

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/332751924>

Webserh–Technological Innovation in Digital Communication in the Network of University Hospitals in Brazil

Article · May 2019

DOI: 10.21276/sajb.2019.7.4.3

CITATIONS

0

READS

26

7 authors, including:



Amália Cíntia Meneses Rêgo
Universidade Potiguar (UnP)

146 PUBLICATIONS 282 CITATIONS

[SEE PROFILE](#)



Irami Araújo Filho
Universidade Federal do Rio Grande do Norte

170 PUBLICATIONS 307 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



SURGICAL TECHNIQUES IN THORACIC SURGERY [View project](#)



ACADEMIC RESEARCH IN SURGERY [View project](#)

Webserh-Technological Innovation in Digital Communication in the Network of University Hospitals in Brazil

Danielle Campos de Aguiar¹, Eliseu da Costa Campos¹, Bruno Gomes de Araujo², Hertz Wilton de Castro Lins², Amália Cinthia Meneses Rêgo³, Irami Araújo-Filho^{4*}

¹Master's degree in Health Management and Innovation by the Post-graduation Program in Health Management and Innovation at UFRN/Natal-RN, Brazil

²Adjunct Professor of Post-graduation Program in Health Management and Innovation at UFRN/Natal-RN, Brazil

³Postgraduate Program in Biotechnology at Potiguar University/ UnP - Laureate International Universities. Ph.D. in Health Science

⁴Full Professor Department of Surgery, Federal University of Rio Grande do Norte. Postgraduate Program in Biotechnology at Potiguar University/ UnP - Laureate International Universities. Ph.D. in Health Science. Full Professor of Post-graduation Program in Health Management and Innovation at UFRN/Natal-RN, Brazil

*Corresponding author: Irami Araújo-Filho

| Received: 01.04.2019 | Accepted: 08.04.2019 | Published: 26.04.2019

DOI: [10.21276/sajb.2019.7.4.3](https://doi.org/10.21276/sajb.2019.7.4.3)

Abstract

Original Research Article

This master's research aims to develop a content aggregator and distributor application prototype, named WEBserh, for the 40 Federal University Hospitals (FUHs) administered by Ebserh (Brazilian Company of Hospital Services), called WEBserh. This research originates from the need to consolidate strategies for network organizational communication, following current legislation, which ensures the dissemination of information about the potential of health services and their use by hospital managers, patients, and others. It has a broader scope by proposing its use in the dissemination of information to the health professionals of these establishments. The methodology consists of bibliographic research and interviews that demonstrate the insufficiency of the current communication channels for this purpose and the growth of Information and Communication Technologies (ICTs) in health. As a result, it is expected to improve the integration of information among these FUHs, their collaborators, users, and other stakeholders. WEBserh also aims to reduce the patients' feeling of waiting time in hospitals and promote health education, contributing to the prevention and treatment of diseases. To hospital professionals, WEBserh will represent a new channel of access to corporate information and guidelines, disseminating and organizing knowledge about management, training, and assistance in a prompt and widespread manner.

Keywords: National Health Service; health communication; health information management; technological innovation; mobile applications; portable software app.

Copyright @ 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited

INTRODUCTION

Rework, misaligned efforts, commercial waste, adverse events leading to prolonged hospitalizations, sequelae, and even death. These are some of the results that may have one source in common: inefficient hospital communication. The health services need specific planning of communication that contemplates all its peculiarity[1,2].

The hospital organizational structure can be classified as one of the most complexes in society. There are several processes parallel to the end-of-care of the patient that needs to be managed[3].

Whether it is administrative or relational, the diversity of its internal publics (care and administrative professionals of different levels of formation, links, and

categories) and external (patients, companions, visitors, press...) demands customized actions, adapting the language, frequency, and depth of the same message. This is the only way to anticipate the necessary responses to understanding and responding to each of them. This is a challenge even for more experienced managers[4,5].

The management of information is fundamental even for the provision of patient care. The amount of data is increasing, requires control of the processes and demands access in real time[6]. The cost of using computers, despite appearing high in the installation, is compensated by the maintenance and the return that digital communication brings to the institution[7].

The university hospitals, besides the administrative and assistance factors, have the

educational mission. They are the matrix structure of the training of thousands of health professionals who perform clinical practices and sessions on their premises. Professors and undergraduate and graduate students also make up the broad range of strategic audiences with which the hospital needs to communicate[5].

Public health information management is an instrument of decision-making. It allows the elaboration of measures capable of adequately meeting the demands for health services, expanding possibilities in the formulation of strategies and mitigating or eliminating the inefficiency of the Unified Health System (UHS/SUS)[8].

This, since combined strategic and technological aspects of information, to organize and make available the knowledge[3]. For this management to be effective, a coherent set of policies is needed. They should enable the provision of relevant information, with a certain quality, transmitted to the right place, at the right time, at the appropriate cost, and as access facilities by authorized users[9].

Organizational communication, in its broadest sense, whether in public or private institutions, health or not, integrates the parties, allows the activities to be coordinated and the group can achieve its institutional objectives[4]. To do so, it must be understood integrally, as a transversal element of actions and that permanently builds organizational culture and identity[5].

The notion of organizational culture enables the hospital to find its collective identity, allowing the creation of efficient communication mechanisms that provide its members with the meanings they need to contribute to institutional performance. *"It is born associated both with the need to improve the development of processes in a hospital and with power relations and the confrontation of interests [1] "*.

This culture mediates communication. It is a way in which learning is disseminated, fulfilled and accomplished [5]. Communication and culture contribute to defining reputation, image and organizational identity through a constant process of dissemination of information[6].

Four essential functions stand out in organizational communication: controlling people's behavior, considering the hierarchies and formal orientations to be followed; motivate, clarify the worker what to do to improve the result achieved; facilitating emotional expression as a source of social interaction, and informing, helping to make decisions, since it allows identifying and evaluating alternatives[7].

Organizational communication in health services is not just the transmission of information. It

contributes to better employee involvement, strengthening of patient safety culture, more responsible management, and continuous improvement of quality of care[10].

"The implementation of an integrated planning logic to conform functional health systems, equipped with communication mechanisms and flows of interrelationship" contributes to the guarantee of users' access to hospital care[8].

The optimization of available resources is a natural consequence. It is also an instrument for humanizing practices between professionals and patients, overcoming models that reinforce power relations, promoting sharing, help, and interaction[9].

Information Technology subsidizes management when, among other functions, it provides elements for the definition of business strategies; promotes faster internal communication with suppliers and customers; facilitates bureaucratic and administrative tasks and helps in the management of production[2].

This study came, therefore, from the restlessness of the authors with flaws identified in the communication process in a hospital unit in Fortaleza, the Maternity School Assis Chateaubriand (MEAC). Together with 39 other Federal University Hospitals (FUHs), MEAC is managed by the Brazilian Hospital Services Company (EBSERH). As one of the authors is the head of the Unit of Social Communication (USC) of this maternity, it was possible to diagnose barriers in the flow of relevant messages between managers and teams, professionals and patients, institution and society.

EBSERH is gradually implementing communication channels that are integrated to interact with their public in a cohesive way and with their own identity, characterizing it as a network. Based on the critical nodes and macro-problems related to Communication identified in the MEAC Strategic Director Plans (SDPs) for the 2016-2017 and 2018-2020 periods, the authors suggest a Communication Technology solution that can be adopted in all managed hospital units by EBSERH[10].

The guiding question was: *"How can Information and Communication Technology (ICT) contribute to the relationship between Federal University Hospitals (FUHs) and its strategic stakeholders?"* The principles of availability, accessibility, use of the internet on mobile devices and the expansion of their consumption by people of all levels of education, age and gender were used as principles.

With the mobile application being developed, it is hoped to strengthen the integration of the FUHs among themselves, their collaborators, users, and other stakeholders, through this new channel of access to information and guidelines, aligning knowledge on management, training, and assistance in UHs in an agile and capillary way.

As a specific objective, this study intends to improve marketing strategies and dissemination of EBSEH's FUH with its public, from the app/prototype feedback reports; reduce patient waiting time, and promote health education by involving the user as an active agent in health care (prevention and treatment).

METHODS

The first stage of the study was carried out from November 2017 to February 2018. After the identification of the theme and the definition of the guiding question, the authors carried out an integrative review of the literature based on the search of articles in the databases Scopus, Pubmed, Web of Science, Embase, and Scielo. The descriptors were: "*national health service*"; *health communication*; "*Health information management*"; "*technological innovation*"; "*mobile applications*"; "*portable software app*." Due to a recent approach in the health services, it was decided to focus the bibliographic review on articles written in the Portuguese, English or Spanish languages, published in the last five years, with a review of at least two authors, with the third one in case of divergence (2014-2018). Repeated articles that did not address the management of hospital communication in their abstracts or did not provide the full text for online access were excluded. For the best investigation of the data, the articles were classified by author, year of publication, periodical, objectives, and results. Also, the authors sought to consult books and articles on "*organizational communication*," "*organizational culture*" and "*networks*" adopted more widely in the academy, belonging to what is known by gray literature. They also found references used in this study. The Brazilian legislation on the subject (EBSEH's Access to Information Law, Institutional Communication Policy and EBSEH's Strategic Development Plans (SDP)) was also consulted.

RESULTS

The WEBserh

The Unified Health System (UHS/SUS-Brazil) shows high fragility in the management of the use of information, disorganization and insufficient information to attend to its assignments in an increasingly shorter time interval[3]. It should also be noted that the dissemination of data on the potential of health services and their use by the user is the VI principle that guides UHS/SUS-Brazil actions and

services, established in the II Chapter of Law No. 8,080, dated September 19, 1990[11].

The inefficiency of communication observed from the statements of the previous paragraph, among other situations experienced, motivated the objective of disseminating relevant information about UHS actions and services to the strategic publics of EBSEH. Therefore, the authors propose the development of a Health Information System (HIS), called WEBserh[12].

An Information System (IS) is composed of three dimensions: organizational, meeting the demands of organizations; individuals who record the data and use information from the networks; and technological. These interrelated components are used to feel, communicate, analyze, and present information to improve the organizational capacity to perceive, understand, control and create[12-15].

Health Information System - WEBserh is a tool for automatically sorting and distributing information content about UHS/SUS-Brazil programs and services accessible to employees, students, patients, visitors, and patients' companions. The proposal is available free of charge, which can be purchased on any device using the internet (smartphone, tablet, notebook, among others) on iOS and Android operating systems.

In WEBserh, content from the headquarters and branches of the EBSEH network will be made available, with emphasis on UHS/SUS-Brazil services and capabilities, as well as administrative regulations. The information will be filtered in a customized way, continuously available in an environment that indicates 24h/day, all the time, the data that interest the users at any time[13,14].

Following the trends of online communication, the system is inspired by the experience of navigating platforms such as Netflix, Spotify, and the Washington Post app, which "know" the user's learning path.

Technological advancement has revolutionized the media and, consequently, transformed the relationship of content consumers with the platforms that disseminate information. The Netflix case, for example, is particularly impressive. The binge watching, or compulsion to see or episodes followed by the same series, with specific times, is a new culture. Such system learning from feedback can lead to perceived audience control and maintenance of the status quo. That is, it contributes directly to EBSEH's relationship with its strategic stakeholders.

The WEBserh will consider five factors pointed out by Hiltunen, as classifiers of the mobile user experience, as described in Figure 1 in the article by Arnold Schmitt and Triska[15]:



Fig-1: Mobile user experience classification factors

Source: Arnold Schmitt LE, Triska R. Reason and Word. 2014.

As a utility, it is understood when the functionality of the software enables the user to reach his goal in the context of the business, adding value to its use. Usability refers to the practicality of management that the relationship between the user and the interactive system has effectiveness, efficiency and brings satisfaction. The system must always be online and work properly (availability), and have a functional, pleasant and attractive (aesthetic) look. Last but not least, you need to pass on credibility and security to the user in your operation, the result of a well-developed offline process.

Also inspired by the analysis of Schmitt and Triska were the 7 V's that constitute the big data in the health area: volume (quantity of data), variety (types/data sources), speed (speed in content creation), value (relevance of crossing large amounts of data), visualization (how to see what the data say), vitality (data generated by people will predominate over all other sources of health data?) and veracity (data reliability). It should be emphasized, however, that the content of the WEBserh will be composed mainly of information of interest of the receiver according to its profile, that is, data that has already been worked on in analyzes and digested to be presented to its users in an intelligible and palatable way[15].

The public was divided between collaborator (employee EBSEH, a public servant of the Unique Legal Regime - ULR, undergraduate students and professors and/or graduate of hospitals, outsourced service provider, among others) and UHS-Brazil's client (patient, companion, and visitor).

From this public definition, local and national content of your interest will be directed to be directly triggered to your electronic devices that have WEBserh installed. The system still has control over the

information that will be received and whether it has been read or not by the user.

Notifications can be classified by the user as 1 to 5 stars, according to their level of interest in the information received. Also, users will have the option to share it on social networks. This feedback will form a valuable database in analyzing communication strategies and redefining the actions of the Social Communication Unit (SCU) in Hospitals to promote greater effectiveness in institutional objectives.

Through a dashboard, managers will have access to Key Performance Indicators (KPIs). It will be an intelligent module that will provide essential data on the use of information, necessary for the definition and evaluation of institutional strategies, including helping to identify inefficient processes in hospital communication.

In Figure 2, the use-case diagram can be observed, representing the actors and functionalities of the proposed system/prototype.

For employees, who are one of the priority customers, the content will be informative, with factual news and other relevant information. All this categorized by:

Type

- Administrative or care information (e.g., vaccination campaign, a publication of new protocol, flow, and Standard Operating Procedure - SOP, deadlines for delivery of documentation in the administrative sector, medical certificate, patient safety standards, People and vacation request);
- Information related to education (e.g., calendar of training courses on care practices, clinical sessions, publication postings, and research bids), with links to external platforms for distance education (PDE) and other forms of registration.

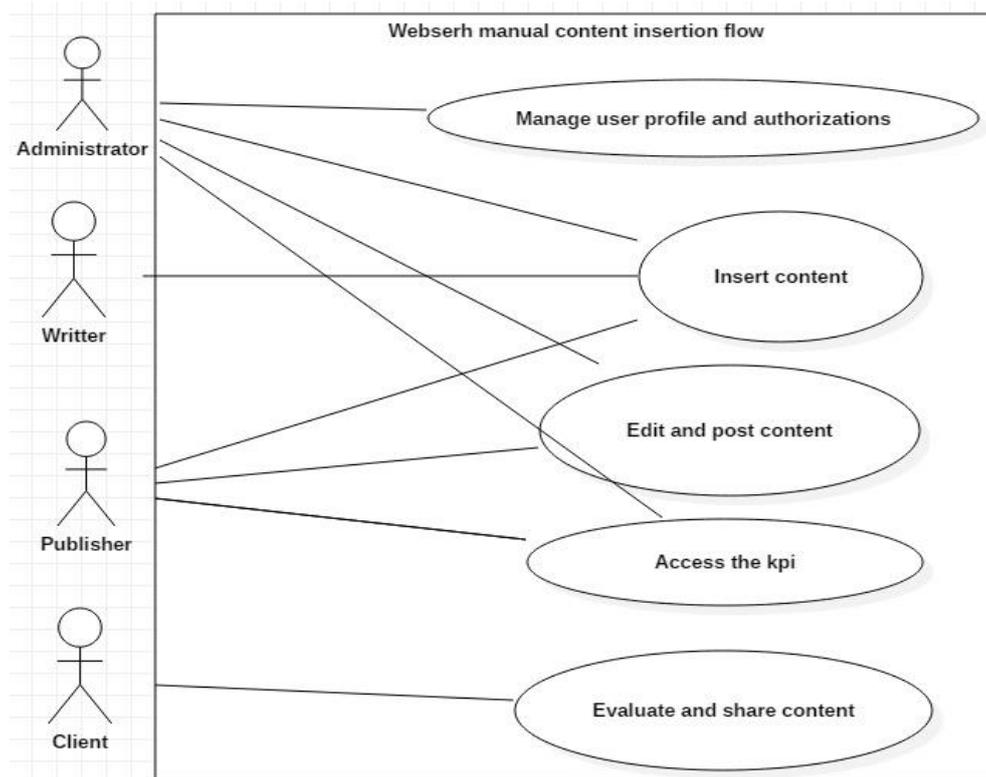


Fig-2: Use-case diagram

Source: Danielle Campos de Aguiar and Hertz Wilton de Castro Lins, using StarUML®.

Area of interest

The UH employee/professor/student will define the professional areas of interest for which he/she is interested in receiving information (e.g., Management, Medicine, Nursing, Psychology, Pharmacy, Social Work, Physical Therapy and Occupational Therapy).

For UHS-Brazil's client, the content will be categorized

Services rendered at the hospital where the patient/accompanying person/visitor is registered (e.g., care lines, schedules and other norms for companions or

visitors, referral flow, outpatient hours, emergency patient);

Clinical and academic research developed at the base hospital (where the user is treated) and at the other EBSEH affiliates, both in progress - who need to recruit subjects, and those completed.

The application will act as a content aggregator for programs and sites, especially EBSEH (national portal and intranet, websites and intranets of affiliated hospitals), Ministry of Health (MH), Ministry of Education (ME) and Federal Universities where hospitals they work (Figures 3 and 4).



Fig-3: Prototypes of WEBserh screens in Portuguese
Source: Danielle Campos de Aguiar

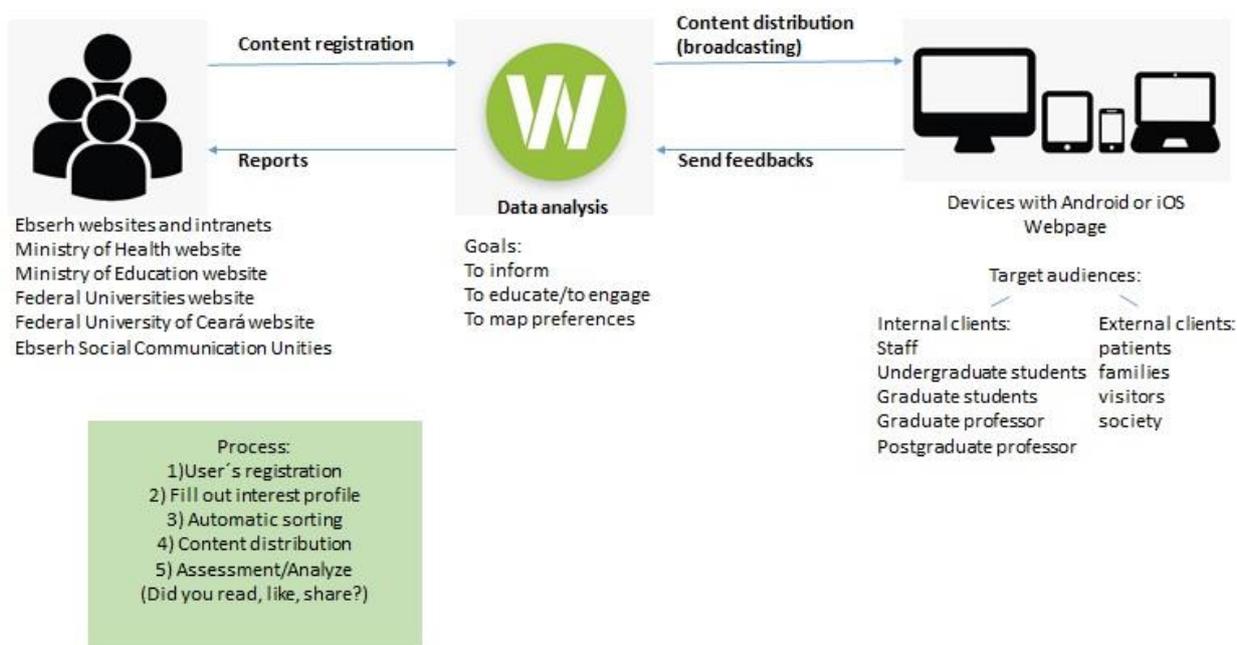


Fig-4: Infographic of WEBserh functionalities and process
Source: Danielle Campos de Aguiar and Bruno Araújo Gomes.

The content made available in this application will come from two sources

- RSS (Really Site Syndication) by use authorizations, provided by the administrators of the original portals. Initially, news and media files from the EBSERH portal (www.ebserh.gov.br), the Federal University Hospitals sites affiliated with the

company, the Ministry of Health website (www.saude.gov.br) and the Ministry of Education (www.mec.gov.br). For employees, the content will also be made available from the intranets of EBSERH and the hospitals mentioned.

- Direct inclusion in the WEBserh content center, which can be done exclusively by authorized

personnel (professionals from the Social Communication Coordination Office of the EBSEH headquarters and the Social Communication Units of the affiliated hospitals). The insertion and permissions flow already in force at EBSEH will be followed on the websites and intranets of headquarters and hospitals.

In this case, the information that should be made available only to employees/users of the hospital is the responsibility of the local editor and will be made available without the need for a higher authorization,

respecting the autonomy that is already given to you to manage the contents of your hospital website. If the Social Communication Units's professional wants to make the information available nationally, they will be submitted to the Communication Manager of the EBSEH headquarters (national editor) in Brasilia/Brazil, as is already the case for disclosures on the Company's national portal and intranet.

Access and usage permissions will be defined based on user classification in one of seven profiles (Tables 1 and 2):

Table-1: Profile of users

Name	Description
Administrator	Coordinator of the project and responsible for the technical maintenance of the system. Will be allowed to create and manage profiles, view, insert, edit and delete national and local content, share news on social networks, access data from indicators, generate and manage reports.
National Publisher	The employee designated by the coordination of EBSEH media. Allowed to view, insert, edit and delete national and local content, allow public information, share news on social networks, access data from indicators, generate and manage reports.
Local Publisher	Responsible for Social communication unit at a University Hospital of EBSEH Network will be included in this profile, as well as employees of media Coordination (national) of EBSEH. Will be allowed to view national content, view, insert, edit and delete local content by setting so that audiences will be distributed. Can access data from local indicators, generate and manage local reports and submit content for social inclusion by administrators and national editor.
Writer	Developer of Social Communication Unit of each FUH, with permission to insert local and national content and submitting local content to the approval of the local editor
Staff Client	Divided between: Professional or student of the FUH (subdivided into: EBSEH staff, Federal University employees, outsourced professional, undergraduate student and graduate student and professors). Receive notifications related to their interest informed on record or selected by algorithms. Can qualify the content from 1 to 5 stars, according to their level of interest, and share them in their social networks.
SUS Patient	Patients of FUH EBSEH network that register in the application, indicating for which hospital is granted. Receive news related to this hospital, and can qualify the content from 1 to 5 stars, according to their level of interest, and share them in their social networks. Shall have access to national news. Afterward, they will receive information related to their attendance at HU, like consultations, examinations, and other procedures.
General User	Patient's parents, visitors, press, civil society in general, interested in information about the hospitals in the network. Receive news related to this hospital, and can qualify the content from 1 to 5 stars, according to their level of interest, and share them in their social networks. Shall have access to national news.

Source: Danielle Campos de Aguiar

Table-2: Access permissions by profile

Permissions Profile	Create and manage user profiles and authorizations	View local and national contents	Insert local content	Insert and deleted local content	Insert, edit, and delete national content	Sort News Relevance	Share news on the social networks	Access indicator data	Generate and manage reports
Administrator	YES	YES	YES	YES	YES	NO	YES	YES	YES
National Publisher	NO	YES	YES	YES	YES	NO	YES	YES	YES
Local Publisher	NO	YES	YES	YES	NO	NO	YES	YES	YES
Writer	NO	YES	YES	NO	NO	NO	YES	NO	NO
Staff User	NO	YES	NO	NO	NO	YES	YES	NO	NO
SUS Patient User	NO	YES	NO	NO	NO	YES	YES	NO	NO
General User	NO	YES	NO	NO	NO	YES	YES	NO	NO

Source: Danielle Campos de Aguiar

DISCUSSION

The Role of Communication in the EBSEHR Network

In his work "The Society in Network," Castells defends that the network is a new social morphology of our societies and the logical diffusion of them substantially modifies the operation and the results derived from the productive processes and the experience of power and culture, for that, of connectivity and coherence. Defining itself as a network, EBSEHR, therefore, needs to create identity and control methodology that characterize it[16].

Hospitals in the network optimize the learning capacity of their employees, they are channels of dissemination of knowledge and use of shared information to generate new knowledge, create and strengthen links between individuals and organizations, gain in scale and reduce costs[12].

Information and Communication Technology (ICT) is essential for this purpose because it facilitates the dissemination of information, strategic elements in the sharing and application of knowledge to achieve the common objectives. They enable a new style of production, communication, and management in organizations[16-18].

They also contribute to "organizations integrating systems, processes and services and structuring relationship networks, regardless of the spatial location of each[17]". In the EBSEHR network,

ICT will be an innovative and promising solution to assist in the integration of affiliated hospitals[19].

To that end, those responsible for the information system, managers, professionals, and citizens constitute a complex network of interactions[12]. It is the people who, through built ties, connect, articulate and make information and communication fundamental links[20].

Teixeira presents four "communication models" that, according to him, are found in health communication: unilinear, dialogical, structural and diagrammatic (the first three extracted from theories of communication and the latter a proposal of the author)[18]. It can be affirmed that the effectiveness of each of them varies, according to the purpose of the action, the educational level of the receiver and the frequency and scope of the publication[21].

The unilinear model is based on the theories of Carl Hovland and Harold Laswell (known as the Paradigm of Laswell), who, in the 1950s, already argued that the emitter's stimuli get specific mass responses, even though they go through rhetorical decoding from technical to popular language. As an example of this model for Health Communication, the vaccination campaigns promoted by the Ministry of Health[15,16].

The second and third outstanding models - the dialogic and the structural one - appear in counterpoint to the unilinear model, already from the decade of 1960. They emphasize the interaction of the receiver, that is,

the active participation of the one who receives the message and the contribution of their involvement in the construction and transformation of reality. The receiver transforms the message by signifying it. And the medium used also interferes with this result. As examples, we can cite Paulo Freire's philosophy in Pedagogy (education of ruralists) and the role of collectives, such as the Municipal and State Health Councils and the collegiate managers[19,22].

Created in 2011, by Law nº 12.55019, EBSEH is a public company linked to the Ministry of Education (ME). It is part of a set of actions of the Federal Government aimed at the recovery of FUH, being, until November 2018, the administrator of 40 of these hospitals in the five regions of the country, through a management contract signed with the Federal Universities[20].

Its objective is to modernize the management of these hospitals, preserving and reinforcing the strategic role played by these units of professional training centers in the health area and providing health care to the population, fully within UHS/SUS-Brazil [20-23].

EBSEH's mission is to *"improve the management of Federal and University Hospitals, pay attention to the health of excellence and provide a scenario of adequate practice for teaching and research for teachers and students"* and its vision is *"to be a reference in the management of University Hospitals Federal"*[20].

Aware of the strategic role of the communication, EBSEH's planning team predicted the existence of a Social Communication Coordination as part of the Office's Vice-Presidency. This nucleus manages the communication actions of the entire network, composed of more than 85 communication professionals, mostly with a degree in Journalism and Public Relations, who work in 38 of the 40 Ebserh branches. Advertisers, photographers, and administrative assistants have given their body to the team[10].

The Coordination has been able to formally structure the USC in the hospitals of the network, seeking to make possible the adequate structure of personnel and technology. The sub-dimensioning of the teams, however, leaves perceived communication gaps in critical hospital processes. The development of tools that optimize people's work, moving them with strategic rather than operational tasks, would be a significant contribution to the results achieved by the teams[20,24].

The EBSEH network's communication activities, defined in the company's Institutional Communication Policy [20], include planning, press, audiovisual, digital communication, internal

communication, advertising, event management, public relations, and EBSEH brand management[11].

Among the general guidelines defined in this policy, some deserve special mention in relation to the proposal of this research: to improve and/or create channels of dialogue and interactivity with the public of EBSEH, adopting new languages and formats; to make the internal public aware of the manuals and regulations; evaluate their results with the definition of indicators and conducting research; adopt measures aimed at the diversification of communication vehicles, taking into account the peculiarities of each unit; to contribute to the strengthening of the institutional image before the society and public of interest, internal or external; disseminate initiatives, actions and services available to the citizen in a systematic way, in accessible and didactic language; offer an extensive knowledge to the society about the strategic performance of EBSEH and the hospitals integrated to the network; disseminating information on support services for teaching, research and extension, teaching-learning and training of people in the field of public health; and use various instruments of diffusion to reach the multiple sectors of society, adapting the language to the specifics of each audience and each milieu[19,20].

EBSEH's official communication channels are currently the portal www.ebserh.gov.br, the institutional sites of each hospital, intranets, internal newsletters, some external publications, profiles on social network, Facebook and Instagram, managed by headquarters and subsidiaries and corporate TVs in some subsidiaries. In April 2018, EBSEH launched a mobile application, with necessary information about hospitals and replication of news from the national site[20].

The expansion of external communication channels, so that the EBSEH and its attributions are better known to the citizen, to ensure the visibility of institutional results is the sixth strategic objective of the communication processes defined in the EBSEH Social Communication Policy[6-8].

The fifth objective of disseminating actions, statistical data and projects for the benefit of society, its results and final themes to the external public, as a way to show community the role and importance of EBSEH, points to the convenience of creating a new communication that directs and segmented the information of strategic interest of the company[9-11].

For the internal public, the policy establishes the need to create and maintain a dynamic and educational communication with the collaborator, capable of motivating and committing him to the state's strategic objectives; to sensitize employees to the issues of interest to EBSEH and its subsidiaries in order to consolidate the internal perception of the EBSEH

brand; and propose solutions for sensitive areas where communication can mitigate possible impacts of institutional action, among others[6].

Today, EBSEH has a national Intranet, managed by headquarters and does not control local intranets[20, 22]. The office improved the processes of events, content production, press service and advertising arts in support of hospitals, completes the state's Communications coordinator. Communication teams produced 3,541 news stories for hospital sites in 2017, content that could have far greater reach with WEBserh[11].

Aguiar and Mendes point out as the main challenges currently faced that hinder efficient communication in hospitals are the lack of sufficient personnel, lack of structure and budget for project execution, something that has been discussed internally. The main goals included improving internal communication and helping to exchange experiences between hospitals and headquarters to disseminate and disseminate good network practice[12].

CONCLUSION

In the context of Bauman's flexible societies, high-speed, virtual, accessible communication, the mutability of everything according to the interests involved, are precepts that guide the globalized era[21]. Virilio already considered that one lives today the period of the fluid, of the disposable, where the speed imposes a new dynamics to the life, also affecting the dynamics of the society[22]. Therefore, it is not possible to think about the use of ICTs in health institutions without prioritizing swift, fluid and flexible communication. As Kellner argues, "*greater diversity of choice, a greater possibility of autonomy*[5]".

In this way, a tool is visualized that allows selection of topics of interest and interactivity, either through the possibility of sharing the information received or through expressions of approval or disapproval of the content derived.

The recommendation is that once developed, the app is piloted in MSAC and its impact, both financial and administrative, be evaluated and scaled for three months in a case study so that, after adjustments only, it can be extended to EBSEH network.

The creation of a system of information control, systematization of communication, citizen empowerment based on access to information and an increase in systemic vision have a repercussion on reducing costs, increasing the quality of care, improving management mechanisms and in more agile operations at work.

Costs are reduced because of the spread of information such as health promotion, patient safety, protocols, Standard Operating Procedures (SOPs) and clinical guidelines, for example, improve prevention and reduce adverse events, contributing to shorter hospitalizations and more recovery effective. Indicators related to access, evaluation, and sharing of news also redirect and optimize financial investments and human resources in Communication.

The quality of the service improves due to the alignment of the information about conducts, legislation, campaigns in force and good practices by the professionals and in the reduction of the waiting time, when the user is entertained navigating in the app, among other factors.

As for the management mechanisms, it is expected a more objective control of the communication and better knowledge of the consumption habits of information of the target audiences, which brings benefits mentioned previously.

These articulations will contribute to such strategies improving the work planning in the Unified Health System[3]. This is the proposal of WEBserh: to align information generated for the strategic publics of the health services agreed in an integrated way, respecting the local peculiarities.

There are practically no barriers to access to information and services in the face of the progressive advances of ICT[15]. However, it is necessary that this access is thought to attend different profiles of users and contexts of use. It is respecting habits of consumption of electronic media that vary according to, among other aspects, social class, level of education and age group.

Baregheh, Rowley, and Sambrook define innovation as the production or adoption, assimilation, and exploitation of a value-added novelty in the economic and social spheres; renewal and expansion of products, services and markets, development of new production methods, and creation of new management systems, being at the same time a process and an outcome[23].

Considering the ideas put forward by Prahalad and Krishnan, who argue that innovation shapes consumer expectations and continually responds to their ever-changing demands, behaviors, and experiences, WEBserh is an innovative proposal to support the management of FUHs[24].

A free, dynamic, interactive and accessible mobile application for Ebserh users and professionals is a very viable solution both technologically and economically for the company, signaling an attractive cost-benefit ratio. Besides, it will contribute as a pilot for

an application of the product to the entire network of hospitals of the Unified Health System (UHS/SUS-Brazil), not limited to those of the EBSERH Network.

Conflict of interest statement

The authors have no conflicts of interest to declare.

REFERENCES

1. Senhoras EM. A cultura na organização hospitalar e as políticas culturais de coordenação de comunicação e aprendizagem. 2007.
2. Pinochet LH. Tendências de Tecnologia de Informação na Gestão da Saúde. *Mundo Saúde*. 2011;35(4):382-94.
3. Quadros Borges F. Gestão da Informação no Sistema Único de Saúde. *R Adm FACES Journal*. 2014;13(2):83-98.
4. Cardoso OO. Comunicação empresarial versus comunicação organizacional: novos desafios teóricos. *Rev Adm Pública*. 2006;46(6):1123-44.
5. Kellner D. A cultura da mídia – estudos culturais: identidade e política entre o moderno e o pós-moderno. Bauru: EDUSC. 2001.
6. Marchiori M. Faces da cultura e da comunicação organizacional. 2006;1:31-50.
7. Robbins SP. *Comportamento Organizacional*. 11. ed. São Paulo: Pearson Prentice Hall. 2006.
8. Sousa FD, Medeiros KR, Gurgel Júnior GD, Albuquerque PC. Do normativo à realidade do Sistema Único de Saúde: revelando barreiras de acesso na rede de cuidados assistenciais. *Ciência & Saúde Coletiva*. 2014;19:1283-93.
9. Coriolano-Marinus M, Queiroga BA, Ruiz-Moreno L, Lima LS. Comunicação nas práticas em saúde: revisão integrativa da literatura. *Saude Soc*. 2014;23(4):1356-69.
10. Empresa Brasileira de Serviços Hospitalares. Plano diretor estratégico MEAC. 2017.
11. Brasil. Casa Civil. Lei Orgânica da Saúde nº 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização eo funcionamento dos serviços correspondentes e dá outras providências. *Diário Oficial da República Federativa do Brasil*. 1990.
12. Aguiar FC, Mendes VL. Comunicação organizacional e Tecnologias da Informação e Comunicação (TIC) na gestão hospitalar. *Perspect Ciênc Inf*. 2016;21(4):138-55.
13. García Medina I, Farias Coelho PM, Bellido-Pérez E. New trends in Marketing due to the growth of Internet usage. *Razón y Palabra*. 2017;21(98):276-285.
14. Uribe-Jongbloed E. El cambio mediático de la televisión: Netflix y la televisión en teléfonos inteligentes. *Palabra Clave*. 2016;19(2):358-64.
15. Arnold Schmitt LE, Triska R. Informação na área da saúde em tempos de comunicação móvel, big data e computação cognitiva. *Razón y Palabra*. 2014;18(88).
16. Castells M. *A sociedade em rede*. 7. ed. São Paulo: Paz e Terra. 2003.
17. FIALHO S. Metodologia para construção e gestão de redes de cooperação interorganizacionais. *Gestão de redes de cooperação interempresariais: em busca de novos espaços para o aprendizado e a inovação*. Salvador: Casa da Qualidade. 2005.
18. Teixeira RR. Modelos comunicacionais e práticas de saúde. *Interface – Comunic Saude Educ*. 1997;1(1):7-40.
19. Brasil. Lei nº 12.550, de 15 de dezembro de 2011. Autoriza o Poder Executivo a criar a empresa pública denominada Empresa Brasileira de Serviços Hospitalares – EBSERH. 2011.
20. Empresa Brasileira de Serviços Hospitalares. EBSERH. 2018.
21. Bauman Z. *Globalização: As consequências humanas*. Rio de Janeiro: Jorge Zahar. 1999.
22. Virilio PA. *Velocidade e política*. 2. ed. São Paulo: Estação Liberdade. 1996.
23. Baregheh A, Rowley J, Sambrook S. Towards a multidisciplinary definition of innovation. *Management Decision*. 2009;47(8):1334.
24. Prahalad CK, Krishnam MS. *A nova era da inovação: a inovação focada no relacionamento com o cliente*. Rio de Janeiro: Elsevier. 2008.