HIM's Central Role in Health Information Exchange Using C-CDA

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By Melanie Meyer, PhD, MHA, RHIA, CCS, CPHQ; Carlyn Doyle, MSHI, RHIA, CHPS, HCISPP; Diane P. Fabian, MBA, MS, RHIA; Sharon Slivochka, RHIA; and Michael Stearns, MD, CPC, CFPC

Information exchange using the Consolidated-Clinical Document Architecture (C-CDA) has been a key strategy for achieving interoperability in healthcare. However, there are often operational and systematic challenges to implementing C-CDA exchange in a healthcare environment. Health information management (HIM) professionals play a key role in leading this work and addressing these challenges.

This article profiles four organizations—Bronson Healthcare Group, Drexel Medicine, Stanford Health Care, and Truman Medical Centers—and their journey to achieving greater interoperability through C-CDA exchange. Current practices, key themes, and areas of opportunity with C-CDA use and exchange are discussed below, based on interviews with representatives from the four organizations.

Key Terms to Know

- **Clinical Document Architecture (CDA):** CDA is a document markup standard for the structure and semantics of exchanged "clinical documents." CDA documents are encoded in Extensible Markup Language (XML).
- **Consolidated Clinical Document Architecture (C-CDA):** C-CDA is an implementation guide which specifies a library of templates and prescribes their use for a set of specific document types.
- **Direct:** A standard for securely exchanging clinical healthcare data via the internet. It is also known as the Direct Project, Direct Exchange, and Direct Secure Messaging.
- **Integrating the Healthcare Enterprise (IHE):** Promotes the coordinated use of established standards to address specific clinical needs in support of optimal patient care.
- **IHE Profiles:** Provide precise definitions of how standards can be implemented to meet specific clinical needs.

Current C-CDA Exchange Practices

The organizations are primarily conducting C-CDA exchange via Direct, or in some cases using Integrating the Healthcare Enterprise (IHE) profiles (see the sidebar above for term definitions). The organizations are using continuity of care documents (CCDs), automating processes to query CCDs on demand or prior to patient visits, integrating data received into the electronic health record (EHR), and using heavily adopted industry standards. Additionally, admission, discharge, transfer (ADT) notifications for a hospital admission can trigger sending CCDs.

Here is a short profile of each organization, highlighting their current practices and health IT systems:

- **Bronson Healthcare Group:** Epic version 2017 EHR. Implemented Care Everywhere in 2012. Michigan Health Information Exchange Network (MiHIN) and Carequality participation. Surescripts HISP integration. Direct connections with the US Department of Veterans Affairs Veterans Health Administration (VHA) and the Social Security Administration. Also, eHealth Exchange, Direct messaging, and international query functionality.
- **Drexel Medicine:** Allscripts Ambulatory EHR, Touchworks, version 17. Regional HealthShare Exchange (HSX) participation.

- **Stanford Health Care:** Epic version 2017 EHR. Implemented Care Everywhere in 2011. Established eHealth Exchange connection in 2013 for exchange with non-Epic sites including the VHA and Social Security Administration. Established Direct messaging in 2014; joined Health Information Service Provider (HISP). Established Surescripts record locator service and enabled international exchange in 2017. Participates in Carequality.
- **Truman Medical Centers:** Cerner Millennium EHR. Uses SeeMyRadiology to share images. Participates in multiple health information exchanges (HIEs) (i.e., Lewis and Clark Information Exchange (Lacey), Kansas Health Information Network (KHIN)), and the Commonwell Health Alliance.

Shared Themes

The following health information exchange themes were observed with the four studied healthcare organizations.

Importance of Cross-Organizational, Regional, and National Workgroups

Each organization interviewed participates in multiple workgroups or forums for HIE at the regional and/or national level. Participation in these workgroups was often led by the HIM professional or other leaders in the healthcare organization. For example, Tami Montroy, MS, RHIA, CCS, HIM manager, clinical informatics at Drexel Medicine, mentioned participating in the HSX provider meetings. She also works with pharmacies, payers, and other healthcare organizations in the region to improve the quality and timeliness of clinical document architecture (CDA) documents. Additional follow-up may be required to identify and update providers. The Stanford team, which includes Leslie LaStofka, RHIA, administrative director, health information management services, participates in the California Epic Care Everywhere Regional User Workgroup, a statewide consortium of Epic sites, the eHealth Exchange, Carequality, and national C-CDA content quality testing workgroups. Kayla Staley, MBA, RHIA, lead business information systems analyst, Care Everywhere lead at Bronson Healthcare, is working on an Epic Community Connect project and actively works with referring providers to get them connected in the local area. Debbie Joyce, RHIA, director of health data exchange and integrity, HIMS, at Truman Medical Centers participates in a cross-facility HIM directors workgroup and HIE workgroup.

Need for Strong EHR Integration that is Automated and Standards-Based

It was very apparent from the interviews that different EHRs have different levels of automation and integration when it comes to C-CDA exchange. Some integrate the data directly into the medical record; others require manual review, reconciliation, and parsing. Organizations may need to turn to third-party applications or develop applications to supplement what the vendor offers out of the box. All the organizations interviewed were working to make CCDs available at relevant touchpoints within the EHR. There were different ways of doing this depending on the EHR.

All interviewees also highlighted the importance of having an automated reconciliation process for key areas such as the problem list, medications, and allergies. As new information comes in through information exchange, there is a need to reconcile key pieces of data with information already contained in the medical record. Automating this process can be very helpful in ensuring the information is available in a timely manner without excessive effort on the part of clinical users. The need for manual reconciliation is ubiquitous and labor-intensive, but it offers clinical value. In order for information to have maximum value, it must be accurate, complete, and current. Organizations still face challenges regarding exchanging behavioral health information but recognize the importance of providing an integrated view—both physical and mental—of patient health information. State regulations and organizational practices vary, particularly regarding patient authorization for exchange, highlighting the need for consistent ground rules to simplify the process.

Much Variability Exists in CDA Documents and HIE Support

The timing of when CDA documents are sent varies. Some organizations send CCDs at discharge; others wait until all documentation is complete and then send; others do both. There is often a need to reconcile multiple versions of incoming CCDs. For example, for an inpatient encounter a CCD may be sent for the inpatient stay, the cardiology tests, and the X-rays. And not only can there be multiple CCDs per encounter exchanged, but many organizations continue to fax documents—resulting in more duplicates to reconcile and more documents to scan.

Differences were also noted in the completeness of CCDs and varying stylesheets. All CDAs look a bit different; each EHR has a different stylesheet. Managing this variation often requires manual review and filing of incoming CCDs. For some organizations, this work has required additional staffing. Montroy noted that Drexel did a lot of work in applying the best stylesheets to incoming CCDs given the variation. The headers now actually say "Problem List" and provide an organized view of diagnoses and related problems.

There is also variation in terms of HIE support services for C-CDA exchange—specifically, maintaining provider directories, and in particular for Direct messaging. Having an up-to-date provider directory for all facilities in the region and provider Direct addresses is critical to achieving successful information exchange.

HIM's Leadership Role

The HIM professionals interviewed have taken an active leadership role in helping their organizations make progress in the areas of C-CDA exchange and interoperability. These HIM roles bridge IT and operations, often working with community partners and leading collaboration projects. For example, Staley at Bronson Healthcare spends many hours working with referring physicians to increase use of C-CDA exchange and Montroy at Drexel does the same with HIE partners. Both also spend time communicating with physicians and managers in the organization and providing reports on HIE use. "It is important to paint a picture of the benefit of HIE to the organization," Staley said. Joyce at Truman Medical Centers takes a lead in working with HIM directors in the area to address data quality issues and promote more information exchange. Joyce said every patient at Truman is enrolled in the HIE and CommonWell, and the organization shares all information—including mental health—with the HIE to promote greater exchange. LaStofka at Stanford Health Care noted the importance of strong physician leadership. Her team works closely with Dr. Matthew Eisenberg, MD, the associate chief medical information officer at Stanford, who leads and is responsible for Stanford Health Care's health information exchange program. During the interview Eisenberg shared the successes Stanford has had with regional interoperability through the application of dedicated technical resources and by working with community stakeholders.

While HIM still owns traditional functions such as identity management and record integrity, there are new responsibilities that are now regularly part of HIM work, such as optimizing CDAs and associated workflows, integrating data into the EHR, and reconciling EHR to HIE content.

Areas of Opportunity

C-CDA exchange can lead to a more complete, timely, and accurate longitudinal record of care. Ultimately, this improves the quality and efficiency of care provided to the patient. Another key benefit of achieving greater information exchange is a reduction in release of information (ROI) requests and in scanning external information. To promote information exchange, HIM leaders should educate users who continue to request or send paper records on the benefits of information exchange. As more information is shared electronically (i.e., CCDs shared via a patient portal or with community physicians), fewer ROI requests are made—saving staff time and cost. Two of the organizations interviewed also noted improved patient satisfaction due to automation around information sharing, particularly with the Social Security Administration.

While much progress has been made, achieving greater interoperability often means going beyond the standards. Previous research has noted the need for supporting infrastructure, policies, and incentives to share data.[1] There are several critical areas that need to be addressed:

- **Comprehensive Provider Directory.** Many organizations or regions seem to be struggling with keeping Direct provider directories updated and the process often requires manual work. Lack of an updated provider directory tended to be the number one pain point regarding information exchange. The need for a national provider directory has also been previously discussed.[2]
- **Automated CCD Reconciliation Process.** Organizations must use valuable clinical resources to validate and normalize information received in multiple CCDs and CDAs received from disparate sources. This process needs to be automated so that faxing is not a less expensive and faster alternative.
- **Easier Sharing of Behavioral Health Information.** Due to inconsistent federal, state, and local regulations, many healthcare organizations take an "opt out" approach to sharing behavioral health information. Removing certain types of information from health information exchange, a process referred to as "data segmentation," is not available in all

systems. State laws vary significantly as to what types of information can be shared, creating significant challenges for HIM professionals.

- **More Bi-directional, Automated Data Integration.** Interviewees noted that some data that is patient-level, like allergies, problem lists, or medications, can be parsed automatically and integrated into the EHR. However, the level of automation varies and there is a need to parse additional data such as labs, immunizations, imaging tests, and encounters. EHRs vary significantly in their ability to send and receive interoperable, machine-processable information (i.e., achieve full semantic interoperability). As noted in previous research, the standards for clinical summaries can be so complex that trained clinical informaticists are needed to generate and parse the data from these summaries.[3] The Stanford team has invested heavily in this area using technical resources to parse and integrate data and plans further work to map registries and care gaps. EHR vendors are beginning to offer automated solutions in these areas, but more work is needed.
- **Simpler Standards Implementation.** Efforts need to be made to reduce the level of investment needed to achieve higher levels of interoperability. The lack of a business case for health information exchange has been cited as a key barrier to making progress with HIE.[4] The newly rebranded Centers for Medicare and Medicaid Services (CMS) "Promoting Interoperability" program—that replaces the "meaningful use" EHR Incentive Program and Advancing Care Information program—will emphasize measures that require the exchange of health information between providers and between providers and patients, which may help.[5]
- **Better, More Consistent Standards.** Optionality of standards results in variation, which also makes it difficult to design a universal import solution.[6] Improvements in standards and their implementation will improve the return on investing in interoperability. The Interoperability Standards Advisory (ISA) highlights where opportunities may exist to do so.[7]

In the end, achieving interoperability is a multifaceted journey—there is not just one path forward—and making progress requires investment. The organizations interviewed are making the investment in various ways to help achieve greater interoperability. HIM professionals must lead the way on this journey.

Notes

1. Perlin, Jonathan B. et al. "Information Technology Interoperability and Use for Better Care and Evidence: A Vital Direction for Health and Health Care." National Academy of Sciences. September 19, 2016. https://nam.edu/information-technology-interoperability-and-use-for-better-care-and-evidence-a-vital-direction-for-health-and-health-care/.
2. Ibid.
3. Ibid.
4. Frieden, Joyce. "The Business Model Makes All the Difference in Healthcare." Medpage Today. May 24, 2018. www.medpagetoday.com/publichealthpolicy/healthpolicy/73106.
5. Spitzer, Julie. "CMS renames 'meaningful use' to 'promoting interoperability' and changes ensue." Becker's Health IT and CIO Report. April 25, 2018. www.beckershospitalreview.com/ehrs/cms-renames-meaningful-use-to-promoting-interoperability-and-changes-ensue.html.
6. Perlin, Jonathan B. et al. "Information Technology Interoperability and Use for Better Care and Evidence: A Vital Direction for Health and Health Care."
7. Interoperability Standards Advisory. "Introduction to the ISA." www.healthit.gov/isa/.

Melanie Meyer (mm@evoscalehealth.com) is performance improvement leader at EVOSCALE Health, based in Redwood City, CA. Carlyn Doyle (carlyn.doyle@multco.us) is IT data protection coordinator at Multnomah County, Department of Assets, IT Security Division, based in Portland, OR. Diane P. Fabian (fabiand@sunysuffolk.edu) is HIT professor at Suffolk County Community College, based in Long Island, NY. Sharon Slivochka (sks622@roadrunner.com) is a director in health information management. Michael Stearns (Michael@ApolloHIT.com) is CEO of Apollo HIT, LLC.

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