AMERICAN HEALTH INFORMATION MANAGEMENT ASSOCIATION

Computer-Assisted Coding TOOLKIT

AHIMA
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INTRODUCTION

Computer-assisted coding or CAC (pronounced as "C-A-C") is defined as the process for extracting and translating transcribed free-text data or computer-generated discrete data into codes (ICD-9-CM, ICD-10-CM/PCS and/or CPT/HCPCS) for billing and coding purposes.[1] Many healthcare organizations, whether facilities or physician practices, are implementing CAC applications to boost coding productivity, identify documentation deficiencies to be addressed, reduce accounts receivable, improve code selection accuracy, and ease the transition to ICD-10-CM and ICD-10-PCS. This toolkit provides many of the necessary tools and documents necessary for a successful implementation. It will be helpful to those who wish to plan and prepare for the implementation of CAC in ambulatory (including physician), acute care inpatient, or outpatient hospital settings.

PLANNING

A key step in beginning the journey to CAC is to extensively plan and define the project. Fundamental considerations for project definition include determining the project scope, defining deliverables, identifying resources, and estimating the project schedule, timeline, and anticipated budget or funding. These elements will serve as a guide in the development of the request for proposal (RFP) document.

It is crucial to identify organizational stakeholders. This will be a diverse group as the coding process depends on and supports a variety of activities within the healthcare organization. Stakeholders may include:

- Coding professionals
- Department leaders, if coding is decentralized
- Clinical documentation improvement professionals
- Coding managers and HIM directors
- Physician liaisons
- IT professionals (including system administrators for systems that will be source systems for documentation feeds)
- Patient accounts and billing professionals
- Revenue cycle leadership
- Coding compliance professionals
- Informatics and data reporting teams
- Various clinical staff as determined by the project
- EHR vendor representatives
- Project management offices
- Quality and performance improvement teams[2]
- Revenue integrity staff
- Senior leadership including chief financial officer
- Purchasing manager
- Union representatives (as appropriate)

A project manager should also be designated. It may be necessary to assign an IT project manager as well as one from HIM. If the organization does not have a project management office, determine if the project manager will be an internal candidate or if the organization will hire an external candidate. When designating a project manager, consideration should be made regarding the background of the individual, with a preference toward experience in project management, information technology, or health information management. Consider a dual project manager team: one that represents information technology and one that is a subject matter expert in coding management and/or data collection.

HIGH-LEVEL PROJECT OVERSIGHT AND GOVERNANCE

Often an organization requires a project of this size to have an oversight body, steering committee or governance group. A governance group or steering committee will review the project plan deliverables and timeline at a high level and on a bi-monthly basis. They will also advise the project leaders about suggested changes to make and/or alternatives to solutions or funding issues. The makeup of the steering committee might include some of the following individuals:

- Chief financial officer (CFO)
- Compliance director
- Chief information officer (CIO)
- Chief operations officer (COO)
- Controller
- Vice president of finance/revenue cycle
- Chief medical director
- Director of health information management
- Coding manager

The scope of the CAC project will require stakeholders to answer questions that may include the following:

- Which record type or setting will be processed using CAC automation—inpatient, outpatient, physician, a mixture, or all?
- If this is a multi-campus or multi-facility organization, which campuses are included in the CAC project? Will it be a phased project based upon success at the first campus?
- Will CAC software be used as a standalone application or be interfaced with the electronic health record or abstraction system?
- What departments and processes will use CAC (i.e. clinical documentation improvement review, concurrent coding, regulatory audits, core measures, etc.)?
- Will the CAC technology include an encoder?
- Will there be internal IT resources and funding available?
- Can the CAC technology be used or transition to a concurrent environment?
- Will the implementation use a phased approach or will all aspects be implemented at go-live?

Another important part of the project definition process is to set organizational objectives for implementing CAC. The objectives should be measurable in order to determine the success of the implementation. Begin by estimating the organization's current coding metrics:

- Accounts receivable days
- Discharge not final coded/billed rates
  - » Days/dollars
- Coder accuracy
  - » Inpatient (including MS-DRG)
  - » Emergency department (including APC)
  - » Ambulatory surgery (including APC)
  - » Ancillary (simple outpatient encounters)
- Case mix index
  - » Inpatient
  - » Outpatient

- CC/MCC rates and/or HCC (hierarchical condition category) diagnoses rates
- APC trends
- Physician query percent and response rates
- Coder productivity by area
  - » Inpatient
  - » Emergency department
  - » Ambulatory surgery
  - » Ancillary

Use these estimates to develop and document organizational objectives. Sample objectives might include:

- Increase overall coding productivity by 3 percent (inpatient and outpatient)
- Mitigate risks associated with ICD-10-CM/PCS implementation including loss of productivity and accuracy
- Increase case mix index (CMI) by 2 percent through potential CAC recognition of additional complications and comorbidities
- Minimize coding errors or omissions by 2 percent
- Decrease need for outsourcing and/or overtime expenses
- Improved coding quality and accuracy resulting in decreased need for outside auditors
- Improvement in Discharge Not Final Coded (DNFC) days and dollars
- Improvement of denied claim rate due to coding errors (clean claim rate)
- Physician query initiation percentage and response rates

Deliverables should also be established as part of the project planning process. Typical deliverables include system requirements, user interface design documents, workflow, test plans, training and procedure manuals and production software. The information technology (IT) department should assist in developing deliverables which address:

- IT business requirements
- Interfaces and integration
- Custom features for the entity
- Hardware
- Database
- Security requirements
- End user setup
- Testing (interfaces, user acceptance, production readiness)
- Installation and go live
- Support post go live
- Ongoing support and upgrades

Creating a workflow diagram of the process is extremely helpful to enable a better understanding of the process. The workflow diagram depicts where each of the documents reside. The documents may appear within the EHR system but actually reside in a separate application that requires an additional interface. For example, lab results may be viewed in the EHR but are not housed in the EHR. In order to export these documents, an additional interface from the lab system may be necessary.

BUDGETING

Budgeting is another important part of the planning process. During the organization's budget cycle, a request should be submitted for the CAC software to be included as a capital budget item. Plan for additional expenses to complete quality reviews of CAC of encounters, pre-go-live and post-go-live. Keep in mind that the implementation of CAC may require budgeting in multiple fiscal years. It may be necessary to develop multiple interfaces to implement CAC software, so be sure to include this in the budget.

Cost justification for the project will focus on increased productivity, reduced cost, replacement of other coding applications, and the potential for increased or decreased revenue due to appropriate code assignments, which can also lead to a decrease in the organization's vulnerability to recovery audit contractor or other payer audits. A justification will incorporate the scope and objectives for the CAC software. The following is a sample justification:

> Computer-assisted coding software and hardware is requested as a tool for the ambulatory and acute care coding staff to assist in the alleviation of risk associated with ICD-10-CM/PCS implementation. The tool is designed to convert typed, electronic text into ICD-9-CM, CPT, and ICD-10 CM/PCS codes. The software reads text documents within a patient's electronic health record and suggests diagnosis and procedure codes to the coding professional or clinician for validation. The CAC tool can be used as a mitigation strategy for the implementation of ICD-10-CM and PCS, which is expected to decrease coder productivity from 40 to 60 percent within the first three to six months after implementation. The tool is designed to provide efficiencies to the coder by auto-suggesting codes that will serve to offset the loss of productivity at approximately 20 percent. The CAC tool could be used for a variety of other reasons, including the below.
>
> - Increased case mix index
> - Efficiency in workflows
> - Decreased denials
> - Assignment of additional codes to support more stringent coding requirements, including severity of illness and risk of mortality
> - Improvement of coding compliance
> - Improved selection of codes in ICD-10-CM/PCS environment
> - Aids in ensuring coding compliance by identifying and linking codes to source document

Following approval from senior leadership, formal documents are submitted to purchase CAC software, licensing, and integration.

VENDOR SELECTION

Utilize a variety of sources to identify potential vendors. These sources may include:

- Websites such as http://thehimmarketplace.com/
- *Journal of AHIMA*
- Internet search for vendors
- Colleagues and peers that utilize CAC software
- Consultants that have been involved in CAC evaluations and/or implementations at multiple organizations
- Information provided at trade shows, conventions, health information management meetings, etc.
- Evaluation organizations (i.e. KLAS, Gartner, etc.)
- Others

Depending on organizational procurement policies and processes, it may be necessary to start with a request for information or RFI and then develop a request for proposal (RFP) using the documents created in the project definition. Starting with an RFI will help to narrow down the number of vendors that an RFP is submitted to, as well as assist in defining organizational CAC criteria and needs. RFPs should be sent to several vendors, consistent with your materials management policy, that seem to best fit the organization's criteria. Craft the RFP to obtain pertinent information such as:

- Vendor information and demographics such as organizational size, years in business, number of installations, references, user group information, etc.
- Functional specifications —Description of functional capability of the product such as the use of work queues, or specific encoder requirements. Be sure to request information on functionality that is on the organization's "must have" list. Examples: CAC application must be able to read inpatient documentation and suggest coding on an encounter basis for the hospitalist encounters including Evaluation & Management and ICD-9-CM diagnosis; CAC application must be able to identify two radiology services provided on the same date of service for the same patient and properly assign the -59 modifier
- Operational requirements—Necessary interfaces, reliability, security features, system capacity, expansion capabilities, response time, down time, frequency of upgrades, and other issues with system maintenance
- Technical requirements—Specific hardware and software requirements
- Application support—Proposed implementation schedule, acceptance testing, training and documentation, as well as ongoing support, maintenance, and upgrades
- Licensing and contractual details—Bid information and recurring costs based on organization's requirements.[3]

In addition, consider including the following questions (see Appendix B):

- What is your NLP architecture?
- What platform is the NLP built from and on?
- What coding areas or specialties are coded with your CAC?
- Describe the CAC database and where the data is stored
- Describe the CAC reporting functions and features

If the organization has a procurement department or staff, they will help create a scoring tool or template. If this resource is not available, create a rubric to score proposals that are received. Some of the elements that are of more value to the organization may be weighted to factor into the overall score. The rubric will allow the team to eliminate vendors through equitable comparison. At a minimum, the organization should prioritize its "must haves" and assess the presence or absence of the vendor's ability to adequately address within a reasonable time frame of implementation or post implementation.

Schedule demonstrations with selected vendors. Ensure that all stakeholders who will be intimately working with the product are present at the demonstration, not just the coding or IT staff who will be intimately working with the product. Be prepared to ask questions during the demonstration.

Contact references of current customers using the vendor's product with prepared questions. It may also be beneficial to actually visit a current customer to see the product in action. If your organization elects to do a site visit, decide whether the site visit will include representation from the vendor, allow sufficient time to not only see the application in action but also to have time to discuss the product's shortfalls, advantages, and implementation lessons learned. This may require time for the organization coder(s) to sit down with the site visit coders and discuss learning tips, features added to make the coder's workflow more effective, and their current wish list of features. Additionally, management representatives should speak with the site visit's management to identify acceptance challenges, surprise costs, and surprise features not doing what they were led to believe it would do. Finally, organization IT representatives should spend time with the site visit IT staff to understand any interface challenges, unanticipated hardware additions, and broadband enhancements that may have been required.
Note: The only true test of a CAC engine is real-time comparison of the same documents at the same time with all vendors.

Score vendors a second time based upon the demonstration and customer references to continue to refine the vendor search. A second demonstration that focuses on organizational "must have" items may be necessary.

COMMUNICATION

The communication plan is part of the overall project plan and is vital to the success of the project. Due to the complex nature of CAC, installations require communication and coordination amongst a variety of internal departments as well as with the vendor. This plan will identify key messages that are needed for each stakeholder group and should include union representation if appropriate. Assess the type and frequency of communication that these stakeholders will require throughout the life of the project. Appoint one or two organizational contacts to communicate directly with the vendor. If there are any delays in the implementation plan, these should be communicated immediately to the steering committee.

Coding professionals will require extensive communication regarding anticipated changes to their job functions and expectations. Provide education to the coding staff to ease anxiety regarding the transition. Explain why the transition from assigning the codes to editing and auditing codes requires their critical thinking skills, especially their knowledge of coding guidelines, disease processes, and coding principles. Provide examples during early phases of the project to illustrate code editing functions.

If the organization has multiple sites or facilities, develop a communication plan which includes the following audiences:

- Chief executive officers
- Chief financial officers
- Chief operating officers
- Coding staff
- CDI staff
- Medical staff leadership
- Union leadership (as appropriate)

The communication plan should include a timeline for the sharing of information about the project. The CAC executive steering committee may want to help oversee the communication plan and especially provide guidance on who to communicate to and when. When communicating about the CAC project, always remember to focus on the many benefits of the technology.

It may be helpful to give people workflow examples, such as this one found in the *Journal of AHIMA*:[4]

ICD-10-CM CAC EXAMPLE

In this example, the CAC software assigned the code T15.91xA based on documentation in the emergency department record that states the patient had a "foreign body in the right eye." The coder is presented with the decision to accept the code or reject it based on further analysis.

Review of the documentation revealed that the foreign body was located on the edge of the cornea, which changes the fourth character in ICD-10-CM from 9 to 0. The coding professional replaces the T15.91xA with T15.01xA, Foreign body in cornea, right eye.

EMERGENCY DEPARTMENT RECORD

A patient is brought to the emergency department due to a foreign body in the right eye. He was working with metal, and a piece flew in his eye. He reports slight irritation to the right eye but no blurred vision.

A slit lamp shows a foreign body approximately 2-3 o'clock on the edge of the cornea. The foreign body appears to be metallic. The iris is intact.

Procedure: Two drops of Alcaine were used in the right eye. Foreign body is removed from the right eye.

Computer-Generated Codes: T15.91xA, Foreign body, external eye, right

Final Coding Decision: Coding professional selects the more specific code for foreign body of cornea, T15.01xA.

IMPLEMENTATION

WORKFLOW ANALYSIS

Workflow should be a key vendor selection criterion. The ability to control the flow of work to coders when appropriate based on patient type, key documents (e.g., operative report, pathology report), and location is extremely important. Workflow analysis is an integral part of the project plan for implementation of CAC. This analysis should take place during the vendor selection process, either with or without the vendor. The workflow analysis entails reviewing all processes that are requisite to the coding process including where coding staff interacts with physicians and other providers, and their sources of documentation, which may be various systems. Once documented, the workflow document should be compared to the actual performance of the current duties to validate that the workflow actually represents the current workflow. This may require side-by-side observations for two to three days. This analysis will identify inefficiencies in the current workflow and provide opportunities for improvement. The workflow analysis allows the entity and CAC vendor to identify product features that would be useful to the organization. Refer to Appendix A for a sample workflow diagram. As part of the planning process, the organization will want to make sure to identify all coding documents and the source systems. Usually this would be documented in a table of some sort.

Once the workflow is updated with the new CAC processes, another analysis should be performed to evaluate the workflow and make changes as necessary. Following implementation, a subsequent review should be conducted to again look for any areas of inefficiencies or where work-arounds have been developed. Additional modification of the workflow or education may be required.

Existing Workflow through EHR: The coder logs in to EHR as they do today, accesses the coding queue, and selects a patient chart. Through integration, CAC will then launch and send the patient account number to the CAC system, causing it to open the patient chart in the coder workspace. The coder then can review documents within the patient record with hyperlinks to suggested codes.

Triggers can also be put in place for concurrent coding, so that as soon as a document is produced it can go through the engine and be presented to the coder and/or added to the record. Triggers can also be put in place to enable better and improved efficiencies with productivity and workflow. For instance, in same-day surgery cases, a trigger will prevent the record from moving to the coding queue unless the pathology and operative report are present.

EHR Documents/Images (Required): This integration is required to acquire the documents and images that are necessary for CAC to code the documents. CAC uses natural language processing (NLP) to read documents.

Charges (Optional): Through integration, the charge description master (CDM) sends the allocated CPT/HCPCS codes within the charges to CAC by pre-determined revenue codes. CAC assigns the appropriate CPT/HCPCS codes which can then be compared to the ones assigned with the CDM and provides real time processing for charges to import utilizing the reports management function. Hardcoded/non-hardcoded HCPCS codes are uploaded from CDM to encoder.

Physician Master Index (Optional): CAC can maintain a list of the organization's providers. To eliminate the need for manual reproduction of this data in the CAC product, a feed from another database may be required.

CAC Outbound Options: This integration can link to different places depending on organizational workflow upon coding completion. Outbound information is either sent to abstraction or billing.

> Abstraction: CAC has the ability to send the "final abstract," which is the ICD-9-CM and/or ICD-10-CM/PCS, CPT codes, along with physician information (an additional interface may be needed). If the final bill is sent to the abstraction system, the chart is completed from the abstraction system and sent to billing with an existing interface.
>
> Billing: CAC has the ability to send the "final abstract," which is the ICD-9 CM and/or ICD-10 CM/PCS, CPT codes, along with physician information (an additional interface may be needed) directly to the billing system. If a trigger cannot be sent from CAC to send the final abstract to the billing system automatically, an additional interface or completion via manual process may be required.

DOCUMENTATION REVIEW

A documentation review is an iterative process performed to identify how much of the health record is electronic and how much of the health record is handwritten. Be sure to review all documents used by the coding staff. Prepare for staff coverage as documents and information are reviewed. When reviewing documents, it is imperative that style, format, and layout are reviewed. The document review function is typically performed by a manager in the HIM department (i.e., coding manager or HIM director). Some CAC software may have difficulty reviewing bulleted items especially if the bullet or a special character precedes the actual language of the document. This may entail a review of all clinical forms that are a part of the medical record to validate which one(s) are used by the coders and CDI staff. To obtain all forms, consider involving the organization's forms manager to assist in identifying all clinical forms.

Often, there are questions as to the types of documents that can be read by NLP. CAC has two definitions of documents: electronic and handwritten. NLP can only read electronic text documents. Electronic means not only is it available through an EHR or document repository, but it also means that the document itself was typed into a computer. A document that was typed into a computer, scanned into the EHR, and subsequently resides as a picture file is considered electronic and can be read by CAC with NLP. CAC can use an optical character recognition (OCR) file format such as .jpg, .tif, .gif, .png, or PDF. These types of documents can be converted to a text format that the NLP engine can read to derive codes. OCR technology cannot be used on documents that have handwriting within them. It can only be used to convert electronic text on images to electronic text.

DOCUMENT STORAGE

In some CAC systems, documents are kept within the system. For systems that do store documents, it will be necessary to determine a timeline for storing documents in CAC. Typically, most systems keep documents for 30 days and then delete them. When setting a time frame for document storage, consider the current coding backlog, current productivity, and expected productivity to ensure enough time for the coding process to be completed before documents are purged.

Also consider the cost of memory for storing documents in the CAC when determining the length the document resides in the system. Some organizations are storing documents for three years to review how the documents linked to the codes in the event of a payer or recovery audit contractor audit. Finally, consider bandwidth requirements and ongoing bandwidth charges to access and upload documents to the cloud or application service provider (ASP) environment.

The organization may opt to have the vendor store the images. If the vendor stores the images, identify if the vendor is charging a per image/document fee and compare the aggregate fee to alternative CAC vendors that interface directly with the organization's document repository that remains on-site as part of the budgetary process. Also consider the security safeguards the vendor has put in place to meet HIPAA security requirements to ensure they are adequate.

IT INFRASTRUCTURE AND SERVICES

Identify additional IT infrastructure required to implement CAC. Work with the IT staff to determine if it will be necessary to update current computers, purchase additional monitors if changing to dual monitors, purchase additional hardware to run CAC software and identify any additional server requirements. Be sure to include the IT staff time for installation and training in the project plan.

USER ACCEPTANCE TESTING

User acceptance testing (UAT) is a key feature of projects to implement new systems or processes. It is the formal means by which we ensure the new system or process actually meets the essential user requirements. Each module to be implemented is subject to one or more UATs before it can be "signed off" as meeting user needs. The following overview answers some of the main questions that have been asked about UATs.

What is a UAT?

A UAT is:

- An opportunity to completely test coding processes and CAC software
- A scaled-down or condensed version of a system
- An opportunity to fully test end-to-end workflow
- An opportunity to ensure integration is working as planned
- The final UAT is the last opportunity to perform the above in a test situation

What does the UAT cover?

The scope of each UAT will vary, depending on which business process is being tested. In general however, tests will cover the following broad areas:

- A number of defined test cases using quality data to validate end-to-end business processes
- A comparison of actual test results against expected results
- A meeting/discussion forum to evaluate the process and facilitate issue resolution

What are the objectives of a UAT?

Objectives of the UAT are for a group of key users to:

- Validate system setup for transactions and user access
- Confirm use of system in performing coding and abstraction processes
- Verify performance on coding critical functions
- Confirm integrity of documents and images
- Ensure integrity of workflows and make sure that no work is getting "lost" or "stuck"
- Assess and sign off go-live readiness

Who will attend the UAT?

The project team will work with relevant stakeholders and managers to identify the people who can best contribute to system testing. Most of those involved in testing were also involved in earlier discussions and decision making about the system setup. All users will receive basic training, enabling them to contribute effectively to the test.

UAT Agenda

The agenda for each UAT will be agreed upon in advance with the users. The time required will vary depending on the extent of the functionality to be tested. The test schedule will allow time for discussion and issue resolution.

Roles and Responsibilities

The process of the UAT must be carefully managed to ensure it is able to meet the above objectives. The project team will be responsible for coordinating the preparation of all test cases, and the UAT group will be responsible for the execution of all test cases (with support from the project team).

The UAT group will:

- Ensure the definition of the tests provide comprehensive and effective coverage of all reasonable aspects of functionality
- Execute the test cases using sample source documents as inputs and ensure that the final outcomes of the tests are satisfactory
- Validate that all test case input sources and test case output results are documented and can be audited
- Document any problems and work with the project team to resolve problems identified during the tests
- Sign off on all test cases by signing the completed test worksheets
- Accept the results on behalf of the relevant user population
- Recognize any changes necessary to existing processes and take a lead role locally in ensuring that the changes are made and adequately communicated to other users

The project team will:

- Provide first-level support for all testing issues for
  - » IT
  - » HIM director/coding managers
  - » Coders
- Advise on changes to coding process and procedure
- Change the system functionality, where possible, via set up changes
- Track and manage test problems

UAT is one of the final and critical CAC project procedures that must occur before newly developed software is rolled into production.

There are two phases in UAT testing.

Phase 1: Testing Interfaces

This phase is for testing all the interfaces to make sure the correct data are going to the correct location. There will be inbound and outbound testing. The IT staff should test as well as having HIM verify that the information that is being displayed in CAC is correct. It is important to document the version that is being tested. Keep in mind that if the installed version includes updates that were not tested, there may be issues after go-live that were not identified during testing.

Inbound: Any system that will send data to CAC.

Admission, Discharge Transfer (ADT) Interface: This interface gives CAC patient (account) demographic information. ADT not only sends patient information to CAC, it provides updates to the account. For example, ADT communicates whether the patient is an inpatient or outpatient, so the engine knows what code sets and rules to apply when suggesting codes. ADT also communicates important information like gender, age, and admission and discharge dates so that appropriate codes are suggested to the patient chart. Making sure that CAC received the correct data and updates to the account is very tedious, and testing all demographic information, updates, and merges can be a lengthy process. It's important to have a testing plan that provides the various items to test. Consider checking with other organizations that have used similar testing plans with their abstraction system to be sure that all scenarios are tested.

Document Interface: When testing the document interface, check the integrity of the content in which it is being displayed. The process will not only include making sure that all documentation needed for coding is present but it will also include reviewing what is in the organization's legal record and comparing it to what CAC is displaying. This will also be a tedious process to ensure all documentation is property formatted.

Image Interface: When testing the image interface, check the integrity of the image quality in which it is being displayed. The process will not only include making sure that all documentation needed for coding is present but, it will also include reviewing what is in the organization's legal record and comparing it to what CAC is displaying.

Encoder Interface: This interface is included in both inbound and outbound testing. This interface is a bi-directional interface and needs to be tested to receive and send data. The encoder will send data to CAC when a coder needs to perform a code look up or DRG Calculation. Make sure to test all code sets that can be sent to CAC including adding physicians and date of service to procedure codes in addition, to adding modifier(s) to CPT codes.

Physician Master Interface: This interface provides the provider identifiers that need to be added as an attending, admitting, consulting, surgeon, or other physician.

Outbound:

Encoder Interface: This interface is included in both inbound and outbound testing. This interface is a bidirectional interface and needs to be tested to receive and send data. CAC will send data to encoder when a coder needs to do a code lookup so that the appropriate rules apply if its inpatient or outpatient. CAC also sends the information to launch the correct grouper to calculate for a DRG.

Abstraction Interface: This interface gives the abstract system updates on patient (account) demographic information. ADT not only sends patient information to CAC, but it also provides updates to the account. The ADT feed provides the CAC system information to identify if the case is inpatient or outpatient. The engine then knows what code sets and rules to apply when suggesting codes. It also communicates important information such as gender, age and admission and discharge dates so that appropriate codes are suggested to the patient chart. Making sure that CAC received the correct data and updates to the account is a very tedious process. Testing all demographic information, updates and merges can be a lengthy process. Consider checking with other organizations that have used similar testing plans with their abstraction system to be sure that all scenarios are tested.

At the close of the UAT timeline, prepare a summary for the project team and the governance group. Moving forward with the full implementation will depend on the UAT results and recommendations.

TRAINING

When developing a training plan, select staff members to be lead users or "super users." The number of lead users will depend upon the size of the organization, designated functions, etc. Lead users have extensive knowledge of the software system and its functionality as well as the process workflow. Lead users can be used to train coding and CDI staff, address questions, and troubleshoot. Often, the vendors will provide training to the lead users who subsequently train the organizational staff. However, the organization may also choose to have the vendor train all the staff.

Training for coding and CDI staff can be conducted in a variety of ways, depending on organizational preference. For some organizations, the best way to train remote staff may be by webinar in multiple segments. For other organizations, a face-to-face classroom experience is the most logical option. It will be important to consider space requirements and computer availability in a training environment.

In a classroom or remote environment, be sure to provide hands-on experience with the system so the staff is prepared for go-live. The training experience helps staff to understand the logic and function of the CAC software. Be sure to emphasize the importance of screening all CAC suggested codes and reading all edits that are provided.

Keep in mind that CDI staff may not require the same training as the coding staff depending upon the workflow for each group. A preferred practice is to train inpatient and outpatient coding staff in separate groups. Modify training programs to best fit the user group's needs.

AFTER GO-LIVE

PRODUCTIVITY

During the training phase and for a few weeks after implementation, expect productivity to decrease as the staff becomes familiar with the new workflow and functionality. Typically, productivity will go back to normal and subsequently increase. Productivity should be measured routinely after go-live to assess baseline and track progress. Generally, measure productivity on a weekly basis until productivity returns to normal or above normal. Be sure to monitor productivity on a monthly or quarterly basis to assure gains are not lost. However, some CAC tools can provide a view into productivity in real time or near real time so that productivity can be seen minute by minute. The ability to run productivity reports and/or to automate them will be important to evaluate during the vendor selection process.

Some CAC technology is now moving to function on a concurrent basis. This means coding can be completed on a more real-time basis for the inpatient setting, so productivity will certainly be impacted. Also consider the use of a concurrent CAC tool that performs clinical documentation improvement (CDI). This use of CAC will require productivity monitoring. It may even be possible to blend the CDI and coding functions which will have an additional productivity impact.

QUALITY

As with any coding related projects or initiative, a quality assurance plan should be in place. The importance and value of ensuring quality coded data cannot be understated. There is growing scrutiny of coded data, and one cannot spare quality and accuracy with this technology. Even in the pre-go-live testing phase, conduct quality checks on the CAC coded data before a full go-live takes place.

Compliance and risk assessments should be conducted on the CAC produced coded data and this may require reviews or several audits on a sample or percentage of CAC encounters. CAC implementation plans should include this step, the sample size, process and definitions of accuracy and the resources (budget appropriately) needed to conduct reviews or audits pre and post go-live and then ongoing through monitoring.

Over time, the quality and accuracy of CAC coded data will improve as the NLP learns. Therefore, audit size and the frequency of the audits may need to be altered. It should also be noted there is also a growing practice in the industry of allowing CAC coded data to go straight to the bill/claim without any human intervention or review (checks). Often this happens in simple outpatient encounters with little physician interaction, (i.e. laboratory or radiology encounters.) In these situations there must be a high degree of integrity and accuracy (i.e., 97 percent or higher) before eliminating human oversight or quality checks. There should also be an analysis of the 3 percent gap in accuracy to determine the impact both financially and for compliance. In addition, with "straight to bill" situations, samples of encounters should be monitored monthly to validate accuracy on an ongoing basis.

A quality assurance plan should include reporting quality and accuracy findings to leadership. Quality and integrity issues or concerns should be brought immediately to the appropriate management, IT, and vendor staff to address and a corrective action plan put in place. It is necessary to communicate with the CAC vendor to address coding quality issues resulting from CAC. Keep in mind that the codes assigned to the patient record become a permanent part of that patient's medical profile, so compromising on CAC quality should not be an option.

High-quality CAC results will drive the confidence level of the users. If the quality is poor or low, it can create additional rework and users may begin to distrust the system. Poor quality can also negatively impact data integrity down to the individual patient encounter level. It may be helpful to work with the compliance department in the development of guidance for the organization's CAC quality acceptance levels.

REPORTS MANAGEMENT

The availability of CAC reports is an area that should be closely discussed with the vendor, as well as internally. Reports on accuracy and productivity are expected, but there are others that also should be available to the organization and end user. The ability to generate a variety of reports will be key for validation of a successful implementation and the overall general success of the CAC technology.

EXAMPLES OF CAC REPORTING

Examples of reporting that CAC should or could generate include the following:

- Individual coder productivity
- Department productivity statistics
- CAC acceptance rates per coder
- CAC acceptance rates per department
- CAC coder and department acceptance rate and trending by diagnosis code
- CAC coder and department acceptance rate and trending by inpatient procedure code
  - » Financial impact (MS-DRG and/or hierarchical condition categories (HCC))
  - » Severity of Illness (SOI)/Risk of Mortality (ROM) impact
  - » Present on Admission (POA) additions/revisions
- CAC Coder and department acceptance rate and trending by outpatient diagnosis code
  - » Financial impact
- CAC coder and department acceptance rate and trending by outpatient CPT code (and modifier)
  - » Financial impact
- CAC coder rejection rates—per coder
  - » Diagnosis/procedure, CPT and modifier
  - » Financial impact—compliance/risk avoidance
- CAC Coder rejection rates—per department
  - » Diagnosis/procedure, CPT and modifier
  - » Financial impact—compliance risk avoidance

New CAC charges captured: trending and volumes by charge type

  - » Additional revenue (financial impact) identified
- Deleted CAC charges: trending and volumes by charge type
  - » Additional revenue (financial) impacted
- DNFC (Discharge Not Final Coded) report by days and dollars
  - » Daily reporting and trending reports – programming to the target/goal
- Physician query reporting
  - » Volume and type (diagnosis and procedure) of query
  - » Provider query volumes
  - » Response rates
  - » Query impact
  - » Volume of queries by staff member (i.e. CDI specialist or coding professional)
- Clinical documentation improvement reports (if the organization's CAC implementation employs concurrent technology)

Statistics reports should include graphics and charts in addition to narrative summary of statistics. CAC technology may be programmed for automated report generation. If CAC is going to be used on a concurrent basis in the hospital inpatient setting, be sure to include reports for clinical documentation improvement if this program is in place.

In addition, establish a CAC dashboard with key metrics that are reported each month. Include these metrics in the deliverables for the project. The value of having routine reports can aid in demonstrating issues and successes of the CAC implementation and product.

CONCLUSION

Clinical coding is labor intensive and time consuming. It also requires a specific set of skills and knowledge. During the coding process, when reading the medical record, information can be missed or misunderstood—information that is useful and valuable to collect. In addition, the time to code is challenging. CAC can change this picture: two minutes per hospital ancillary encounter/visit (laboratory/radiology diagnosis) coding time can be reduced to 20 seconds using CAC technology.

Our healthcare system is focused, centered on, and driven by data. Coded data leads to quality of care profiling for both hospitals and physicians, research, reimbursement, patient severity/acuity and compliance. Accurately coded data is now the jewel of a facility, data mine, or health plan. CAC assists in coding validation and provides supporting documentation for audits, which in turn leads to regulatory audit defense and a reduction in additional audit risk.

We are in the middle of a great change within clinical coding, and the change will continue as technology advances. CAC technology is at the center of the change. With CAC, it can be anticipated that coding workflow will change as well. When using CAC NLP technology, we will see the time to code will be greatly shortened and improved, thus creating advantages and improved efficiencies. Within the healthcare industry, there are some predictions that within the next several years, the average coding professional using CAC will spend the majority of her/his time (workday) in the validation process rather than actually reading medical record pages/screens and assigning codes. Ultimately, increased critical thinking and coding skills will be required for coding validation with CAC, and this will create a drastic shift in the ways coding professionals and even clinical documentation professionals perform their work.

With this new evolution and revolution occurring in healthcare coding, thoughtful planning and procurement of all the necessary resources are essential to prepare staff and the organization for a CAC implementation. Careful selection of a CAC vendor requires detailed steps and involvement of a multi-disciplinary team of professionals. Thoroughly planning all the aspects of the impact of CAC on your staff and organization is imperative to success.

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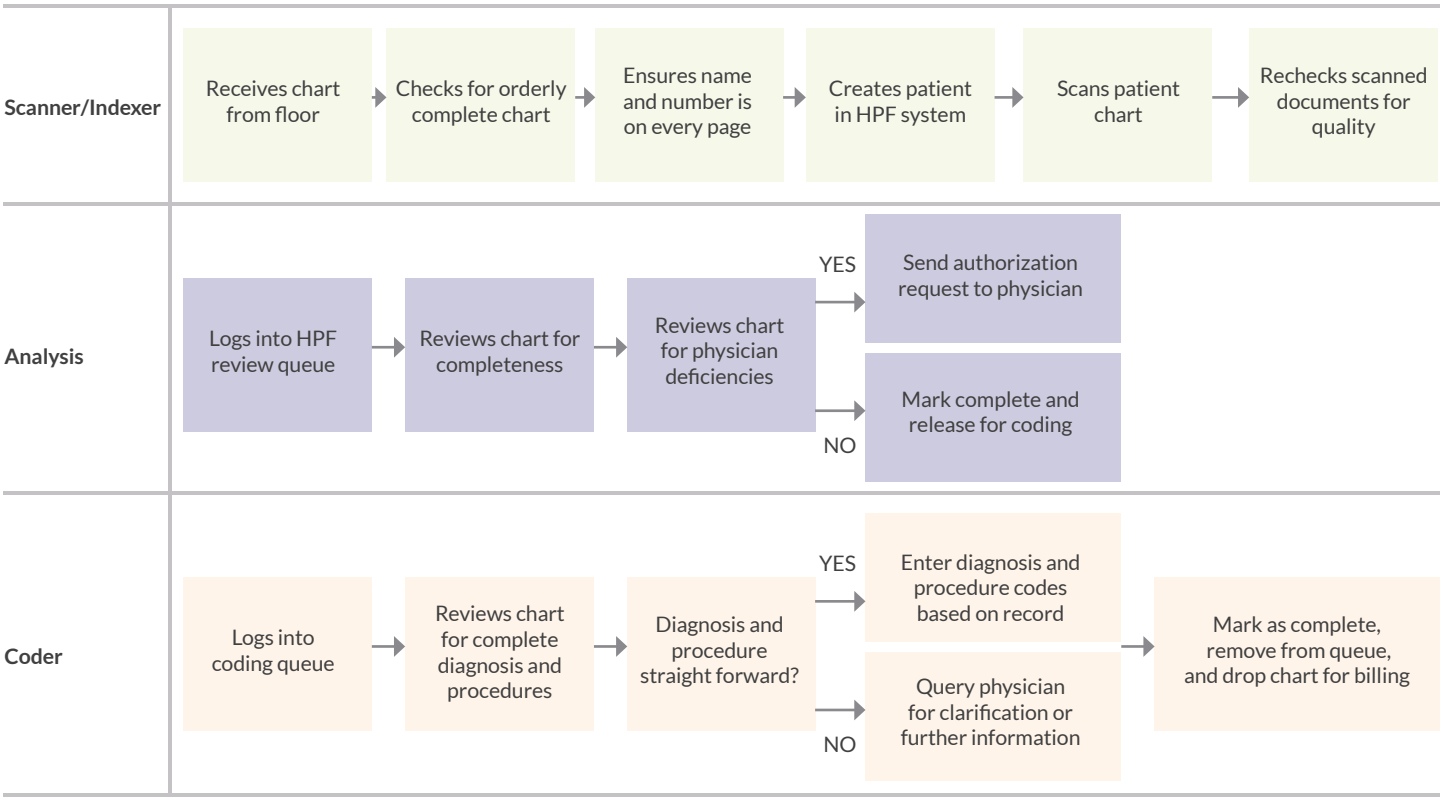
APPENDIX A

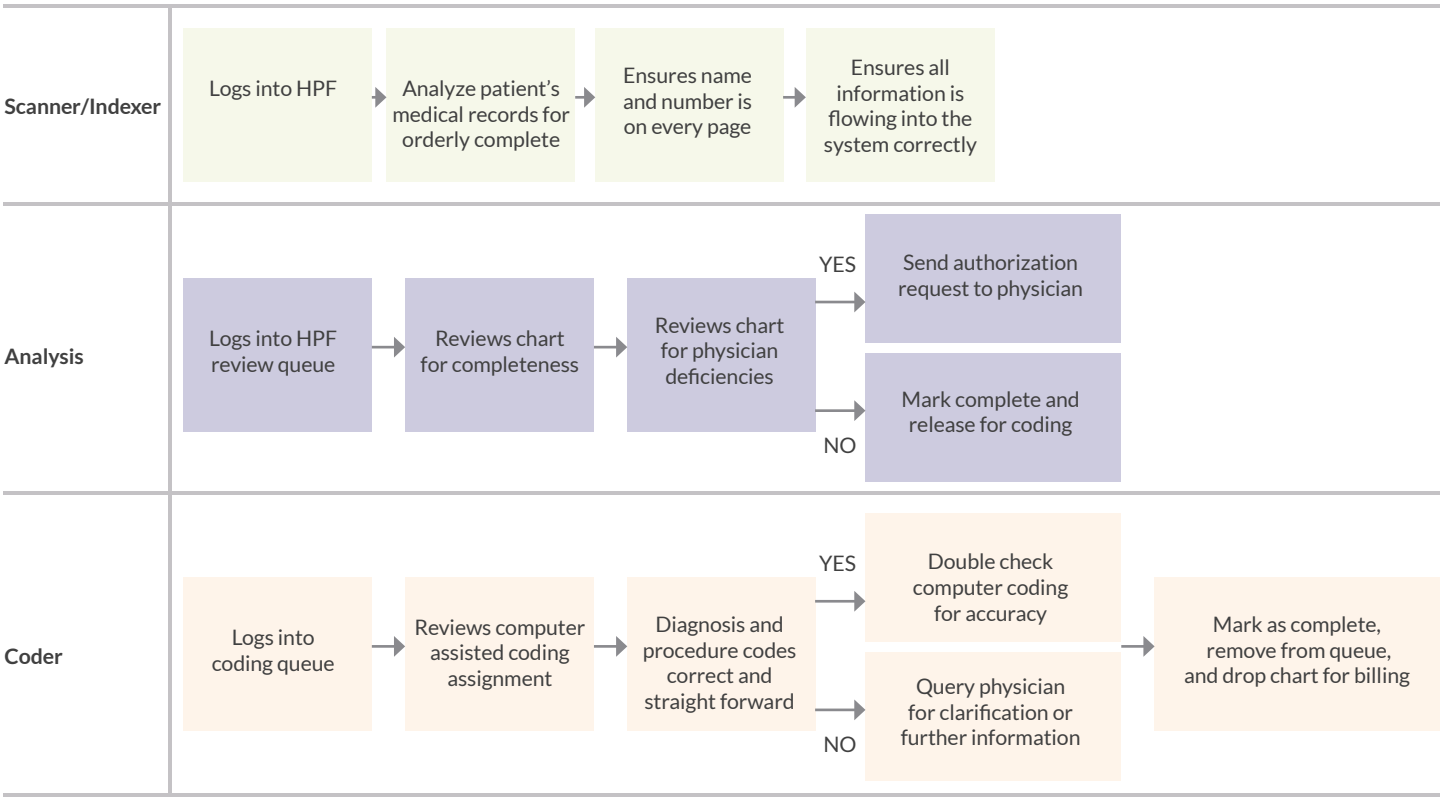
SAMPLE HIM DEPARTMENT WORKFLOW SWIM LANE DIAGRAM

Current–Hybrid Record System



SAMPLE HIM DEPARTMENT WORKFLOW SWIM LANE DIAGRAM

Future–Hybrid Record System



APPENDIX B: RFP QUESTIONS AND SAMPLE RFP

RFP QUESTIONS

Evaluating CAC solutions may seem challenging at first. In addition to the standard request for information (RFI) or request for proposal (RFP) vendor questions, the following questions can be used as a reference when evaluating CAC solutions.

1. Describe how the NLP engine that powers the CAC learns, grows, and improves code assignment accuracy over time. How does it model concepts and relationships, and what is the size and strength of its ontology?
2. Does the CAC application auto-suggest both ICD-9 and ICD-10-CM/PCS simultaneously for the same encounter in one view for the coder?
3. Does the system contain all interfaces needed to provide the coder with a single workspace view and access to clinical documents that are needed for the encoder, CAC, and clinical documentation improvement (CDI)?
4. Does the CAC auto-suggest outpatient codes for both ICD-9 and ICD-10 CM/PCS? Please provide each clinical area covered (i.e., laboratory, radiological/imaging, same day surgery, cardiology, rehab, etc.).
5. Describe the CAC (NLP engine) software's ability to generate HCPCS and CPT codes, provide coding edits for medical necessity (local coverage determinations and national coverage determinations), and integrate with the charge description master. Are early warning indicators provided when documentation is insufficient to code in ICD-10?
6. Describe the coding management tools of the system, such as the ability to:
   a) Generate comprehensive management reports related to case mix trending and (coding or CDI) physician query management
   b) Customize workflow queues across a department or a system
   c) Report on encoder, CAC, and CDI access, utilization, productivity, and other activities
7. Is there an integrated HIM software program that supports:
   a) Documentation improvement for the physician
   b) Documentation improvement for case management and/or clinical documentation specialists
   c) Computer-assisted coding
   d) Compliance features in CDI, CAC, and encoder
   e) Compliance audit reports (i.e., RAC audits) for inpatient and outpatient claims
   f) Describe the patient data flow and your associated product application from pre-admission to registration/admission to CDI and/or concurrent coding to CAC to encoder/coder validation to abstracting and billing to reconciliation to compliance reporting and auditing
8. Does the system enable simultaneous coding and grouping or grouping interfaced? What about auto shuffle capabilities?
9. Does the system provide anywhere, anytime access to complete ICD-9 and ICD-10 coding guidelines and coding clinic references based on selected code set?
10. Can the system workflow be configured to eliminate toggling among various screens/systems in order to access documentation necessary to validate demographics and to perform encoder, CAC, and CDI activities and processes? Please describe.

Source: Cassidy, Bonnie. "Ten More Questions for CAC Vendors." Journal of AHIMA *website, March 1, 2013.* *http://journal.ahima.org/2013/03/01/ten-more-questions-for-cac-vendors/*.

Workflow Considerations

Is there a component that provides the ability to create the coder work lists?

Is there flexibility in creating the work lists?

Does the CAC product include encoder functionality so that the coder does not have to go into another system for coding references, grouping, pricing, and editing as well as adding codes that are not assigned by the NLP?

Can abstracting elements be automatically collected by the NLP or does the CAC product at least provide the ability to collect this information?

Does the system have a reporting package that will meet the needs of the organization?

Source: AHIMA. "Automated Coding Workflow and CAC Practice Guidance (Update)." Journal of AHIMA *84, no.11 (November–December 2013): expanded web version.*

SAMPLE RFP QUESTIONNAIRE

Instructions For Response to Features and Functional Requirements

This section of the RFP contains your responses to specific questions on the functions and features provided by your system. Each question/function has four columns in which to respond. The criteria for each column is explained below:

Vendor Response:

Each functional requirement's availability should be answered by one of the following letters:

Version # is where you can indicate which version of your software the feature is available and completely operational.

YES/NO: Some questions require a Y/N answer.

Response/Comments: Additional information for the availability of the feature and/or a response to the question.

Respond in Appx. II-B: Some questions require additional documentation such as a chart, picture, etc. These should be placed in Appx. II-B.

	RESPONSE		NOTE:
COMPANY INFORMATION:	YES	NO	
Provide a brief overview and history of your organization, including any mergers/acquisitions (include name of parent and/or subsidiaries.			
Provide a description of your firm, its business strategy and primary focus. Describe specific attributes that distinguish you from your competitors.			
Provide your company's full legal name, corporate mailing address, and phone number. Indicate whether you are a corporation, sole proprietorship, or partnership and if you are a subsidiary of a parent company.			
Describe your company history, including when it was founded, where it has operated, and any mergers or acquisitions.			
Identify your primary and secondary businesses, including all subsidiaries.			
QUALIFICATIONS AND EXPERIENCE:	YES	NO	
Describe how you ensure regulatory compliance within all of your functions? How are compliance issues reconciled, managed, controlled, and reported?			
Provide information regarding all previous and pending lawsuits against your organization and the courts in which they were filed.			
Describe the project team that will be leading this effort. In the appendix, include their resumes.			
Include with your bid an organizational chart of your company.			

Identify your company's authorization and signature process for any purchase agreements awarded from a bid process. Include any names and applicable titles/roles.			
What percentage of sales is within the healthcare industry?			
What is your total number of clients, include size and volumes.			
Provide two to three clients who can serve as references and are comparably-sized to our organization and include a point of contact.			
Based upon your current understanding of the work, provide your "value proposition."			
COMPANY BACKGROUND:	YES	NO	
Full Company Name			
Address (including street, city, state, and zip code			
Remit to Address (if different than above)			
State of Incorporation			
Year Founded			
Number of Employees			
Employer Tax ID			
Dun and Bradstreet number (include DNB number for parent corporation if applicable). Please include a current D&B report for your company and parent company, if applicable. IT IS IMPERATIVE THAT A D&B REPORT BE INCLUDED IN SUPPLIER'S PROPOSAL TO ASSESS THE FINANCIAL SECURITY OF SUCH SUPPLIER.			
Company Web Address			
Type of Organization (sole proprietorship, partnership, corporation, LLC)			
Holding Status (public, private, subsidiary)			
If Subsidiary, Parent Name and Address			
Primary Contact Name			
Title			
Telephone number			
E-mail address			
Fax number			
Names and Titles of Officers			

		RESPONSE		NOTE:
GENERAL	Version #	YES	NO	
Indicate the current version level of your software as it is released today.				
How many customers have fully implemented your CAC system?				
Define what you consider "fully implemented."				
How many hospitals/health systems use the version you are proposing? List clients.				
What coding systems does your solution integrate with?				
Can CAC be used by multiple departments?				
If so, list typical departments that can utilize the application.				
Does the application support coding in an inpatient environment?				
Does the application support coding in an outpatient environment?				
Does the application support coding in an ED environment?				
Does the application support remote coding in all of the above listed environments?				
Can the system be set up by site or is it designed as a corporate setup?				
Are the inpatient computer-assisted coding and outpatient computer-assisted coding delivered on the same technology?				
In what settings or hospital departments does your solution work best?				
Describe the best process scenario that would optimize use of your solution.				
By inpatient, outpatient and ER—What percent of codes are added (missed) by the computer-assisted coding engine?				
Are there particular patient types or account types where human intervention is not needed?				
Do you use rule-based, stat-based, or a combination of coding assignment logic to assign codes?				
How often is your coding assignment logic (rules, stat, combo) updated?				
Do these updates typically require downtime? If so, how much?				
Does your solution interface with transcription systems? If so, what specific transcription systems have you interfaced?				

CODING WORKFLOW	Version #	YES	NO	
Does the product streamline the coding workflow?				
How does the product streamline the coding workflow?				
How many screens are presented to the coders to complete a case by patient type?				
Does the application allow the end user can designate what documentation is required for the coding process?				
Can we designate documents for processing (terms highlighted and annotated) that will not be used in the calculation of code assignment?				
How can we designate documents for processing (terms highlighted and annotated) that will not be used in the calculation of code assignment?				
Can the application NOT present the record for coding until the designated record set is complete?				
How does the CAC system notify the coding system that enough documentation has been processed and the account is ready to code?				
Are there different workflows for inpatient, outpatient, clinic, ED?				
Describe these workflows for coding.				
If more than one workflow is delivered, does each workflow have individual logic (diagnostic, coding, documentation, care continuum)?				
Do work flows update interactively with coders as documentation is processed and becomes available?				
Is each workflow separate or integrated with others?				
If integrated, can build changes occur to one without affecting the other work flows?				
How are coding rules applied when reading words before and after diagnoses?				
Does the application suggest codes that can be accepted or rejected by the coder?				
If the application suggests one combination code, can the user override and assign two codes?				
Does the application provide for a search function by words or phrases in the documents?				
Does the application place codes in a queue for the coder to review, edit, approve, and finalize for each record?				

Does the application enable the creation of codes that are sent directly to billing without user intervention?				
Can the system automatically final code an account and send it to a billing system without coder review?				
Does the application designate on a coding summary all codes auto generated by CAC?				
Does the application display the term/text that was used to suggest codes?				
Does the application enable coders to highlight and save areas in documents that were used to complete or confirm coding?				
Does the application allow the coder to add notes explaining why codes were or were not confirmed?				
Does the application enable the coder to re-review the record for possible code changes?				
Does the application allow cases to be pended?				
Does the application enable the user to flag a record that needs to be held due to a missing document?				
Is the coder notified when missing documentation is satisfied?				
How is the coder notified when missing documentation is satisfied?				
Are late-arriving documents handled if the case is already final coded?				
How are late arriving documents handled if the case is already final coded?				
For late documentation, what criteria are considered, (i.e. DRG impact, document type etc. that can be used to notify the coder)?				
How are medical necessity/LCD/NCD/CCI edits handled?				
Does the application allow for auto routing based on client-specified criteria?				
Does the application allow the coder to route to supervisor for review?				
What occurs if the patient type changes from OP to IP?				
If the patient type changes, will codes convert ICD-9/ ICD-10 PCS to CPT and vice versa, as it relates to different document requirements?				

CLINICAL DOCUMENTATION IMPROVEMENT (CDI)	Version #	YES	NO	
Indicate the current version level of your software as it is released today.				
Describe how your system supports CDI programs.				
Does CAC improve processes for the clinical documentation specialist's (CDS) review?				
How does CAC improve processes for clinical documentation specialist's (CDS) review?				
Does the application provide the ability to prioritize queries for physicians and link to deficiency tracking?				
Does the application automate the query workflow process to resolve coding questions with physicians?				
Is the CDS query available to the coder so that the coder does not create a duplicate query to the physician?				
Does the system provide automatic notification to coder and CDS if query was responded to and an addendum is available?				
When the physician responds to a query, does the system allow for automatic generation of an addendum to the patient record?				
Can the application produce user-defined queries?				
If customized by user, can other users access the customized template or is it limited to creator only.				
Is there interactive messaging between CDS, coder, and physician?				
Describe the interactive messaging between the CDS and physicians/coders?				
How many screens are presented to the clinical documentation specialists to complete a case?				
Are codes being provided to the CDS for concurrent review?				
Does the application allow the CDS to view all recommended CAC codes when viewing concurrent queries?				
Does the application enable the CDS to flag a record that needs to be held due to a missing document?				

Does the application have the ability to track interventions of the CDS to obtain missing documentation?				
Does the application present codes that may be considered "likely, possible, probable" following I-9/I-10 coding guidelines and per documentation presented at intervals during concurrent review? In addition to possible DRGs?				
Does the application provide a mechanism to provide guidance, alerts, and suggestions to physicians for terms that need additional clarity?				
Can the application provide a working DRG and associated LOS, expected reimbursement and total charges?				
Is the working DRG and associated LOS viewable by user role (physician, coder, CDS)				
Does the system create a problem list for physician review and validation?				
Does this system tell the CDS that a CAC code is documented by the physician only one time?				
How does the system help ensure CAC codes are clinically supported throughout the record?				
If we put the diagnosis on the problem list, is there a flag that indicates that the diagnosis is only mentioned once in the documentation?				
Can timeliness of documentation improvements be measured?				
Is there ongoing education provided when updates/changes occur?				
Describe how ongoing education is provided.				
NATURAL LANGUAGE PROCESSING (NLP)	Version #	YES	NO	
Which NLP engine technology is used with your CAC product?				
How many NLP engines are used with your CAC product?				
Who develops and owns the NLP engine technology?				
Describe the NLP engine technology used with your CAC product.				
Is the same NLP engine used with CAC, CDI, and CAPD?				
Explain why this technology was selected and what differentiates your engine from others.				
Explain the benefit of your NLP engine architecture and configuration.				

Explain how the NLP engine learns.				
How are clients made aware of NLP learning changes that impact code suggestions?				
At what point during the documentation or stay do the CAC codes become reliable (i.e. day two)?				
Can you process structured documentation?				
How long does it typically take for a finalized document (transcribed or structured documentation) to be processed through the NLP and be available to the CDS?				
Does the application provide functionality to process all documents, hand-written or otherwise, through the NLP?				
Does the NLP engine highlight and annotate terms?				
Does the NLP engine auto-suggest codes and auto-generate codes?				
Explain how the system ensures that the NLP is not too sensitive (flagging irrelevant text) or not sensitive enough (missing key text).				
Explain how the NLP environment understands negation (e.g., no breast cancer).				
When conditions are ruled out, or negated by the attending physician how savvy is NLP at recognizing the change in documentation?				
What document format types are accepted into the NLP engine (PDF, etc.)?				
How are scanned images viewed/used?				
Is OCR technology used (i.e. hand-written documentation)?				
Describe the accuracy rate of the OCR technology.				
How many codes does the system present?				
Is there a reliability factor that displays associated with the CAC codes?				
Describe your algorithm for how the reliability factor functions.				
Does the application use precision and recall analysis to determine which coding cases can be considered for movement to automated coding?				
Does the application use an NLP methodology that maps extracted codes to normalized data that can be readily accessed, evaluated, and modified?				
Does the application ensure that the NLP rules engine can be modified via statistical analysis of transaction volumes?				

How does the application ensure that the NLP rules engine can be modified via statistical analysis of transaction volumes?				
Does the application detect additional information added to the record after billing and flags for coding?				
Explain the customer evaluation process used when there is a new release.				
Does the application provide the ability to add new data elements?				
How are additional data fields incorporated into the process and how quickly would the NLP engine pick up new data elements?				
Does the application provide NLP reporting that shows accuracy statistics of documents processed: determine the precision (percentage of correct codes reported) of the NLP and the recall (percentage of codes that should be found that are actually found) for extracted data?				
Does the application provide NLP output that marks documents as high, moderate, or low to support more rigorous document review by a human, and to support the transition to automated coding?				
Does the application provide NLP reports that show actual coding agreement with the NLP engine i.e., number, percent of finalized codes versus what is generated by the NLP engine?				
How often are updates released to the NLP engine?				
What is the recommended approach to setting up a test environment?				
How are upgrades, when applied to the test environment, able to be evaluated in terms of impact to production (validation and consistency)?				
What is the upgrade cycle?				
REPORTING AND TRACKING	Version #	YES	NO	
Does the application provide a dashboard that shows real-time status of coder productivity, cases with coding exceptions, cases that are delayed, and the status of the most valuable cases?				
Provide a sample of your coder dashboard.				
How is coder productivity measured?				
How is coder quality/accuracy measured?				
What is your gold standard for accuracy?				
How is coder compliance measured?				
Does the application provide a dashboard that shows real-time status of CDS productivity?				

Provide a sample of your CDS dashboard.				
How is CDS productivity measured?				
Does the application provide a customizable dashboard to monitor key performance metrics in real time?				
How do you measure CDS query quality and accuracy?				
How is CDS compliance measured?				
Does the application provide management reports that show views of charts coded over time by coder, relative severity of illness for coding events, coding productivity, DRG results, and mortality by severity of illness and risk, and overall workflow status?				
Provide examples of these reports.				
Does the application provide metrics to analyze the code to bill process: measure the date of service to CAC received days; measure the elapsed time from when the CAC received the documents to when it was presented to the coder; measure the time elapsed from when it was received by the coder to when the codes were passed to the billing system?				
Does the application provide the ability to analyze and trend missing documentation to improve the timeliness of post-visit or discharge health record completion?				
Provide a sample of your key performance metrics.				
What standard reports are included in the system?				
Can we customize our own reports?				
If we can't customize reports, explain the process for vendor customization of reports.				
What tools are used to customize reports?				
Does the application track denials of code overrides by coders?				
Does the application provide query turnaround metrics, volume of queries, and physician compliance with queries?				
Does the application provide the ability to track CDS accepted CAC codes and then the codes accepted by the coder?				
Does the reporting function include case mix analysis (Med/Surg CMI), DRG comparison, Top 5/10 DRGs, MCC/CC capture rates, CMI by physician specialties etc?				

AUDIT SUPPORT	Version #	YES	NO	
Does the application identify targeted cases, such as, wound debridement, ER levels, blood transfusions, specific DRGs, core quality indicators, etc?				
How are the recommended codes used for auditing/monitoring/QA purposes?				
Does the system support RAC and other internal and external audit functions by showing the original document, the coded document, and the highlighted parts of the document that were used to support coding?				
Does the system provide audit trails of records reviewed by internal or external auditors, e.g. RAC?				
Does the system provide audit trails of where the CDS and coder looked/reviewed?				
Does the system provide access to the database created by the NLP engine so that original and processed documents can be reviewed?				
Does the system provide auditing tools that allow users to examine the software's output, coder output, coder changes, and identify documentation strengths/weakness trends by physicians?				
Does the application support random audits on specific code pairs, modality types, physicians, CAC output, CDI and coders?				
Does the application provide audit trails to the word or phrase connected to the suggested code?				
Does the application indicate all record locations where a code is found and which document and word a code is found?				
Describe how coding quality is validated on an ongoing basis.				
ICD-10 SUPPORT	Version #	YES	NO	
Does the application map terms to ICD-9 codes, ICD-10 codes, CPT4 codes, and HCPCS code?				
Does the application provide for ICD-9 and ICD-10 and maintain both codes?				
Does the application provide a crosswalk for mapping ICD-9 codes to ICD-10 codes?				
Does the application suggest native ICD-10 codes?				

ROI	Version #	YES	NO	
What productivity improvements or cost savings have hospitals documented by using your tool (include in reference section and identify)				
How did you arrive at these coder productivity conclusions?				
What percent of improvement in coder quality do you project for inpatient records?				
What percent of improvement in coder quality do you project for complex outpatient records?				
What percent of improvement in coder quality do you project for simple outpatient records?				
What percent of improvement in coder quality do you project for emergency records?				
How did you arrive at these coder quality conclusions?				
What percent of improvement in CDS productivity do you guarantee for inpatient records?				
What percent of improvement in CDS productivity do you guarantee for complex outpatient records?				
What percent of improvement in CDS productivity do you guarantee for simple outpatient records?				
What percent of improvement in CDS productivity do you guarantee for emergency records?				
How did you arrive at these CDS productivity conclusions?				
What percent of improvement in CDS quality do you project for inpatient records?				
What percent of improvement in CDS quality do you project for complex outpatient records?				
What percent of improvement in CDS quality do you project for simple outpatient records?				
What percent of improvement in CDS quality do you project for emergency records?				
How did you arrive at these CDS quality conclusions?				

What supporting documentation can you provide to support your ROI conclusions?				
Provide examples of installed sites that have attained these productivity gains.				
What percent of productivity improvement do you guarantee for clinical documentation specialists?				
Describe any other benefits regarding your products.				
What supporting documentation can you provide to support your ROI conclusions?				
IMPLEMENTATION AND TIME LINE	Version #	YES	NO	
Are implementation services provided by your company?				
What do the implementation services include?				
Describe your implementation (project) plan. Provide a sample.				
Do you have a standard implementation and resource planning methodology?				
What is your time line for implementation?				
Provide a standard testing plan.				
Describe your CAC training plan/methodology. Provide a sample.				
Describe your CDI training plan/methodology. Provide a sample.				
Do you offer ongoing training classes?				
What is the typical cost per day or class?				
Provide the locations of your training facilities.				
What documentation, i.e. user, operations, technical, is supplied with your system and how it is provided?				
Are on-site training resources provided?				
How long are trainers provided on site?				
How long does it typically take for CDS staff to become proficient with the system?				
How long does it typically take for coding staff to become proficient with the system?				

SERVICES AND SUPPORT	Version #	YES	NO	
What is the process for supporting clients' coding issues and responding to questions or concerns?				
Is there an online help function?				
Is there online support for CDS staff?				
Is there online support for coders?				
Indicate how many employees are dedicated to each of the following areas: support, implementation, and development of your product?				
For coder/CDI/physicians is there ongoing educational support, or is training limited to use of software alone?				
Would dedicated support be provided to the customer?				
What is the schedule for providing code updates?				
How long will ICD-9 code sets be maintained post ICD-10 transition?				
Describe staff requirements for ongoing operation, maintenance and support of the system.				
Do you use sub-contractors to perform any work related to the computer-assisted coding solution? If yes, explain.				
Is support available 24/7 including weekends and holidays?				

TECHNOLOGY REQUIREMENTS

	RESPONSE		NOTE:
TECHNOLOGY	YES	NO	
Describe the required data transfers and data feeds, including file format, transfer process, electronic formats, and schedule—both inbound and outbound.			
Who will be responsible for the formatting of transferred data?			
What audits are in place to confirm file transfer?			
Does the application interface imaged documents to the NLP?			
Does the application interface text documents to the NLP?			
Do you have a formal privacy policy?			
Do you have a formal security policy?			
Do you have policies and procedures that dictate system access?			
Does the application provide technology specifications and a list of ALL technologies and tools required to support the product?			
If this is an internet-based solution, what happens when there is an internet disruption? Is enough of the application housed locally that it would allow coding to continue by placing the accounts on hold until the vendor side is operational?			
Which EMR applications has the application been integrated?			
Which other non-EMR applications has your system been interfaced with?			
Described the security features of the system.			
Does your product support secure FTP for charge file submission?			
What is the anticipated technical support required for operations and maintenance?			
What is the normal retention period for CAC and what are the storage requirements?			

Is any third-party software required? If so, describe.			
Does the application utilize system interfaces using HL7 2.X document frameworks?			
What version of HL7 is supported?			
Does the application interface ADT, physician identification, lab data, and discrete clinical information to the NLP?			
Does the application implement OCR so that machine-generated text can be interpreted?			
Does the application implement OCR so that handwritten words can be interpreted?			
Describe how ongoing maintenance is handled.			
Does the product integrate with Epic?			
Is there chargemaster interface?			
Does the application integrate with the charge description master (CDM)?			
If the application integrates with the CDM, explain this process.			
Can the application send the coder or CDS physician query directly to the Cerner message center?			
If the application integrates with the CDM, explain this process.			
What are the implications if we choose to purchase your CAC/NLP engine as a separate product?			
How does the CAPD application connect/integrate with the CAC application?			
Does the vendor have experience running the application in a large Citrix environment?			
If yes, what is the largest capacity achieved to date?			
What are typical break/fix issues and average resolution TAT?			

	RESPONSE		NOTE:
PRICING	YES	NO	
What incentives can you offer for a longer term contract?			
Can we purchase CAC/NLP separately (without coding or CDS functionality?			
Based upon your current understanding of the work, provide your "value proposition."			
What are the one-time costs associated with your proposal? Provide details.			
What are the ongoing (annual licensing) costs associated with your proposal? Provide details.			
How are annual maintenance costs calculated? Provide specifics.			
What are the additional costs associated with implementation/future implementations? Provide details.			
Are there costs associated with support?			
Provide details regarding additional costs associated with support.			
Are there any costs that would be incurred that are not included here?			
Provide details regarding additional costs that would be incurred that are not included here.			
Do you anticipate any changes to your fee structure during the engagement?			
Provide details regarding any changes to your fee structure during the engagement.			
Pricing Information. Provide specific pricing information for all products and services. This includes any implementation, maintenance, upgrade, shipping, handling, travel, or other miscellaneous fees that we could incur during the term of the Agreement. Any fees not clearly defined in this section will be excluded from the Agreement. Contingent or qualified pricing information will not be accepted.			

SAMPLE RFP FOR CAC

SECTION 1—VENDOR QUALIFICATIONS

General

1. What is your company's experience in the healthcare industry, including the coding industry?
2. What are the critical differentiators and core values you bring to a partnership?
3. Describe your company's business structure (e.g., corporation, partnership).
4. Are you owned by a parent company? If yes, specify.
5. List all other entities that are wholly or partially owned (greater than 20 percent ownership interest) by your firm. Provide the date of acquisition.
6. Provide a profile and brief history of your company.
7. What is unique about your solution?
8. How is your product better than other CAC systems?
9. How does your product provide a link between electronic records and completed billing information?
10. How does your product reduce cost and/or time from the coding process?
11. What other solutions not requested in this RFP does your company offer?

Vendor Team

1. Provide an organization chart to show the account management structure that will be provided if awarded a contract.
2. Provide pre- and post-sales support and maintenance positions
3. Explain how your product associates the code to a specific physician so that the code drops on the correct claim.
4. Describe your organizations plans for ICD-10.
5. Describe the plans for the CAC product in relation to ICD-10.

Quality Control

1. Describe the process your company follows to ensure user testing and quality.
2. Auditing
3. Describe briefly how versions of the documents are reflected.
4. How has your system been used for retro auditing purposes?

SECTION 2—REQUIRED SERVICES AND CAPABILITIES

General Required Services

1. Provide an overview of the solution offered by your company.
2. Describe the history and evolution of the proposed product including the future development roadmap for the product.
3. Describe the maturity of the product relative to its planned lifecycle.
4. Discuss how the application uses Natural Language Processing (NLP).
5. What record types can your technology and services team handle?
6. Describe how long the delay is between new code updates released by the *Federal Register* final rule and when these codes are incorporated into updates for your product. Please describe your QA process with respect to these codes.
7. With respect to system refreshes and updates, how often could your product refresh data from third party healthcare systems in place at our facility? Is this configurable? Can it be done daily (multiple times) and can temporal events trigger a refresh?
8. Describe how your solution accomplishes compliance with the local fiscal intermediary requirements. Does the solution make recommended changes, or activate some kind of alert mechanism to compliance changes?
9. Describe the process to alert users to any change in relevant codes (please list the code sources, for example OPPS, APC, etc.). What is the average time between a code update and an alert sent to users notifying them of the update?
10. What is your experience with professional coding?
11. What is your experience with hospital coding?
12. Interfaces
13. Describe experience in developing interfaces with HIS, DMS, and billing systems. Include names of products with which system has been successfully interfaced.
14. How will your product read documentation from multiple source systems?
15. Scanning and indexing
16. Describe the scanning and record identification capabilities of the system including software and hardware used.
17. Do you have a scanning process, within the application
18. Can your product accept both scanned and electronic documents?
19. Do your scanning capabilities include document storage? If so for how long?

Reports

1. What reporting options are available?
2. Describe the types of reports generated by the system?
3. What are the monitoring capabilities of the system?
4. What types of coder productivity reports are available?

Customer Service/Support

1. Describe your customer service program.
2. Have you conducted any surveys to measure customer satisfaction? If so, what were the results?
3. What are the hours for technical support and what is the standard response time?
4. Hours of system availability and uptime guarantee where appropriate.

Implementation and Training

1. Please provide a description of the typical timeline and implementation plan
2. Can the application export the coding data to any billing system? If so, how is this done?
3. Describe the training and education provided

SECTION 3—SYSTEM REQUIREMENTS

1. What is the required operating system?
2. Define the minimum hardware requirements for the following:
   - » Workstation
   - » Server
   - » Scanner
3. What are the minimum software requirements?
4. What is the process for adding updated, new, modified and/or deleted CPT, ICD-9, and/or HCPCS codes to the application?
5. What is the schedule for application enhancements?

Safety and Security

6. Describe the security environment for the system. Descriptions will include full details of:
   a. Access control
   b. Security coverage
   c. Security personnel and procedures
   d. Fire detection and suppression systems
   e. Redundancy and reliability
   f. Backups
   g. System and Network security capabilities (i.e., firewalls, IDs, VPN services, etc.)
7. Summarize how the application supports HIPAA requirements.
8. Does the product store patient protected health information (PHI) in a secure environment?
9. How does your company assure compliance with regulatory requirements for coding?
10. Does this product ensure that all transmission of patient PHI is encrypted using 128-bit Secure Socket Layer (SSL) or higher encryption?
11. Does this product require the downloading of records to the coder's PC?

Product Information

1. Is the product internet-based, allowing it to be accessed from any location to share coding resources across a distributed healthcare organization?
2. How does the product facilitate the management of coding resources and workload balancing?
3. Does the product include automatic code validation to ensure accurate code assignment, eliminating the problem of missing fourth and fifth digits and other invalid codes that lead to bill denials?
4. Describe your short- and long-term goals for this product's development. Describe major research and development efforts underway and expected availability.
5. Do you provide reference material capabilities?
6. How does your software interact with the encoder?
7. How does your software interact with the encoder for edits?
8. Describe your experience with our EHR.
9. Describe how your product enables clinical documentation programs.

Workflow

1. Explain how records are distributed?
2. Explain how the application assists supervisors to effectively manage and maximize the work force and load balance during times of vacancy, vacation or increased record volume.
3. Describe the change management capabilities within your tool. Please include details around change management workflows, task assignments to users, tracking status of changes and proof of user signoff.
4. Describe a typical coder workflow when using your product.

SECTION 4—COST

1. What is your proposed pricing?
2. What additional costs do you charge for installation and implementation?
3. What additional costs do you charge for interfaces?
4. What additional costs do you charge for training?