Chapter XIX
eHealth Systems, Their Use and Visions for the Future

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ABSTRACT

eHealth refers to use of information and communication technologies to improve or enable health and healthcare. eHealth broadens the scope of health care delivery, citizens are in the center of services and services are offered by information systems often via the Internet. In this chapter eHealth systems are classified on the basis of their use and their functionality and the use is discussed from the viewpoints of citizens and health professionals. Citizens are increasingly using Internet and eHealth systems to search for medicine or health related information, and they become better informed and may take more responsibility of their own health. Health professionals are more reluctant to use the Internet and eHealth systems in physician-patient communication due to power and responsibility problems of decisions. In the future the socio-technical nature of eHealth should be considered and future systems developed for real use and user environment with user acceptable technology.

INTRODUCTION

In the information society it is important to develop and apply technologies in such a way that we empower citizens to play a full role in a society. An essential part of the information society are health care services, they are needed by citizens and should be provided efficiently and made accessible to all (Haglund, 2002).

With the information society a new concept, eHealth, has been introduced to refer to the use of emerging information technology to improve or enable health and health care. Silber (2003) defines eHealth as "application of information and communication technologies (ICT) across the whole range of functions that affect health" (p. 3). Eysenbach (2001) gives a broder definition for eHealth: An emerging field in the intersection

of medical informatics, public health and business, referring to health services and information delivered or enhanced thorough the Internet and related technologies. Alvarez (2002) emphasises the consumer-viewpoint when he defines eHealth as a consumer-centered model of health care where stakeholders collaborate, utilising ICT and Internet technologies to manage health, arrange, deliver and account for care, and manage the health care system. All these definitions support the conception that eHealth means application of information technologies to promote health, and to support health care services delivery and use. eHealth covers all health strategies: Prevention, treatment and rehabilitation. It is essential that eHealth applications meet the needs of citizens, patients, health care professionals and policy makers. Therefore, evaluation studies are needed to assess the benefits, effects and impacts of eHealth on citizens, professionals, health care systems and health care outcomes.

eHealth conceptualization broadens the scope of health care delivery; citizens are placed at the centre of services, services are in many situations offered to be used through the Internet e.g. at home and citizens can have interaction with health professionals who look after their health needs (Silber, 2003; Wilson et al., 2004). eHealth is expected to contribute to development of new ways of delivering health services and to impact on the organisation and structure of the health care delivery system. eHealth is not only of technological improvement but it is of reengineering of health care processes, and of consideration of the socio-technical aspects of design and development of applications.

eHEALTH SYSTEMS

eHealth applications should make citizens better informed, all citizens should have access to services, use of services should be economically affordable and citizens should benefit from the use of services. On the other hand, eHealth services should improve the quality, availability and effectiveness of health care (Grimson et al, 2000; Silber, 2003; Wilson 2004).

Types of eHealth Systems

Traditionally, three broad categories of eHealth applications can be identified: Delivery of care to patients by health care professionals, education and dissemination of health-related information and knowledge, and trading health products (Ruotsalainen et al., 2003).

The first category covers systems for delivery of care to patients by health care professionals including wide range of applications from pure administrative to those for care delivery:

- *Hospital systems,* including e.g. scheduling systems, logistics systems, management information systems, hospital and patient administration systems, laboratory information systems, radiology information systems, pharmacy systems, nursing systems and networked services such as electronic messaging between the hospital and other health care actors for communication of clinical information and administrative data, including telemedical services such as telepathology and teleconsultation for remote areas.
- *Primary care systems,* including e.g. information systems for general parctitioners, pharmacists and dentists for patient management, medical records, electronic prescribing and information exchange.
- *Home care systems,* including e.g. systems that are used to deliver care services via telecommunication or wireless to the patient at home. Examples of such systems are remote vital signs monitoring systems that enable the patient to receive targeted treatment and medication without the need to visit an out-patient clinic or occupy a hospital bed.