Guiding the Development of Health Information Technology Standards for HIM Practices

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Interoperability of health information systems will enable clinicians to communicate with their patients and each other using information and communication technology to enable safer, effective, and efficient care, and improve population health. Health information technology (HIT) standards are the key to interoperability. The American Health Information Management Association (AHIMA) has been leading the process to guide the development of HIT standards to support health information management (HIM) practices.

Working with HIT Vendors on Interoperability Standards

Since September 2014, AHIMA has actively worked with Integrating the Healthcare Enterprise (IHE)—an international collaborative of health professional associations and HIT vendors formed in 1998 to develop interoperability standards (specifications such as technical frameworks, integration profiles, and content profiles) for health information systems. By implementing IHE interoperability specifications, information systems realize efficient data capture, management, exchange, and use. The health information becomes standardized, and as a result enables effective and trusted use of information by clinicians, patients, and other stakeholders. Implementation of IHE standards has been successfully demonstrated since 2006 at the Interoperability Showcases of the Healthcare Information and Management Systems Society's (HIMSS) annual conferences.[1]

IHE methodology includes:

1. The analysis of business requirements for a specific clinical scenario (use case)
2. Selection of HIT standards developed by various standards development organizations (SDOs) relevant to the use case
3. Assembly (constraint) of these individual standards in the IHE interoperability specifications
4. Testing these specifications at the IHE Connectathons—the annual HIT industry-based interoperability standards testing forums held in North America, Europe, and Asia

The IHE business model is based on engaging healthcare stakeholders (users) with the standard development process by guiding HIT vendors to develop, test, and implement standards-based HIT solutions—thus ensuring that quality health information is available when needed. IHE methodology was approved as the international standard by the International Organization for Standardization (ISO) Technical Committee 215 Health Informatics.[2]

Recognizing the urgent need for interoperability (i.e., information sharing) between health information systems, including electronic health record systems (EHRs), laboratory information management systems (LIMs), and other information and communication technology products in healthcare and public health organizations, AHIMA joined the IHE collaborative process to guide standardization of HIT products capabilities in order to support HIM practices.

Since September 2014, AHIMA and IHE have collaborated on developing the white paper "HIT Standards for HIM Practices." This white paper was developed as a part of a globally focused AHIMA initiative on information governance (IG), defined as an organization-wide framework for managing information throughout its lifecycle and supporting the organization's strategic, operational, regulatory, legal, risk, and environmental requirements.[3,4] This IG initiative is a key component of AHIMA's overall strategy to develop guidelines, operating rules, and standards for healthcare documentation practices. The AHIMA-IHE white paper describes the need, value, and an approach for aligning HIM business practices with the capabilities of standards-based HIT products to support information governance in healthcare.

AHIMA Sees the Need

Adoption of HIT in healthcare brought new challenges for information management associated with electronic data capture and management, record matching and data provenance, access control and information security, and e-discovery and e-forensics, among others. The following high-level challenges with HIT adoption were identified in prominent literature on the topic:[5,6,7,8,9,10,11,12]

- EHR system design flaws
- Poor system usability and improper system use
- Inappropriate documentation capture
- Errors related to use of clinical decision support systems
- Errors related to faulty support of HIM practices in health IT systems
- Inadequate training

The creation, sharing, and use of electronic clinical documentation requires standardization of both HIM practices as well as HIT systems capabilities in order to support sound documentation practices and techniques that ensure complete, accurate, timely, and quality information. To address challenges that HIM professionals encounter while transitioning from paper-based records to an electronic environment, there is a need to establish cross-collaboration between HIM professionals, standards developers, and HIT vendors focusing on the following efforts:

- Effort 1: Specify functional requirements for HIM practices needed in HIT products via specific use cases
- Effort 2: Communicate these requirements to standards developers for creating HIT standards
- Effort 3: Adopt HIT standards in the HIT products
- Effort 4: Enable operation of standards-based HIT products that support HIM practices

AHIMA's Solution—Methodology

The AHIMA-IHE white paper "HIT Standards for HIM Practices" was developed under the IHE Information Technology Infrastructure (ITI) Planning Committee. It was focused on Efforts 1 and 2, listed above, aiming to:

- Organize the HIM community in defining HIM functional requirements for HIM practices (use cases)
- Educate HIT standards developers about HIM practices

The white paper outlines a methodology for aligning HIM practices with the capabilities of HIT products through standards—a systematic approach for specifying functional requirements for HIM practices via use cases in order to validate existing HIT standards and guide the development of new standards. AHIMA's methodology includes five steps.

- First, driven by the AHIMA initiative on information governance in healthcare, the association focused its work on three out of the eight Information Governance Principles for Healthcare (IGPHC)™, developed by AHIMA and adapted from ARMA's Generally Accepted Recordkeeping Principles: information availability, integrity, and protection.
- Second, based on the literature review AHIMA identified HIM best practices and formulated HIM business requirements by principle.
- Third, AHIMA further selected HIM business requirements that involved the use of HIT creating HIM practice checklists by principle.
- Fourth, drawn from the checklist's items, developed use cases to specify functional requirements for HIT standards.
- Fifth, the association conducted the analysis of HIT standards from various standard development organizations relevant to the use cases.

Figure 1. Project Methodology

This graphic presents a high-level overview of the methodology deployed to align HIM practices with the capabilities of HIT products through standards. Numbers (#=XX) in Figure 1 show the number of items developed by each step of the project (TBD stands for "to be developed").

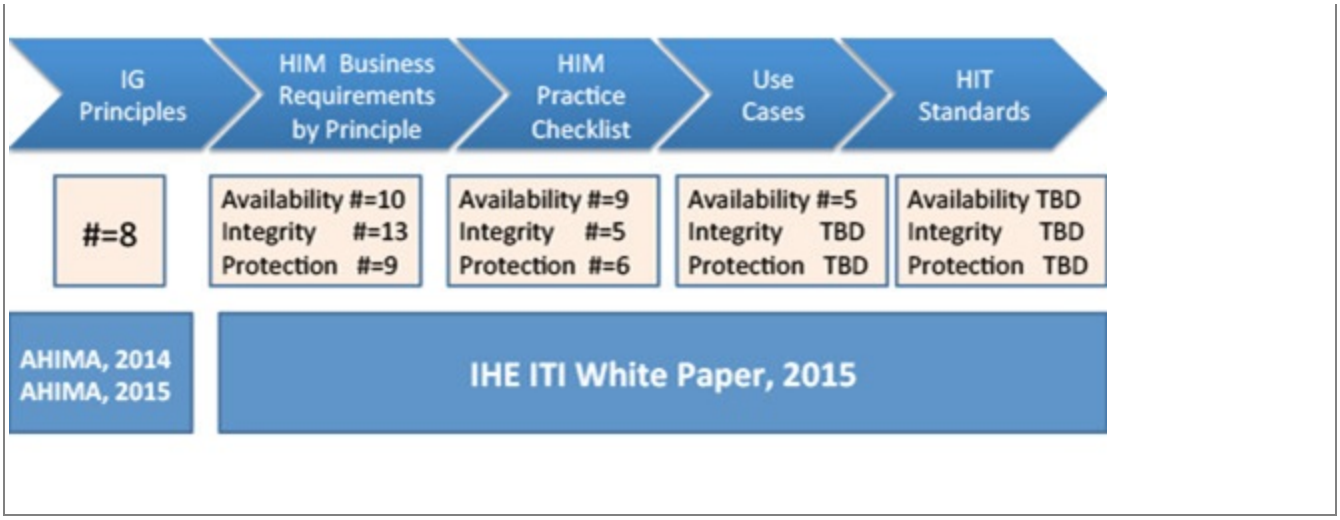
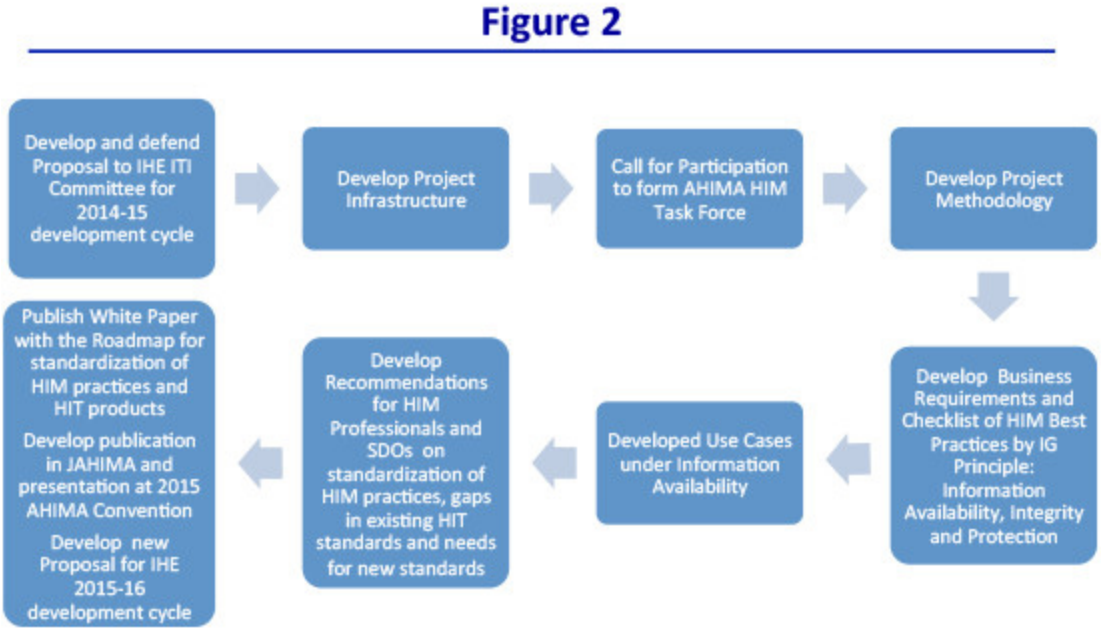


Figure 1 above presents a high-level overview of the methodology deployed. AHIMA deployed requirement elicitation techniques to develop five use cases for HIM needs in the standard-based HIT products under the information availability principle (see Figure 1). They include:

- Use Case #1: All documents are accounted for within a specific time period post-completion of the episode of care
- Use Case #2: Record is closed as complete within a specific time period post-completion of the episode of care
- Use Case #3: Documents within the record can be viewed by or released to the external requestor
- Use Case #4: An audit log of the episode of care record
- Use Case #5: An audit log of requests for release of information and accounting of disclosures

Recruited from various AHIMA volunteer groups, 19 HIM subject matter experts from the hospital, laboratory, academic, and vendor communities participated in the development of the white paper. Figure 2 below presents various project activities.

Figure 2. AHIMA-IHE Project Activities Workflow



The white paper provides:

- An overview of HIM practices for HIT vendors including a description of HIM professionals' roles (actors), responsibilities (actions), health information (products), and the eight IGPHC principles (availability, accountability, transparency, integrity, protection, compliance, retention, and disposition)
- Detailed analysis of HIM business requirements and best practices checklists related to information availability, integrity, and protection
- Five use cases derived from HIM business requirements and best practices for information availability to guide the development of the functional requirements for HIT standards
- Definitions of terms, participants (actors), processes (actions), and outcomes of HIM practices related to the use cases
- An initial gap analysis of existing HIT standards to support HIM business requirements
- Recommendations for HIM community and standards development organizations for further standardization of both HIM practices as well as capabilities of HIT products to support these practices

Outcome and Continuing Work

AHIMA established a methodology, or a systematic approach, for continued collaboration between HIM professionals and standards developers via specifying: (a) business requirements for HIM by information governance principle, (b) HIM practice checklist derived from the analysis of the business requirements, (c) use cases and functional requirements to support HIM practices in HIT products, (d) HIT standards gap analysis for HIM practices, and (e) recommendations for both HIM and HIT standards developers.

These recommendations define a roadmap for expanding the list of use cases to support business requirements for HIM practices under other information governance principles in the future as well as developing HIT standards for interoperable health information systems.

The white paper formed a foundation for collaboration between HIM professionals and HIT vendors at IHE ensuring user-needed capabilities in the interoperable, standards-based HIT products. To continue the work in the future, AHIMA anticipates more collaboration with the IHE community expanding work under Efforts 1 and 2 to specify HIM requirements for new HIT standards via developing new use cases, facilitating HIT standards adoption in HIT products (Effort 3) and providing on-going feedback to improve standards-based HIT product capabilities to support HIM practices as needed (Effort 4).

Read the full AHIMA-IHE white paper "HIT Standards for HIM Practices at ftp://ftp.ihe.net/IT_Infrastructure/iheitiyr13-2015-2016/Planning_Cmte/WorkItems/HIM_Practices/Draft_White_Paper/.

Notes

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[12] Holroyd-Leduc, Jayna M. et al. "The impact of the electronic medical record on structure, process, and outcomes within primary care: a systematic review of the evidence." *Journal of the American Medical Informatics Association* 18, no. 6 (November 1, 2011): 732-737. http://jamia.oxfordjournals.org/content/18/6/732.short.

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