Automated Coding Workflow and CAC Practice Guidance (2010)

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Over the past decade, clinical coding has become more complex due to:

- The expansion of prospective payment systems to multiple healthcare settings, each with specific reporting requirements
- Expanded coding rules due to new reporting requirements, such as the Health Information Technology for Economic and Clinical Health Act, Correct Coding Initiative, and payer-specific coverage policies
- The increased need for improved data collection and data maintenance as organizations integrate, use, and rely upon more data from disparate data sources
- Increased scrutiny for erroneous or fraudulent claims, leaving little tolerance for coding or billing errors
- The financial pressure to send (or "drop") a bill or claim to an insurance company as efficiently as possible due to the impact on an organization's accounts receivable
- Advancements in medical care, which require that coding professionals continuously advance their understanding of various clinical subjects such as anatomy, physiology, pathophysiology, and pharmacology

This climate requires coders have a greater clinical understanding and code with greater accuracy and speed than ever before. These factors create a greater impetus to improve the coding and documentation processes.

Clinical coding departments and healthcare organizations now use multiple forms of computer technology to address these issues. A small percentage of organizations have begun employing computer-assisted coding (CAC) applications.

This practice brief explores CAC technology in the current healthcare environment and outlines considerations for automating the coding process.

The CAC Process and Benefits

CAC technology enhances the coding process and will not replace coding professionals. It provides technological assistance in the uniform assignment of valid codes and descriptions.

Under the historical definition, CAC was the use of computer software that automatically generates a set of medical codes for review, validation, and use based upon provider clinical documentation.[1] However, the technology advances depicted in the figure "Evolution of Technology Influencing Coding Workflow" below have expanded the CAC definition.

Currently there are software applications that process clinical information from electronic documents and generate codes using either structured text input or natural language processing (NLP) for validation by medical professionals. Structured input applications integrate coding into the clinical documentation process, producing clinical documents with embedded codes, whereas natural language processing employs complex algorithms to recognize dictation, speech, and language patterns, generate codes, and enable querying electronic text.

The same software applications are beginning to enhance management tools, compliance auditing and monitoring, quality measures, support for remote access, and security features.

Defining the Organization's Vision for CAC

As with other technology, an organization must determine its vision and strategy for CAC technology.

The coding workflow process varies by provider setting and other organizational factors, such as the amount of noncoding activities performed by coding professionals. This lack of a standardized work process requires each organization define the current and future state of coding and how CAC fits into the process.

The coding process consists of a series of individual steps. Automation is typically not applicable to the entire process but to specific steps within the process.[2] Organizations must have a well-defined vision for CAC technology in order to measure the impact CAC has on the future process. Creating a visual representation of the current workflow will help outline the current state and assist in defining a desired future state by displaying where the greatest efficiencies could be gained.

Defining the vision should be a collaborative process between multiple stakeholders because coding depends upon and supports various activities within an organization. A project team should be established with the following team members:

- Coding professionals
- Coding managers and HIM directors
- Physician liaisons
- IT professionals
- Patient accounts and billing professionals
- Compliance professionals
- Informatics and data reporting teams
- Various clinical staff as determined by the project

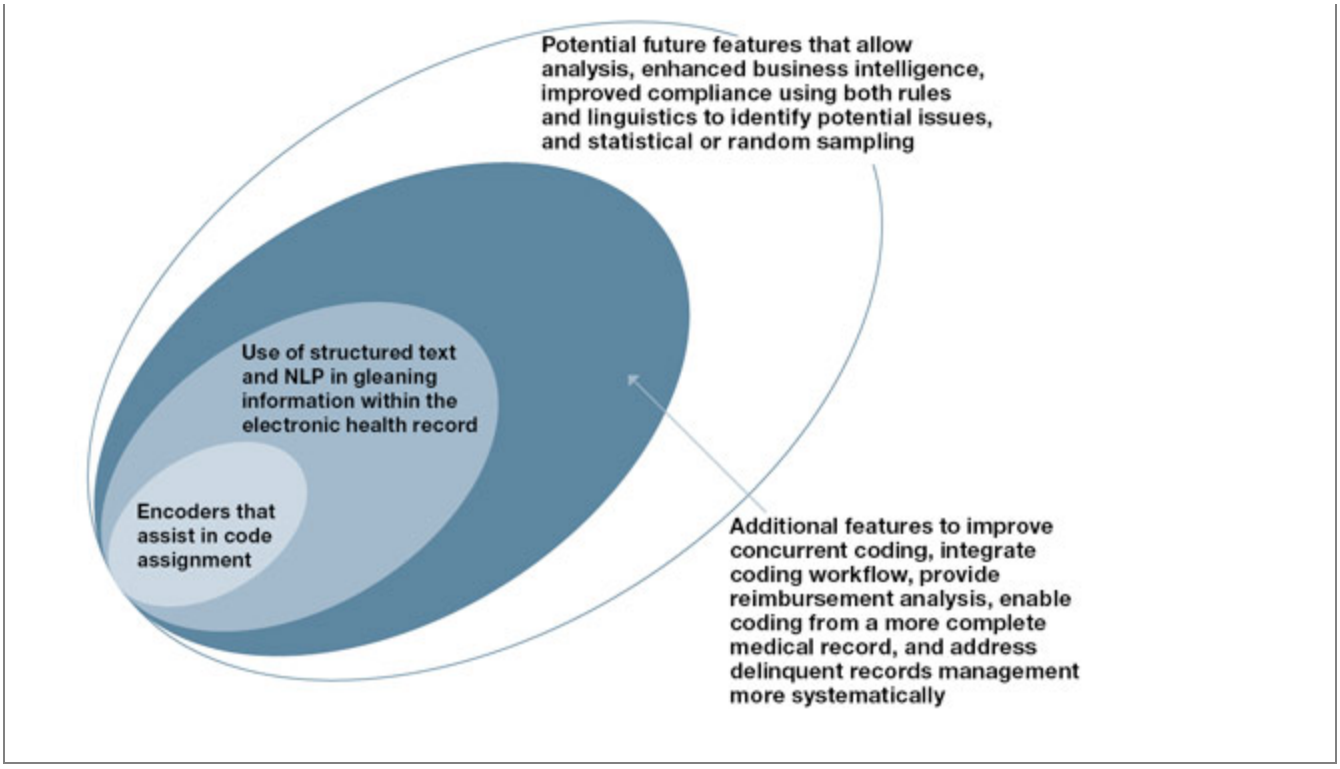
The project team should consider whether coding occurs retrospective or concurrently as well as the different documentation types necessary to accurately code a record. Assessing which documentation is currently electronic and paper and the organization's plan to migrate to electronic documentation also will facilitate defining the CAC vision.

Other considerations for defining the organization's vision include noncoding-related tasks and how clinicians and coding staff interact. Examples of noncoding-related tasks include billing/payer follow-up questions, medical records chart assembly, and clinical documentation initiatives that involve case managers and clinicians. An accurate reflection of these elements helps identify questions and frame the issues the organization would like CAC to improve.

It is important to confirm the goals of the technology in order to implement a system and process that transforms coding professionals into medical documentation editors.

Evolution of Technology Influencing Coding Workflow

As technology has advanced, so too has the definition of CAC. This figure demonstrates how technological advancements have affected the coding workflow.



Workflow and Automation Assessment

In order to properly prepare for CAC, an organization should conduct a thorough review of its current coding workflow. It is crucial to know how the work is done today to plan for a better tomorrow.

Outlining workflow is an essential step to achieving CAC's desired results. Creating a flow chart of the workflow process with the defined future state will identify gaps that CAC may eliminate. The identified gaps can in turn facilitate the evaluation of the technology solutions.

The greater degree of automation CAC introduces into coding should be viewed as a way to increase efficiency and consistency while maintaining the integrity of the process. Automated clinical and health information systems need to be evaluated to determine how CAC applications integrate with them.

Currently coding professionals use a variety of computerized and hard-copy coding references and support tools. CAC will affect these tools and how they are used. For example, for coding processes that use encoder software, the encoder may remain a key part of the process. However, how the encoder software is used and the point of the process where the encoder is initiated may change.

A unique capability of CAC technology is the direct link between the clinical documentation and the assigned codes. This direct link provides traceability and helps coders and auditors validate the codes.

To support effective use of CAC and derive the maximum possible benefit, clinical data systems and the coding software must be interfaced. This type of information exchange is part of the traditional coding workflow; however, the format and mechanism for the exchange requires special attention for CAC implementation.

An essential step in the coding process is the transfer of coded data and patient information into the financial system. It is important to understand how coding software will maintain consistency with financial systems and if changes applied in the payer reporting stage should be transmitted back into the coding software.

Even at facilities that use electronic health records (EHRs), it is common to support a hybrid record that includes both electronic and paper documents. Scanned images of paper documents are frequently used in the coding process. However, these types of images are less accessible to CAC software.

CAC has the greatest impact in environments with a greater proportion of electronic documentation. In some cases optical character recognition, or OCR, software can be used to read typed text and convert it to electronic text. Without technology that can accurately recognize handwriting, handwritten text must be manually reviewed by a coder.

CAC may also be built into some EHR systems, providing recommended codes along with the clinical information. CAC that uses NLP technology can process narrative text and discrete data fields with narrative content.

CAC software does not simply provide a list of recommended codes but is typically used with a set of applications that help optimize the coding workflow. By automating or accelerating different steps in the coding process, coders can get to their work faster, quickly find information in charts, save keystrokes in data entry, and focus their attention on exceptions.

When considering CAC, HIM professionals should analyze CAC in the context of the complete coding workflow. Coding managers should have a clear idea of how the coding workflow will change with CAC and use tools that provide the monitoring, auditing, and exception handling functionality that a well-managed process requires.

The HIM workforce is a mobile one, with many organizations already providing a remote access platform for coding. With a remote workforce, the HIM team can be flexible in meeting the operational demands of a busy provider organization while attracting and retaining a skilled workforce.

CAC technology should integrate smoothly with current remote coding platforms. For those organizations that do not support remote access, CAC often directly provides the infrastructure to support remote coding.

The traceability and workflow enhancements of CAC also can extend into other remote functions such as auditing and clinical documentation improvement. Whether those functions are performed off-site or outside of the HIM department, CAC can help them be more productive and more accurate due to the direct link between the codes and the medical record.

The use of technology requires a plan for continuity of service if the technology is not available for some reason. For organizations that depend upon access to electronic records, a disruption of system availability will temporarily halt the coding process. This can happen whether or not CAC is used. However, CAC will add another layer of technology reliance.

From an operational perspective, availability can be ensured through contracted service levels. However, there is another sense of technology reliance from the perspective of individual coding professionals who come to rely upon the technology.

It is important to remember that coding professionals serve a supervisory role, often focusing more of their time on complex cases or workflow exceptions. Coding knowledge and skills remain essential to the coding professional.

Considerations for Product Selection

CAC technology supports coding efficiency, improves compliance, enables greater accuracy, enhances timely claims submission, and can be cost-effective. However, as with other technologies, organizations considering CAC must evaluate the business needs and the associated costs related to implementing CAC.

Certain CAC applications rely upon natural language processing technology, and there are different approaches to NLP.[3] It is important to identify the vendor's approach when evaluating the technology in order to better understand how the system generates the list of codes. NLP technologies differ in their capability to parse narrative text, recognize coding-related facts, integrate facts found in different sections of a document or between different documents, and apply applicable coding guidelines. The more accurate the codes produced by the CAC system, the more quickly a coder can review the results, and overall results between coders will be more consistent.

Because these systems rely heavily upon IT efficiency, computer systems, networks, and interfacing capacity should be assessed. The total cost of this initiative needs to be evaluated at a number of levels, including software, hardware, implementation, training, and ongoing support and updates. Costs to upgrade hardware to meet software specifications and related operating system upgrades may factor into the business evaluation. In addition, vendor pricing for coder training and the costs of staff being off site for training can impact the coding department's productivity.

Assessing CAC software from both the expense and business operations perspective means the team should look at a tool's ease and functionality of use. Coder productivity can be maximized if coders can move fluidly between screens, using as few clicks as possible in order to complete the review process. How the tool will interface with other systems and how that interface is created should also be considered.

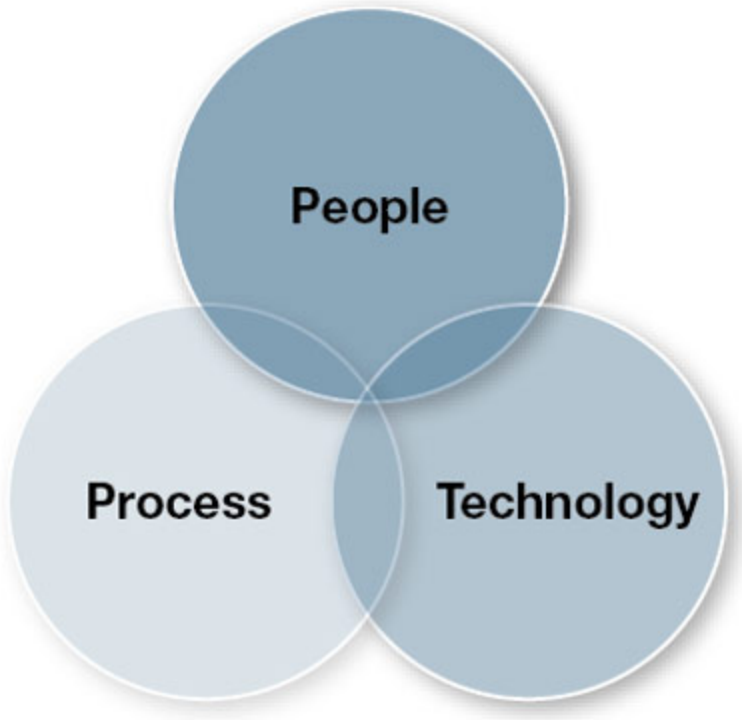
Another workflow consideration is the amount of toggling between systems. It is important that the tool accommodate dictionaries like local carrier determination guides and Correct Coding Initiative edit dictionaries and other encoder software that are common to the coding process.

Organizations should outline how physicians interact with coders and the new workflow process for physicians as part of its business evaluation. Understanding how compliance and other regulatory agencies will integrate with the system is a key element as well.

While not an exhaustive list, these basic considerations can support better product selection, which in turn will result in successful CAC implementation for an organization.

Components of a Proper CAC Implementation

Successfully automating the coding workflow, like any software implementation, requires integrating people, defined processes, and suitable technology tools.



Establishing Technology Support Relationships

Over the past decade most organizations have focused on the implementation of a comprehensive infrastructure to support clinical and business applications as part of their strategic plan to create an EHR. CAC requires a strategic information management and IT planning process with the involvement of key internal and external staff members.

Once this plan is outlined, the organization should perform a thorough value analysis of the potential strategic direction to establish its priorities and relative value. This must have a direct relationship to the organization's overall strategic direction and establish how the CAC endeavor fits in with that direction.

An IT strategic plan provides organizations a road map to help determine the direction of the entire enterprise as it relates to the technologies available to support all electronic initiatives. In concert with the strategic plan, alliances with key vendors need to be developed and nurtured to avoid inefficiencies and excessive financial mishaps.

Organizations must sustain a secure and dependable technical infrastructure that has the capacity to cost-effectively facilitate the sharing of information. Emerging technologies must be continually explored to cost-effectively enhance information access and quality of service.

Many providers face significant challenges achieving the functionality and return they need on their application investments. Therefore, they must stay ahead of the latest technologies and best practices to sustain performance and improve systems.

The growing and changing needs of the organization require managing ongoing release updates, aligning clinical and organizational goals, and keeping up with regulatory and compliance issues.

Healthcare organizations typically have a multitude of technologies, applications, and network systems that all exchange data and information with each other. Enhancing network and information security and aligning system technologies with the business strategy and management improves operations and adds to the quality of care across organizations.

Some technology partners have a service-oriented architecture approach to deliver integrated solutions that are tailored to improve system performance with a flexible delivery platform. Whenever possible this method is preferred so real-time notifications of system outages can be communicated immediately.

Secure remote access is an additional option, assuming that secure VPN connections are available. One of the major concerns with “access only upon request” procedures is the timeliness of all responders.

Evaluating the vendor and the product will ensure a proper relationship can be built for a successful CAC process. When reviewing vendors, organizations should evaluate and analyze each vendor based upon the current industry statistics as well as organizational needs.

If possible have the vendor provide data of the software’s coder productivity measures compared to the organization’s goals for its coding department. Interview some of the vendor’s current clients if the CAC product has met their needs and expectations. The project goals need to be clearly stated so all involved are aware of the desired outcomes.

In addition, organizations should determine the desired benchmarks they expect from vendors. Taking advantage of established (and sometimes free) vendor evaluation scorecards and vendor assessment templates can serve as a starting point.

As with any relationship, establishing trust and a common goal between the organization and the vendor helps drive the success of the project. Basic steps that help an organization establish a productive relationship with its vendor include:

- Working with vendors to determine agreed-upon dates and times for appointments and rescheduling for a mutually agreed-upon date and time if one party cannot make an appointment.
- Evaluating deliverables to ensure all are achievable before committed due dates. This will ensure all involved parties are fulfilling their portion of the agreements.
- Establishing a preferred method of communication such as e-mail versus phone calls.
- Setting up a vendor organizational system and identifying specific goals per vendor to maximize vendor products, programs, and office business goals. When organizations communicate their goals to their vendors, vendors are better able to help the organization achieve them.

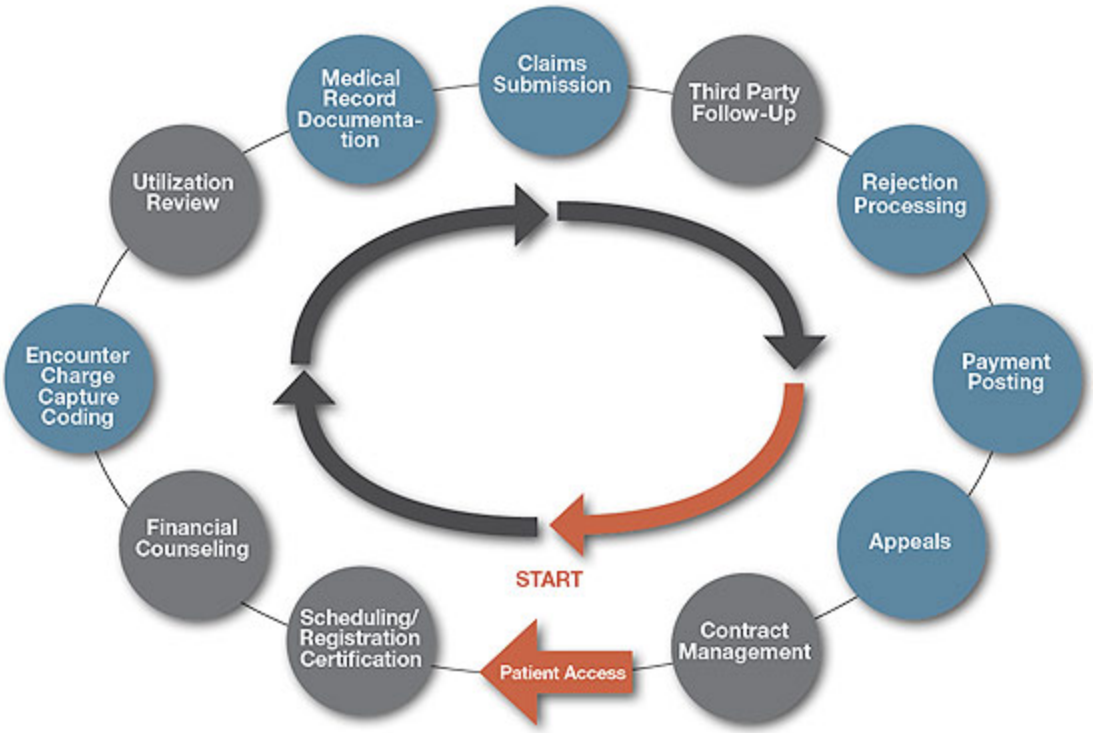
Once a vendor relationship has begun, it will only strengthen by tracking the vendor’s actual performance against the stated performance outlined between the two parties. Steps that can achieve this include:

- Reviewing vendor invoices on benchmarking performance to purchase order and contract requirements and verifying appropriateness of amounts billed
- Providing customer feedback to contract managers assigned to multiuser contracts, such as state term contracts and agency term contracts

- Providing useful information on vendor performance history to others charged with negotiating agreements and selecting vendors to better inform the decisions they make

CAC's Revenue Cycle Impact

CAC technology plays a critical role in the revenue cycle. With a thoughtful, thorough, tailored, and integrated implementation, CAC can address issues that will enable system convergence, enhance monitoring of the coding process, and reduce inefficiencies.



Measuring the Impact

HIM professionals are responsible for ensuring that automated processes are closely monitored and that they produce auditable results.

Every factor that influences the coding process can be variable. Coding professionals have different levels of experience and expertise; clinical documentation may have varying degrees of specificity; and human judgment will vary in applying guidelines to each case. In addition, each organization outlines minimum productivity standards.

Correctly applied, CAC can help better manage this variability with a goal of more consistent coding results across the HIM team. A coding workflow with CAC technology improves the code selection process.

An essential feature of a well-managed coding process is measurable results. CAC users should expect measurable results with measureable benefits. The collection of performance metrics, which can be tedious and time-consuming in a manual process, is typically built into the CAC coding workflow. A coding manager can access data on productivity, quality, and workflow status in great detail and often in real time.

Coding managers should use performance metrics available through CAC technology to monitor the effectiveness of the implementation. To do so, they must develop a clear understanding of how to measure results and the expectations for success.

With CAC, HIM teams have tools to manage the demands of code production. CAC typically provides a complete coding audit trail offering a record of interaction with the chart and changes to coded information. The audit trail identifies the specific individual that made changes, what was changed, when the change was made, and how long the chart was open.

This type of information allows coding managers to observe both productivity and quality. Coding change rates can be compared across a group of coders, and the coding manager can quickly identify outliers in coding quality.

Take for example a team member who makes too few or too many changes to the CAC-assigned codes. With too few changes, the coder may not be diligent enough in his or her review. With too many changes, the coder may be making incorrect coding decisions or unnecessary changes.

CAC auditing technology can also be applied to manage quality by automating many of the steps to randomly select, access, and route cases for audit. Auditing is an essential control function in a well-managed coding process.

Other metrics can be used in determining the effectiveness of CAC technology. Financial metrics such as case mix index or average relative value unit can be analyzed to determine if additional codes are being captured that were previously not identified. A thorough analysis is imperative, because many factors affect case mix index.

Defining objectives from the start will provide additional metrics for evaluation. It is important to know the actual state of those metrics prior to CAC implementation and if a metric is influenced by more than just the coding process, such as case mix index.

Keeping coding professionals involved in planning and implementing CAC is critical. Their input and collaboration with project leadership and IT will be valuable in ensuring the technology is being used to its fullest capabilities and that the organization gets the greatest return on its investment.

CAC applications are the next phase in coding's evolution. With the healthcare industry's movement toward EHRs and ICD-10-CM/PCS implementation, organizations that look to establish CAC programs now will be well positioned to ensure an efficient, effective coding process.

Notes

1. AHIMA e-HIM Work Group on Computer-assisted Coding. "Delving into Computer-assisted Coding." *Journal of AHIMA* 75, no. 10 (Nov.–Dec. 2004): 48A–H.
2. AHIMA Coding Workflow Process Model. Available online in the CAC Community of Practice at www.ahima.org.
3. AHIMA e-HIM Work Group on Computer-assisted Coding. "Delving into Computer-assisted Coding. Appendix A: Primer on NLP for Medical Coding." *Journal of AHIMA* 75, no. 10 (Nov.–Dec. 2004): Web extra. Available online in the AHIMA Body of Knowledge at www.ahima.org.

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