashville, and sign an authorization to release confidential information, enabling Consortium members to share protected health information to facilitate their care. Participants are eligible for special pharmacy discounts and free transportation to medical services. If they choose not to sign the authorization, they can still receive health services, but without the special benefits or enhanced case management.

The Metropolitan Health Department, which administers the Downtown Clinic Health Care for the Homeless project, serves as the central coordinating agency and fiscal agent for Bridges to Care. MHD is developing a spin-off of this program to link all homeless individuals, with or without health insurance, to emergency shelters, as well as health care safety net providers, says HCH administrator **Scott Orman**. To address concerns of A&D programs and domestic violence shelters about divulging client information, tiered levels of access to the HMIS will be created in compliance with HIPAA.

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