Georgian Experience in Telecytology

Ekaterine Kldiashvili
Georgian Telemedicine Union (Association), Georgia

Archil Burduli
Georgian Telemedicine Union (Association), Georgia

Gocha Ghortlishvili
Georgian Telemedicine Union (Association), Georgia

Ivan Sheklashvili
Georgian Telemedicine Union (Association), Georgia

INTRODUCTION

There is a very clear need for the expanded application of information technology (IT) in healthcare. Clinical workflow still depends largely on manual, paper-based medical record systems in an activity that is economically inefficient and produces significant variances in medical outcomes (Blackwell, 2008). Healthcare information system (HIS) is at the heart of information technology implementation policies in healthcare systems around the world. Most of these policies are based on beliefs about the positive value of HIS rather than on the available empirical evidence, and as a result, policy documents tend to be full of aspirational statements rather than detailed and realistic expectations (Clamp et al, 2007).

It is obvious and well-known, that the field of healthcare informatics is extremely evolving. The new models and protocols of HIS are developed, which are based on implementation of HL7, DICOM, and etc. profiles. Despite of obvious advantages and benefits, practical application of HIS in everyday practice is slow. Research and development projects are ongoing in several countries around the world to develop HIS; examples include Canada, Australia, England, the United States and Finland (Hayrinen et al, 2008). HIS has many functions and includes many kinds of data. HIS is used primarily for purposes of setting objectives and planning patient care, documenting the delivery of care and assessing the outcomes of care. It includes information regarding patients needs during episodes of care provided by different healthcare professionals (van Ginneken, 2002; Grimson, 2001). The amount and quality of information available to healthcare professionals in patient care has an impact both on the outcomes of patient care and the continuity of care. The information included in HIS has several different functions in the decision-making process in patient care, and it also supports decision – making in management and in health policy.

The objective of the chapter is to present the architecture of healthcare information system as well as examples of its practical application for cytology purposes in Georgia.

BACKGROUND

Healthcare information technology models are constantly evolving with technology as the industry expands. Whether these are a large hospital or a medium sized hospital, nursing home or a clinic, HIS is a comprehensive solution that automates the clinical, administrative and supply-chain functions and enables the healthcare providers to improve their operational effectiveness, consequently reducing costs, and medical errors, while enhancing quality of care. So, HIS is just one instance of health information systems, with a hospital as healthcare environment, respectively, health care institution. The aim of HIS was and is as simple as relevant: to contribute to a high-quality, efficient patient care. This aim is primarily centered towards the patient, so it is a patient-centered approach and towards medical and nursing care, and the administrative and management tasks needed to support such care. The relevance of 'good' HIS for high-level quality of care is obvious, as without having appropriate access to relevant data, practically no decisions on diagnostic, therapeutic or other procedures can be made, with fatal consequences for patients.

A new healthcare information system (HIS) was launched in Georgia. Its primary goal is patient management. However, the system is also targeted at creating a unified information space in the framework of the wider medical organization. The application of HIS in everyday practice of Georgian healthcare organization started in October, 2008.

Quality assurance programs in cytology are one of the most important methods to maintain and improve the diagnostic acumen of cytologists, but there are difficulties in carrying out such programs. A long turnaround time for the circulation of glass slides is a major drawback, particularly when there are many participants and in widely spread institutions.

Telemedicine services are rapidly becoming an integral part in many hospitals and clinics around the world. In many programs, telepathology and telecytology account for over 50% of all teleconsultations. Most studies of telepathology and telecytology have focused on usage of robotic microscopes and online microscopy. Other studies have evaluated the use of digital images of slides. Often diagnostic accuracy tends to be high, but image quality is judged to be poor. Given these equivocal results, the methods of obtaining still images as well as adjustment of images (which usually means improvement of contrast and brightness) need to be investigated. Telepathology as an alternative modality for quality assurance in breast histopathology has been suggested by one study. However, there is no previous study examining reproducibility of telecytology and its application as an alternative to the conventional microscopic examination of glass slides for quality assurance in cytology.

This is the first study to examine the reproducibility of the telecytology diagnosis of cervical smears under conditions of Georgia.

MAIN FOCUS OF THE ARTICLE

Architecture and Structure of the HIS

The HIS has been created with.NET technology and SQL database architecture and involves a multi-user web-based approach. This ensures local (intranet) and remote (internet) access of the system as well as management of databases..NET technology can be installed on computers running Microsoft Windows operating systems. It includes a large library of coded solutions to common programming problems..NET technology is a Microsoft offering and is intended to be used by most new applications

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