EMR Education for a Student Health Center

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by Barbara Burgess, RRA

How does a busy student health center on a state university campus implement an electronic health record? This is the story of how Hall Health Primary Care Center (HHPCC), a community-based primary care center at the University of Washington (UW) in Seattle, did just that.

Hall Health offers a variety of services to UW students, including acute care, women's services, mental health, physical therapy, prenatal care, and pediatrics. The center also makes its services available to UW alumni, faculty, and staff, as well as retirees in the UW Retirement Association and community residents.

In the mid-1990s, change came to HHPCC in a number of forms. To keep student subsidies down, the center began to rely increasingly on insurance, particularly managed care, for support. It also added many nonstudents to its patient list. As its number of patients and the demands on its data grew, it became clear that HHPCC's paper-based medical record did not meet the needs of patients or clinicians.

There was a growing need to be able to share patient information in a timely and accessible manner, not only with the University of Washington Academic Medical Centers (UWAMC) but within the center itself. Because many patients were seen in multiple clinics on the same day—even with a computerized chart tracking system—the chase was on to locate records and route them to the providers in a timely manner. Timely routing rarely occurred because documentation of a patient's visit in one clinic was often not completed before the patient was seen in another clinic. It was time for a change—and time for an electronic medical record (EMR).

On Our Way

Prior to implementation, an interdisciplinary team including members of HHPCC's Health Data Services (HDS) department and administrative staff weighed the benefits and potential problems a new system might incur.

After weighing the benefits and trade-offs, the group decided to proceed by choosing a local vendor and purchased an integrated system that included billing/managed care, appointment scheduler, and EMR features. We were on our way.

We implemented the system in December 1995, launching the appointment scheduler and billing system throughout the clinics but completing the EMR implementation one clinic at a time. The first clinic chosen for the EMR, the women's clinic, was selected because it had only four clinicians, including a physician who was interested in computers.

To begin with, we automated the progress notes. A feature in the progress notes section allows a provider to use system "dot" codes (e.g., .AL stands for allergies, .HM stands for health maintenance). When a progress note is signed electronically and closed, the dot codes update other chart sections automatically. Progress notes continued to be printed and filed in the paper record until all clinics were online in June 1997. We chose not to scan any documents from paper to EMR for a variety of reasons, including staffing and cost of scanner technology.

Challenges we faced included:

Software incompatibility. The billing and appointment scheduler were DOS based, and the EMR was Windows based. Our transcriptionists continue to use the DOS version of the EMR, which has a preferable screen presentation.

Provider resistance. Many providers initially were not enthusiastic about an electronic record. Many of them lacked even basic computer experience. They felt that it would require too much time, and they were also afraid that data would be lost or that the system would go down. We tackled those challenges by purchasing typing/keyboarding programs so our providers could sharpen their typing skills. Furthermore, a number of test patients were loaded into the EMR, allowing staff members to

play with the system. We have had two major power outages since going "live," but a back-up file server ensures that we don't lose information. Most of the provider issues have been dealt with successfully, even though progress is sometimes slow.

Work flow changes. To get information into the system, we offer providers the choice of dictating or directly entering patient encounter information. Immediately after implementation, transcription services saw a sharp increase in dictation. But eventually, providers got accustomed to doing direct entry and using system templates, and within six months turnaround time was back to 24 to 48 hours. All providers now access the EMR prior to a patient visit, and many are now completing encounter documentation while seeing patients in the exam room.

Too much paper. Initially, all EMR documentation was printed out and filed in the paper record. The volume of loose paper in the file grew from an average of 12 to 50 inches per day. A minimal paper record housed labs (not available online), consents, face sheets, and other correspondence. By June 1997, we no longer printed out documentation. All providers had access to the EMR in exam rooms and their offices. They soon began to trust the EMR. The volume of loose filing dropped dramatically and now measures only 1 to 2 inches per day.

Benefits and Improvements

As a result of implementing our EMR, HHPCC has seen a number of benefits and improvements in processes. Some of them are fundamentally very simple; for instance, documentation is now legible. We also benefit from the ability to integrate practice guidelines and standardized practice-wide templates. We have seen more involved benefits as well, such as:

Increased efficiency. We do less paperwork, filing and pulling records, transporting records to clinics, and copying for release of information purposes. Such efficiency, of course, did not come about at once. Because we implemented the EMR clinic by clinic, we spent some time printing out EMR documentation and filing it in the paper chart. Efficiency increased when we stopped printing out records (and asked providers to "trust" the system).

Ease of sharing data with our managed care partners. All of our providers are part of the University of Washington Academic Medical Center faculty and therefore have access to UWMC's online clinical information system. Specialty care is provided by the Medical Center, so HHPCC providers review specialty consult reports online.

Improved quality of care. This is mostly a result of reduced duplication of services, increased access, multiple users, and portability.

Workflow auditing. We do this through system reports and integration with the appointment scheduler and billing system.

Improved patient services. The EMR makes it easier for us to perform small but appreciated patient services—returning phone calls, prescribing refills, and notifying about lab results.

No more lost charts. This is not to say every chart is perfect—charts may still be duplicated, progress notes and other patient information can still be placed in the wrong charts, or documents can be missing. However, we are using system flags and reports to solve these issues.

Use of electronic signatures. The EMR enables each user to have a unique signature code and an "in box" that flags providers to remind them about encounters that require review and signature.

Other information. When computer technology appeared in the clinics, everyone had more access to information, including secured e-mail and the Internet (e.g., MEDLINE, online professional journals, etc.) (It should be noted that as staff became more computer literate, we did see an increased incidence of "surfing the Internet." To make sure staff stayed focused on patient care, we addressed this issue with education and a few new policies and procedures.)

A Few Trade-offs

Though our new system brought us many benefits, we also had to make a few trade-offs. These included:

Initial expense of hardware and software. The costs of installing a workstation in each exam room and every office were not insignificant. (We now have a total of 140 computers, with six in HDS.) In addition, HHPCC needed to look at ongoing

expenses. We had believed that our file server would hold 10 years' worth of data, but in just three years' time we have filled the disk space to capacity. As a result, we are purchasing a larger file server.

Training. Issues such as how and when to train staff, how to handle ongoing training, and training floating or temporary staff had to be resolved. Training is now done in-house and is part of the HDS manager's job.

Decrease in clinician productivity. Three years later, our appointment times are still longer than we had with a paper-based record. HHPCC staff accepts the fact that the longer times are permanent in the EMR environment.

Maintenance of a dual system. This made the release of information processes somewhat more cumbersome. As more information becomes available online, we expect that the processes will become smoother.

Security issues. These issues were addressed with the appropriate policies and procedures and, in some cases, disaster plans.

Major paradigm shift. Using an EMR changed the way we worked. We needed to bring about both clinician and patient acceptance. In addition, some employees saw shifts in their job descriptions or needed to develop new skills. These things are all part of the change process.

The Way We Work

HDS is now tracking 65,000 patient records, with another 120,000 in off-site storage. All paper charts are bar coded and tracked via a commercially purchased system. HDS staff also has access to the billing, appointment, EMR, and student database systems.

For some time, providers still felt most comfortable seeing a patient with a paper record in hand, which meant that HDS processed a large number of charts per day. From 1994 to mid-1996, the department processed 17,000 charts per day. As providers became comfortable doing direct entry or dictating, the number of charts processed has dropped by approximately 7000 charts per month. Currently we are still pulling a large number of paper records for review of old data, lab data, consents, and outside information—but the total will probably continue to drop.

HDS is now responsible for two systems, a paper-based system and an EMR. But HDS has not increased its staff (4.0 FTEs and 1.5 FTE/student). In the beginning, job requirements for staff were minimal and did not require medical records experience, but in the past year all HDS positions have been upgraded to health information technician positions. New hires are required to have some HIM experience.

The department director now deals with HDS systemwide issues and less with day-to-day management, focusing on development of EMR policies and procedures.

On July 1, 1999, HHPCC will implement a new EMR system that will allow us to share information as part of the UW Primary Care Network and the UW Academic Medical Center. This new system will present us with many challenges. As we solve them, however, we will be helping to complete our facility's transformation from a clinic serving a particular patient population to an integral part of a network of providers throughout the Seattle metro area.

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