The Role of CDI in Semantic Interoperability

Save to myBoK

The Role of CDI in Semantic Interoperability

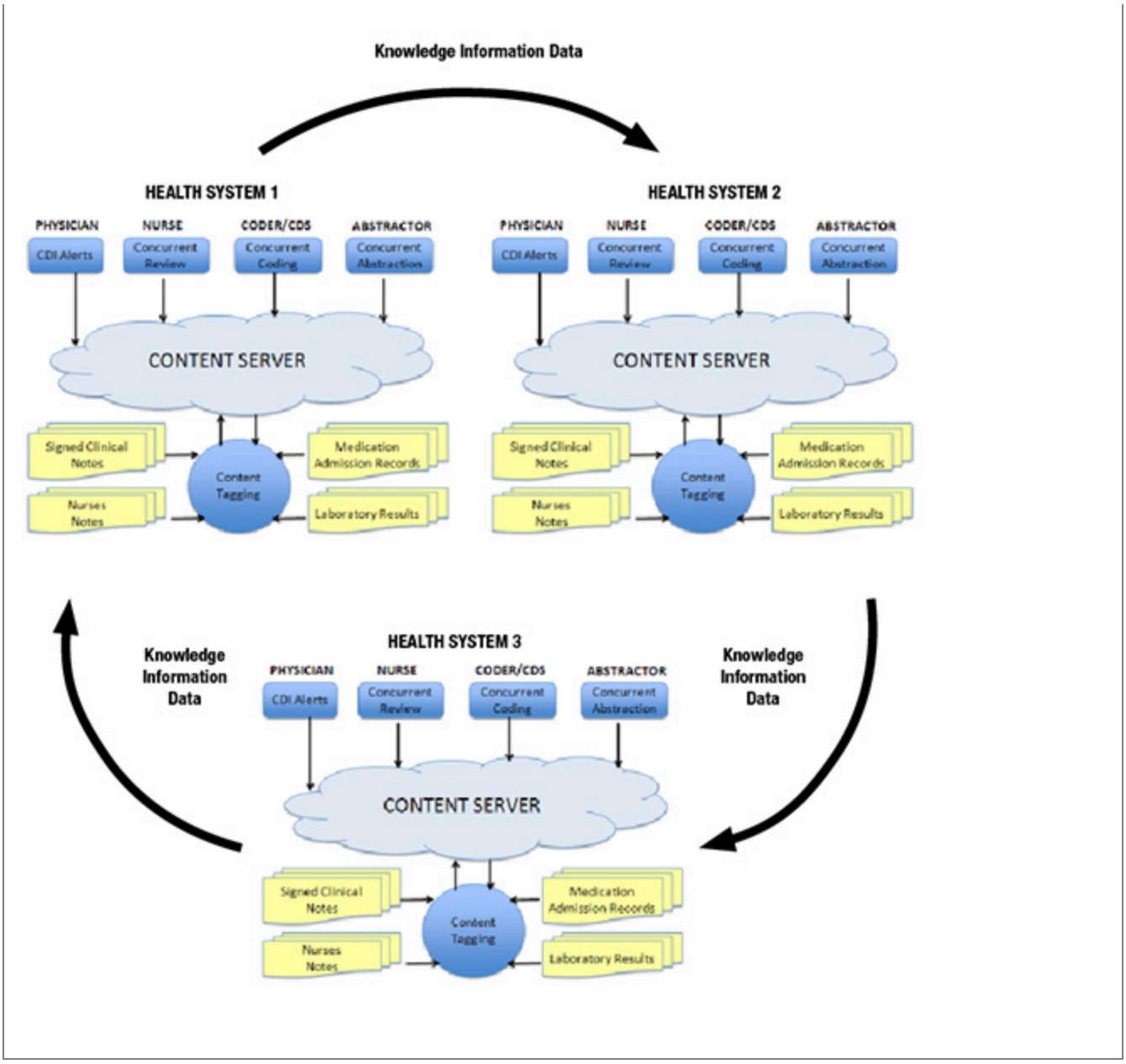
By Lee Wise, MS, RHIA, CHCO; Nicole Miller, MS, RHIA; and Diana Warner, MS, RHIA, CHPS, CPHI, FAHIMA

Improving documentation quality has been the passion of many health information management (HIM) professionals for decades. Today, electronic health records (EHRs) bring healthcare providers new challenges when documenting information. There have been many reports of challenges with the usability of EHRs due to shortcomings in supporting user needs.[1,2,3,4] The US National Institute of Standards and Technology (NIST) published a five-year study on usability of EHR systems that identified documentation issues that may negatively impact patient safety.[5]

Semantic Interoperability an Outcome of CDI

Clinical documentation improvement (CDI) is an important approach to patient care documentation. CDI helps ensure accurate and quality documentation is recorded in the health record, which is not only needed for treatment but also to ensure semantic interoperability of the health data. Interoperability means the ability to capture, communicate, and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings—as well as exchange data in a way that its clinical or operational purpose and meaning are preserved and unaltered.[6] Semantic interoperability involves the shared content (see Figure 1 below for an example of semantic interoperability in action).

Figure 1: Semantic Interoperability and Sharing Data Between Health Systems



Capturing information or data as it occurs during the episode of care will improve the effectiveness of treatments by other physicians also caring for the patient. The goal of CDI programs—an organization-wide activity to produce "legible, reliable, precise, complete, consistent, clear, and timely information thus affecting patient care, reimbursement, severity and quality scores"—is to enable proper documentation of the clinical encounter's content in EHR systems.[7] Now more than ever, the information is being shared across settings through telehealth, mobile health, concierge medicine, accountable care organizations, and population health. CDI is important for sharing this information. According to the Centers for Medicare and Medicaid Services (CMS), while inpatient admissions have been steadily declining, outpatient visits have been increasing over the same period.[8] As healthcare shifts toward a system tied to quality of care and greater interoperability, it becomes increasingly necessary to ensure IT infrastructure and CDI programs are both strong and ensuring the accuracy of data. An essential element to this is expanding the role of a CDI program and ensuring key standards are met.

Review Core CDI Concepts

The concepts of accuracy, accessibility, comprehensiveness, consistency, currency, data definition, granularity, integrity, precision, relevance, and timeliness are not new when it comes to health information documentation. But in the ever-quickening pace of healthcare, these terms can get either blurred together or lost in the shuffle. A brief refresher about documentation concepts is important in order to remain focused on the reasons behind documentation. Accuracy makes sure the data correctly portrays the patient. Accessibility requires data to be obtainable in all legal ways possible.

Comprehensiveness requires all data elements be collected for every patient. Consistency means the data is the same across all elements for the patient. Currency means the data is updated to the most recent extent possible. Data definitions should be provided for all data elements so the data is collected the same way at all times. Granularity requires data to be defined at the highest level of detail possible. Integrity needs to be upheld at all times with the correct data recorded for a patient through all data elements. Precision of the data means the information should be accurate enough to support the care process. Relevance states the data should be meaningful for care. Timeliness means the data is collected consistently with the timing of the patient visit.[9] All of these concepts are very important, and all physicians need to follow them. They are also core tenets of a CDI program.

CDI programs should focus on improving documentation quality through standardized representation of clinical pathways (clinical workflow) and case definition templates (data requirements) for information capture, sharing, and use in healthcare, public health, and research. CDI is a key HIM/informatics activity at each healthcare organization that adopts EHR technology, which utilizes case definition templates to enable documentation. Built from clinical pathways defined by clinicians (providers and nurses) based on clinical guidelines, best practices, and peer-reviewed medical literature, case definition templates define how data will be captured in the record.

Standardizing CDI Processes

Data standards are documented agreements on representations, formats, and definitions of common data. Data standards provide a method to codify, in meaningful, comprehensive, valid, and actionable ways, information captured during business processes. This ensures that the information is captured and shared consistently.

The purpose of CDI is to improve patient care by making sure the documentation accurately portrays the patient's condition and the care they are receiving. The medical record and its documentation data is meant to tell the story of the patient. Anyone viewing the documentation should be able to follow the story and treat the patient accordingly. Again, CDI assists the provider with the following concepts: accuracy, accessibility, comprehensiveness, consistency, currency, data definition, granularity, integrity, precision, relevance, and timeliness. Semantic interoperability is successful when the documentation accurately conveys the condition and care of the patient, thus improving the outcome for the patient through transitions of care while minimizing readmissions.

Accurate Data Fosters Interoperability

Healthcare providers, patients, and researchers need to share data. To share data, information, and knowledge using the means of information and communication technology requires interoperability of health information systems. To have interoperability between systems, CDI uses standard protocols for data capture to ensure reliability, integrity, safety, and quality. The documentation must be reliable so there is trust that the entries and values are consistently populated in the EHR. The data capture must support integrity to ensure the information is authentic, timely, accurate, and complete across the episode of care, and that there are safeguards for protecting patient information at all levels. Finally, the documentation captured must be done in a way that follows established protocols—something CDI can help ensure.

Notes

1. Bowman, Sue. "Impact of Electronic Health Record Systems on Information Integrity: Quality and Safety Implications." *Perspectives in Health Information Management*. Fall 2013. http://perspectives.ahima.org/impact-of-electronic-health-record-systems-on-information-integrity-quality-and-safety-implications.
2. Nguyen L.; E. Berlucci; and L.T. Nguyen. "Electronic health records implementation: An evaluation of information system impact and contingency factors." *International Journal of Medical Informatics* 83, no. 11 (November 2014): 779-796.
3. Kuhn, Thomson et al. "Clinical Documentation in the ٢١st Century: Executive Summary of a Policy Position Paper from the American College of Physicians." *Annals of Internal Medicine* 162, no. 4 (February 17, 2015). http://annals.org/article.aspx?articleid=2089368.
4. Bouamrane, Matt-Mouley and Frances Mair. "A study of general practitioners' perspectives on electronic medical records systems in NHS Scotland." *BMC Medical Informatics and Decision Making*. 2013. http://bmcmedinformdecismak.biomedcentral.com/articles/10.1186/1472-6947-13-58

5. Lowry, Svetlana Z. et al. "Technical Evaluation, Testing, and Validation of the Usability of Electronic Health Records: Empirically Based Use Cases for Validating Safety-Enhanced Usability and Guidelines for Standardization." US National Institute of Standardization and Technology. October 7, 2015. http://nvlpubs.nist.gov/nistpubs/ir/2015/NIST.IR.7804-1.pdf.
6. Health Level Seven EHR Interoperability Work Group. "Coming to Terms: Scoping Interoperability for Health Care." White paper. February 7, 2007. www.hln.com/assets/pdf/Coming-to-Terms-February-2007.pdf.
7. Hess, Pamela. *Clinical Documentation Improvement: Principles and Practice*. Chicago, IL: AHIMA Press, 2015.
8. Gerhardt, Geoffrey et al. "Evaluating Whether Changes in Utilization of Hospital Outpatient Services Contributed to Lower Medicare Readmission Rate." *Medicare & Medicaid Research Review* 4, no. 1 (2014). www.cms.gov/mmrr/Downloads/MMRR2014_004_01_b03.pdf.
9. Abdelhak, Mervat; Sara Grostick; and Mary Alice Hanken. *Health Information: Management of a Strategic Resource* Third Edition. St. Louis, MO: Elsevier Saunders, 2007.

Lee Wise (leewise2008@hotmail.com) is director of health information management/privacy officer at Clinch Valley Medical Center. Nicole Miller (millern@millerandmillerassociates.com) is principal, Miller And Miller Associates. Diana Warner (diana.warner@ahima.org) is a director of informatics, information governance, and standards at AHIMA.
