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Wykorzystanie elektronicznej dokumentacji medycznej w placówkach podstawowej opieki zdrowotnej w województwie podlaskim

Streszczenie

Wstęp. Pomimo ustawowego obowiązku prowadzenia dokumentacji medycznej wyłącznie w postaci elektronicznej od 1 sierpnia 2014 roku brak jest publikacji w piśmiennictwie naukowym dotyczących aktualnego stopnia przygotowania placówek w tym zakresie.

Cel. Celem pracy jest określenie aktualnego stopnia korzystania z elektronicznej dokumentacji medycznej przez lekarzy podstawowej opieki zdrowotnej w województwie podlaskim.

Materiał i metody. Badania przeprowadzono przy użyciu metody CATI (Computer Aided Telephone Interviews) oraz metody CAWI (Computer Aided Web Interview). Łącznie uzyskano wyniki ze 104 placówek POZ, co stanowi 44% wszystkich świadczeniodawców posiadających kontrakt w zakresie świadczeń lekarza podstawowej opieki zdrowotnej w województwie podlaskim.

Wyniki. Uzyskane wyniki wskazują, że stale, indywidualną dokumentację medyczną wewnętrzną w postaci elektronicznej prowadzi jedynie 14,7% lekarzy podstawowej opieki zdrowotnej. W zakresie dokumentacji medycznej zewnętrznej recepty generuje i drukuje 71,6%, skierowania lekarskie 39,8%, a zaświadczenia lekarskie 11,8% badanych. Przesyłanie danych medycznych w sieci Internet praktycznie nie występuje, poza funkcjonalnością dostępu do wyników badań laboratoryjnych, którą deklaruje 28,2% badanych.

Dyskusja. Pomimo, iż aktualnie wszyscy lekarze deklarują dostęp do komputera i Internetu w placówkach POZ to zasoby te wykorzystywane są głównie do celów rozliczeń i weryfikacji statusu ubezpieczenia pacjenta, a nie do prowadzenia elektronicznej dokumentacji medycznej. Doświadczenia Danii, gdzie aktualnie odsetek lekarzy POZ prowadzących elektroniczną dokumentacją medyczną sięga 100% wskazuje, że jest to proces kilkunastoletni, a został on osiągnięty przy silnym wsparciu merytorycznym i finansowym ze strony państwa.

Wnioski. W perspektywie informatyzacji systemu opieki zdrowotnej w Polsce, należy zwrócić szczególną uwagę na informatyzację samych świadczeniodawców usług zdrowotnych, w tym w szczególności świadczeniodawców szczebla podstawowej opieki zdrowotnej. Koncentracja sił i środków jedynie na projektach centralnych oraz informatyzacji szpitali może okazać się rozwiązaniem wysoce nieefektywnym.

Słowa kluczowe: elektroniczna dokumentacja medyczna (EDM), elektroniczny rekord pacjenta, IT w ochronie zdrowia, e-zdrowie.

The use of electronic medical records in primary health care in the Podlaskie Voivodeship

Abstract

Introduction. Despite the statutory obligation to keep medical records only in electronic form from August 1, 2014, there are no publications in the scientific literature on the current level of preparation of institutions in this regard.

Aim. The aim of this study is to determine the current level of the use of electronic medical records by primary care physicians in the Podlaskie Voivodeship.

Material and methods. The study was conducted using the CATI (Computer Aided Telephone Interviews) and the CAWI (Computer Aided Web Interview) methods. In total, results were obtained from 104 Primary Health Care units (PHC), which accounts for 44% of all health care providers having a contract for the provision the primary care physician services in the Podlaskie Voivodeship.

Results. The results show that only 14.7% of primary care physicians use the individual electronic medical record. As regards external medical records, prescription are generated and printed by 71.6%, medical referrals – by 39.8% and medical certificates – by 11.8% of the respondents. Transmission of medical data over the Internet practically does not exist, except for the access to the results of laboratory tests, which is declared by 28.2% of respondents.

Discussion. Despite the fact that currently all the doctors declare access to computers and the Internet in the PHC institutions, these resources are used primarily for the purpose of billing and verification of patient insurance status, not for keeping electronic medical records. The case of Denmark, where the use of electronic medical records among general practitioners reaches 100% indicates that the process is long-lasting, and it was achieved with strong substantial and financial support from the state.

Conclusions. In view of the computerization of the health care system in Poland, special attention should be paid to the computerization of healthcare providers themselves, including in particular providers of primary health care level. The concentration of efforts and resources only on central projects and computerization of hospitals may be a highly inefficient solution.

Keywords: electronic medical record (EMR), electronic health record (EHR), health information technology (HIT), e-health.

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INTRODUCTION

A number of studies in the world shows that the smooth implementation of information technology in the health sector has many benefits both in terms of improving the quality of care and better use of resources in this sector [1,2]. Despite the potential benefits of digitalisation of health care, there are no published research studies on the current level of computerization of healthcare facilities in Poland. Regardless of the financial capacity of the service providers and the relation to the computerization of medical personnel as well as the advanced mean age of doctors, starting from August 1, 2014, the governing body [3] shall oblige all providers to keep medical records in electronic form only. This task may be difficult to achieve due to the short period remaining until the date of entry into force of the regulation.

AIM

The aim of this study is to determine the current level of electronic medical records use by primary care physicians in the Podlaskie Voivodeship in view of computerization in the health sector in Poland next year.

MATERIAL AND METHODS

The survey was implemented using the CATI method (Computer-Assisted Telephone Interviewing) and CAWI method (Computer-Assisted Web Interview) supplementary to the 43 respondents. In both methods an identical research survey, containing a total of 73 research questions was used. The survey questions were developed and adapted to Polish conditions of a study commissioned by the European Commission in 2007, "Benchmarking ICT use among General Practitioners in Europe" [4] including 27 EU countries, Norway and Iceland. Telephone interviews were addressed to all primary care providers in Podlaskie Voivodeship. When it was impossible to arrange a telephone interview, the respondents were sent a personalized e-mail with a direct link to the survey on-line. In each unit, the research questions were answered by the GPs. In the period from April 20 to May 15, 2013, the results were obtained from 104 units, representing 44% of all health care providers having a contract with the National Health Fund in Podlaskie Voivodeship for primary care physician services. A survey questionnaire was made using the Google Forms. Compilations and statistical analysis were implemented in the program SPSS Statistics® 20.0.

RESULTS

In the studied PHC institutions from 1 to 11 doctors worked under a contract of employment, civil-law contract, and self-employment, while the percentage of institutions with one doctor accounted for 35%, two doctors – 28.2%, three doctors – 12.6%. The proportion of PHC units located in rural areas was 36.9% and in the city 63.1%. The age of primary care physicians was in the range 29-71 years, mean age 51.1±9.1. In the study group, the percentage of women was 64.1% and men 35.9%.

The question concerning the elements of individual medical records of patients which were regularly kept in electronic form, was answered in the following way: 68.3% of the respondents indicated that they collected and stored data on diagnoses, 59.4% – about the prescribing of medications, 20.6% on information on the results of diagnostic tests (laboratory and others), 18.6% – on anthropometric measurements of patients, 17.6% – data on physical examination, 16.8% – on the medical interview data and 6.9% stored X-rays tests in digital form (Figure 1). Occasionally, the data on medical diagnosis was collected and stored by 6.9% of respondents, the prescribing of drugs – by 6.9%, the results of laboratory tests – by 4.9%, the data on non-laboratory tests – by 6.9%, the results of anthropometric measurements – by 5.9%, the data of the physical examination – by 11.8%, data on the medical interview – by 5.9%, data on X-ray tests – by 4.9% of respondents.

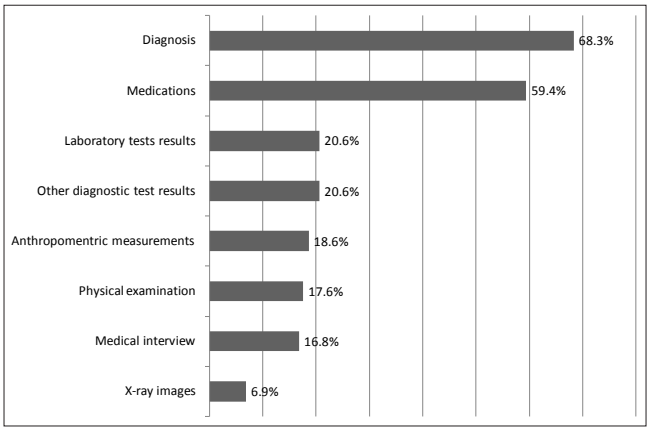

FIGURE 1. Electronic storage of patient's individual medical records.

Only 15 respondents (14.7% of those who responded) stored complete patient's medical history (i.e., simultaneous collection of data on medical diagnosis, drug prescribing, medical interview and physical examination, anthropometric measurements, diagnostic tests results). In a group of people using a full individual electronic medical records there were twice as many of doctors before 50 years of age than physicians aged 51 or above (p=0.144).

The regular use of electronically generated and printed prescriptions was declared by 71.6% of respondents, medical referrals – by 39.8%, while medical certificates – by 11.8% (Figure 2). Occasional generating and printing prescriptions was indicated by 6.9% of the respondents, medical referrals – by 10.7% and medical certificates – by 12.7%.

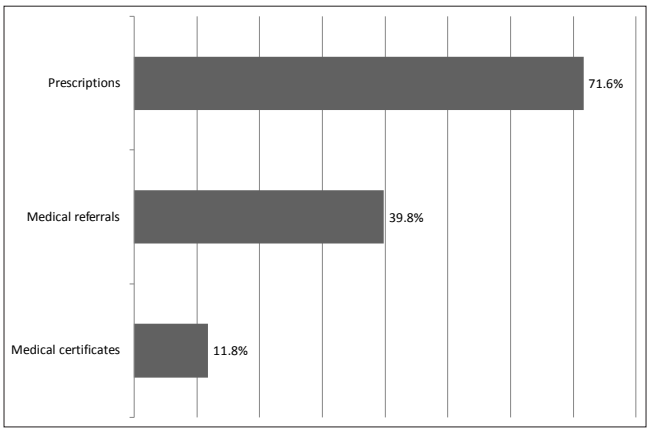

FIGURE 2. Elements of external medical record, electronically generated and printed.

Despite the fact that 100% of physicians in their clinics had access to computer and the Internet only 28.2% declared a possibility of permanent receiving of laboratory tests results online. Referrals for laboratory testing on-line was permanently transferred by 5.8%, the data of prescriptions permanently was transferred by 2.9%, while the permanent transfer of referral and diagnostic imaging results, and referrals to hospital/specialist was declared only by 1% of respondents – (Figure 3). Occasional receiving of laboratory results online was declared by 6.8% of respondents, referrals for laboratory testing and prescriptions – by 1.9%, and receiving diagnostic imaging results – by 1%. No doctor in the study group declared receiving electronic feedback from a specialist or information from a hospitalization, or electronic transmission of medical data abroad.

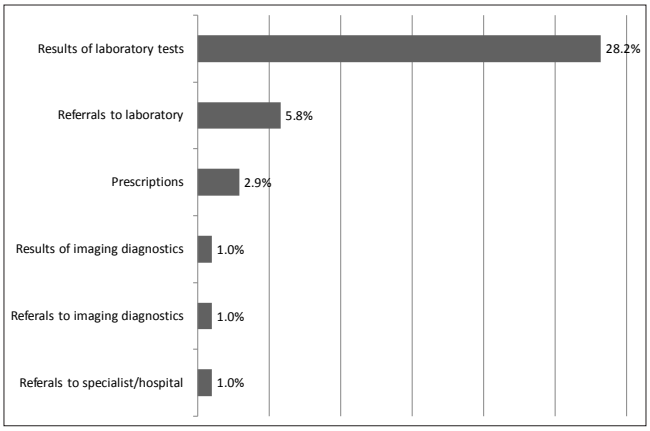

FIGURE 3. Electronic exchange of patient data using Internet.

DISCUSSION

A high percentage of respondents (68.3%), who stored medical diagnoses in the electronic system, is because the reporting of the provided services, including medical diagnosis according to ICD-10 code, is mandatory in order to obtain higher capitation rates for the diagnosis of cardiovascular disease groups, diabetes, and acute upper respiratory tract infections during the months of increased morbidity. More than 30% of those who said they did not archive this type of data in electronic medical records most likely enter the medical diagnosis in paper medical records, and then the staff upload the data to the reporting and accounting module.

A significant percentage of indications concerning the collection and storage of information on the prescribing of drugs (58.4%) is associated with the fact that in practice, the first functionality of electronic medical systems which is used by physicians is generating and printing of prescriptions. With this arrangement, the information included in the prescription is stored automatically as part of individual patient's medical history. However, not all GPs benefit from this function, because the percentage of people that generate and print prescriptions was 71.6% and the percentage of people who indicated that these data was part of the medical history was 59.4%. Other mandatory elements of the internal individual medical records (i.e. the results of diagnostic tests, anthropometric measurements, data from physical examination and medical interview) were archived by only about 20% of doctors. Radiographs in electronic form were archived by 6.9% of physicians. The percentage should not be regarded as low, as in the practical as well as formal and legal aspect more fundamental is to store the results (descriptions) of ordered tests, than the original X-ray images. Overall, the percentage of doctors who kept a full electronic medical record at 14.7% should be considered as low. A small study sample does not allow for clear identification of a significant association of the relationship between the use of EMR, and age.

In terms of external medical records, referrals and medical certificates electronically generated were much less frequent than prescriptions. This situation is associated with the numbering system of medical prescriptions (SNRL), where each prescription must be accompanied by appropriate bar code. No printing of prescriptions in the workplace during the visit must be replaced by the handwritten prescriptions in the pre-printed templates. Fewer and fewer doctors use this solution each year. Unlike prescriptions, printing of medical certificates and referrals remains optional. A lower percentage of generated certificates and referrals is also related to the fact that not all doctors have in their systems ready-made forms of printed matter, as well as some of the people encounter technical problems with printing documents with a format other than prescription.

The use of the Internet to transmit medical data of patients in relation to receiving laboratory results was declared by nearly 28.2% of the respondents. The functionality of the direct export of diagnostic results from the laboratory to the care provider directly to the individual EHR can be assumed to be at 5.8%. In other cases, the data does not come directly to the electronic medical history of the patient, and is only placed on the website or sent by e-mail to the provider.

The functionality of the e-prescription i.e. transmission of the drug prescription to pharmacies with the feedback information of the patient's purchase was declared by only 2.8% of respondents. Other solutions in the studied institutions, such as electronic transmission of referrals and the diagnostic imaging results, referrals to a specialist or hospital, are currently almost not used, although these should constitute a standard solution under the government project "P1 – Electronic Platform Collection, Analysis and Dissemination of digital resources for Medical Events " carried out by the Center for Information Systems in Healthcare [5].

Comparisons of the results of own research with other studies carried out in Poland are very limited due to the significant methodological differences and dynamic changes in the implementation of electronic medical records. While data on the use of electronic medical record can be considered similar to the study completed in 2010 as part of the e-health project "E-Podlaskie, directions of development of information society of Podlaskie Voivodeship" [6], there are wide variations in regard to the assessment of medical data transfer in the computer network. In the above-cited study, it was found that the physicians used the Internet to contact the specialized practices at 56.4%, with laboratories at 54.6%, and with pharmacies at 10%. In the light of own research the quoted figures are highly overestimated, perhaps due to not determining of the extent to which physicians interact with these external entities, while in our study there were asked questions closely about the flow of medical records of patients. The other differences in the results of the studies may

be due to the fact that in our study, telephone interviews and the surveys were sent to each PHC institution, while in the "E-Podlaskie study" the questions were found on a public website without the guidance to the individual PHC institution. Significant limitation of this method stems from the fact that the answers are usually obtained from frequent users of the Internet and interested in the subject [7].

Comparison of the results of own research in the Podlaskie province with the "Benchmarking ICT use" study [4,8] implemented in Poland in 2007 indicates a significant progress of computerization of PHC institution providers that has taken place over the last five years. While in 2007 in Poland PHC institution equipping with computers was declared by 72% and Internet access by 62% of those surveyed, according to a current own study these rates are 100%. This situation results from the fact that currently every healthcare provider having a contract with the National Health Fund must have minimum one computer and the Internet access for daily reporting of services and verification of entitlement to services in the eWUŚ system (Electronic Verifying of Beneficiary Eligibility). In the use of electronic medical records, the research results from 2007 [4] indicate that patient diagnoses were stored by 34% of respondents, patient medication data by 26%, and patient basic medical parameters by 16% of the respondents. A summary of these results in relation to own research in the next 5 years perspective points to twofold increase of proportion of electronic storage of medical diagnosis and the drug prescribing, but no improvement in the collection of patient basic medical parameters.

In the area of medical data exchange over the Internet, our study showed an improvement compared to the study of 2007 [8], only in receiving laboratory tests results (10% vs. 28.2%). The solutions such as e-prescription, e-referral to hospital/specialist, and medical data transfer abroad, still remained low in both studies (in the range of 0%-2%).

In the international perspective, it should be unfortunately concluded that the proportion of primary care physicians using EMRs at the level of 15%, places Poland far from European leaders. In countries such as Denmark, Sweden, Norway, Netherlands, United Kingdom, and Italy, using electronic medical records by primary care physicians currently ranges from 95% to 100% [9]. It should be noted, however, that the process of computerization of the health sector began in many of these countries already 20-30 years ago. In Denmark, for example, [10,11], back in the 90s, there were introduced national standards for data exchange, quicker payment for physicians who use EHRs, and financial incentives for phone and e-mail consultations. One entity responsible for system integration in Denmark (MedCom) has built not only a national infrastructure, but also set standards and supplied technical support for participants. As a result, currently the standard in Denmark is among primary care physicians to receive on-line results of laboratory tests, the results of diagnostic imaging, information from the consultation of a specialist, information on a patient's stay in hospital. On the other side, the doctors of PHC units every day use tools as e-referrals, e-prescription, and e-medical orders.

Putting Poland in this context, where there is assumed a top-down imposition of health care providers with the obligation to use the EMRs without logistical, information, and the financial support, seems unrealistic in such a short time perspective and the international experience. There is a need to evaluate the advisability of allocating of substantial part of resources on digitalization of hospitals and central systems with complete exclusion of primary health care sector, which is able to meet most of the health needs of the population. [12-14].

CONCLUSIONS

1. In the analysed group, the internal complete electronic medical records are kept by only 14.7% of primary care physicians.
2. Top-down imposition of service providers with the obligation to keep electronic medical records without logistical, information, advisory, and finally financial support seems unrealistic in view of the very short time and international experience.
3. Taking into account the fact that the vast majority of everyday health needs of patients is performed at the PHC level, the purposefulness of allocating a large part of resources on digitalization of hospitals and central projects with total exclusion of primary health care providers must be revised.

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