

Czech
national
forum for
civic association



eHealth

A THESIS ON THE DEVELOPMENT OF eHEALTH IN THE CZECH REPUBLIC

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Motto: The development of eHealth is an essential prerequisite of any reform steps in the Czech health care system.

The thesis on the development of eHealth in the Czech Republic is a political, not a technical text. Its goal is to create a politically acceptable basis for the foundation of a comprehensive national development concept for eHealth in the CR.

This thesis is based on the current situation in the field of eHealth in the Czech Republic and European Union, on the available information on the development plans in various areas and on the declaration of the government of the CR.

The goal of all these measures is to contribute to the improvement of the health of the citizens of the Czech Republic, increase the effectiveness of the health care provided to CR and EU citizens and thereby increase the eventual quality of patient care and safety.

By implementing information and communication technology, we will create the right conditions for high quality and effective health care, increased citizen interest in the health care process and for the effective use of financial resources.

The main priorities are ensuring the high quality and availability of health care and the long term stability of the health service system.

All measures are aimed at strengthening the role of the citizen – patient – policy holder in the health care system.

The tools for realizing this goal are the creation, continuous updating and gradual implementation of the development of eHealth concept in the Czech Republic.

The key areas are

- ▣ national politics, legislation and standards
- ▣ electronic medical records
- ▣ electronic patient and medical personnel identification
- ▣ medical information network
- ▣ electronic education for citizens and medical workers

Definition of eHealth:

eHealth is an application of information and communication technology across an entire array of functions that influence health and health services. The field of eHealth incorporates tools and solutions including products, systems and services that are beyond common internet applications. The tools are mainly intended for medical administration, medical equipment, all types of medical professionals as well as public and personalized medical information systems for patients and citizens.

1 Information for citizens

1.1 Patient rights and duties

We will ensure the public availability of information on the rights and duties of citizens in the medical system and create the right conditions for the fulfilment of these rights.

- ▣ the right to receive information and give informed consent
- ▣ the right to receive information on medical procedures, their availability and to take part in their selection
- ▣ the right to receive information on available health services and their quality
- ▣ the right to receive information on health insurance payments and health insurance health service coverage
- ▣ the right to receive information on the characteristics of over-the-counter and prescription drugs and to influence their selection
- ▣ the right of access to medical documentation
- ▣ the right to receive guaranteed information from national and statutory authorities
- ▣ co-responsibility for one's health, prevention, a healthy lifestyle, following medical regimens

1.2 General information on health and illness

We will improve the availability of information on health and illness for citizens. Information must be available in the Czech language, but gradually also in foreign languages for visitors from abroad. Information must be available in a form that is comprehensible by people with a primary school education. Information must also be available for handicapped people.

We will give an increased amount of attention to the quality of information on health and illness that is available on the Web and verify it by evaluating the quality of its presentation (by medical institutions) and simultaneously its reliability (on commercial web sites).

We will support modern forms of health education including eLearning applications from the field of health education.

We will support the increase of citizen awareness about care for health, citizen "selfcare"¹ and patient cooperation with medical workers during health care and treatment.

We will support better availability of information on drugs and remedies for citizens. We will support the disclosure of information on the prices and costs of drugs and remedies.

¹ solving health problems on their own, or with the help of their family or on a non-professional environment

We will support the development of tools for individual evaluation and certification² (quality evaluation system) of publicly available information sources on health and illness.

1.3 Individual information on health care

We will improve the availability of individual patient medical information for all citizens.

We will individualize health care. Every patient will receive the kind of health care that is exactly suitable for them. Patients will not be handled as just another case at one hospital.

The health service providers that work with individual patient medical information offer these services at a higher level of quality. We will take this higher level of quality into account in the public health insurance system.

We will support positive motivation of patients and health care providers to increase health care quality by improving communication and the sharing and exchange of individual medical information.

We will take care to keep a high level of privacy (personal information) protection.

1.4 Information on the availability and quality of health services

We will support information systems that provide information on the availability and quality of specific health services.

In this kind of information system, patients can acquire information on the medical institutions in which they can find specific medical services, their waiting time, price and quality. The system can also offer appointment making services.

The health care availability information system will not be limited to the Czech Republic nor the European Union. We will support the providing of medical services to clients from other countries by Czech medical institutions and simultaneously support information on the possibilities of using foreign health services by Czech citizens.

1.4.1 Information on health care providers

We will thoroughly support free choice of doctors and medical institutions.

We will improve the availability of specific and comparative information on individual medical institutions. The information must be available in a form that is comprehensible by people with a primary school education.

² The trends in this area are best characterized by the <http://www.wrapin.org/> EU project or the <http://www.hon.ch/> certification authority. Originally the possibility of compulsory certification or central evaluation by Public Health Info Sources medical workers and instructed non-specialists was discussed for the field of PHIS quality evaluation. Due to the exponential growth of PHIS and the individually different requirements of non-specialists during the last 5 years, the idea of providing the public with evaluation tools, which allow non-specialists to evaluate the contents of a specific PHIS that interested them, is being established. Simultaneously they should inform the public about the existence of national and international certificate standards for PHIS, whose logo will guarantee basic quality of the contents and the behaviour of the PHIS provider (comment by Kubů).

We will create and administer a registry of medical institutions that will also contain comparative quality parameters of the provided medical services. We will gradually expand the information administered in the registry. Aside from information guaranteed by the state, we will also allow the publishing of information guaranteed by medical institutions themselves in the registry.

Information from this registry will be made publicly accessible with the consent of the respective medical institution.

1.4.2 Information on medical workers

We will improve the availability of information on individual medical workers (doctors, pharmacists, nurses and others) for citizens.

We will create a registry of medical personnel with maximum use and interconnection of current registries. This registry will contain information on expert and specialized qualification to carry out a medical vocation, information on lifelong education of medical personnel and the relationships between medical personnel and medical institutions (as providers of medical care).

Information from this registry will be made publicly accessible with the consent of the respective medical worker.

1.5 Information on health insurance

This area contains information on both the health insurance system that the state provides and individual health insurance companies and their products.

The information is a necessary condition of completing the health insurance system in the CR and also a condition of truly free insurance company selection. Policy holders will have access to information on the possibilities of insurance and the state of payments on and drawing from their personal account in the health insurance company.

We will ensure the availability of information on public health insurance and the range of covered health care.

We will support the availability of information on the possibilities of health insurance selection both in the areas of public health insurance and addition insurance.

We will ensure the availability of information on the size of the health insurance payments and drawing from the health insurance for every policy holder.

2 Identification

We will establish tools for electronic identification of policy holders and medical personnel.

2.1 Identification of medical personnel

We will support a system of electronic identifiers (EI) of medical personnel. The EI will be administered on the basis of the medical personnel registry. The medical personnel EI will allow medical personnel authorized access to individual information systems and will simplify the use of new forms of communication and medical documentation management.

The EI will support a new communication method between medical care providers and health insurance companies, state institutions (The Czech Social Security Administration, employment officers and others) and other subjects.

A component of the electronic identifier of a medical worker will be an electronic signature, which will enable unambiguous authorization of all information entered into the information system by the medical worker. This step will abruptly increase the quality not only of medical documentation in electronic form, but also of other information systems.

2.2 Identification of policy holders

We will support a system of electronic identifiers of health insurance. The electronic identifiers (EI) will be based on the health insurance registry. The health insurance EI will allow unambiguous identification of policy holders and their rights and duties within the scope of their health insurance.

The health insurance EI are tools that allow access to overviews of health insurance payments and medical service costs drawn from health insurance. The health insurance EI allows authorized access to health insurance information systems.

The use of EI significantly reduces the administrative work connected with health insurance, mainly with drawing money and providing medical care.

The medical personnel EI and health insurance EI also allow health insurance companies to verify medical service bills.

The medical personnel EI, as a carrier of a certificate and guaranteed electronic signature, will be used during work with electronic medical documentation.

3 Information systems

3.1 The information infrastructure of medical institutions

We will support the development of the information infrastructure of medical institutions.

The state will ensure unified data standards. The data standards will be regularly innovated in cooperation with the expert community so that they react to the development of knowledge and practical requirements. The data standards will be in accordance with European and international standards.

The state will thoroughly oversee the adherence to the privacy (personal information) protection regulations within the information infrastructure of medical institutions.

The state will not interfere with the development or use of the information infrastructure of medical institutions.

3.2 Electronic medical documentation

We will support the management of electronic medical documentation. The use of electronic medical documentation will support patient mobility and free selection of the medical institution where the patient will make use of further medical services.

The state will create the legislation required for the management of electronic medical documentation.

The state will support the expansion of technological tools that allow the use of electronic medical documentation, above all guaranteed electronic signatures among health care providers. At the same time the state will support the development of systems that allow the sharing and exchange of electronic medical information between medical institutions and patients (the right of access to medical documentation) and between separate medical institutions (continuity of health care = better patient safety, higher care quality and effectiveness).

The primary goal of the implementation of electronic medical documentation is to improve the quality and effectiveness of health care, support patient mobility and free medical institution selection and to make the documentation administration more transparent and simple.

The implementation of the electronic medical documentation system will contribute to a higher total quality of provided care and also decrease the risk of mistakes due to insufficient information = higher patient safety. Last but not least, the electronic medical documentation system should simplify patient access to information, enable the exchange of information between medical institutions and enable access to medical records at any time or place, of course in accordance with valid regulations for handling personal information.

The electronic medical documentation system should fulfil these basic requirements:

- ▣ The availability of data in continuous mode online; secure access to data online.
- ▣ Interoperability with follow-up systems and services that are a part of eHealth.
- ▣ The availability of data using web technologies; secure access to data using the internet.
- ▣ Secure, authorized and auditable access to data and its transactions.
- ▣ Data sharing using a defined interface in a closed communication network that connects medical personnel communities and individual medical institutions.
- ▣ Support of multimedia formats of stored information.
- ▣ Openness to the development of applications and services provided by the commercial business sphere.

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- Support of guaranteed electronic signatures that enable unambiguous authorization and will guarantee the inalterability and integrity of the data stored in the system.
 - Guaranteed high availability, backing-up and integrity of data.

3.3 Information exchange between medical institutions

We will support medical information sharing and exchange between individual medical institutions.

While sharing and exchanging medical information, we will thoroughly oversee the adherence to the privacy (personal information handling) protection regulations and the statistics anonymity regulations for bulk data processing.

3.4 Electronic prescription

We will create legislative regulations for the electronic prescription of pharmaceuticals.

We will support electronic drug prescription as a full-fledged alternative to the current method of drug prescription.

The basic requirement is creating a central storage system for electronic prescriptions. The central storage system must be accessible by all prescribing doctors and pharmacies. The second requirement is spreading guaranteed electronic signatures between medical professionals – electronic prescriptions must be signed just like the issuing of drugs using an electronic prescription must be signed.

Technological adjustments of information systems both on the side of prescribing doctors and pharmacies are not an obstacle for the practical use of electronic prescriptions.

The implementation of electronic prescriptions into everyday work will lead to:

- the expansion of applications that support decision making by patients/doctors/pharmacists during the optimization of pharmacotherapy with the goal of eliminating possible interactions of drugs prescribed by different doctors.
- the reduction of the administrative load that paper prescriptions place on these medical professionals;
- the prevention of the embezzlement of paper prescriptions and the resulting misuse of drugs on the illegal market;
- the effective and immediate verification of prescriptions written for specific patients and written by specific doctors/medical institutions;

3.5 Health insurance information systems

As a part of the public health insurance system, an insurance registry, registries of contracted medical institutions and their employees – medical personnel, a redistribution centre, a capitation payment centre and other information systems will be operated.

We will support a qualitative change in the communication between policy holders, contracted medical institutions and health insurance companies. The information system will support unambiguous electronic identification of policy holders, their rights and duties (the covered range of services) as well as on-time electronic confirmation of used and billed medical services by the policy holder.

3.6 Science and research information systems

E-health is an application of ICT across the entire spectrum of activities related to health service, which includes science and education. Science and research information systems insufficiently provide the mutual exchange of information on science and research and its results, the possibilities of their use and the information of citizens and medical workers.

4 Teaching and education

By using eHealth technologies and approaches, we will improve the approach to electronic information sources that is required by eLearning applications for pre-graduate and postgraduate education and health education for citizens

4.1 Health education for citizens

Health education and health support are key areas with an exceptional impact on the health of citizens (larger than health care). The support of Health education and Health promotion is one of the European Union programs.

The use of eHealth technologies and approaches is a new possibility of improving the health education and health support situation.

We will actively support generally available information on health, health care, illness and treatment options.

We will actively support the creation of eLearning applications from the field of health education and health promotion.

4.2 Technological literacy

We will support the increasing of citizen technological literacy as a way to involve citizens in decision making about health and to improve access to information on health and illness.

A growing percentage of the population is reaching a high age. In comparison with previous generations, the ratio between people, who are above sixty and the younger is getting higher. In connection with the development of medicine and a lower birth rate, this social phenomenon is more and more common in all European countries.

Senior patients need to find poorly accessible information; on drugs, most common and new illnesses, social programs, laws, but also on culture and sports. It is a combination of improving the availability and accessibility of the required information, improving communication with their family and increasing interest in their own health.

This group of citizens shows the lowest computer literacy today. These are the reasons for the intense support of senior education in the area of ICT control from public and private sources. To facilitate their first contact with the internet. Remove the fear of the unknown and open a door to the information society for them. Use the current stationary and mobile learning devices and services for this purpose.

4.3 Education of medical personnel

4.3.1 Pregraduate education

Pregraduate education of medical personnel is the responsibility of faculties of medicine and other schools. It is however desired to ensure the continuity of postgraduate education, mainly with regard to the concept and use of education programs.

4.3.2 Postgraduate specialized and lifelong education

We recommend including basic knowledge and skills from the field of ICT use in health service into specialized and lifelong education.

We will support the expansion of eLearning technology as a part of specialized and lifelong education.

The state will keep records of specialized education and qualification, as well as lifelong education in the medical personnel registry.

5 Telemedicine

We will support the development of telemedicine to an extent that is adequate to the supply and demand for medical services in the Czech Republic.

5.1 Remote result evaluation

We will support the development of remote evaluation of visual information in health services. The visual broadcast and analysis systems will enable the centralization of specialized medical care and the more effective use of highly qualified personnel.

5.2 Second opinion

We welcome systems that allow remote consultation with a second specialist. These consultations are used both by medical care providers as a part of decision making about further health care and by patients as a part of their free selection of health care providers.

5.3 Remote patient monitoring

We welcome systems that provide remote monitoring of patient health indicators, which increases the quality of health care³.

We will focus on systems that remotely monitor vital functions including signalling for the required actions in the case of life or health threatening situations.

Another significant task is helping wandering people, where a motion monitoring system helps find the wandering person and provide the necessary assistance and help.

5.4 Interactive communication systems

We welcome the development of interactive communication systems that fall on the line between social and health care. The mutual connection not only between a patient and his doctor, but also family member, caregivers, or other providers of health services including emergency service is a large challenge that is related to the growing amount of senior people in society.

6 State duties

Above all, the state creates legal framework. Other than that, the state runs only those information systems that can't be entrusted to commercial operators.

The state releases recommended standards and coordinates them on an international level.

The state supports the infrastructure, its creation and development.

The state supports further development of eHealth.

The state actively supports those areas of development that bring general benefit and utility and aim to fulfil basic priorities such as high quality health care, the availability of health care and long term stability of the health service system.

6.1 The state provides

6.1.1 Legislation

The state creates the legislation required for the development of eHealth.

A part of this legislation is the legislation framework for the digitalization of medical information.

³ Pilots implemented for various public health service HW or SW platforms clearly prove the higher quality of care mainly in the area of patient satisfaction and the higher effectiveness of provided care due to faster post-operation recovery in a home environment, or quick intervention in the case of relapse of a chronic illness (comment by Kubů).

6.1.2 Providing information

The state provides information about health service organization, the extent of health care and medical system services in the National Medical Information System - NMIS and through the Czech Statistical Office (CSO).

The state provides information on the availability and quality of health services, medical institutions and medical personnel.

Registries

The state runs the **medical personnel registry** (doctors, dentists, pharmacists, nurses, midwives and other medical workers).

The state determines the information contents of the registries by law.

The medical personnel registry contains information on expert, specialized and lifelong education and information on the relationships between medical personnel and medical institutions.

Information contained in the medical personnel registry will be (with consent of the worker) publicly available. The medical worker decides himself if the information in the registry will be made public.

The state runs the **medical institution registry**.

The medical institution registry contains information on the extent and quality of provided health care.

Information contained in the medical institution registry will be publicly available.

The state runs **other registries** by law.

6.2 Privacy protection (personal information)

The state will create regulations for the handling of personal information. The state thoroughly oversees the adherence to these regulations in all areas of eHealth.

6.3 The state supports

6.3.1 Information on health and illness

The state supports the availability of information on health and illness, health care and self healing. A condition of support is the quality of this information.

6.3.2 Electronic identifier

The state supports the distribution of insurance electronic identifiers (eEHIC – European Health Insurance Card) and electronic medical personnel identifiers.

6.3.3 Education

The state supports the education of the public and of medical personnel in the field of ICT technology use.

The state currently supports the use of eHealth tools in the areas of health education, health support, pregraduate, postgraduate and lifelong education of medical personnel.

7 Partners

The thesis on the development of eHealth is a basis for the processing of a national development concept for eHealth, and subsequently for the implementation of this concept and consequently the development eHealth in the Czech Republic.

For the creation and establishment of the concept and its successful implementation, it is necessary to identify partners and determine a schedule for further work.

7.1 Partners in the field of eHealth

Public administration, medical institution operators, health insurance companies, universities, The Academy of Sciences of the Czech Republic, employers, medical worker organizations, patient organizations, SW and HW commercial subjects, international standard organizations and other subjects.

Partners abroad, on the level of the EU, WHO and others.

8 Schedule

The first points of the schedule are to appoint interdepartmental work groups for eHealth, discuss the eHealth National program and to have this program accepted by the government.

The determining of the schedule is dependant on the decision of the executive branch.

Simultaneously the analysis of all required changes in the legislation and the preparation of legislation proposals must proceed.

A part of the schedule is the preparation for drawing funds from the state budget and European Union funds.

SWOT ANALYSIS OF eHEALTH IN THE CZECH REPUBLIC

Strengths of eHealth in the CR

Long term tradition of quality information applications in health service.

Long term tradition of collecting and processing medical information.

Well maintained medical registries on a long term basis.

A numerous and organized group of specialists.

The existence of a range of medical institutions with high quality information applications

A high rate of adaptability of all involved

A high amount of active SW and HW suppliers for health service.

High quality ICT and human resource equipment, mainly on the level of regional and teaching hospitals.

Weaknesses of eHealth in the CR

Long term absence of eHealth policies.

Uneven distribution and quality of eHealth applications.

Relatively low ICT literacy of medical workers.

The delayed start of implementing ICT into health service.

Low capital power of most medical institutions and SW and HW suppliers.

Low level of communication in medical service in the CR (similar to the EU).

A lack of system motivation to improve health care and increase health care quality and the lack of use of ICT in service logistics and management

Insufficient coordinated cooperation of significant medical subjects in regions and the entire republic.

Project integration of the medical information systems in the CR into the complex EU information system – Health action plan

Opportunities of eHealth in the CR

The constant decline of HW and SW prices.

The growing quality and availability of connections.

Relatively free space for science, research and innovations.

The gradual increase in interest and ICT literacy of medical workers.

Threats to eHealth in the CR

The growing prices of certain technologies.

A lack of finances in the health insurance system to ensure high quality care with regard to the aging population and for the desired development of IT.

The persisting bad financial situation of a number of medical institutions.

A lack of interest in eHealth from the

European integration and the possibility of the use of European grant programs.

The establishment of medical insurance company portals, electronization of health insurance work and the interconnection of e-government, e-business and e-banking according to EU standards.

The implementation of new medical technologies connected with ICT, the development of information digitalization and the use of telemedicine by specialists and clients.

The implementation of insurance and medical personnel electronic identifiers.

The plurality of providing and covering medical care.

The creation of an eHealth national policy.

The creation of Public Private Partnership investment projects that are focused on the digital infrastructure and providing ICT services in health service.

medical community.

The negative impacts of the European integration process, a lack of preparation for the use of project grant resources from the EU in the CR.

Dehumanization of medical care.

Errors and other failures of eHealth technology.

Low cohesion between eHealth applications, a low rate of interoperability, insufficient interdepartmental coordination and cooperation.

A low rate of science and research use, limited innovation progress.