Chapter V

Healthcare Information and Communication Standards Framework

Peter J.B. Lagendijk and Robert. A. Stegwee
University of Twente, The Netherlands

Standardization in healthcare is a rapidly growing field. To prevent proliferation in standardisation, good coordination in both the development and usage of standards is necessary. In this chapter we propose a framework to analyse the fit between the proposed purpose of the standard and the perceived needs of the applications using the standard. An available standard can be characterised by the level of acceptance, the application area, the object of standardisation and the kind of user a standard is aimed at. The same aspects can be determined for the kind of standards needed for a specific application of information interchange. In a practical sense this will help in determining which standards to use. Also, it may provide a better perception of the supply and demand of healthcare information and communication standards in general.

INTRODUCTION

Within healthcare organisations most of the work is information-based. The professionals have to agree upon the content and the meaning of the information to realise effective communication. To achieve the desired quality of work, it seems that communication is one of the major issues. Basic training of healthcare professionals prepares them to put the fundamental communication agreements into practice. However, advanced research and the extensive use of information and communication technology has led to numerous vocabularies and procedures. To
realise effective communication within a specific healthcare organisation or throughout the healthcare network, a certain degree of standardisation is necessary. On one hand a lot of progress has been made in developing standards, like LOINC (Forrey et al., 1996) or SNOMED (de Bruijn, Hasman and Arends, 1997) for terminology or CEN (European Committee for Standardisation Technical Committee for Health Informatics) and HL7 (Heitmann, Blobal and Dudeck, 1999) for digital messages. On the other hand there is the danger of misuse of the developed standards. When the necessity to apply standardisation arises in healthcare, one can choose either to use existing standards or to create a new standard. In order to make an informed choice for an existing standard, it can be useful to know what standards are available for the specific application. A framework for health information standards can provide a helping hand in identifying the appropriate standard. With this framework, both health information standards as well as the application that needs to use standardisation can be categorised in order to achieve a meaningful fit between the two.

**WHY CATEGORISE A STANDARD?**

During our research, standardisation is viewed as a process to develop, implement and maintain a standard. When a standard is developed, it can concern several different areas, such as concrete objects (like the kind of implant to be used or the type of medication to be administered), subjective observations (like the diagnosis or the findings of the radiologist), as well as activities or procedures (like standard treatment or the unit of measure). Because of the different application areas of standardisation, the standards can be specified on a number of different levels. Within healthcare organisations multiple standards for different application areas and of several levels have to be used simultaneously. This can lead to conflicts in communication. Categorising the standards and the applications that use these standards can lead to several benefits to the healthcare organisation.

- **Supporting the choice of a standard.** By categorising the applications that have the need to use a standard, a healthcare organisation will minimise the risk of choosing the wrong standard or misusing a standard. When there is the possibility to categorise the standards, there will be more clarity about the standard.
- **Supporting the combination of standards.** When a single standard is not

*Figure 1: Communication with Immediate Use Interaction*
Robust Heartbeat Detector Based on Weighted Correlation and Multichannel Input: Implementation on the ECG Recorded with Textile Electrodes

Linda Rattfält, Maria Lindén, Peter Hult, Per Ask and Magnus Borga (2013). 
*International Journal of E-Health and Medical Communications* (pp. 61-71).

www.igi-global.com/article/robust-heartbeat-detector-based-weighted/77306?camid=4v1a