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ONLINE COMMUNICATION IN THE HEALTHCARE SYSTEM IN POLAND

Nowadays market contributors usually communicate via modern techniques, mainly over the Internet. This also applies to health-related services. The article describes communication as a part of e-health activities between patients and participants of the healthcare system. The article looks at senders and recipients, their health-related behaviours and contents available online. The article discusses advantages gained by service providers and patients who use e-solutions, and points out the existing barriers and problems. Basing on comparison with solutions provided in Europe, the article looks at the challenges faced by modern healthcare communication, especially as to the development of a specialist electronic information system.

Keywords: e-health, communication, information.

Магдалена Собон

ОНЛАЙН-КОМУНІКАЦІЯ В СИСТЕМІ ОХОРОНИ ЗДОРОВ'Я В ПОЛЬЩІ

У статті показано, що в даний час учасники ринку зазвичай спілкуються за допомогою сучасних методів, в основному через Інтернет. Це також відноситься до галузі охорони здоров'я. Описано методи комунікації в рамках "електронної охорони здоров'я" між пацієнтами та учасниками системи охорони здоров'я, відправників та одержувачів даних, їх поведінку, пов'язану зі здоров'ям, доступність необхідних даних в Інтернеті. Розглянуто переваги, отримані постачальниками послуг та пацієнтами, які використовують електронні рішення, і зазначено існуючі бар'єри і проблеми. Грунтуючись на порівнянні з рішеннями, представленими в Європі, виділено проблеми, що стоять перед сучасною комунікацією в галузі охорони здоров'я, особливо щодо розвитку спеціалізованої електронної інформаційної системи.

Ключові слова: електронна охорона здоров'я, комунікація, інформація.

Табл. 1. Рис. 4. Літ. 23.

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ОНЛАЙН-КОММУНІКАЦІЯ В СИСТЕМЕ ЗДРАВООХРАНЕНИЯ В ПОЛЬШЕ

В статье показано, что в настоящее время участники рынка обычно общаются с помощью современных методов, в основном через Интернет. Это также относится к области здравоохранения. Описаны методы коммуникации в рамках "электронного здравоохранения" между пациентами и участниками системы здравоохранения, отправители и получатели данных, их поведение, связанное со здоровьем, доступность необходимых данных в Интернете. Рассмотрены преимущества, полученные поставщиками услуг и пациентами, которые используют электронные решения, и указаны существующие барьеры и проблемы. Основываясь на сравнении с решениями, представленными в Европе, выделены проблемы, стоящие перед современной коммуникацией в области здравоохранения, особенно в отношении развития специализированной электронной информационной системы.

Ключевые слова: электронное здравоохранение, коммуникация, информация.

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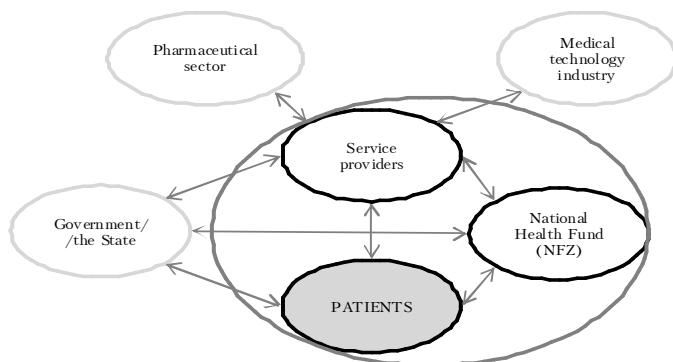
Although the Internet is described as a new medium, it has already become an inherent part of daily life, and revolutionised communication. It has transferred authority from media to recipients so that they have more options and available means of active use to choose from, it has also changed unidirectional mass communication into interactive, less concentrated and less centralised communication (McQuail, 2008: 58). The Internet which has overcome the limitations of the old media does not only create and pass on messages, but it is also used to process, exchange and store public and private information with no control or supervision. As a result, specific consequences arise for participants of the communication process, their roles, contents of available information, their quality and value.

The popularity of the Internet is reflected by an increasing number of households with access to it. According to GUS, in 2012 70.5% of households had access to the Internet, while in 2010 the number amounted to 63.4%, and in 2008 the number of households was 47.6%, varying as to the household type, the class and degree of urbanization of place of residence as well as the region of Poland. More importantly, 94.2% of the respondents who have ever used the Internet, use it on a regular basis. The Internet is very popular, thus the question as to its attractiveness as a source of information about health arises. Data collected by GUS (Central Statistical Office) and other Polish and foreign research agencies² indicate that the Internet is being increasingly used for health purposes. A significant part of Polish society showed interest in this subject in 2012. More than 31% of Polish people (48.3% of Internet users) used the Internet to search for information concerning healthcare, 3.8% ordered healthcare products, 4.3% booked appointments online (GUS, 2012: 99, 108, 116).

Since World Wide Web is used to communicate within the healthcare system, the term “e-health” needs to be referred to. This term refers to the application of various information and communication technologies to prevent diseases, to diagnose, treat, control and provide information on a healthy lifestyle (Silber, 2003: 3–4). Therefore, the term “e-health” comprises issues relating to recovery from illnesses or managing disability, as well as care of good physical, mental and social health. The exchange of information online among parties of the healthcare system is of particular importance. The system is a network of interactions among patients, service providers and doctors who represent them, as well as the state and the payer referred to as the third party (Rudawska, 2007: 22). The network of health-related information combines healthcare centers, but above all the patient with health-related services providers and the payer with other patients, thus enabling monitoring his/her condition, communication and the transfer of data (Fig. 1).

A well-functioning information network should include all elements of the healthcare system together with supporting contributors that will enable the transfer of information. Processes involving gathering, processing, providing and storing medical and administrative contents which are within the scope of the consumer, the payer, the service provider and the Ministry of Health are indispensable (Ernst and Young, 2009: 6).

² In Poland in recent years such research was conducted by, among others Gemius S.A. and Polskie Badania Internetu Sp. z o.o., in Europe - Empirica Gesellschaft für Kommunikations und Technologieforschung mbH.



Source: Self-study.

Figure 1. Flow of information in the healthcare system in connection with supporting contributors

Online communication process contributors communicate by e-mails, communicators, blogs, websites, medical portals or sites containing health-related subjects and the use of a specialist electronic information system. The popularity of particular technologies varies considerably and depends on participants (a patient or another contributor) and the reason for which they use the Internet (searching for information or contacting the healthcare system).

The analysis of healthcare communication processes should include not only senders and recipients of information, contents available online and activities which are being conducted, expected benefits and existing barriers, but also the essential requirements to be met in order to benefit from electronic communication.

Thanks to the Internet, the sender of health-related information is also its recipient. “New media” are characterized by blurred boundaries between an editor, a producer, a distributor, a consumer and a critic (Rice, 1999: 29). They may be both institutions providing medical services – an outpatient clinic, a hospital, a doctor’s surgery, a laboratory, a chemist’s, a pharmaceutical manufacturer or distributor, and the broadly defined administration (among others, the Ministry of Health, the National Health Fund) as well as the patient. Bearing in mind the specificity of the functioning of the healthcare system whose primary purpose is to restore, maintain and promote health (WHO, 2000: 5), participation of patients in communication processes is of particular interest.

The Internet is used for health-related purposes mainly by women aged 25–34, city-dwellers with higher education, having their own businesses. The weakest interest in medical issues is observed in rural areas, among the retired and professionally inactive people, with primary or secondary education, aged 65 or more (Table 1).

Table 1. Internet users searching for health-related information in 2012

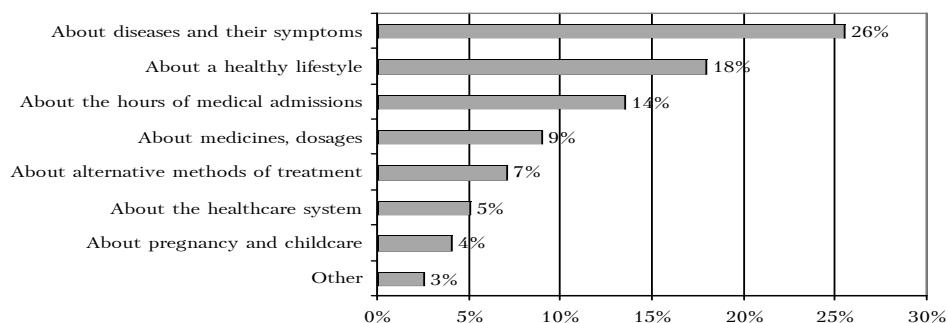
Specification	People who use the Internet in the last 12 months to:		
	arrange a medical appointment	order health products	search health information
Total	4,3	3,8	31,4
	in % of persons of a particular group		
	Gender		
Male	3,3	3,5	24,4

Continuation of Table 1

Female	5,1	4,1	37,8
Age			
16-24	3,2	3,4	36,3
25-34	8,5	7,8	49,0
35-44	7,2	5,4	43,2
45-54	3,1	3,1	28,4
55-64	1,9	1,6	19,4
65-74	1,2	1,2	8,6
Education level			
Primary and lower secondary	0,4	0,5	11,8
Secondary	2,8	2,6	27,4
Higher	12,3	10,2	61,4
Professional activity			
Schoolchildren and students	3,0	3,2	36,0
Employers	6,5	5,8	42,7
Own-account workers	8,6	6,8	44,4
Unemployed	1,8	1,7	27,1
Recipients of retirements and pensions	2,0	1,6	16,4
Place of residence			
Cities (main cities)	9,6	6,6	45,3
Minor cities	2,4	3,3	31,2
Villages and rural area	1,6	1,9	20,4

Source: Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2008-2012. Informacje i opracowania statystyczne, GUS, Warszawa, 2012, p. 125.

As far as health-related issues are concerned the Internet users mainly concentrate on searching for information, especially on diseases and their symptoms, a healthy lifestyle, surgery hours, medication, and alternative medicine (GUS, 2012: 126).

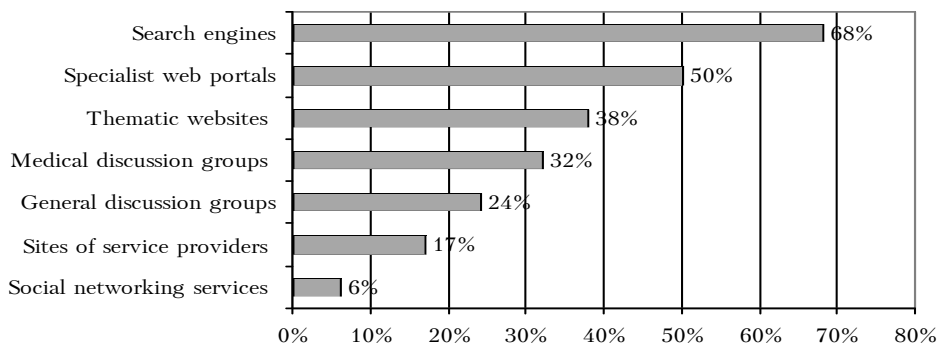


Source: Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2008-2012, Informacje i opracowania statystyczne, GUS, Warszawa 2012, p.126.

Figure 2. The types of health information searched on the web

As far as the gender of patients is concerned, considerable differences in the popularity of particular headwords can be noticed. Diets and slimming treatment, skin diseases, depression, and allergies hold women's interest. Women seek information concerning narrow specializations. They are interested in information about particular diseases and their treatments. Men seek information about sex and addictions, erectile dysfunction, spine and joint diseases, hypertension and cardiac diseases (Procontent Communication, 2012: 10-11).

Patients search for information in the Internet in a variety of ways. They mainly use search engines, health-related websites and discussion groups, while sites of service providers and social networking sites are less popular (PBI, 2011: 22).



Source: PBI, Internetowe serwisy o zdrowiu. Zawartosc. Popularnosc. Profil uzytkownikow. Poszukiwane informacje, Polskie Badania Internetu Sp. z o.o., Warszawa 2011, p.22.

Figure 3. Sites used to search for information/advice about health, nutrition, diseases

Search engines, used by 68% of the Internet users seeking health-related information, enable them to find relevant websites. Search engines offer convenient and easy ways of finding relevant information online. According to GemiusTraffic, Polish people prefer Google.pl, and hardly ever use other search engines, such as MSN, AskJeeves, Yandex, Yahoo and NetSprint (GemiusRanking, 2012).

Web portals, which take forms of specialist and thematic sites about health are visited by 50% and almost 40% of the Internet users respectively. Web health-related portals provide valuable information, since they contain articles, reviews, dictionaries, encyclopedias, they offer possibilities of buying medication, diagnosing and seeking medical advice, they keep health blogs, discussion groups and Internet forums, they make healthcare centres search engines available, they publish doctors' rankings, tests and calculators. According to Megapanel PBI/Gemius, the most popular sites in Poland are those belonging to Onet.pl, Abczdrowie.net and Next Infor (Procontent Communication, 2012: 5).

Sites of service providers usually contain basic administrative information required by patients. According to Instytut ARC Rynek i Opinia (ARC Market and Opinion Institute), these sites are primarily used to seek contact details, places where medical services are provided, information about specialists. Internet users are rarely interested in availability of doctors, specialization or achievements of a chosen institution (ARC Rynek i Opinia, October 2012).

Although social networking services such as Nasza Klasa or Facebook are incredibly popular among Internet users, they do not play an important role in the area of health. Specialist social networks aimed at patients and gathering professionals and non-professionals are of greater importance for patients. Nasze-choroby.pl, Mediweb.pl and Ochoroba.pl have received most attention and recognition from Internet users (Ecco International Communications Network, 2010).

Patients do not only search for information in the Internet, they also undertake other healthcare-related activities, the most common being seeking medical advice

from a specialist or registering with a doctor at a clinic (PBI, 2011: 25), done by 23% and 14% of the Internet users respectively. Besides, patients request home visits, collect test results online, view their medical records and request prescriptions. However, only 5% of the Internet users reported such activities. These activities are unpopular since more than 60% of e-patients have never used the Internet to contact a doctor or a specialist. There are a few reasons behind this fact. First of all, Polish people prefer personal contact with medical staff (GUS, 2012: 127). Moreover, patients do not consider it necessary to contact a doctor or do not have such a possibility because doctors are not interested in e-communication.

The lack of access to a service provider in the healthcare system via electronic media is a problem very often raised by Internet users. If it were possible to seek medical advice online by visiting sites of an outpatient clinic, hospital or healthcare centre, 93% of e-patients would take advantage of such an opportunity despite its limitations (ARC Rynek i Opinia, November 2012). Only a few percent of e-patients would definitely not accept online medical advice. Internet users appreciate the fact that online contact is convenient and saves time. If it were possible to shorten the queues at family doctors, when the only purpose of the visit is to obtain information about the results or to direct a patient to a specialist, diagnosing would be quicker.

Another side of the communication process with the participation of a patient – an outpatient clinic, a hospital, a doctor's surgery, a laboratory, a chemist's, a pharmaceutical manufacturer or distributor, or the administration differs from the client in their online communication activity. Although access to the Internet is common among healthcare providers, the Internet is rarely used to contact patients (European Commission, 2008: 2). The Internet is more often used to communicate with other healthcare providers as well as healthcare payers. The range of undertaken online activities and their frequency depend mainly on the side initiating contact and the purpose to be achieved (among other things, attracting customers, building positive image).

Doctors form the basis of the healthcare system, and they communicate with patients most often. According to GfK Polonia, doctors together with pharmacists use the Internet most often and are best prepared to implement modern IT tools. In 2015 the Internet penetration rate among specialists is expected to reach 98%, while among family doctors 83%, comparing to 2010 the rates were 94% and 76% respectively (GfK Polonia, 2010: 4).

Doctors' involvement in online communication as well as efforts made by healthcare providers (hospitals, family doctors' surgeries, specialist clinics, pharmacies) in order to use the Internet in their activities do not translate into real benefits for e-patients (Instytut Badan i Analiz Vivade, 2011: 168–169; Empirica, 2007: 3–6). Although administrative and medical data are often registered and archived (medical records, test results, prescribed drugs and their dosage, diagnoses) they are not made available to patients. Family doctors consult their patients with the use of a computer, yet to a limited degree. E-consultations are even rarer among specialists and therapists. As a matter of fact, doctors do not use the Internet to provide their patients with health information, while electronic mail is used for other purposes by 95% of the medical environment (GfK Polonia, 2010: 9).

Social networks play an important role in communication with healthcare providers. According to Ecco International Communications Network, social media

have been increasingly accepted by doctors and other medical personnel as a source of knowledge, means of communication and medical staff performance assessment. Medical personnel use social media to exchange information with other professionals, but they also share their knowledge and observations with their patients. They use their blogs in PR campaigns. Social media are popular not only among doctors but also among pharmaceutical companies. More than 32% of their budgets are spent on getting new customers through social media (Ecco International Communications Network, 2010: 22–23).

Apart from communication between a client and a healthcare provider, there is also a patient-to-patient relation, which is an important feature of the healthcare industry. However, this form of information exchange is informal, and cannot be formally controlled. Moreover, it contains low quality information. Such an information exchange is an important area of health activity of Internet users since health and treatment-related behaviors are greatly influenced by non-professionals. 63% of the Internet users confirm that they search for opinions of other users who experience the same health problems. (ARC Rynek i Opinia, October 2012) Blogs, discussions and forums are convenient for sharing observations, information and experience. Authors of posts, bloggers and discussion participants publish information concerning diseases and healthy lifestyle, but they also support and encourage other patients.

Specialist electronic systems supporting health-related activities are important elements of modern healthcare systems. Their purpose is to facilitate the exchange of information and access to it (CSIOZ, 2009: 5). In Poland e-health solutions are gradually being developed and implemented. The meeting of participants of e-communication process is to be accomplished by: information portal www.ezdrowie.gov.pl, Electronic Platform for Gathering, Analysing and Accessing Digital Resources about Medical Events (Elektroniczna Platforma Gromadzenia, Analizy i Udostepniania Zasobow Cyfrowych o Zdarzeniach Medycznych) and Electronic Platform for Public Administration Services (Elektroniczna Platforma Uslug Administracji Publicznej e-PUAP) www.epuap.gov.pl.

The purpose of the Health Information System (System Informacji o Zdrowiu) is to make particular services available to public authorities, entrepreneurs and citizens. In order to accomplish this objective it should contain information enabling to:

- register a visit online,
- make records of rendered services and other requests available to clients,
- provide medical personnel with access to data about a patient's condition,
- make information about prevention and health promotion available,
- conduct ongoing monitoring and respond to threats.

The objective of Electronic Platform for Gathering, Analysing and Accessing Digital Resources about Medical Events (Elektroniczna Platforma Gromadzenia, Analizy i Udostepniania Zasobow Cyfrowych o Zdarzeniach Medycznych) is to enable public authorities, entrepreneurs (among others, healthcare centres, pharmacies, private practices) and citizens to gather, analyse and access digital data about medical events (Ernst and Young, 2009: 27). This system will ensure access to medical data and more effective treatment, more efficient time management, easy access to medical information, safe data storage, convenient and safe purchase of medica-

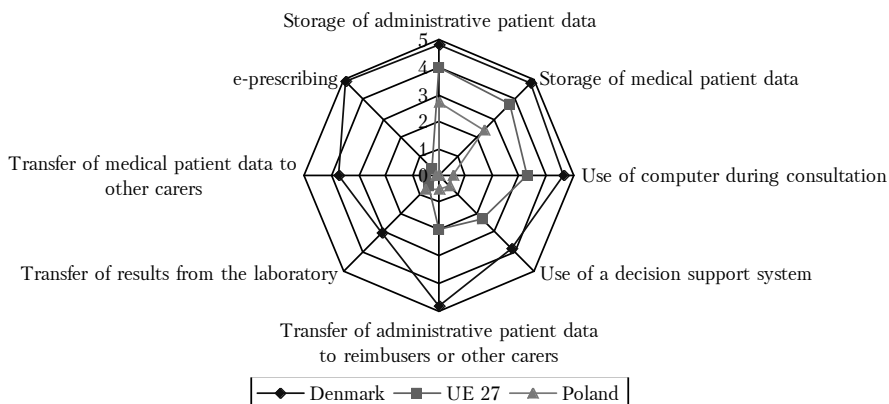
tion, and it will enable patients control their own condition (NHS, 2008: 34). From the point of view of communication, its most important element is the Medical Information System (System Informacji Medycznej) which will make basic medical data available to authorized people. Every patient will have his/her own Online Patient Account (Internetowe Konto Pacjenta – <http://ikp.gov.pl/>), where all the data about his/her condition will be stored. Electronic prescribing will also be possible. These systems aimed at improving communication in the healthcare system can be developed because they are cofinanced by Operational Programme Innovative Economy and Healthcare Information Systems Centres.

E-prescription collects all the data about the prescribed and purchased medications, supplemented with medical information entered by healthcare centers, pharmacies, patients and doctors, thus making it possible to detect potential threats arising from inappropriate choice of medications. E-prescription corrects the mistakes and provides information related to the availability of therapeutically appropriate alternatives, it also immediately verifies the patient's entitlement to a refund. The prototype system underwent a successful pilot phase in March 2011 in Leszczynski local government administration. It brought about the improvement, acceleration and protection of medical information flow.

The Online Patient Account is a comprehensive system gathering all most important information about a patient's condition, such as requests, medical certificates, opinions, or hospital discharge summaries, which are at a patient's disposal. A doctor can monitor a patient's medical record (received treatment, results, medication) constantly. Thus he/she can administer more effective treatment by entering comments on a patient's visit and his/her examination results. The system automatically reminds of the date of a surgery, an appointment with a doctor or the time when medication is to be taken, it also enables patients to obtain quick online medical advice or register with a doctor. The pilot project was launched in October 2012 in chosen healthcare centers in Krakow.

Electronic Platform for Public Administration Services (Elektroniczna Platforma Usług Administracji Publicznej e-PUAP) is a computer system a purpose of which is to enable citizens to contact the authorities online in order to sort out official matters. This system will also enable representatives of public authorities to make their services available online and for free. It is a common, easily accessible and secure electronic channel for accessing public services, for example healthcare services, among others. The portal ensures efficient communication among citizens and administration, entrepreneurs and administration as well as institutions of public administration.

Due to the fact that most solutions necessary to ensure proper functioning of the healthcare information system in Poland are still being developed, the current situation diverges from the solutions adopted in Europe. Comparing chosen data on the use of the Internet for communication about health, Poland seems to straggle behind other EU countries. According to most indices, Poland performs below the European average. Poland is ranked 24th place among 27 countries (Meyer, Husing Didero, Korte, 2009: 72). There is a visible gap between Poland and other EU countries, but the discrepancies are most visible when Poland is compared to Denmark, which has the most advanced e-health system (Figure 3).



Source: Self-study on the basis of data obtained from the European Commission (Empirica, 2008: 60).

Figure 4. Comparison of the ICT use by doctors in Poland, Denmark and the EU on the basis of chosen indices

Due to the fact that some modern communication technologies are inaccessible in Poland, it is not possible to exploit the potential of e-communication fully, and the accomplishment of primary objectives of Programme of Community Action in the Field of Public Health is also hampered. It refers to collecting, processing and analysing data at Community level for an effective monitoring of the state of health in the European Union, and obtaining objective, reliable, compatible, comparable and interchangeable data. This would enable the Commission and the member states to improve information to public and formulate appropriate strategies, policies and actions to achieve a high level of human health protection (Dziennik Urzędowy Unii Europejskiej, 2002: 175). In order to accomplish these objectives it is necessary to:

- implement information programs at the level of healthcare subjects,
- implement medical information systems,
- create central data bases and registers,
- ensure access to information,
- educate in the field of health and promote healthy lifestyles,
- ensure data security and protection.

It is essential to ensure proper flow of information (EU, 2012: 6). Personal health-data ownership is a starting point. If patients are recognized as owners and free users of information, the authority system in the area of healthcare needs to be changed from the one in which the authority belongs to a medical institution to a system based on cooperation and partnership between the authority and patients, who assume more responsibility and an active role in managing their own health. A further step is the liberalization of data derived from various sources existing in the healthcare system and joining them in the digital health information environment, which will enable all citizens to take advantage of e-health and create chances for innovation. Full transparency of the healthcare sector is also necessary. Patients equipped with data relating to the efficiency of the healthcare system will be able to make choices more consciously as to where and

how they want to be treated. This fact will affect the allocation of resources in the healthcare system. Finally, it is necessary to include all the EU citizens in the e-health system in order to ensure equal access to useful information and health-related services.

Such changes will enable users to benefit from e-health solutions (EC, 2011: 8–9). They will result in the improvement of health-related services, citizens' health security and the quality of life. Online communication will contribute to cost reduction and an increase in efficiency due to the optimal use of specialists' working time and an exchange of information only when it is considered necessary. The Internet will provide patients, healthcare system, specialists and other interested parties with improved access to health-related information. It mainly refers to quick access to databases and decision support systems, improved access to knowledge and better cooperation among interested parties. E-communication will provide the whole society with tangible benefits, and it will support necessary reforms of the healthcare system in order to respond to oncoming challenges.

To sum up, it should be noted that despite numerous shortcomings and problems faced by online communication in Poland's healthcare system, it is becoming more functional. Successive projects are being gradually implemented in order to provide all stakeholders with full functionality. The popularity of ICT and the openness of Polish society to e-health solutions predict a promising future.

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