Automated Coding: The Next Step?

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Automated coding technology may be key to the evolution of the coding and billing processes. How do these systems work, and how will they change the role of the coder? The author offers a preview.

Technology is changing many aspects of healthcare, and coding is no exception.

Recent developments show that the day when a fully automated coding process is in place may be closer than we think. How would such a development change the coding profession? Would it render coders obsolete? And how would it affect the patient record -- and HIM processes connected to the record -- as a whole?

The coding process has been on its way to being automated for a long time -- as the existence of encoders and groupers attests. A number of forces, however, are driving the process ahead.

For example, it is critical for providers to submit bills on a timely basis. The move toward a computerized patient record makes the need to work with uniform and consistent data in a standardized manner more pressing. And the expansion of prospective payment systems into settings such as long term care and ambulatory care means that coding is needed across the continuum of care. All of this means more work for coders -- and more expense for healthcare organizations who need their services. It's not surprising that automated coding would be viewed as a cost-saving, efficient solution by resource-strapped providers.

The process (as well as the reasons) for coding diagnoses and procedures has evolved over the years. Healthcare organizations originally began to classify clinical information for statistical purposes, as well as to enable information sharing between facilities. This information sharing would have been meaningless without the use of standardized systems for the identification and classification of disease processes. Over time, payers began demanding the submission of standardized information before they would reimburse facilities for care. Today, as healthcare organizations move toward a computerized clinical record, the need for standardized classification systems and terminology is even greater.

Initially, coding was accomplished manually by looking up a diagnosis in an index and following steps to the conclusion of assigning the most accurate code possible to describe that particular diagnosis or procedure. Encoders and groupers, in use in all types of healthcare organizations, became very popular with the implementation of DRGs in hospitals in the early 1980s. Computer-assisted encoders help users assign the most accurate code by prompting them with a series of questions leading to a specific code assignment or by affecting code assignment by displaying code-specific edits.

A Crystal Ball for Coding

How will technology, changes in coding systems, compliance efforts, and other forces impact the domain of coding practice in the 21st century? AHIMA's Coding Futures Task Force is working to find out. The task force, composed of national experts in medical vocabularies and coded data, is currently studying industry and global forces that influence the collection, maintenance, and analysis of coded data. The group's work will help AHIMA define its optimal positioning in relation to these forces.

The task force is developing "scenarios" or descriptions of situations connected to technology, medical vocabularies, and the information economy that will likely impact codng practice 10 years in the future. The group will address questions related to HIM professionals and their changing roles and what leadership direction AHIMA should assume in relation to the anticipated impacts.

As the task force completes its work, the results will be communicated to AHIMA members and the healthcare community. Watch AHIMA's Web site and other publications for more information before the end of this year.

Automated Coding Versus Encoding: What's the Difference?

Computer-assisted encoders have been on the market and in use for some time, while automated coding systems have been introduced only in the past few years.

Health Care Terms defines an encoder as a "computer software (program) for assisting in the assignment of a code to a word or phrase expressed in natural language (human language, such as English)." These systems prompt the user through a series of questions or choices to ensure the most accurate code assignment. They encourage the coder to seek as much detail as possible in the medical record for complete and accurate code assignment.

Encoders have always promoted accuracy as well as consistency in coding diagnoses and procedures by forcing the coder to go through each step of the ICD-9-CM decision process. While experienced coders may assign common codes from memory, they also may assign inaccurate codes on a consistent basis.

One of a coder's primary roles is to sift through many layers of information to determine what should be coded and how. Encoders assign accurate codes to selected diagnoses and procedures and may even prompt coders to think about using other diagnoses and procedures as the principal. Ultimately, however, the coder makes the final decision regarding the identification of the principal diagnosis and other diagnoses to be reported.

Encoders were initially developed to assist in assigning ICD-9-CM codes to diagnoses and procedures for billing purposes. Automated coding is still important for the assignment of codes for billing purposes, but it differs from encoders in the way it functions, in the way the information collected is used, and in the way it interprets data code assignment. For instance, it provides a means for sharing information between facilities to ensure continuity of care, as well as extracting information for other purposes such as patient care, research, and quality assurance, as encoders do.

Automated coding does not take the coder through each step of the ICD-9-CM coding process. Instead, the system assigns the code for them. The system may draw the user's attention to discrepancies or potential problems with information as it is entered into the system, but it does not require users to follow the entire process for assigning codes, as encoders do. One of the intentions of this type of system is to avoid labor-intensive processes for collecting clinical information. The automated coding system will assign codes to the diagnoses or procedures as quickly and efficiently as possible. Thus, the user must be as complete and accurate as possible in documenting clinical information in the computerized patient record to ensure that the assignment of codes is just as complete and accurate.

Another interesting feature is that automated coding does not exclusively utilize ICD-9-CM. For example, in some cases the SNOMED classification system is being used to classify patient information for purposes other than billing. Eventually, when the computer-based record is implemented throughout the industry, information could be shared across facilities in this format for continuity of care (after patient confidentiality and security issues had been addressed, of course).

Other classification systems such as CPT, the Read Codes, or NANDA could be used in automated coding as well, depending on how the facility wants to use the information.

How Automated Coding Works

Even if some computerized patient record systems do not currently have automated coding capability, many may in the future. Since these systems depend on computerized information, it's inevitable that automated coding processes will be developed. At this time, there are primarily two means of automating the coding process.

One way is a system in which users enter (or select from a list) the clinical information to be coded. This could be a medical diagnosis, concept, or procedure. Codes are then automatically assigned based on the information entered or selected, without the time-consuming process of answering questions and following steps to eventually assign a code, as with encoders. The process of answering questions and following steps is eliminated because the logic within the automated system pulls data that directly links to a code or codes. When the user inputs this information, the system will assign the code linked to it.

Ideally, each facility would designate a specific person to enter clinical information into the system, such as the actual provider at the time care was delivered. Otherwise, clerical staff could enter information as directed by the provider. Automated coding assigns the code that most accurately describes the diagnosis or procedure based on how it was entered into the system -- so this information must be as accurate and complete as possible.

It's important to mention that at this point in their development, automated coding systems do not yet contain sufficient logic to resolve conflicts in information or handle subtleties such as rule-outs. Here, the user's knowledge is a critical link. In this scenario, the success of the use of an automated system depends on two things -- that whoever enters the information will enter it appropriately, and that whoever works with the information will be able to clarify and resolve questions.

The other means by which automated coding may be done in the near future is currently under development. In this scenario, this system will actually extract the pertinent clinical information from online documents and code the information without the provider or other allied health staff having to enter or select the information first. This will be discussed in greater detail later in this article.

What to Look For: Systems and Features

Much remains to be seen about the kinds of automated systems that will develop. Here's what we know about existing systems.

One type of system will allow a provider to enter a patient's diagnoses or problems into a problem list or select problems already on the problem list from previous visits (a cumulative list of a patient's problems over all visits to a facility). This list provides the patient's history at a glance.

One feature of this system is the linkage of ICD-9-CM codes to each problem. During the process of selecting the patient's problems for that visit, the provider is also required to select a principal diagnosis. If just one diagnosis is selected, it is automatically assigned as the principal.

Once the problems for that visit are entered or selected by the provider, the codes are also recorded and passed via an interface to the billing system in the business office. In this particular system, the principal diagnosis is listed first, followed by others in the order they were entered into the system by the provider. This provides the business office with codes and information needed to submit bills. Interestingly, this scenario depends on the provider entering the most relevant codes for billing in the appropriate order -- another example of the success of the system depending on the knowledge of its users.

The ICD-9-CM codes are also maintained in the original problem list and can be extracted for purposes other than billing (e.g., research or quality assurance). They could also potentially be cross-referenced to other types of classification systems, which would expand the meaningfulness and usability of the information.

In one case, the original features of this system were components of a system offered by a vendor. A facility that purchased it added other features as part of a joint effort with the vendor. The vendor's system contained a problem list that automatically linked each patient problem to the appropriate ICD-9-CM code. The facility purchasing the system decided that the business office could benefit from the problem list information and developed an interface to pass those ICD-9-CM codes and diagnoses to the business office's computer system for billing purposes. Other areas of the organization could potentially benefit from this system as well -- for example, from the ability to cross-reference ICD-9-CM codes to other classification systems.

A second type of system may be waiting in the wings. For some time, experts have envisioned a text processing system that would translate the narrative found in various dictated reports in the computerized patient record to generate codes for billing. Such a system would extract significant phrases or attributes from the computerized record and match them against the terms and concepts of a language system.

One vendor, in fact, is close to making such a system a reality. This vendor is developing software that will extract clinical diagnoses or problems from text in a computerized patient record and match them against the terms and concepts of the Unified Medical Language System (UMLS). Once this software is actually used in a practice setting, these UMLS terms and concepts could be linked to a classification system such as ICD-9-CM for billing purposes.

What this means is that eventually, when a provider enters clinical notes into a computerized patient record, he or she will not have to specifically list the patient's diagnoses or problems in order to code them. The computer system will automatically perform that function, as well as the coding function.

Important Input from HIM

As automated coding systems evolve, their creators face a number of obstacles.

For instance, the variety of coding systems and the complexity inherent in each system make the subject difficult to navigate. Other issues, such as potential areas of weakness in coding systems and (in some cases) the absence of data will present problems as well. In many cases, these vendors can benefit from the valuable insight of HIM professionals. HIM professionals are qualified to give input because they have received formal training in abstracting data and manipulating it into a coded format and have had practical experience in coding across many care settings.

Many of us fill traditional HIM roles while others have moved into less traditional areas. All have varied experience in the collection, maintenance, and dissemination of health information. For all of these reasons, HIM professionals can provide valuable input to any vendor looking for assistance in developing an automated coding system that is not only user friendly, but most importantly provides a meaningful tool for classifying health information for all purposes.

Specifically, HIM professionals can provide assistance in determining what purposes coded information will serve in various facilities. They have an excellent understanding of historical and current uses of clinical coded data. This gives the vendor some direction in deciding which classification systems would be most valuable in their system in order to provide the most meaningful automated coding tool.

HIM professionals also have a good understanding of the needs of providers and other allied health staff. Their insight into the requirements of healthcare professionals will be extremely valuable when planning and implementing automated coding. For instance, most providers and other clinical personnel would not want to work with a system that was time consuming. Other staff, such as the business office and HIM personnel, would look for other attributes, such as a system's ability to provide necessary information in a timely manner and to provide the information necessary for other data retrieval needs. For a vendor to sell a system to any organization, it must be a valuable tool for the greatest number of people within that organization. If a vendor cannot develop an easy-to-use system, it will not be used.

What Happens to Coders?

Once all of this has taken place -- the problems overcome, input given, and systems developed -- the question remains: what becomes of coders? Although no one is completely certain of the answer to this question, we can make some educated guesses.

Coders' responsibilities have have evolved considerably in the last decades, and they will continue to do so as the information for which coders are responsible becomes increasingly critical for patient care and other uses, such as research. Even as automated coding becomes more prevalent, there will still be a need for human intervention -- people to put together information and check for errors. In this capacity, coders will function as "editors" of patient information. This article describes several situations in which a user's ability to enter data or work with data appropriately is critical.

Furthermore, coders will be valuable consultants in the implementation and maintenance of automated coding systems. They will be called upon to participate in much of the decision making related to the system, including determining which system is appropriate for their organization. Once the system has been implemented, they will continue to give important input when upgrades or changes are made.

The era of automated coding will create new opportunities as well. As facilities develop "warehouses" of data, there will also be a need for people to interpret the information and tell us what it means. Specialists in coded data may find opportunities in outcomes management, decision support, data interpretation, and other evolving areas that rely on healthcare data.

For coders, the key to success may be in understanding the clinical and technical issues that drive the progress of coding. By participating in the design process of new technology and in efforts such as improving data quality, coders can not only affect the progress of the industry but expand their own options as well.

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After Automated Coding, What?

As technology progressively automates more processes, what will HIM jobs look like in the future? In 1998, AHIMA published Evolving HIM Careers, *which offers in-depth looks at seven new roles for HIM professionals, including the role of the clinical data specialist. Here are some excerpts that may provide an answer to the question, "After automated coding, what?"*

Computer-based health records, electronic data-handling systems, and standardized clinical terminologies are being developed and implemented in healthcare organizations across the United States. Universal adoption of automated health information systems is all but certain some time during the next decade. From that point on, the key to success (and perhaps even survival) for healthcare organizations of all kinds will be ready access to accurate, uniform clinical data. Eventually, detailed, reliable, and comparable clinical data will make possible real and lasting improvements in quality of care, treatment outcomes, and cost control ...

The clinical data specialist will play an important role in ensuring the availability and relevance of this invaluable resource as well as in converting data into truly useful information. In some cutting-edge healthcare enterprises, clinical data specialists have already begun to take on this role as they mine data from diverse information sources and internal databases. Now and in the future, they will occupy an ideal vantage point to know what data exists, where to find it, and how to interpret it ...

In the future, as information management functions are combined and reorganized, clinical data specialists will report in at a number of levels within healthcare organizations. Official titles will depend on the professional's level of responsibilities. The specialists will work in an even wider variety of healthcare settings ...

To perform effectively, the clinical data specialist working in an organization or integrated system with a totally automated health information system will continue to need professional skills in information management and expertise in using the classification systems that are relevant to the types of services the facility provides. In addition, he or she will need to understand current reimbursement methodologies and basic statistics.

A requirement for proficiency in the use of the healthcare applications of computers will be a given, especially a full understanding of the flow of information in automated health record systems. He or she should also be able to apply the principles of clinical research and follow the steps in the development of clinical protocols. To work on materials for administrative decision making, the clinical data specialist will need a working knowledge of the local and national healthcare markets and marketing fundamentals. When training is to be a part of his or her position's functions, an understanding of adult learning techniques will be required. Managers will always need human resource management skills as well as budgeting and planning fundamentals ...

The role of the coder will evolve from coding and abstracting health records to auditing codes in various repositories and registries. Using encoders and other electronic tools, the coder will validate the codes generated at the point of care by reviewing the electronic data and suggesting clarifications, revisions, and additional information as necessary to fully describe each episode of care.

The clinical data specialist's role in converting data into information for decision making will continue to expand. He or she will analyze clinical data, interpret the information gleaned from the data, and then display and present data in ways that are useful to decision makers throughout the organization. The information digested from health records in the future will be used, as it is today, in both clinical and operational applications ...

A clinical data specialist's responsibilities might include:

- designing and using audit tools to monitor the accuracy of clinical coding
- monitoring compliance with policies and procedures relevant to clinical data management and making suggestions for improvements
- interpreting data for reimbursement applications
- validating data for various disease registries
- preparing utilization analyses
- preparing provider profiles
- collecting and analyzing data for special clinical research projects

The era of information-based decision making in healthcare has already begun. Maintaining the quality and availability of accurate, comparable, and reliable data and understanding how to turn huge amounts of undigested data into meaningful information will continue to require the skills and experience of health information management professionals.

For ordering information on Evolving HIM Careers, *visit AHIMA's Web site at www2.ahima.org/products/index.html or call (800) 335-5535.*

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