Transcription System Overhaul Reaps Savings, Efficiency

by Joan Hicks, MS, RHIA, Mike Waldrum, MD, MS, Valeria Wilson, MS, and Jeffrey Marwill, MS

Editor's note: This project received first prize in AHIMA's Best Practices Award Program. Second and third-prize winners will be featured in upcoming issues of the *Journal of AHIMA*. The Best Practice Awards are generously underwritten by a grant from founding sponsor Healthcare Management Advisors, Inc. (HMA) to the Foundation of Research and Education (FORE). Since 1990, HMA has provided compliance and clinical data quality services to more than 1,600 hospitals and 20,000 physicians and now also provides online solutions via the Internet.

Needing to integrate the data of its 500,000 annual patients, this clinic first considered upgrading its transcription services but then opted to overhaul the entire clinical access information system. The result was improved access, quality, and efficiency. Here's how they did it.

Health information needs to be available to physicians, nurses, and HIM professionals instantly and all the time. However, it's not uncommon for different clinics within the same health system to use different methods to collect and store data. The challenge is uniting this information in one fully accessible system. At The Kirklin Clinic (TKC), a multispecialty ambulatory practice facility in the University of Alabama Health System, more than 500,000 patients are seen annually. TKC needed a way to integrate, store, and access data on each of these patients.

Setting Lofty Goals

A 1997 assessment of the HIM environment at the University of Alabama Health Services Foundation revealed:

- only 50 percent of transcribed notes were accessible electronically
- there were no integrated patient records in the clinic
- 55 clinics used more than 80 record storage sites
- the Joint Commission on Accreditation of Healthcare Organizations' standards IM 7.4 required the establishment of a patient-centric list of medications, allergies, problems, and procedures (MAPP lists) by the patient's third clinic visit

TKC recognized the need for an enterprise-wide transcription system that would support the establishment and maintenance of patient lists, free-form text, and other structured data for all patients as dictated by caregivers. Further, a new transcription system would expand the facility's clinical document access (CDA) system, which provided views of radiology and pathology results, operating room notes, and discharge summaries using Web-based technology. However, when TKC submitted a request for proposal to 25 transcription vendors expecting that they could provide electronic access to transcribed documents, none of them could meet the clinic's needs. As a result, the clinic shifted its focus from selecting a transcription service to purchasing a software product that would meet the following goals:

- 100 percent availability of documents transcribed for clinic physicians
- a means of constructing and maintaining patient lists by the third clinic visit
- the patient list operating as a composite rather than fragmented view of the patient's care
- improvement of transcription accuracy, reduction and elimination of duplicate medical record numbers, misfiling, and loss of information
- increased security of patient information by eliminating the mishandling of paper records
- improved information management by making patient information available, as appropriate, to physicians and other caregivers, in a timely manner
- providing information across the continuum of care

To meet these goals, TKC set the following objectives first:

- identify and offer dictation and transcription labor options (with consideration being given to costs, benefits, service, and to internal staff versus external vendors)
- develop and execute agreements with external transcription vendors
- develop a business plan and cost allocation model for ongoing funding
- install and deploy a product set for transcription and list management
- present an integrated view of documents and lists from a Web browser system, specifically CDA

In 1998, TKC signed a contract with CareFlow Net, Inc. (CFNI) to provide the product set that would support the project's goals.

A Winding Road to Implementation

After the CFNI contract was signed in April 1999, preparations for a pilot of the software included:

- selection of clinics to participate in the pilot and assessments of the pilot groups (hardware assessments and work process analysis)
- integration of the CFNI system with TKC's master member index
- installation of server and server software
- selection of transcription vendors (RFI distribution and evaluation)
- training for physicians (electronic viewing, editing, and signing of notes) and transcriptionists (transcription software)

Individual clinics were chosen to participate in the pilot based on specific documentation needs, transcription volumes, and transcription personnel used (we wanted some internal users of the system along with transcription vendors). The pilot included 60 physicians and lasted 10 months.
While planning implementation, the clinic identified two components necessary for its success: process redesign and software co-development. Quality and access improvements were dependent on changes in processes that centered around the correct identification of patients, while the management of list items and system flexibility were dependent on software co-development efforts. Thus, TKC designed criteria by which to assess the levels of access and quality in the current (CDA) and CFNI transcription environments. The clinic determined that access was affected by:

- availability of the documents (that is, were the documents on the system?)
- quality indicators that affect a clinician's ability to locate the documents (e.g., multiple medical record numbers for a single patient, misspelled names, and misfiled notes)
- turnaround time (amount of time required to make edited, signed notes available)

We recognized that list management was not a feature supported in the CDA system.

Software Co-development

Although CFNI's software suite included a Web-based portal for access and editing of transcribed documents, we decided to internally develop our own intranet portal application called Horizon that added integration of information from lab reports. The client application for transcription input only required an IBM-compatible machine and Microsoft Word and therefore was quite flexible in allowing physicians to choose almost any transcription vendor or internal staff for transcription. In addition, the flexible Web portal and routing capabilities supported a variety of work processes.

Co-development of the second generation of CFNI's software was necessary to add the list management functionality known as the CareFlow List Management Module (CLMM). TKC developed a document known as a "Concept of Operations" that specified the functionality and work flow that the CLMM would accommodate. CFNI developed the client and server CLMM software while our developers modified Horizon so that it would support the integration of list items with clinic notes, discharge summaries, OR notes, and laboratory, radiology, and pathology reports. Testing was conducted by CFNI and our organization in separate environments and the list management was added to the pilot in March 2000.

Process Redesign

In the CDA system, poor patient identification processes were largely responsible for the low quality of the documents in the system. In order for a patient to be correctly identified in the CDA system:

- the physician had to correctly dictate the medical record number (no omissions, no transposed numbers)
- the transcriptionist had to correctly key in the number (no transposed numbers)
- the transcriptionist had to correctly spell the patient's name (usually with no reference or way to check the spelling)

Most of the notes in the CDA system were affected by one or more errors directly attributable to the poor patient identification process. The steps that adversely affected quality, access or turnaround time include (see "CDA Transcription Process"):

- **step 3:** transcriptionist transcribes a document without specifically identifying the patient on multiple criteria against our master member index
- **step 6:** preliminary notes (not signed) are available for online viewing without an indication that the note is in a preliminary state
- **step 7:** documents are printed in a central area and have to be sorted by physician and sent (by runner or campus mail). This extra step lengthens the entire process
- **step 8-11:** manual retrieval, sorting, and integration of documents. This is a slow, labor-intensive, and expensive process that is being automated in Horizon
- **step 15:** manual routing of documents is slow and labor intensive. The CFNI application can automatically route documents via printer, fax, and e-mail

In the CFNI system, correct patient identification was ensured with a process change for both the physician and transcriptionist. The physician was encouraged to provide patient identification elements in the dictation (medical record number, name, date of birth, and social security number, if available) and the transcriptionists were required to perform a patient lookup against our master member patient index through the CFNI application based on the elements of patient information listed above. To provide the patient lookup ability, our in-house development staff integrated the CFNI application with our master member index. In addition, TKC provided a report that listed all patients as well as the four identification elements seen in the clinic to the transcriptionists. As a result of the process redesign, we have seen vast improvements in quality, access, and turnaround time. The key steps that contribute to quality, access, and turnaround time improvements include (see "CFNI Transcription Process"):

- **step 3:** transcriptionist transcribes into CDK (the server component of the CFNI), which is integrated with the master member index (EMMI) for patient searches
- **step 4:** upon submission by the transcriptionist, the document is available for online viewing (integrated with pathology, laboratory, and radiology reports in Horizon). If the document is preliminary, it is clearly indicated
- **step 5:** online editing by the physician virtually eliminates the need for clerical support in the review and editing of transcribed documents
- **automated routing:** when the document has been signed, automatic routing can occur in a variety of ways

The Clear Winner Emerges

When comparing the two transcription systems, the CFNI system proved superior. Following are the system aspects we analyzed:

Accessibility and Quality

We reviewed documents in the CDA system by manual processes and documents transcribed in the CFNI system by query methods. Results of the analysis showed that less than half (49.2 percent) of notes transcribed into the CDA system were available online and free of errors in the quality indicators listed above, while all of the notes in the CFNI system were free of similar errors.

Missing medical record numbers were largely responsible for the inaccessibility of notes in CDA, while misfiled notes were attributable to incorrect medical record numbers (either incorrectly dictated or keyed). Evidence of accessibility improvements (and improvements in patient care) came from one of our liver transplant surgeons who commented, "the pre-evaluation notes

in the CFNI system were easily accessible when donor livers became available, a time when decisions have to be made quickly."

Turnaround Time

Turnaround time was measured in both systems for all documents submitted from January 1999 to April 1999 (CDA) and January 2000 to April 2000 (CFNI) using query methods on captured dates. To measure turnaround times, we compared date of dictation to date of electronic submission (CDA) and visit date to date of electronic signature (CFNI). For documents in CDA, we had to add time for the manual editing process, which was estimated to be 11 days. For the periods analyzed, signed and edited notes were, on average, available 5.57 days faster in the CFNI system than in the CDA system. It is important to note that turnaround time performance on the CFNI system continues to improve as the transcriptionists become more proficient with the system.

Minor Obstacles Managed

As a part of the CFNI implementation, we introduced new applications and processes for both physicians and transcriptionists. These changes were minor, but fundamental to achieving our goals. As a result, there were a few hurdles to overcome during the implementation process, which are summarized below:

Information quality: the quality of data in the CFNI system can only be as good as the sources that feed it and the systems that monitor it. The two sources that feed into the system are the master member index and the transcription users. Training and contractual reinforcement regarding correct identification of patients should be sufficient to maintain the quality of information entered by the transcriptionists. Depending on the complexity of the information systems interactions, maintaining quality data in a master member index can be quite challenging.

Transcriptionists' computer proficiency: turnaround times, physician satisfaction, and software support are all affected by transcriptionists' ability to use common software applications such as Microsoft Word.

Internal support staff: the co-development partnership with CFNI required increased internal staffing for system installation, configuration, and troubleshooting, along with other implementation needs. Also, the co-development aspect of the project required people with diverse technical, analytical, and planning skills to be part of the project team. Staffing requirements will increase again as we roll out the system to the entire clinic.

Co-development relationship with CFNI: in the planning stages of this project, our organization carefully considered entering into a relationship of this nature with CFNI. To mitigate our risks, we structured our contract to address ownership of documentation, code, and the software product as well as payment structure based on acceptance of deliverables.

This required our organization to fully understand the processes and data flows surrounding management of list items so that we could effectively develop the concept of operations. This type of understanding requires either prior experience or the ability to work through process refinements and software maturation to meet work flow needs. In addition to co-developing the CLMM, the current suite of products offered by CFNI have evolved in the course of our pilot. Adapting to the evolution process has challenged us to be flexible and proactive in the management of our internal development and implementation processes

The Price of Success

Funding for the CFNI project was provided by a foundation grant to cover the costs for the first two years of the project, including the pilot and rollout. The two-year project was budgeted at $2 million ($1.3 million for software, hardware, and licenses and $700,000 for personnel). The justification for the system cost was meeting our project goals of 100 percent access to quality transcribed documentation and managing MAPP lists to meet the Joint Commission IM 7.4 requirements.

Ever-growing Benefits

In addition to the objectives set for the project, a number of unexpected benefits have been realized during the pilot period (the effects of which should increase as the product is rolled out to more physicians). These included:

Physician's independence from clerical staff: prior to CFNI, clerical staff were largely used for paper-based transcription processes (record retrieval, sorting, and merging documents) that are automated in the CFNI system. This allows the physician quick access to patient information that would have previously taken hours or days and involved several people.

Cost savings: since the inception of the pilot, we have recognized the potential for significant cost savings in two sources: direct transcription cost savings and savings through process redesign. Most of the physicians participating in the pilot have realized significant savings (as much as 30 percent) from a reduction in direct transcription costs. Some of these savings are offset by the allocation of system costs the physician will have to bear (the business work team is currently developing a model for the allocation of overhead costs to each department beyond the rollout period). Savings through improved efficiencies will be realized over time as the physicians move away from paper-based medical records and adopt the more efficient processes and the technology that supports the efficient processes. Other opportunities for savings include the reduction of medical records storage sites. With the transition from paper-based records stored in offsite facilities to centrally managed electronic record formats, great opportunities exist for cost savings as well as improvements in the timeliness of information access.

Management of transcription process: as owners of the transcription software and servers, our organization also owns and controls the data in the system. This allows greater access to information and supports informed administrative decision making such as management of vendor contracts, direct vendor comparisons (cost and performance), transcription utilization, and timeliness of physician dictation.

CFNI and TKC in the Future

The financial impact from the CFNI system implementation will be realized through efficiencies in information processing and record management. This will be directly related to the extent to which our organization embraces the redesigned processes. Strategic effects of the implementation center on our information management include further efforts to integrate information, monitoring of data integrity, quality, and availability and utilization of information for decision support.

Development efforts on TKC's Web-enabled portal, Horizon, continue to evolve to provide more functionality for the physician. For example, physicians have remote access to the Horizon Web site with authentication that meets proposed HIPAA regulations. This will allow physicians to access transcribed notes from home when they are on call.

Our health services management group, comprised of clinical and administrative leadership of each entity within the health system, has endorsed the use of the CFNI application as a health system tool. Rollout of this application to outlying clinics, the academic hospital, and the eye hospital will proceed after the ambulatory center rollout is complete.

Old And New Transcription Processes Chart (PDF)

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