

Standards Harmony: Why is it So Hard for Healthcare?

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Standards harmonization in healthcare is a major challenge compared to other industries. Why?

Banking and travel industries have achieved harmonization of standards for their respective IT systems. Banking transactions can be done securely from anywhere in the world through ATM machines, regardless of one's home bank, its location, or local currency. Similarly, online travel services such as Travelocity, Orbitz, and Expedia offer real-time airline, hotel, and rental car reservations.

One reason that standards harmonization is simpler in other industries is that other industries are simpler. They have more flexibility in deploying general purpose applications and commercial off-the-shelf solutions. ATM machines and airline reservation systems use simple, predefined queries with predictable outcomes. Consequently, achieving harmony among their industry-specific standards has been less challenging.

Healthcare is more complex. Physician practices, nursing care, and clinical laboratories, for example, require highly specialized systems to handle complex processes with unpredictable outcomes.

Healthcare is multidisciplinary, spanning the lifetime of a patient who may visit many different providers in many different regions over the years. Its processes therefore are widely distributed. The record of a patient's single episode of care could be in different organizations and even different locations within the same organization—history and physical symptoms in the physician's office, lab results and surgical procedures in the hospital's medical record, and rehabilitation in the home care agency. Enabling these systems to share data in real-time requires enormous coordination.

Further, healthcare processes overlap multiple domains. In order to process a physician's orders and report the results, laboratory, radiology, and pharmacy systems require patient demographic and location information. For billing, laboratories and pharmacies require, in addition, insurance information. These applications use their own standards to handle admission, discharge, transfer (ADT) functions and billing.

Cooperation and Coordination

Given this scope and complexity, healthcare standards have largely developed independently among the many specialized standards development organizations (SDOs). However, efforts to coordinate standards development and promote common standards has been under way for some time in the US.

The American National Standards Institute (ANSI) Healthcare Informatics Planning Panel began coordinating the efforts of SDOs in 1992. A group of six SDOs created a common data model in 1994. ANSI named Health Level 7 (HL7) standards for processing ADT transactions; ASC X12 standards for financial transactions; DICOM standards for radiology imaging; and NCPDP for pharmacy transactions. In 1995 the panel became ANSI Healthcare Informatics Standards Board, and many of the standards from its 1998 inventory were adopted under HIPAA.

Healthcare SDOs have continued to cooperate under ANSI's leadership. HL7 and ASC X12 have provided unified standards for processing claims attachments, which have been incorporated in the September 2005 Notice of Proposed Rule Making from the Department of Health and Human Services. Similar cooperative efforts are occurring among HL7, NCPDP, and DICOM. ASTM and HL7 are currently working to harmonize ASTM's Continuity of Care Record and HL7's Clinical Data Architecture.

The complexity in computerizing healthcare processes can be overcome through such cooperation. Several broad actions are necessary, each requiring collaboration across the industry, each currently under way.

Define the technology framework. The industry must define the overall IT framework that will enable computerization and data sharing. It must then identify the existing standards that support this model and those that need to be developed. Overlapping and competing standards must be harmonized. The ANSI Healthcare Information Technology Standards Panel has begun this work in support of HHS efforts.

Address application interoperability. The current focus of interoperability is on data exchange, but application interoperability should be the ultimate objective. Instead of using standards to merely send and receive information, applications that are standards-based by design can work in an integrated fashion, helping automate healthcare processes.

Encourage user participation in standards development. The end users of standards are the healthcare organizations that use software to automate their clinical and business functions. It is critical that they participate in standards development to ensure their needs are addressed.

Leverage consumer participation. Patients are the ultimate beneficiaries of the healthcare system. The Internet and other electronic resources are enabling them to be active partners in the delivery of care. The industry should encourage their participation. ANSI and the International Organization for Standardization, for example, have created consumer interest forums.

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