AHIMA/ACDIS
Compliant Clinical Documentation Integrity Technology Standards

Introduction

The CDI Technology Landscape

Clinical documentation is the cornerstone of medical data and the foundation of patient care. It provides a lasting record of the patient's history, diagnoses, tests, and treatments. An accurate and complete health record is beneficial not only to ensure that the severity and risk of illness of the patient is accurately reflected, but it also benefits the patient-provider relationship and aids in population health management and research. Health record documentation is translated into diagnostic and procedure codes that can be used for data mining (for example, by the Centers for Medicare and Medicaid Services or payers) to support improvements in patient care.

In addition, accurate clinical documentation and subsequent coding can help ensure appropriate reimbursement and reporting of quality metrics under value-based purchasing methodologies. Providers are the subject matter experts in clinically diagnosing and creating an appropriate treatment plan for their patients. Clinical documentation integrity (CDI) professionals are the translators and validators of the health record, working to ensure complete and accurate information. Health information and coding professionals translate documentation in health record into reportable codes. In an effort to achieve coding accuracy, which impacts quality and reimbursement, CDI and coding professionals use tools within the electronic health record (EHR) to assist in coding and ensure that any potential documentation opportunities are queried for clarification.

The advancement of technology has opened the door to streamline CDI initiatives, and when implemented effectively, it can reduce the administrative burden on providers and achieve high-quality documentation. CDI professionals often work in partnership with technology products and vendors to improve clinical documentation. This white paper seeks to ensure that, as we incorporate more novel and sophisticated technologies, we do so in a systematic and judicious manner.

In this white paper we offer:

- information on the variety of technology solutions currently available
- strategies to assess their compliance with CDI and coding practice guidelines
- methods for creating synergy between CDI and coding departments and novel technology solutions

Key Definitions

Many newer solutions aim to enhance that functionality through the use of novel technologies. It is important to clearly define the terminology commonly used by vendors to better understand the solutions they offer.

Computer-assisted coding (CAC) provides suggested diagnosis codes based on documented diagnoses or conditions within the health record.

Artificial intelligence (AI) is a broad and generic term that describes any technology that attempts to teach a computer (or any machine) to learn. These technologies are often employed to help their human counterparts perform tasks, solve problems, and potentially (and most importantly) help identify methods to improve current workflows.

Natural language processing (NLP) is a form of artificial intelligence that attempts to learn human language and understand written text, not only semantically defining each word but also the content and intent of the author's documentation.

Machine learning (ML) is the process to assess and fine-tune artificial intelligence in order to suggest information more accurately. In this instance, it increases the accuracy of diagnostic conditions being suggested. For example, software developers feed in volumes of text from health records and teach the "correct" interpretation for the relevant diagnoses. The ML algorithm then attempts to learn and develop its own algorithm to determine what words/sentences, etc., led to a particular diagnosis being relevant. ML programs continue to grow in accuracy with human input. With each correction or confirmation that the algorithm is correct, the programmer can adjust the ML software, thus making it "smarter."

A subset of ML is called "**deep learning**." While ML algorithms and models require human input to alter programming, a deep learning model will learn on its own through a series of algorithms called an artificial neural network, which attempts to mimic the way humans learn new ideas and concepts. However, a risk of deep learning is that it is more difficult to ensure that the model is providing the anticipated output for a given input.

Deep learning has been used by companies to solve complex problems simply by providing the model with a few basic rules and then letting it learn on its own.

As less human interaction occurs with each tweak or iteration in the algorithm, there is often an unknown element to the reason the algorithm may draw a given conclusion. This results in "black box" algorithms that must be evaluated with caution.

Many solutions in the CDI space are now targeted directly at providers without the expertise of a CDI professional to evaluate the validity of a given clarification. For example, providers may be prompted to document sepsis because the deep learning model has learned that monocyte

percentage and chloride levels are highly correlated with sepsis. Neither, however, is a clinical indicator that supports the generation of a compliant sepsis query.

Is AI Accurate?

The evolution of healthcare technology has impacted the CDI industry, and its rapid advancement is driving change to CDI processes. NLP and AI technologies help CDI professionals prioritize health records for review based on the perceived opportunity for documentation clarification. These technology tools suggest query opportunities to the CDI professional based on "triggers" that are identified during an automated scan of health record (e.g., documentation, vital signs, lab results, radiology findings, medications).

AI will scan a record for instances where key indicators that may represent a certain diagnosis but no documentation of the diagnosis is found. For example: a patient is on the medication Lasix, has had an ECHO showing a reduced ejection fraction, and rales are noted on the physical exam, but there is no documented diagnosis of heart failure. AI then elevates that health record to the CDI professional for review.

New technologies also identify when a diagnosis is documented that lacks clinical indicators or other diagnostic findings in the health record. For example, pneumonia is documented in a patient's active problem list, but the chest X-ray is clear. The provider did not order antibiotics, and the vital signs and labs are within normal limits. This may represent an opportunity to clinically validate the diagnosis of pneumonia.

These technologies still require a CDI review to determine if the trigger is valid and if clarification is needed. In the previous example of pneumonia being documented in the health record without supporting clinical indicators, pneumonia may have been documented as a "history of pneumonia treated last hospitalization" and is not an active problem for this admission. If the CDI professional feels the current documentation may lead to coding the pneumonia erroneously, a query may be needed.

Software may be programmed with algorithms that use criteria contradictory to the criteria used by the facility and/or provider. For example, a software trigger for hyponatremia may prioritize a health record for review for a patient with a sodium of 134 mEq/L. This should prompt critical thinking from the CDI professional, including:

- What does the provider or organization consider hyponatremia?
- How many abnormal value instances should be present before issuing a query?
- What are the thresholds recognized by the facility for different conditions?

New technologies have the potential to help CDI professionals operate with greater efficiency. NLP and AI programs are often introduced to increase CDI productivity. Reviews can be

performed more quickly when the data is grouped, summarized, and presented for review/query. Some AI technologies allow CDI professionals to copy pertinent documentation in the record to a worksheet during the review, noting the location and date of the documentation for future reference and query development. Reviewing a complete health record that has been pre-reviewed by AI and identified as possessing potential query opportunity is a more efficient use of a CDI professional's time, allowing them to prioritize records with more CDI opportunities over those with less opportunities.

However, there are drawbacks and inherent risks to these technologies. For example, AI/NLP triggers are not always appropriate. Records that are deprioritized or passed over for review may still contain query opportunities. Just as CDI professionals should review and evaluate each trigger for accuracy, they must not become overdependent on triggers and only review the health record for the suggested items. There may be other opportunities in the record that need to be clarified that were not identified by the technology tool. This is especially true when the opportunities are more complex and require critical analysis by the CDI professional to determine the big picture of what is happening during the admission and the clarification needed to reflect the true cause and effect of some conditions.

As with all records, each must stand on its own. It is the responsibility of the CDI professional to distinguish between legitimate query opportunities versus inappropriate triggers and to recognize potential opportunities not identified by AI/NLP.

Defining a Documentation Integrity Practice

This section of white paper is intended to supplement, not supersede, the AHIMA and ACDIS document "Guidelines for Achieving a Compliant Query Practice (2019 update)" and the accompanying document "Frequently Asked Questions." This document can also be found at ACDIS.

"Guidelines for Achieving a Compliant Query Practice (2019 Update)" speaks to the fact that all healthcare professionals seeking to clarify provider documentation, regardless of whether they are AHIMA or ACDIS members or have a certain credential, role, title, or use a particular type of technology, must follow compliant query guidelines.

The purpose or expectation of documentation clarification processes is to assist the provider in creating thorough and complete documentation, including specificity, treatment provided, and clinical validation. The ultimate goal is to assist with patient care continuity and provider communications but also lend to other efforts such as:

- Accurate diagnosis and procedure code assignment
- Capture of appropriate patient complexity
- Accurate quality metrics reporting

- Denial prevention

AI provides real-time notifications to providers to clarify documentation within their workflow. These notifications are synonymous with many different terms including prompts, nudges, suggestions, opportunity pushes, queries, documentation alerts, clinical/critical alerts, etc.

It is important to note that the terms "documentation alerts" and "clinical/critical alerts" may have different meanings and not all are subject to query compliance guidelines.

Documentation alerts are issued to promote documentation clarification and clinical/critical alerts are issued to support clinical decisions and treatment. A documentation alert may prompt the provider, based on documentation from a previous encounter(s), to confirm a potential chronic condition or address conditions/procedures that require further specificity, completeness, or validation for accurate code assignment and reporting. Some examples may include type of respiratory failure, depth of debridement, and presence of acute kidney injury, etc. (see the AHIMA Practice Brief Prospective Clinical Documentation Integrity (CDI) Reviews and Query/Alert Practice Best Standards).

A **clinical/critical alert** may notify the provider of an abnormal sodium level that may require clinical evaluation or treatment. It should not suggest or imply instructions related to desired documentation.

Any technology used to identify documentation opportunities must follow the guidance provided in "Guidelines for Achieving a Compliant Query Practice (2019 Update)" and apply the appropriate standards. These requirements apply to all query activity, no matter the method of generation to include human, automated, or other similar terms.

Standards to consider include:

A. All queries should be memorialized to demonstrate compliance with all query requirements and validate the necessity of the query.
B. The clarification should not be titled in any way that indicates a purpose beyond the need for further clarification.
C. The query formats (multiple choice, open ended, yes/no) are acceptable as long as they follow the "Guidelines for Achieving a Compliant Query Practice (2019 Update)." The provider should never be directed toward a specific answer.
D. Provider queries must include relevant clinical indicator(s) specific to the particular patient as cited within the health record and referenced appropriately. Additionally, a query may be generated based on a provider's treatment plan as long as it is authenticated, unless the organization's policies and procedures prohibit this process.
E. An undocumented diagnosis cannot be specifically suggested within the question portion of the query.
F. The choices provided as part of the query must reflect reasonable conclusions specific to the scenario of the individual patient.

G. Prior information from other health records (within or outside of the current facility) may be used to support a query if relevant to the current encounter and if it adheres to the facility's policies and procedures. This information should be properly referenced as to location/date within the query. However, it is inappropriate to "mine" a previous encounter to generate queries not related to the current encounter. Queries using information from prior encounters is further itemized in "Guidelines for Achieving a Compliant Query Practice (2019 Update)."
H. It is acceptable to have a link within the health record to access the clinical indicators.
I. It is inappropriate to indicate the impact on reimbursement (i.e., whether a given diagnosis is a CC/MCC/HCC/etc.), payment methodology, quality metrics, or severity of illness in the query process.

Assess Compliant CDI Vendors

The "Guidelines for Achieving a Compliant Query Practice (2019 Update)" expanded the scope of who must follow compliant query guidelines to include all professionals that actively engage in educating providers to document a certain way that could alter coded data, regardless of the credential, role, title, or use of technology. Professionals outside the roles of coding and CDI may not be aware of the brief or their potential noncompliance with its contents and guidance. Organizations should educate anyone seeking to clarify provider documentation in compliant query practices through collaboration with health information, coding, and CDI professionals.

Computer-assisted provider documentation (CAPD) uses AI to analyze documentation in real-time and "prompts" providers for the specificity or presence of diagnoses at the point of care. Some contend these "prompts" do not meet the definition of a query because they are an electronic version of a pocket card traditionally used by CDI professionals to proactively educate providers in broad CDI concepts. The major difference between a pocket card and CAPD is the case-based specificity of the prompt applied to the particular episode of care, analogous to a verbal query.

Similarly, some draw a distinction between real-time queries and those occurring after the point of care, interpreting query guidelines as addressing only traditional CDI and coding processes in which queries are generated after the patient encounter. Additionally, some vendors attempt to distinguish their "prompt'' from a query by using different labels for the intervention, such as the terms listed earlier in this document, as a means of asserting exemption from the guidelines.

As established in the "Guidelines for Achieving a Compliant Query Practice (2019 Update)," regardless of the method (technology, timing, label, etc.), interventions that "serve the purpose of supporting clear and consistent documentation of diagnoses or procedures meet the

definition of a query" and "must adhere to compliant, non-leading standards, permitting the provider of record to unbiasedly respond with a specific diagnoses or procedure."

All queries must meet the same compliant standards regardless of how or when they are generated, including those autogenerated by AI and CAC, whether in real time (CAPD) or after the episode of care is complete.

Evaluation of Healthcare Technology Vendors

Prior to contacting any vendor or viewing any demonstration, the first step toward evaluating technology is the process of **discovery**. The purpose of discovery is to fully understand the organization's current process, define the problem, and identify a potential solution. A **multidisciplinary, investigatory project team** should be assembled to include members with relevant skills and a vested interest. Roles and responsibilities should be defined and assigned. Educate all members of the project team and stakeholders in the compliance issues outlined within this document.

Next, a **project charter** should be developed with the goal of developing a list of project-specific questions for vendors. Set a goal to determine what is to be achieved with the technology. Describe the problem to be solved and why a solution is important. Outline scope, expected outcomes, measures of success, and risks/barriers. List stakeholders and begin scheduling key dates.

Sample **vendor questions** are included in this document, but the major categories to discover with any potential vendor are:

1. High-level overview/workflow of the logic
2. Interoperability and integration with current systems (e.g., EHR, billing, etc.)
3. Data sharing and security (e.g., access, source, storage, and HIPAA)
4. Compliance (e.g., internal and external)
5. Algorithm development and transparency (e.g., clinical evidence, expert review, evidence-based medicine)
6. Algorithm accuracy, validation, and feedback (e.g., confidence level)
7. Level of customization (e.g., of clinical elements that prompt auto queries)
8. Reports/analytics
9. Cost and return on investment

Policies and Procedures

Developing Policies and Procedures

When new technologies are introduced, policies and procedures should be reviewed for potential impact. These impacts may include, for example, policies related to CDI chart review productivity, if the AI platform diminishes the need for human CDI query. (Learn more about developing policies and procedures here.)

Autogenerated query algorithms should be a central consideration when healthcare organizations develop policies and procedures related to CDI technology platforms. Each organization should work with their designated subject matter experts (SMEs) to determine the key elements required within the algorithm before prompting an autogenerated query. Some of the stakeholders who may be included in this process are leadership, medical staff, CDI, health information, information technology, compliance, and quality assurance.

Confidence Levels

Confidence levels of autogenerated queries represent the likelihood that higher specificity can be provided within the documentation, based on the evidence identified within the health record. For example, if only one of the defined elements of heart failure within the clinical evidence parameters was present, the confidence level would be lower than if three of the criteria were identified.

Organizations should determine the confidence level thresholds that should be met before autogenerated queries are sent to a provider or CDI professional. Vendors should be required to clearly state the basis of their confidence level and the process by which it is derived. If the confidence level is low, the organization may require a review by the CDI professional before the query is sent to the provider. These nuances should be clearly documented in policies and procedures.

Escalation Policies

Hospitals should possess clear escalation policies related to technology and update them regularly, especially as software is updated and changed. In any query and escalation process, an audit process must be in place to maintain compliance. For example, if provider non-responses are determined to be due to a technological issue, this may necessitate coordinated action with the vendor by the information technology, health information, and CDI departments.

Automated queries differ from manual queries issued by a CDI professional. For example, if automatic queries receive non-responses and are impacting record completion or discharged not final billed, review to determine whether the clinical criteria prompting the query should be

updated/revised or if the query should be turned off. Review for any trends and determine if there is a need to follow up with a specific provider, specialty, or organizational leadership.

After implementing AI technologies, **complete a periodic review of the data for query trends and take action as needed**. For example, you may find that automated queries to the provider are based on documentation pulled from an outdated problem list or a time frame outside of the range of the episode of care. In this instance you may need to ask your vendor to update its algorithm.

The Application of Clinical Technology in Different Healthcare Settings

The application of clinical technology may differ across healthcare settings. For example, technology in the inpatient setting is more likely to offer CDI-facing and autogenerated query opportunities. However, the outpatient setting may not possess a dedicated CDI team that can be used in this capacity, and so documentation prompts may be offered directly to the provider. In addition, outpatient encounters are so brief that there is limited opportunity for concurrent CDI review. Organizations should develop policies to perform quality reviews of autogenerated queries that are sent directly to the provider. These reviews may be performed through internal or external audits in conjunction with provider feedback as applicable to the query intent.

- **CDI facing queries** are queries that are developed by a CDI professional or other query author who has determined the need for a documentation query after reviewing the health record clinical documentation and clinical evidence.
- **Provider-facing queries** are sent via an electronic source without prior CDI review. These utilize AI to review health record clinical documentation and clinical evidence to determine if a documentation query may be needed.
- **Autogenerated queries** may be sent directly to a provider (provider facing) or a CDI professional (CDI facing) for a health record review to determine if the query is warranted.

In some situations a provider may perform self-coding. If the provider has no CDI/coding training, they may not recognize documentation opportunities and/or compliance concerns. The self-coding provider may view the autogenerated queries as an effective process to improving their documentation; however, if a CDI professional has not been included in the development of the technology platform, the provider could be at risk for noncompliance. A

solution may be implementing a CDI team or using an external CDI SME to assist in the implementation and maintenance of CDI technology.

Finally, the CDI process is impacted by multiple departments and professionals; thus, having a multidisciplinary team in place to evaluate and maintain the CDI technology is crucial. This multi-disciplinary team will assist the organization in developing a compliant process.

No matter the healthcare setting, the information provided in this white paper serves as a guide to ensure that an organization's technology platform is developed and used in a compliant manner.

Appendix A

Sample Questions for Vendor Selection

Use these as a starting point for a list of project-specific questions for vendors.

1. Can you provide a high-level overview/workflow of your product's logic?
2. What are the categories of provider documentation improvement?
    a. Potential additional diagnoses which are supported by clinical indicators
    b. Diagnoses/procedures lacking specificity
    c. Validation of diagnoses/procedures which do not appear to be clinically supported
    d. POA validation
3. What documents are utilized in your natural language processing (provider documentation, vital signs, laboratory findings, medications, nursing notes, etc.)?
    a. Are scanned documents included in the documents utilized in your NLP?
4. How are your algorithms built, and who was/is included in developing the algorithm (data scientists, providers, CDI, or coding experts)?
5. What are one or two examples of an algorithm and how it determines clinical validity of a diagnosis? Does it reference evidence-based medicine?
6. Are your clients provided access to the documents which support the specific algorithms?
7. Is the supporting documentation and the provider's response memorialized? And if so, how?
8. How do you differentiate between front-end prompts /nudge/etc. and clinical/critical vs documentation alerts/queries (see Prospective Clinical Documentation Integrity (CDI) Reviews and Query/Alert Practice Best Standards)? Do you follow the same compliance standards for both?
9. Is information contained in previous hospitalizations, external facilities, or provider encounters (outpatient visits, ER, observations) included in the query? If so, under what conditions?
10. Are there capabilities for customizations, and if so, how would we initiate a customization, what is the added cost, and what do they entail?
11. What reports/analytics data tools are available for monitoring compliance and provider response?
12. Does the system flag conditions that are an MCC/CC/HCC and are they presented to the provider as a diagnosis with additional weight? If so, what regulatory compliance efforts were considered regarding this process?
13. Are the queries directed to the attending provider or the consulting provider or both?
14. What is the format of a query: yes/no, multiple choice, or open ended?
15. What types of data from our organization is required during implementation of your tool (e.g. HL7 claims data, EHR, live feed to the registration system, etc.)?

Authors

Karen Marini Carr, MS, BSN, RN, CDIP, CCDS
Tammy Combs, RN, MSN, CDIP, CCS, CNE
Steven L. Griffin RN, DNP, CCM, CCDS
William E. Haik, MD, FCCP, CDIP, AHIMA Approved ICD-10-CM/PCS Trainer
Katherine Kozlowski RHIA, CDIP, CCS
Brian Murphy
Christopher Petrilli, MD, SFHM
Laurie L. Prescott RN, MSN, CCDS, CCDS-O, CDIP, CRC
Deanne Wilk, BSN, RN, CCDS, CDIP, CCDS-O, CCS

Acknowledgements

Patricia Buttner, MBA/HCM, RHIA, CDIP, CHDA, CPHI, CCS, CICA
Donna Caldwell-Chaffin, RHIA, CCS
Jean Delgado, RHIT, CCS
Cheryl Ericson, MS, RN, CCDS, CDIP
Jen Flohr, RHIT, CDIP, CCS, CPMA, CPCO, COC, CAPM
Margaret (Maggie) Foley, PhD, RHIA, CCS
Alina Hughes, MHA, RHIA, CDIP, CCS
Rosann M. McLean, DHSc, RHIA, CDIP
Chinedum Mogbo, MBBS, MBA, MsHIM, RHIA, CCDS, CDIP, CCS
Melissa Potts, RN, BSN, CCDS, CDIP
Jaime Richling, RHIA
Donna Rugg, RHIT, CDIP, CCS-P, CCS
Tracy Stanley, RHIT, CHUC
Kelly Sutton, MHL, BSN, RN, CCDS
Dr. Aerian Tatum, MS, RHIA, CCS
Amanda Wickard, MBA, RHIA
Anny Pang Yuen, RHIA, CCS, CCDS, CDIP