

Web-Based Communication With a Patient in Hospital Care in Szczecin – Comparative Analysis of 2014 and 2018

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Abstract

Purpose: The purpose is to assess the level and quality of e-communication of Szczecin's entities providing hospital care and to compare the results in order to determine the differences and to indicate the changes occurring over time.

Design/methodology/approach: The analysis covered the contents of the websites of all hospitals in Szczecin in 2014 and 2018. The desk research was carried out in the form of expert method done on the basis of the assessment criteria important from the patient's point of view, treating the hospital's website as a communication channel. These included identification issues, legibility, usefulness of information, forms of contact and modern e-communication.

Findings: The level of communication differs a lot. It is slightly higher than in the past, but given the real needs in this respect, is not satisfactory. The best evaluation results concern the issue of identification of the entity. The situation is bad as regards the possibility of communication and the use of modern forms of e-communication. Only some of the hospitals have developed in the field of e-communication with the patient in a noticeable way, the rest have achieved little compared to the previous research period.

Research limitations/implications: The study only focused on hospitals in the city of Szczecin. To get a complete picture, the analysis should cover the content of other hospitals' websites from various localisations – bigger and smaller, more and less known. In order to understand the situation in the whole healthcare sector, it would be worth looking at other medical service providers.

Originality/value: The conducted research shows how poorly developed are modern communication tools in hospitals, at the same time indicating the development directions in this area. The defined criteria can be applied to the study of websites of various providers on the healthcare market.

Keywords: electronic communication, Internet, hospital, healthcare market.

JEL: I11, M31

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Komunikacja z pacjentem z wykorzystaniem stron www w opiece szpitalnej w Szczecinie – analiza porównawcza lat 2014 i 2018

Streszczenie

Cel: ocena poziomu i jakości e-komunikacji wykorzystywanej przez podmioty zajmujące się opieką szpitalną w Szczecinie oraz wskazanie różnic i zmian zachodzących w czasie.

Metodologia: analizę zawartości stron www szpitali w Szczecinie w latach 2014 i 2018 przeprowadzono metodą oceny eksperckiej w zakresie stopnia realizacji określonych kryteriów odnoszących się do obszarów komunikacji istotnych z punktu widzenia pacjenta. Należą do nich: elementy identyfikujące szpital, czytelność, przydatność informacji oraz formy kontaktu i nowoczesna e-komunikacja.

Wyniki: poziom komunikacji szpitali z otoczeniem za pomocą stron www jest zróżnicowany, nieco lepszy niż w przeszłości, lecz w relacji do potrzeb niewystarczający. Badane jednostki najlepiej radzą sobie z podstawowym obszarem komunikacji – informacje opisujące szpital, najgorzej – z udostępnianymi formami kontaktu z placówką i użyciem nowoczesnych narzędzi. Tylko część z placówek rozwinęła się w obszarze e-komunikacji z pacjentem w zauważalny sposób, reszta osiągnęła niewiele w porównaniu z poprzednim okresem badawczym.

Ograniczenia/implikacje badawcze: w badaniu poddano ocenie jedynie szpitale z terenu miasta Szczecin. Aby uzyskać pełny obraz, należałoby przeanalizować zawartość stron innych szpitali z różnych ośrodków – większych i mniejszych, bardziej i mniej znanych. Dla poznania sytuacji w całym sektorze ochrony zdrowia warto byłoby przyjrzeć się innym dostawcom usług medycznych.

Oryginalność/wartość: przeprowadzone badanie pozwala przekonać się jak słabo rozwinięte są nowoczesne narzędzia komunikacji w szpitalach, wskazując jednocześnie kierunek działania w tym obszarze. Zdefiniowane kryteria można zastosować do badania stron internetowych różnych dostawców na rynku ochrony zdrowia.

Słowa kluczowe: komunikacja elektroniczna, Internet, szpital, rynek ochrony zdrowia.

1. Introduction

Electronic communication using computers and other wireless devices is common in today's world. By eliminating time and geographical constraints, it affects the way societies and economies function. Among the reasons for its great popularity is wide access to the Internet and mobile telephony. In Poland, in 2019, 83.1% of households had at least one computer at home, and 86.7% had access to the Internet in their own household with the growing popularity of broadband Internet (83.3%) (GUS, 2019a, pp. 1–2). The popularity of mobile telephony is even greater. According to the Central Statistical Office (GUS), at the end of December 2018 the number of subscribers and users (pre-paid services) of mobile telephony in Poland reached 53.2 million, giving an average of 1.5 active SIM cards per capita (GUS, 2019, p. 67). Websites, e-mail, online communities or short text information [SMS] have become a permanent feature of the communication realities of today's society. This thesis is also confirmed by data on the enterprise sector, as in 2019, with the participation of entities

with Internet access at the level of 96.3%, almost two thirds of enterprises handled administrative procedures exclusively by electronic means and over 36% of them used at least one type of social media (GUS, 2019c, pp. 1–2).

Although e-communication is used successfully in many areas of socio-economic life (Frąckiewicz, 2006, pp. 91–100), its popularity is not equally high in every field. An area in which there is still a lack of universality and unsatisfactory quality of communication using the Internet is healthcare (Kautch, 2015, pp. 564–565), especially its part financed from public funds. The aim of the article is to determine the level and scope of use of e-communication by Szczecin hospitals in 2014 and 2018, and then to compare the situation of individual units with each other and from a temporal perspective. The consequence of the studies conducted with the help of desk research analysis, based on criteria concerning the construction and content of websites, is to identify the best solutions, the direction of changes taking place and the most urgent needs in this respect.

2. Electronic Communication as an Element of the Strategy

Electronic communication is an important area of application of the Internet in healthcare (Weaver, Lindsay, & Gitelman, 2012). By creating new opportunities to meet health needs at a distance, it evolves in line with the development path of e-administration. Starting with online information, through one-way and two-way interaction, it should reach the transactional level (Wauters & Colclough, 2006, p. 5). The first stage in practice means only the patient's search for information about the subject and the services provided. The second one is the ability to download documents. The third level allows you to transfer data. The last one is patient service only via the Internet without contacting medical staff (Korczak, 2014, p. 66).

As a consequence of adopting a specific approach to online presence, the market operators may achieve various goals in the area of communication using a website (Frąckiewicz, 2006, p. 41). Where the Internet is an additional communication channel whose task is only to improve communication, a simple form of online presence in the form of a website is enough: a business card or a folder. The first one often uses free domain addresses provided by portals, does not use hypertext connections, and presents the content on one webpage. The second one is characterized by a domain address that is correlated with the name of the entity, rich graphics and content that takes up from a few to a several webpages. However, from a marketing value point of view, this model fulfils a minimal promotional function. Content limited to basic contact details and business characteristics marks the presence on the Internet, but does not bring marketing benefits. The lack of a dynamic flow of information and interactive mechanisms (e.g. a list of frequently asked questions, forum, chat-room) does not

encourage users to visit again. The user of a website is irritated by the lack of access to the full offer or a long waiting time for the requested information, hence does not continue to search.

To obtain benefits in the form of a significant number of entrances into the website, new recipients of services or image building, it is necessary to expand the website by describing the offer as broadly as possible and providing additional communication utilities, increasing communication effectiveness. This function is fulfilled by the so-called services. They contain a set of information sought by Internet users: articles, current news, guides related to the presented offer, constituting its valuable component. They create a positive image of the website and play an important role in the visitors statistics. Providing access to forms and materials supporting the delivery of health services, the Internet will serve only one-way communication. Adding the correspondence exchange – the opportunity to communicate with the web tool, i.a., to register for an appointment, to order prescriptions or to gain access to medical records – this means two-way communication (Voruganti, Grunfeld, Makuwaza & Bender, 2017).

When planning the use of the Internet at the transactional level, it is necessary to take care not only of the informational aspect of the website, but also to add tools to do all activities necessary to deliver online health services. The entire process of patient service must be feasible in this way, starting from the initiation of interaction and ending with the meeting of health needs. This requires the setting-up of extensive IT systems and linking them to the website (Parackal, Parackal, Mather, & Eusebius, 2020).

3. Web-Based Communication in the Area of Health – Popularity, Terms and conditions

Electronic communication in the area of health is developing as a consequence of scientific and technological progress, increased demand for this type of solutions on the part of both service recipients and providers, as well as the policy of supporting e-activities by the European Union and national authorities. In communicating with patients via websites, email or instant messaging, the main driving force behind this development is the demand for such solutions, especially on the part of patients, who increasingly and more willingly use the Internet and telephone for health purposes. According to GUS, in 2019, 47.4% of Poles looked for health-related information on the Internet (GUS, 2020), and in 2018, 9.7% made an appointment via the website (GUS, 2018b, tab.16). In the report entitled “E-zdrowie. Czego oczekują pacjenci” (“E-health. What do patients expect”) (2017, p. 1), it was stated that 75% of Poles use the Internet in health-related matters, e.g. in order to sign up for a doctor’s visit, receive the results of examinations, search for outpatient clinics, hospitals or surgeries,

obtain opinions about service providers, and would like to do even more. The need to create opportunities for contact via e-mail or other forms of e-communication is also indicated by the popularity of this type of solutions – 60.7% of Poles use e-mail, 34.1% use instant messengers (GUS, 2018b, Table 16).

The effect of growing expectations of patients in this respect is the implementation of e-communication solutions by healthcare providers. In order to launch well-functioning websites, including facilities for patients, such as registration or provision of test results, an appropriate infrastructure is needed. Unfortunately, despite the fact that according to the data presented by the Centre for Healthcare Information Systems [Polish abbrev. CSIOZ] (CSIOZ, 2018, pp. 11–12, 20–21, 32, 36), the number of hospitals ready to keep electronic medical records is growing; in 2018, less than 70% of them were fully ready. Only 42% of hospitals provided access to a computer in all rooms where medical records were used and 64% of all computer workstations had access to the Internet. It is optimistic that over 98% of hospitals have and regularly update their websites, 86% have separated an information section for the patient, 38% have enabled their patients to access e-services and 46.73% have introduced e-registration.

The European and national policies in the area of e-health also go in the direction of introducing and expanding its individual elements, including communication. For over a dozen years, documents and programmes have been created to implement further elements of the system¹. As a result, 70% of countries in the WHO European region already have a national e-health strategy or policy and 69% of them have dedicated financial resources to implement these plans (WHO, 2016, p. 7).

The digitalization of communication as a progressing phenomenon reflected in the popularity of e-communication tools, especially websites, benefits healthcare market entities (Paszowska, 2015, pp. 207–211; Bukowska-Piestrzyńska, 2019, pp. 218–225). Web-based communication is fast, cost-effective and convenient (Bishop, Press, Mendelsohn, & Casalino, 2013, p. 1361). It enables people to stay in touch with healthcare organizations at all times and someone with a health problem might gain invaluable information from an authoritative medical website. Such a website can be a kind of patient portal where a patient and medical staff can log in in order to send one another messages, reminders, scheduled appointments, update test results, and the like. It is basically a one-stop shop for communication which has taken over a certain share of physical communication, such as recommendations, feedback, general information, etc. (Budiman et al., 2019, p. 77).

Because a growing percentage of patients use social media for health-related reasons (Antheunis, Tates, & Nieboer, 2013, p. 429), websites should be combined with social media. This biggest change since the industrial revolution (Kaplan & Haenlein, 2010, p. 66) offers amazing

opportunities for establishing relations with recipients, helping to achieve quick and spectacular results of the brand equity building process (Hajduk, 2016, p. 185). The social media use by patients is also seen to affect the healthcare professional and patient relationship by stimulating more equal communication between them and harmonious relations (Smailhodzic, Hooijsma, Boonstra, & Langley, 2016, p. 12).

A prerequisite for reaping the benefits of electronic communication is the quality of the website. Schwendicke, Stange, Stange and Graetz (2017) highlight the importance of multiple elements in healthcare websites and also point to the patients' satisfaction shaping through their quality. For this reason, websites should also have the added benefit of being highly secure, where sensitive conversations and information can be sent and stored.

When facing a complex healthcare system, not only do technical issues appear, but so do legal aspects. The main rules governing the website content and healthcare entities' duties in this area are regulated by the Act on Medical Activity (*Ustawa o działalności leczniczej*) of 15 April 2011 and the General Data Protection Regulation (GDPR) [Polish abbrev. RODO] (2016) implemented in Poland in May 2018.

The Act on Medical Activity states mandatory information to be placed on the website. The entity performing the medical activity shall make publicly available information about the extent and type of provided health services and about the level of certain fees. The content and form of this information must not be advertising-like.

Because healthcare organizations collect a wide set of information on patients to provide better health outcomes, GDPR increased legal regulation in this area. It defines "personal" data and instances when the processing of personal data is considered lawful. Moreover, healthcare organizations that typically manage health data have an added burden to maintain "data concerning health", "genetic data", and "biometric data" to a higher standard of protection than personal data. GDPR allows the processing of these data only if "explicit consent" is given, if processing is necessary for the purposes of preventive or occupational medicine, for the assessment of the working capacity of the employee, medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services or if processing is necessary for reasons of public interest (Fatehi, Hassandoust, Ko, & Akhlaghpour, 2020).

4. Research Methodology

Due to the existing technical possibilities both on the side of patients and hospitals as well as the growing popularity and usefulness of this form of contacts, it should be emphasized that it is not only possible but should be used in healthcare. Because an important activity in this area is

a well-functioning website, enabling not only access to information but also contact with the facility, the article aims at assessing the level and scope of e-communication use by hospitals operating on the medical services market in Szczecin from the perspective of website services. Medical facilities operating on the Szczecin market were examined in terms of the content of websites, with particular emphasis on available forms of contact as well as the functioning of the electronic patient registration system in June 2014 and in September 2018. As a result of the research done, a ranking of hospitals was created, and in consequence of the application of a time perspective, the direction of changes taking place in this area was outlined.

The research, which was conducted on the basis of desk research analysis, included the assessment of websites using the expert method following the criteria formulated on the basis of available literature on a scale from 0 to 2, where 0 means no such activities, 1 – partial implementation, 2 – full implementation. In view of the lack of coherence of the approach to the measures described in the literature in relation to third sector entities and problems with the universality of the proposed criteria, de Tienne's (2009, pp. 78–79) and Nielsen and Tahir's (2006, pp. 45–60) considerations adapted to the specificity of the health services market were chosen as the basis for the assessment of the design and content of hospitals' websites. The defined criteria took the form of simple questions about the areas important from the patient's point of view, treating the hospital's website as a communication channel in relation to the service provider. These included identification issues (linking the website address to the name of the hospital and displaying the organization's logo), legibility (website layout, navigation system, use of multimedia and graphics, topography), usefulness of information (timeliness and way of searching for content) and forms of contact (contact details, contact possibilities and electronic registration) and modern communication (use of communicators and presence on web portals with particular attention to social networking platforms). However, the measures used do not constitute a closed catalogue of criteria that can be accepted for the evaluation of the website service. They can be expanded and adapted to suit the user's needs.

The study conducted is full and covers all entities with hospital wards in Szczecin placed on the list published annually by the National Health Fund [Polish abbrev. NFZ]. In 2014, there were 10 units on the list, of which 7 remained in 2018:

- 109. Szpital Wojskowy z Przychodnią SPZOZ (109. Szpital Wojskowy),
- Samodzielny Publiczny Specjalistyczny Zakład Opieki Zdrowotnej „Zdroje” (SPSZOZ „Zdroje”),
- Samodzielny Publiczny Szpital Kliniczny nr 1 Pomorskiego Uniwersytetu Medycznego im. prof. Tadeusza Sokołowskiego (SPSK1),
- Samodzielny Publiczny Szpital Kliniczny nr 2 w Szczecinie (SPSK2),

- Samodzielny Publiczny Wojewódzki Szpital Zespolony w Szczecinie (SPWSZ),
- Zachodniopomorskie Centrum Onkologii (ZCO),
- Samodzielny Publiczny Zakład Opieki Zdrowotnej MSWiA w Szczecinie (SP ZOZ MSWiA).

As at 30.10.2018, the websites under analysis were at the addresses:

- <http://www.109szpital.pl>,
- <http://www.szpital-zdroje.szczecin.pl/>,
- <https://spsk1.szn.pl/>,
- <http://www.spsk2-szczecin.pl/>,
- <http://www.spwsz.szczecin.pl/>,
- <http://onkologia.szczecin.pl>,
- <http://spzozmswia.szczecin.pl/>.

In 2014, the list was supplemented by NZOZ Sonomed and West Pomeranian Surgical Centre (Zachodniopomorskie Centrum Chirurgiczne), which in 2018 did not sign a contract with the NFZ, and the Specialist Hospital named after prof. Alfred Sokołowski, which was included in the structures of the Independent Public Provincial Complex Hospital in Szczecin.

5. Results and Discussion

Today, the website is treated as a virtual business card of the entity (Maciejowski, 2003, p. 17). Based on the assumption that the data contained in on-line services of hospitals should not only enable but also facilitate communication with the patient, it should be assumed that an exemplary website contains all current and necessary information presented to the patient in a user-friendly form, at the same time ensuring convenient forms of contact and the possibility of on-line registration.

The analysis shows that although public hospital facilities operating in Szczecin provide information online using their own websites, their level of communication in relation to contemporary realities is rather poor, although diversified. With a maximum score of 26 points, the total score varies in 2014 from 15 points (58%) for SPSZOZ “Zdroje” to 21 points (81%) for SP ZOZ MSWiA, and in 2018 from 18 points (69%) for ZCO to 22 points (85%) for SPSZOZ “Zdroje” (Figure 1).

Despite the improvement in the limit values over the years compared, i.e. both the weakest and the best result recorded in the previous study, the progress is negligible. Both figures increased by only 1 percentage point with an average increase in the overall score of 8.05%.

Analysing the results of the study of hospital portals from the level of individual units, a diversified dynamics is noticeable and among the evaluated hospitals, there are both those whose situation has improved and facilities with zero or negative dynamics.

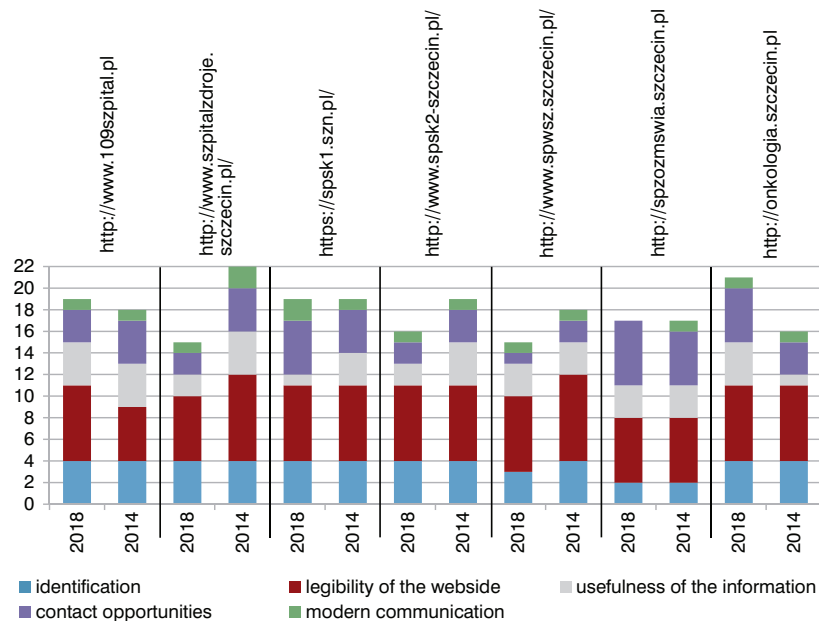


Fig 1. Results of the evaluation of hospitals' websites in 2014 and 2018. Source: Own elaboration.

The largest group in the study consists of units which improved their communication via their own websites, with an increase in their total score in 2018 ranging from 3 to 7 points. This means a positive dynamics of 18.75% for SPSK2, through 20% for SPWSZ, to an impressive 46.67% for SPSZOZ "Zdroje". Achieving such a significant improvement in the functionality of websites was possible thanks to the introduction of significant changes.

The leader in terms of the dynamics (SPSZOZ "Zdroje") completely changed the appearance of the website, at the same time simplifying the domain address. It improved the functioning of as many as 6 communication aspects. It took care of a modern and more friendly layout, enriched the service, more widely using multimedia and graphics, introduced a search option located in a clearly visible place on the homepage, took care of more detailed information on contact details, linked the service with social media (Facebook and Instagram) and also enabled patients to register electronically to the hospital and specialist outpatient clinics at the highest level of usability, including the possibility of choosing the date of visit or treatment, while providing support in the form of system user's manual.

Taking the second place in the ranking of dynamics, SPZSZ improved 4 elements of websites evaluated in the study. The approach to communication

with the environment using the logotype displayed on the website changed, the use of images and animations was improved, the search for desired information using the search text box was made easier, and e-mail addresses and a hospital contact form were added.

The SPSK2 also improved some of the communication aspects of the online service. The website address was simplified, a search window was put in a visible and easily accessible place, the facility was made accessible by e-mail and e-registration of patients was introduced, albeit to a limited extent.

In the group of hospitals which did not change their total scores, there were SPSK1 and ZCO. However, this is not tantamount to a lack of any changes in the evaluation results. Among the evaluated components, there are both those that have been improved by hospitals and those whose level has decreased. SPSK1 took care to find the information desired by visitors to the website, while losing points in the area of functioning on social networking sites to which there are no links (the SPSK1 website operates on Facebook) and e-registration equipped with a relatively small usability range (it is possible to resign from a previously arranged visit, but there is no full control over the process of selecting the date). ZCO gained in the area of functioning on social networks – a Facebook profile appeared, losing also points for e-registration, which is hardly developed in comparison with the systems of other hospitals.

Negative dynamics were recorded by the other two medical facilities, i.e. 109. Szpital Wojskowy [109th Military Hospital] and SP ZOZ MSWiA. However, the scale of changes in these hospitals is completely different; as compared to 2014, it is -5.26% in the first case and 23.81% in the second one. This means a decrease of 1 and 5 points, respectively, in the evaluation obtained. Although the Military Hospital improved the content of the website in terms of communication via e-mail and the form provided, obtaining the highest score in the list for this area (e-mail contact was given to the largest number of organizational units of the hospital), the situation of the facility is much worse in terms of taking care of the proper layout, which is too narrow for the current standards, as well as an unfriendly navigation system, including not only the menu or bookmarks but also links that are not working. The last of the hospitals – SP ZOZ MSWiA, without improving any element of communication with the use of its own website, recorded a drop in evaluation marks in the largest number of criteria. It lost its relevance as it was not updated, the e-registration system existing in 2014 was not enriched with any usefulness, lagging behind the existing solutions, and the window for efficient searching for information was also removed.

Changes in the level of overall hospital evaluation were to a varying degree due to the actions taken within the different groups of criteria for website communication (Figure 2).

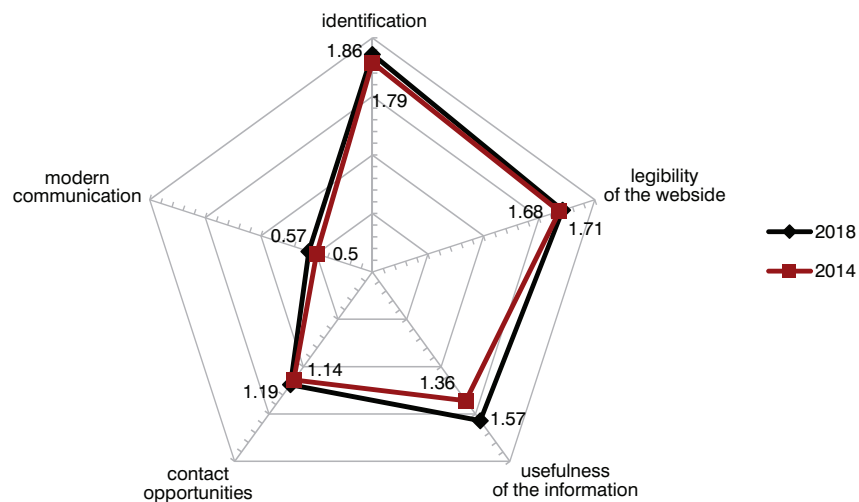


Fig. 2. The average value of assessments concerning individual aspects of hospital websites in 2014 and 2018. Source: Own elaboration.

The greatest progress was made in terms of the usefulness of the information posted, thanks to a significant improvement in the comfort of searching for the desired content. The average point value assigned to a single variable increased here from 1.36 to 1.57 points. Average scores in the area of modern communication and identification increased by 0.7 point. In the first case, it was caused by a slightly more frequent presence in social media, in the second case – better exposure of the hospital's logo and name on websites. In terms of contact opportunities, the average score progressed from 1.14 to 1.19 points. The availability of both e-mail addresses and contact forms improved and e-registration was introduced on a wider scale. The last element of the evaluation in the form of legibility of the website also slightly improved from 1.68 to 1.71 points as a consequence of greater care for the graphic design of the websites.

Despite the general progress in each of the areas, there are significant differences between the various websites. The scale of changes, illustrated by the dynamics indicators (Figure 3) in the range from 0.25 to 3, results not only from the actions taken by the hospitals, but also from a better or worse starting situation in 2014.

The smallest differences in the dynamics indices were visible in relation to the identification aspect of hospitals, where the SPWSZ improved the result from 2014 by 33.33% with the remaining assessments unchanged. This was due to the high level of involvement in publishing data on entities in the base year, which no longer required significant changes and corrections. In the area of legibility of pages, there were greater

differences and extreme levels of dynamics were recorded for 109. Szpital Wojskowy [109th Military Hospital] (0.7143) and SPZOZ “Zdroje” (1.33). The usefulness of information from websites is characterized by the highest amplitude of dynamics indices – from 0.25 for the hospital SP ZOZ MSWiA to 3 for SPSK1. This is the result of a lack of constant commitment to improving the website in the first case and a completely new approach to the functioning of the website in the second. Changes in the scope of contact range from -40% (SP ZOZ MSWiA) to +100% (SPSK2). Modern communication is the dynamics between 0.5 for SPSK1 and 2 for SPZOZ “Zdroje” and ZCO.

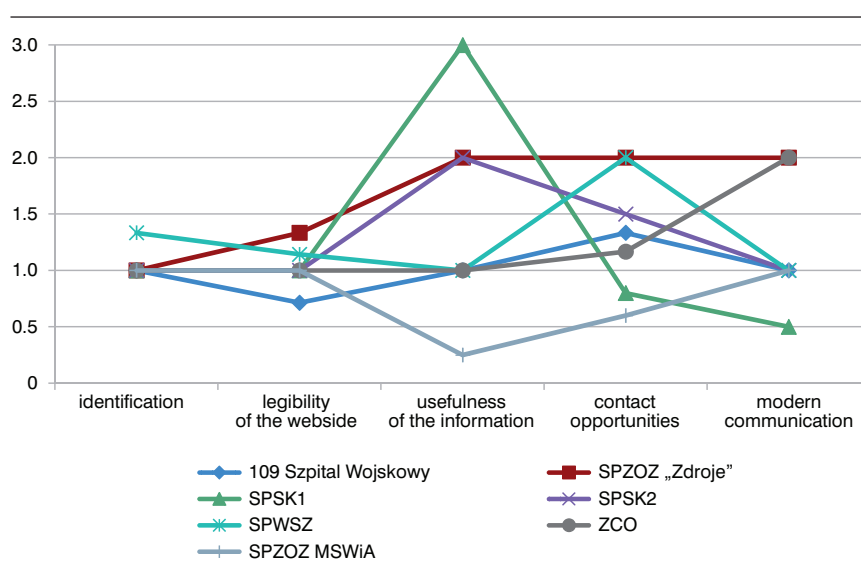


Fig. 3. Dynamics indicators for particular component categories of evaluation of Szczecin hospitals' websites (base year 2014). Source: Own elaboration.

For a complete picture of web-based communication of hospitals, in addition to analysing the dynamics, it is worth examining the level of intensity of individual variables. Due to their different numbers within the evaluated aspects of websites (from 2 to 4), it was assumed to compare the level of implementation where each of the five categories of components of the summary evaluation accounts for 20% of the total. This has highlighted areas where there are shortcomings or weaknesses in the implementation of the various evaluation criteria that need to be revised (Figure 4).

The best results, both in the first and second year of the study, were obtained for the identification aspects of hospitals. With the exception of three cases (ZCO 2014 and 2018 and SPWSZ 2014), the evaluations reached the maximum intensity level. In other areas, the points awarded

differ significantly from the maximum. The readability of information at the highest level was ensured only in two hospitals – SPZOZ “Zdroje” 2018 and SPWSZ 2018, with the lowest score of 62.5% recorded in the 109th Military Hospital in 2018. In terms of usefulness of information, there were five cases of full scores, i.e. SP ZOZ MSWiA 2014, SPSK2 2018, SPSZOZ “Zdroje” 2018 and 109th Military Hospital 2014 and 2018. However, there were many more cases of very low and low scores in this area, e.g. only $\frac{1}{4}$ points were awarded to the SP ZOZ of the MSWiA [Ministry of Interior and Administration] in 2018 and to the SPSK1 in 2014. Even more deficiencies emerged in terms of contact opportunities – only one maximum rating was awarded to the ZCO in 2014 and in modern communication methods, which achieved the highest score of 50% in 2014 in the SPSK1 and in 2018 in SPSZOZ “Zdroje”.

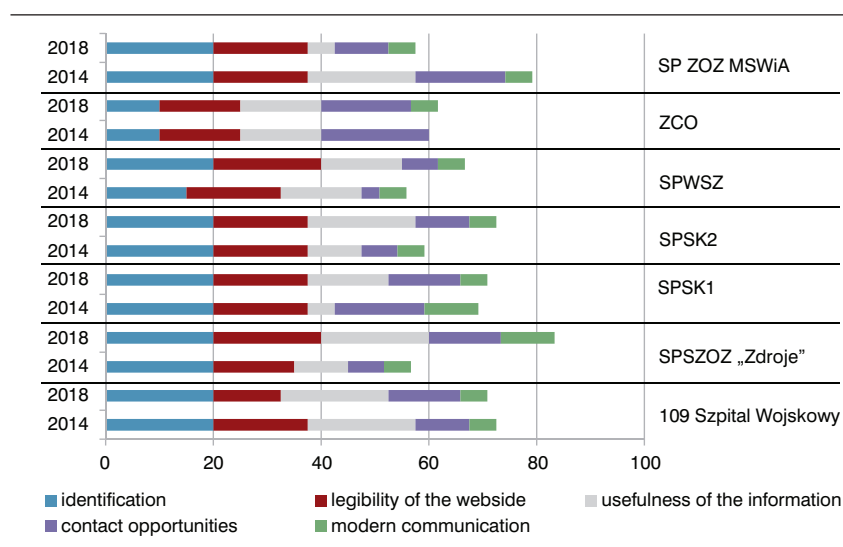


Fig. 4. Level of implementation of tasks within particular categories of evaluation of hospitals' websites in 2014 and 2018. Source: Own elaboration.

Summarizing the considerations on electronic communication with the use of websites by the Szczecin hospitals, the summary ratings obtained in the study can be used to create a ranking of these units. A derivative of the actions and omissions in the field of communication shown in the study is the fact that the situation in 2018 is significantly different from the situation in 2014. The order in the list underwent a complete reorganization within four years, and the hospitals occupying extreme positions have changed places (Table 1).

2014			2018			
Position in ranking	Score	Hospital	Position in ranking	Changes	Score	Hospital
I	21	SPSZOZ MSWiA	I	↑ 6	22	SPSZOZ „Zdroje”
II	19	109. Szpital Wojskowy	II	↑ 1	19	SPSK1
II	19	SPSK1	II	↑ 2	19	SPSK2
IV	17	ZCO	IV	↓ 2	18	109. Szpital Wojskowy
V	16	SPSK2	IV	↑ 1	18	SPWSZ
VI	15	SPWSZ	VI	↓ 2	17	ZCO
VI	15	SPSZOZ “Zdroje”	VII	↓ 6	16	SPSZOZ MSWiA

Tab. 1. Ranking of hospitals according to the total assessment of websites. Source: Own elaboration.

The last in the ranking from 2014, SPSZOZ “Zdroje” advanced to the beginning of the ranking, and the leader from 2014 took the last position. Such a drastic change was caused, on the one hand, by the launch of a completely new website by SPSZOZ “Zdroje”, which takes into account in its shape most of the requirements imposed on the currently operating websites (5), and, on the other hand, by the lack of any actions to improve the functioning of the website of SP ZOZ MSWiA, considered as the best (6) in the previous period, over the analysed years.



Pict. 1. Printsreen of SPSZOZ „Zdroje” website. Source: <http://www.szpital-zdroje.szczecin.pl/>.



Pict. 2. Printscreen of SP ZOZ MSWiA website. Source: <http://spzozmswia.szczecin.pl/>.

The service of the SPZOZ “Zdroje” not only meets formal requirements and is useful for users, but also looks modern. The website of SP ZOZ MSWiA presents, on the other hand, the appearance and functionality at the level from years ago, outdated and poor, which brings to mind the rather popular phenomenon of stopping in development and falling into a stagnation as a consequence of reaching the leading level in the previous period.

6. Conclusions

Summarizing the analyses of electronic communication of Szczecin hospitals with patients using websites, it should be stated that it is at a different level, slightly higher, on average by more than 8%, compared to 2014. The weaker services have been improved, the better ones have remained as a rule in a little changed form. However, given the real needs in this respect, the level of use of modern technologies is not satisfactory. The highest level is presented in the list by the website of the Self-Contained Public Specialist Health Care Institution “Zdroje”, which, thanks to huge changes, recorded a record-breaking, almost 50% increase in the rating, and the lowest – the leader from 2014, i.e. the Self-Contained Public Specialist Health Care Institution MSWiA in Szczecin.

It should be emphasized that the best evaluation results concern the issue of identification of the entity and, in particular, bad and only slightly better than in the previous period is the situation in the area of the possibility of communication and the use of modern forms of communication. Information systems built by healthcare providers improve primarily the

internal organization, with little or no improvement in communication with the patient. Patients today expect much wider access to e-communication tools, which would facilitate their access to information and services. In times when new e-health solutions are being gradually put into use (including Electronic Verification of Eligibility of Health Care Services Recipients [Polish abbrev. eWUS], Patient's Internet Account [Polish abbrev. IKP, e-sick leave [e-ZLA], e-prescription or e-referral), hospitals in Szczecin run useful e-registration systems only to a negligible extent.

A general recommendation for institutions that provide hospital care is greater attention to communication aspects of websites, i.e. enabling various forms of electronic contact and encouraging the use of them. Today, it is not enough to include contact details and telephone numbers for patient registration on the website. These forms should be widely supported not only by electronic registration, but also by e-mail (including access to individual specialists), instant messaging (such as Skype, Messenger or WhatsApp), forums and chat rooms. In addition, it is also worth taking care of one's presence on social networks and other social media, including the most popular – Facebook and Instagram.

When designing a well-functioning hospital website, it is worth implementing certain trends, patterns and habits that have crystallized over the last few years in the area of web-based communication (Margea, Margea, Veche, & Hurbean, 2017). Good practices will guarantee a better effect by introducing law and order in the website and providing users with the desired solutions and information. The most important of them are:

1. Experiment a bit, reaching for more innovative elements, and not just rely on previously used solutions and methods.
2. Get rid of monotony in the content by choosing the right sizes and styles of fonts, interweaving text with pictures, avoiding large blocks of text or highlighting important content.
3. Make the menu and navigation easy and obvious to use.
4. Implement a content hierarchy by presenting crucial elements as early as possible and at the top of the website.
5. Place the right content understandable for the communications receiver, avoiding fancy vocabulary.
6. Adapt the website to various devices, not only computers, but especially smartphones.
7. Avoid pagination, so that the user does not have to switch between subpages.
8. Upload video materials and implement “motion design” – short animations or gifs.
9. Apply minimalism by simplifying the interface, reducing the number of colours on the page or reducing unnecessary elements.
10. Speed up the website and performance by optimizing the content and the navigation method.

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Endnote

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