Introducing the Electronic Health Record in Austria

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Abstract

The Austrian parliament has adopted legislation to introduce the electronic health record under the title ELGA. The present article first discusses several activities of other countries in this context. It then deals with the current situation of healthcare telematics in Austria and the next planned steps to introduce the life-long electronic health record.

Key words:
Medical Records Systems, Computerized; Public Health Informatics; Computer Communication Networks; Standards

1. Introduction

Increasing specialization has given rise to substantial progress in modern medicine. At the same time, the requirements for multidisciplinary collaboration in patient care have become extensive. More and more data are collected for individual patients as novel measurement techniques are developed. These data have to be exchanged between the various physicians and facilities involved to allow efficient cooperation. Clinical information management has therefore become a key technology in modern healthcare.

The issue of consolidating all the information available on individual patients in a single electronic health record (EHR) has been extensively discussed within the medical informatics community over the past decade. Records of this type would enable physicians and nursing staff to access the complete medical history of a patient in a well-structured format. Introducing the EHR for all citizens of a country therefore has the potential of revolutionizing healthcare.

ELGA is the name of an initiative that has recently been launched after legislation had been adopted by the Austrian parliament to reform the healthcare system in this country. The present article will first discuss several activities of other countries in the EHR domain. Subsequently it will outline the current situation of healthcare telematics in Austria and the next planned steps to introduce the EHR.

1 German acronym meaning “life-long electronic health record”
2. National EHR initiatives

In 2004, the European Commission presented an action plan for a European e-Health Area [1]. It requires all member states to take measures to (a) support the interoperability of e-Health data records, e.g. by identifying an outlining EHR standards and through a common approach to patient identifiers until 2006; (b) offer EU citizens easier access to healthcare information and services, e.g. by supporting healthcare networks that provide services such as e-referral or e-prescription, or the use of electronic health insurance cards until 2008; (c) disseminate best practices, including the establishment of an e-Health monitoring institution that evaluates the progress made and develops recommendations for future e-Health measures until 2005.

In the UK, the NHS’s National Programme for IT (NPfIT) [2] includes an initiative to implement the so-called NHS Care Records Service (NHS CRS), which shall provide a nation-wide EHR for all British citizens by 2010. A summary of each person’s medical history, the Spine, will be held in a central database and build the basis of the EHR. The summary record will also contain links to more in-depth clinical information, which will be stored in local systems. EHR systems may only be acquired from a small number of selected providers, which have been particularly licensed for this purpose. Patients will have the possibility to access their own health records by means of a web-based service.

In Denmark, the MedCom initiative [3] was initiated in 1995 with the goal of setting up a message-based national healthcare data network. The implementation of MedCom is widely advanced today, which is underlined by the fact that, in April 2005 more than 60 % of healthcare communications in Denmark took place through the healthcare data network. A major issue addressed by MedCom since 2002 is the development of regional central EHR databases (the SUP project), which will be fed by standardized extracts from individual local EHR systems. The unified EHR extracts may then be accessed by means of a regular internet browser.

The United States’ government has outlined a plan to provide most US citizens with EHRs until 2014 and created the Office of the National Coordinator for Health Information Technology (ONCHIT) [4] for this purpose. The ONCHIT has specified a “Strategic Framework”, which describes a 12-step process for the implementation of this plan. Amongst others, it (a) demands certification of EHR systems’ functionality; (b) plans to achieve nation-wide EHR interoperability by fostering “Regional Health Information Organizations” that enable local EHR data exchange and interconnecting them within a “National Health Information Network”; (c) plans to provide patients with access to their own EHRs. Approximately $4 billion will be spent for health information technology programs and initiatives in this context.

In Canada, an independent not-for-profit corporation was initiated (Canada Health Infoway Inc.) after the government had announced in September 2000 to accelerate the development and adoption of modern systems of information technology in healthcare. One of the immediate priorities of this corporation is to develop and implement effective interoperable EHR solutions [5]. It now has a total capital infusion of $1.2 billion (CDN) from the federal government. Infoway has embraced a seven-year plan to have interoperable EHRs in place across 50% of Canada’s population by 2009.

In Australia, the government will provide $128 million over four years towards the implementation of the national health information network HealthConnect [6]. The aim of this project is to collect, store and exchange EHRs via a secure network and within strict privacy safeguards. Currently, a trial is being conducted which seeks to evaluate whether the EHR architecture specified by the openEHR foundation [7] is suitable to meet the project’s requirements.
3. Introducing the EHR in Austria (ELGA initiative)

3.1 Previous efforts related to healthcare telematics

In 1995, the Austrian Ministry of Health appointed the STRING\(^2\) commission to advise the minister on all issues related to healthcare telematics.

**The MAGDA-LENA framework:** In 1998, the STRING commission developed MAGDA-LENA [8] as the governing framework for electronic exchange of patient-related data in Austria. MAGDA-LENA outlines the technical and organizational aspects governing the development of an Austrian healthcare information network that will allow EHR contents to be exchanged. A detailed description of MAGDA-LENA—including a comparison with the HIPAA regulations in the US [9]—was given in a previous communication [10].

A number of standardization projects have been conducted under the auspices of the STRING commission to facilitate implementation of the MAGDA-LENA framework by collecting experience in real-life environments, including a project on e-referral [11].

The key recommendations of MAGDA-LENA, relevant for introducing the EHR, are:

(a) to promote the use of standardized message formats for exchange of healthcare data. MAGDA-LENA aims to achieve a high level of compatibility between healthcare messages by specifying a common methodology for the development of new message standards;

(b) to enable unique identification of patients, communicating parties and transmitted data via registered directories;

(c) to implement specific privacy and security measures for the communicating parties both within their own working environment and in their electronic communications with others.

The MAGDA-LENA framework has recently been incorporated into an Austrian law on healthcare telematics (see section 3.2).

**Electronic index of Austrian healthcare providers:** In 2001, the Austrian Medical Chamber established an electronic index of Austrian healthcare providers. This index is currently used to promote electronic exchange of clinical information by providing the necessary identification data for both automatized and individual queries.

**Social-security chip card:** In 1999, the Central Association of Austrian Social Insurance Authorities was commissioned by parliament to develop a social-security card system. The system consists of chip cards providing a non-forgeable key for patient identification and card-reading devices connected to computers. In early 2002, parliament expanded the functionality of this chip card to facilitate its use as a *citizen card*, including the option to store digital signatures and medical data on a voluntary basis. In December 2004, the first chip cards were distributed in a comprehensive field trial. The process of issuing these cards nationwide is to be completed by November 2005. Eight million Austrians are then expected to have the card, and around 12,000 physicians working for the Austrian social insurance authorities will have card-reading devices in their offices.

\(^2\) German acronym meaning “standards and guidelines for the use of informatics in healthcare”
In 2003, the STRING commission recommended that concrete plans be undertaken to introduce the EHR in Austria. This initiative was entitled ELGA.

ELGA was embraced by the ministry of health and incorporated into the measures aimed at reforming the Austrian healthcare system. The 2005 Healthcare Reform Act [12], adopted by parliament in December 2004, therefore includes a regulation on healthcare telematics.

This law on healthcare telematics defines minimum standards to safeguard the confidentiality, reproducibility and non-manipulation of communication activities. Its provisions also include measures for healthcare information management and the establishment of an e-Health index to facilitate access to healthcare providers.

Furthermore, the Austrian parliament has made arrangements to introduce the EHR (ELGA initiative), has adopted general provisions to optimize the use of information and communication technologies in healthcare telematics, and has prepared the ground for e-prescription and e-reimbursement.

Based on these resolutions of the Austrian parliament, the STRING commission has specified the next work items in the implementation of ELGA:

- Contents and structure (which data should be contained in ELGA, to what extent should the structure be standardized, ...)
- Organisational measures (which processes will be supported, concept of privileges, ...)
- Legal basis (storage / access of patient data on voluntary or mandatory basis, ...)
- Technical standardization (central or federated local databases, communication standards, ...)
- Social and ethical issues (sensitive health data, technological impact assessment, …)
- Economic aspects (cost / benefit, installation and maintenance of infrastructure, …)
- etc.

A strategic framework to solve these open points will be developed by a professional consulting firm. The implementation will be coordinated on national and regional levels by a political steering board. The ministry of health has further started an e-Health initiative with the goal of integrating the industry.

To summarize, a number of legislative measures aimed at promoting healthcare telematics have been taken in Austria over the past few months, which notably include the introduction of the EHR.
4. Discussion and recommendations

In the authors’ view, two issues related to the EHR need to be addressed as a matter of priority in Austria. These concern (i) the standardization and (ii) the confidentiality of EHR contents. A brief discussion follows.

4.1 Standardization of EHR contents

The objectives of the ELGA initiative are now being defined in greater detail and have been categorized in order to permit more accurate cost-benefit analysis. At the time of writing this paper, a final decision on how to prioritize the various objectives of the ELGA initiative has not been reached, and the roadmap for implementation has not been finalized. Definitive schedules for rapid implementation have, however, been defined for some projects such as e-prescription.

The next step will be to derive the concrete communication processes and data contents from the various objectives and user requirements involved and to standardize them. To avoid an isolated EHR solution in Austria, it will be necessary to rely heavily on international standards. With this consideration in mind, all relevant international efforts at EHR standardization (CEN, HL7, openEHR [13, 14, 7]) are closely monitored at the Core Unit for Medical Statistics and Informatics of the Medical University of Vienna. It is recommended and planned to incorporate the results of these efforts into the ELGA initiative wherever possible.

4.2 Confidentiality of EHR contents

The legal implications of data protection were a key concern of the STRING commission from the very outset. Therefore, a task force to address these issues was established immediately when the recommendation to launch the ELGA initiative was published in 2003.

Meanwhile, this task force has thoroughly analyzed the legal requirements for introducing the EHR. Special emphasis has been placed on the differences between voluntary and mandatory participation.

It concluded that a mandatory life-long EHR for all Austrians presumes the demonstration of a public benefit and an accurate definition of the data protection requirements involved so that the constitutional right to data privacy would not be violated.

5. Summary

From the authors’ perspective, the situation of healthcare telematics in Austria and current activities for the introduction of the EHR can be summarized as follows:

Beginning in the mid-1990s, substantial efforts have been made to coordinate healthcare telematics. One result of these efforts has been the MAGDA-LENA framework for electronic data exchange. Furthermore, a number of standardization projects have been implemented.

Important steps have been made to promote the use of healthcare telematics as part of the ongoing healthcare reform. For example, parliament has adopted legislation

- on healthcare telematics
- to introduce the EHR (ELGA initiative)

This legislation has prepared the ground for extensive planning, which is currently under way to implement the concept of a life-long electronic health record in Austria.
6. References


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