

Part F. Standards

*Ideals are like stars; you will not succeed in touching them with your hands.
But like the seafaring man on the desert of waters, you choose them
as your guides, and following them you will reach your destiny.*

Carl Schurz (1829–1906)

The dramatic changes in the healthcare industry discussed thus far have led to an increased sense of urgency in the development of new healthcare delivery models, broad organizational restructuring, and the redesign of healthcare administrative and clinical processes. These changes are also creating new demands for healthcare information technology. In particular, the drive to open systems architectures is gaining speed throughout the world. In health as in other data transmission application fields, users generally demand open, distributed, interconnected, highly reliable, and interoperable systems, with increasingly stringent security requirements. The integrated management of health services and the continuity of medical care require the adoption of commonly accepted messages, formats, codification, and medical record structure.

F.1. Current State of Standards Development

One of the characteristics of health data transmission applications is the integration of technologies, information, and communication systems. The role of standards in traditional sectors is well known. Well-founded arguments exist for considering similar effects for the application to health, an area characterized by market fragmentation, the proliferation of incompatible applications, the high costs of developing individual solutions, a short life cycle, maintenance problems, and the barriers to achieving the operative integration of different and isolated systems. Logically, the coordination of this sector and the adoption of common standards for users, manufacturers, and service providers would seem likely to foster the production of more cost-effective and stable solutions.

The central element of open systems, therefore, is the use of standards. Without easy, reliable, approved ways to connect the necessary components, open systems cannot work. Within the healthcare industry there are a number of categories of information that each have separate standards. They are listed here, along with a brief description of the category, and applicable examples of well-known standards:

- *Identifier Standards* - These are themselves subdivided into patient, provider, site-of-care, and product. Not surprisingly, there is no universal acceptance and/or satisfaction with these systems.

- *Communications (Message Format) Standards* - Although the standards in this area are still in various stages of development, they are generally more mature than those of the other groups.
- *Content and Structure Standards* - Work in this area is primarily directed at developing standards for the design of the Computer-based Patient Record, and on dental records.
- *Clinical Data Representations (Codes)* - These are widely used to document diagnoses and procedures. There are over 150 known coding systems, such as the International Classification of Diseases (ICD) system, promoted by the World Health Organization. The Current Procedural Terminology (CPT) coding system is promoted in the United States by the American Medical Association (AMA). Another common standard for medical terms is the Systematized Nomenclature of Human and Veterinary Medicine (SNOMED). It has eleven separate axes for categorizing semantic relationships among medical terms. Laboratory Observation Identifier Names and Codes (LOINC) has been developed to create universal test codes for laboratory results and observation messages.
- *Confidentiality, Data Security, and Authentication* - The development of both the Computer-based Patient Record and Healthcare Networks has spurred the need for more definitive confidentiality, data security, and authentication guidelines and standards. Numerous activities are underway to address these issues.
- *Quality Indicators, Data Sets, and Guidelines* - Although there is not an accredited standard to measure healthcare quality, there are several quality indicators, data sets, and guidelines that are gaining acceptance. In the United States the Health Plan Employer Data and Information Set (HEDIS) has been developed with the support of the National Committee for Quality Assurance (NCQA). It identifies data to support performance measurement in the areas of quality, access and patient satisfaction, membership and utilization, and finance.
- *International Standards* - The International Organization for Standardization (ISO) is a worldwide federation of national standards organizations. It has 90 member countries. The purpose of ISO is to promote the development of standardization and related activities in the world. To this end there are many organizations, committees, and subgroups which promote the evolution of healthcare standards worldwide.

From a healthcare standards perspective, the area of standards is in constant flux and one must be attentive to the evolution of the recommendations of the international and national technical agencies and professional organizations that work on standards research. The knowledgeable healthcare executive will do well to stay current on healthcare standards development. In addition, vendors demonstrating present and future commitment to standards are those most likely to survive in the very competitive healthcare IS&T marketplace, and should be given top consideration by healthcare enterprises in the process of systems selection.