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THE RECENT IDEAS AND TRENDS IN HEALTH CARE INFORMATION SYSTEMS IN POLAND

Introduction

IT systems used to streamline, improve the functioning of healthcare are an area of interest not only in Poland [Kawi04, Pank04], but also in numerous countries across the world and Europe, e.g. in Germany [www01], The Great Britain [KaHS09], Switzerland [That13], Netherlands [Shek06]. The transformation of a health care system into a uniform, integrated and flexible structure through the implementation of IT systems undoubtedly benefits patients, increasing their safety and comfort, and streamlines the operation of the health care system. The benefits of implementing IT systems include the fulfilment of expectations of both patients and health services providers and improvement of the whole process of decision making by the participants of the health care system. The main aspect of implementation of IT health care system is electronic health records (EHRs).

1. Implementation of electronic health records (EHRs)

EHRs are structured, distributed documentation systems that differ from paper charts. These systems require skills not traditionally used to navigate a paper chart and to produce a written clinic note [HaLo13].

The goal of implementation of EHRs in the health care system in such facilities as health care centres (hospitals, clinics), pharmacy's shops, etc. is to improve the effectiveness of spending public funds on health care. Such systems should be characterized by integration and capability of extension.

Projects for implementing EHRs systems in health care for management of patient information are complex and complicated undertakings, so these processes should be carried out in stages. To achieve the best effects, individual

stages should be implemented efficiently and consistently. Moreover, appropriate legislative changes are required and – what's important – decision makers must be convinced of the necessity of such solutions.

Any IT systems implemented in health care must comply with legal standards in force and be adaptable to changes that are made to the national law. Because of the mass scale of health care, they also must be efficient both for patient and the health protection system [Sołt12].

2. Review of Polish health care IT systems

Health insurance card in the Silesian Voivodeship

The electronic health insurance card was implemented in the Silesian Voivodeship about 10 years ago as part of the works connected with the computerisation of the Silesian Voivodeship Department of National Health Fund. It is used to verify the insurance status of the authorized card holder in the system of the Silesian Voivodeship Department of National Health Fund. It also provides personal data and is used for authorization of services delivered under a contract with the Silesian Voivodeship Department of National Health Fund [www03]. The card may be issued to an insured person with a PESEL national identification number who can prove his/her residence on the territory of the Silesian Voivodeship.

Since 2004, Poland has planned to implement the Polish nation-wide Health Insurance Card modelled on the Silesian card. To continue the works ordered by Health Minister on the 8th of February 2005, a Group was set up to draw up a strategy for the development of a medical information system in health protection and to prepare the conception of implementing the European Health Insurance Card and the Health Insurance Card. Up to now, the implementation has not been completed. Another proposal of implementing an electronic medical report is to use the function of the health insurance card in an electronic identity card. This project was described in a publication on the connection between KUZ and pl.ID. It is also assumed that pl.ID will constitute an electronic document that may be used to verify a person (including a limited identification), provide personal and qualified signatures, entitle a person to cross the borders of the countries united by the Schengen Agreement, and serve the role of the KUZ. Pursuant to National Council of Ministers's decision from December 2009, the project was linked with pl.ID, with a separate space provided for the KUZ. Currently, the National Health Fund is developing and handing to the Ministry of the Interior and Administration the document „Technical and functional requirements for the Health Insurance Card, KUZ application and their environment".

EKUZ as a part of the Polish health care system

One of the elements of the Polish health care system in managing patient information is EKUZ (electronic European Health Insurance Card). It was created as a response to the necessity of patient verification in the European Union and in the countries of the Schengen area.

The project of the Health Insurance Card (KUZ) developed in connection with the pl.ID system is currently suspended in Poland. However, the work on the system of the European Health Insurance Card (EKUZ) is still continued due to the development of a new conception of the system for patient identification in the countries of European Free Trade Association [www04]. Nowadays pl.ID program is one of the biggest current government projects in Poland. The program will provide a fast and efficient service to citizens and businesses during his visit to the office [www05].

Ultimately, the health insurance card should be an element of the information system in the health protection system in Poland. However, the use of such a card entails access to sensitive data, thus one of the basic requirements for using this card is ensuring security of the information system used in medical services. The card should also be able to integrate with the medical services register and medicine register. It may also be an instrument for checking insurance as part of processing EKUZ instead of a RMUA document monthly report for an insured person in Poland. The electronic medical report should be integrated with the information system for pharmacy's and health care centres as well as the electronic system for prescriptions and electronic system for referrals for specialist treatment [Sołt12].

The Electronic Verification of Beneficiary Entitlements (e-WUŚ)

At the same time, a project called e-WUŚ (Electronic Verification of Beneficiary Entitlements) [Korc13] is being developed in Poland in accordance with the law on publicly funded health care benefits. From the 1st of January 2013, patients visiting doctors should present their PESEL number and identity card, driving licence or passport in order to confirm their entitlement to publicly funded health care [www06]. The system was tested from the 15th of October to the end of 2012 and its aim is to streamline the system for confirming the entitlement to health care. Thanks to the system, doctors will no longer be responsible for checking whether the patient is entitled to health care. The project was the result of the cooperation of the Ministry of Administration and Digitalization with the Ministry of Health, National Health Fund (ZUS), Social Insurance Institution and Agricultural Social Insurance Fund (KRUS), and was consulted with the Chief Inspectorate of Personal Data Protection.

Thanks to the information exchange between the Central List of the Insured of the National Health Fund and ZUS and KRUS registers, it will be possible to check online in a hospital or clinic reception whether the patient is insured. There will be no need for the RMUA slip (although it still will be valid, as will be the pensioner identity card and other documents entitling to benefits) [Sido14].

If the system doesn't confirm the entitlement to health care (e.g. when the employer has not registered the employee for insurance), the citizen's declaration that he/she is insured will suffice (art. 7 and 8 of the relevant law). The introduction of the e-WUŚ system made the procedure of issuing the EKUZ more efficient. The citizen doesn't have to produce the RMUA slip in a National Health Fund institution, instead he/she can show a document proving his/her identity.

Polish EHR: Integrated Patient System (ZIP)

Integrated Patient System is a Polish nationwide service providing registered users with historical data about their treatment and financing of treatment, collected since 2008 by the National Health Fund. The Integrated Patient System was implemented at the 1st of July 2013 and is successfully developed, and now have some important functionalities, e.g. quick access to information about right to health care for the citizen, knowledge of treatment and benefits granted and the medicines prescribed, and information about the amounts that have been transferred to finance treatment of patient. To have access to information about health care, medical records and financing of the services provided, the citizen first should to read the rules of use of EHR, and then go to the registration page and fill out the included electronic form. After completing the application the citizen should take the ID card to a branch of the National Health Fund in order to access data (user ID and temporary password). After receiving the access, the citizen can start to use the service. Both the registration and use of the site are free for the citizen. Medical information are available in the latest issue and are so-called "sensitive data". So according to the principles of data protection and guidance of the Inspector General, the data are under special protection. Therefore the personal visit of each citizen to the headquarters of the Fund is required [www10].

3. The study of usage trends of electronic health care systems

The main study of usage trends of electronic health care systems was provided in academic year 2013-14 in University of Economics in Katowice. 95 second year students of master degree were invited to complete a questionnaire

after explaining the topic about e-health during one of the course. The author elicited themes for the questionnaire by asking a focus group of second year students how they use and know the implementation of electronic health care systems for citizens in Poland and in the world and what is the most important functionality of electronic health care system for them as the patients. Three themes emerged: using of EKUZ during vacations and going abroad, access to online resources about medical health care record and personal medical history, and implementation of other IT systems in e-health. The author added a two theme: using of e-WUŚ for the publicly funded health care and the Integrated Patient System (EHR) for finding the historic data about amount of treatment of patient. The author created a 5-item questionnaire, based on these themes. Each answer had the three possibility to choose in questionnaire: "Yes", "No", and "I don't know". The survey was prepared on web platform Net-ankieta.pl. The author emailed an electronic survey link to consenting students. 83 of 95 consenting students (87%) returned completed questionnaires. The results of study showed that most of students have no information about Polish EHR (ZIP) and the ability to organize information about health care in internet. Only 7% of students responded that they have an id and password to use the EHRs data bases. But more than 58% of students reported that the e-WUŚ is useful to improve the medical health insurance for possibility to use of publicly funded health care. 31% of students responded that they were interested to receive the EKUZ for using it to the necessity of patient verification in the European Union and in the countries of the Schengen area.

Conclusions

As a conclusion of the study about trends of using electronic health care systems by patient, students of University of Economics in Katowice reported some needs of usage of EKUZ, but they mostly reported the lack of knowledge about implementation and functionality of information systems in Polish health care. Only part of them was interested in finding the information about health care in EHRs data bases of Integrated Patient System, and only a few of them had the own id and tried to use it on the online platform for e-health services.

The future research should be conducted to discover the reason of this state of knowledge about Polish electronic health care system. The most important reason of future changes of this situation could be to:

- learn the citizens about functionality of implemented electronic systems in health care (usage of courses at the universities to make a progress in that field),

- facilitate the process of registration and confirmation of the right to health services (effectiveness),
- improve the reliability of accounting data sent to the National Health Fund (integrity and incontrovertibility),
- ensure a secure access to data (confidentiality),
- increase the satisfaction of those entitled to health care and enable a remote access to own data (increase of patient's interest),
- increase the effectiveness of medical centres (automation of activities),
- decrease the number of frauds, mainly in the area of accounting for services that have not been provided,
- improve the quality of data.

The computerisation of the Polish health care are still concentrated mainly on meeting the objectives set by the European Commission concerning e-Health. The main issues presented in the „e-Health Poland" plan which must be implemented by 2015 include the following [www09]:

1. Ensuring citizens an easier access to health care information.
2. Improving the effectiveness of the health care system with regard to an electronic flow of information.
3. Creating procedures and guidelines, collecting and sharing good practices to improve the management of a health care centre through the implementation of information and communication systems.
4. Modernizing the medical information system to ensure the analysis of the demand for health services.
5. Practical realization of the development of IT solutions in health protection following the guidelines of the European Commission to allow the Republic of Poland to be included into the area of interoperational Electronic Health Record.

Nowadays, following the acceptance for implementation of certain programmes financed from structural funds, the following activities are of key importance:

- implementation of the Programme for Health Protection Informatisation,
- creation of the conditions for the development of health protection e-services – especially telemedicine systems (teleconsultation, telemonitoring, online patient registration),
- an electronic health record which will be linked with a new identity card.

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AKTUALNE IDEE I TRENDY W INFORMATYCZNYCH SYSTEMACH OCHRONY ZDROWIA W POLSCE

Streszczenie

W artykule przedstawiono koncepcję zarządzania informacją o pacjencie w polskim systemie opieki zdrowotnej na podstawie badań literaturowych oraz własnych badań ankietowych. Efektem przeprowadzonych badań były wnioski dotyczące wykorzystania systemów informatycznych w polskim systemie opieki zdrowotnej przez potencjalnych pacjentów. Autorka przedstawiła założenia strategii wdrażania systemów IT w sektorze ochrony zdrowia w Polsce. Opisała system elektronicznego raportu medycznego z uwzględnieniem planów rządowych dotyczących wdrażania systemów Health Insurance Card (HIC) i pl.ID, a także systemu e-WUŚ (Elektroniczna Weryfikacja Uprawnień Świadczeniobiorców) i ZIP (Zintegrowany Informator Pacjenta), które są realizowane przez polski rząd i Narodowy Fundusz Zdrowia. Projekt systemu e-WUŚ jest częścią polskiego systemu opieki zdrowotnej. Projekt ZIP jest rozwijany przez NFZ w celu zarządzania danymi o usługach zdrowotnych realizowanych przez jednostki ochrony zdrowia na rzecz pacjentów. W pracy przedstawiono przykład systemu EKUZ (Elektroniczna Karta Ubezpieczenia Zdrowotnego) do zarządzania informacją dla pacjenta w polskim systemie ochrony zdrowia wspieranym przez e-WUŚ.