Preparing for the CAC Transition

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One of the biggest technology advancements to influence coding since encoding systems is computer-assisted coding. CAC is the "use of computer software that automatically generates a set of medical codes for review, validation, and use based upon clinical documentation provided by healthcare practitioners."[1]

AHIMA has monitored the changing CAC landscape for years and in April published the "CAC 2010–11 Industry Outlook and Resources Report," which details important aspects related to an automated coding environment. The report examines the following topics:

- Coding professionals in new roles
- Natural language processing (NLP)
- Considerations when moving to a CAC environment

Transitioning to a CAC environment involves many components, including people, processes, and an understanding of the technology. This article discusses the factors organizations should consider when preparing for the transition and key concepts of the report.

Workflow in an Automated Environment

Organizations preparing for automated coding must evaluate their workflows. Reviewing current processes and defining the desired future state are two vital first steps when evaluating workflows. In addition, organizations should identify any current gaps in their coding process. The identified gaps may resolve or improve with organizational modifications prior to CAC implementation.

The review process should include identifying all systems anticipated to interface with the CAC engine. This is important to ensure all systems are interoperable. If an organization determines a system is not interoperable with the CAC engine, it should develop a contingency plan until the system can be interfaced or the system is no longer used.

Both coding and noncoding functions should be evaluated to determine if and how they occur in an automated environment.

Organizations may also benefit from examining their documentation. This can lead to facility-specific policies that identify what portions of the record are required to be present and complete prior to code assignment.

Organizations should include all forms of documentation in the review, as well as how documentation will interact with the CAC engine. For example, electronic documentation typically requires an interface to the CAC engine. Organizations must ensure the interface is available and properly working.

If the electronic documentation will not interface with the CAC engine, organizations should document how it will affect the coding workflow. If the organization uses handwritten documentation, it should develop a plan for how this type of documentation will be handled in an automated environment.

In addition, organizations should consider the following documentation-related questions when examining their coding workflows:

- Is the documentation necessary for coding?
- Is there a plan to convert to electronic documentation? What is the time frame?
- Will the documentation need to be manually reviewed?

NLP: The Technology behind CAC

The technology commonly behind a CAC engine is known as natural language processing. NLP is a computer process that analyzes text and extracts implied facts as coded data.[2] Coding professionals then review the results.

NLP results typically have a confidence factor associated with them. The confidence factor is a rating on how likely the produced NLP code is considered accurate by a coding professional given similar documentation.

The higher the confidence factor, the more likely a coding professional will determine the code is accurate. The lower the confidence factor, the less likely the code will be deemed accurate.

In the context of confidence levels, a *false negative* is an instance when a code should have been assigned by the CAC engine but was not. This often indicates the NLP engine had difficulty processing the documentation. One reason coding professionals review NLP output is to identify false negatives.

Precision is the percentage of correct codes reported, and *recall* is the percentage of codes found that should have been found.[3, 4]

Not all NLP engines use the same method for producing the code; however, common methods usually consist of a mix of dictionaries, rules, and statistical analysis. These methods allow for the system to "learn" from previously produced results in order to produce a more accurate result the next time it is presented with the same information.

CAC Workforce Education

Ensuring coding professionals are properly prepared to work in automated coding environments-regardless of coding experience-is a key factor in ensuring CAC meets all the expected organizational outcomes. The amount of detailed education required will depend on an individual's current skill set.

Formal educational programs should evaluate current curriculum to determine competencies necessary to work in CAC environments. Educators should review their coding curriculum to ensure the following areas are included:

- Current level of clinical knowledge
- Experience with automated coding workflow
- Data analysis skills
- NLP and electronic health records

Those who graduate from coding programs should have knowledge of and skills associated with these topics prior to entering the workforce.

CAC Capabilities

Automating the coding workflow offers organizations a number of benefits. While results will vary with the organization, CAC engines have common capabilities, such as coding consistency, audit trails, and locating documentation. Demonstrating the benefits of workflow automation will require the organization first document its current coding processes.

A CAC engine will provide consistent code suggestions, because it generates the same suggested code given the same input. Coding professionals should validate the suggested code since it will be suggested every time the CAC engine reads the same input.

Audit trails allow for a coding manager to review and analyze the data to ensure an efficient and effective coding process occurs. The trail will show who has accessed the health record and the activity, such as adding a code. In addition, the engine typically highlights the documentation that was used to determine a suggested code.

The "CAC 2010–11 Industry and Resources Report" was sponsored by 3M, Nuance, Artificial Medical Intelligence, QuadraMed, and Ingenix.

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. "CAC 2010–11 Industry Outlook and Resources Report." 2011. Available in the AHIMA Body of Knowledge at www.ahima.org.
3. Ibid.
4. Ibid.

Top Questions to Ask about CAC http://journal.ahima.org

Evaluating CAC Systems can be challenging for organizations. Visit the Journal Web site (http://journal.ahima.org) for ten questions to ask perspective CAC vendors about how their technology integrates and functions. See the story "10 Questions for CAC Vendors."

Additional Reading

The July 2010 *Journal of AHIMA* offers more reading on CAC technology and uses:

AHIMA. "Automated Coding Workflow and CAC Practice Guidance."

Dimick, Chris. "Achieving Coding Consistency."

Peterson, Kathleen, et al. "Ready, Set, Automate: Preparing for Automation in Coding Workflows."

Rollins, Genna. "Lean Coding Machine: Facilities Target Productivity and Job Satisfaction with Coding Automation."

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