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Original article

TRAINING PROCESSES OF MANAGERS AND PROFESSIONALS IN THE IMPLEMENTATION OF THE E-SUS PRIMARY CARE STRATEGY

PROCESSOS DE CAPACITAÇÃO DE GESTORES E PROFISSIONAIS NA IMPLEMENTAÇÃO DA ESTRATÉGIA E-SUS ATENÇÃO PRIMÁRIA

PROCESOS DE CAPACITACIÓN DE GESTORES Y PROFESIONALES EN LA IMPLEMENTACIÓN DE LA ESTRATEGIA E-SUS ATENCIÓN PRIMARIA

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Objective: to analyze training processes of health managers and professionals in the implementation of the e-SUS Primary Care strategy in cities of Minas Gerais. Method: online questionnaires of the websurvey type were sent to the managers responsible for the implementation of the strategy in the selected cities; the data were processed with the aid of the statistical software Statistical Package for the Social Sciences 21.0. Results: managers from 114 cities of Minas Gerais participated in the study. About 71.9% of them claimed to have participated in training processes for the performance of the function, and 52.6% of the cities did not executed training for the adoption/use of the systems to health professionals. Conclusion: the process of implementation of the e-SUS Primary Care strategy in Minas Gerais, despite developments, presents weaknesses in the adoption of training processes for professionals who use the systems.

Descriptors: Health Information Systems. Primary Health Care. Information Technology. Inservice Training. Professional Training.

Objetivo: analisar processos de capacitação de gestores e profissionais de saúde na implementação da estratégia e-SUS Atenção Primária em municípios de Minas Gerais. Método: foram enviados questionários on-line, do tipo websurvey, aos gestores responsáveis pela implantação da estratégia nos municípios selecionados; os dados foram processados com auxílio do software estatístico Statistical Package for the Social Sciences 21.0. Resultados: participaram do

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estudo gestores de 114 municípios mineiros. Cerca de 71,9% deles afirmaram ter participado de processos de capacitação para desempenho da função, e em 52,6% dos municípios não foram realizados treinamentos para adoção/utilização dos sistemas aos profissionais de saúde. Conclusão: o processo de implementação da estratégia e-SUS Atenção Primária em Minas Gerais, apesar das evoluções, apresenta fragilidades na adoção de processos de capacitação dos profissionais que utilizam os sistemas.

Descritores: Sistemas de Informação em Saúde. Atenção Primária à Saúde. Tecnologia da Informação. Capacitação em Serviço. Capacitação Profissional.

Objetivo: analizar procesos de capacitación de gestores y profesionales de salud en la implementación de la estrategia e-SUS Atención Primaria en municipios de Minas Gerais. Método: se enviaron cuestionarios en línea, del tipo websurvey, a los gestores responsables de la implantación de la estrategia en los municipios seleccionados; los datos fueron procesados con ayuda del software estadístico Statistical Package for the Social Sciences 21.0. Resultados: participaron del estudio gestores de 114 municipios mineros. Cerca del 71,9% de ellos afirmaron haber participado de procesos de capacitación para desempeño de la función, y en el 52,6% de los municipios no fueron realizados entrenamientos para adopción/utilización de los sistemas a los profesionales de salud. Conclusión: el proceso de implementación de la estrategia e-SUS Atención Primaria en Minas Gerais, a pesar de las evoluciones, presenta fragilidades en la adopción de procesos de capacitación de los profesionales que utilizan los sistemas. Conclusión: el proceso de implantación de la estrategia e-SUS APS en Minas Gerais, a pesar de las evoluciones presenta fragilidades en el proceso de capacitación de los profesionales que utilizan los sistemas.

Descriptores: Sistemas de Información en Salud. Atención Primaria de Salud. Tecnología de la Información. Capacitación en Servicio. Capacitación Profesional.

Introduction

The Brazilian Ministry of Health (MH) has been working since 2013 in the implementation and consolidation of a new information system for Primary Care called the Health Information System for Primary Care (HISPC)[1-2]. This new system seeks to integrate the various information systems of Primary Health Care (PHC), thus allowing a unique and individualized record.

The set of actions established for implementation and dissemination throughout the national territory was called the e-SUS Primary Care (e-SUS PHC) strategy and has been developed by the MH[1-3]. This strategy aims to promote the qualification of information management and the quality of health care of the population, reducing the rework of professionals, providing greater incorporation of the use of the system in the daily lives of professionals[2].

The e-SUS PHC strategy also aims at the implementation of two software systems that instrumentalize the data collection process in the Basic Health Units (BHUs), in order to feed the HISPC: Simplified Data Collection (SDC) and Electronic Citizen Record (ECR). The SDC was developed to provisionally meet BHUs with low computerization structure, allowing professionals to register a synthesis of the service. Different forms are used to record the information, divided into three blocks: PHC register, service of higher-level professionals and service of technical-level professionals[3].

The Electronic Citizen Record was developed to meet PHC teams partially or completely computerized. It has the potential to improve the care provided to users and expand the clinical knowledge of professionals to generate benefits to the population. Among the advantages of the system are: optimization, sharing, systematization and integration of information in the aid for decision-making of PHC managers[1]. In addition to these benefits, the ECR allows the integration of mobile applications, such as PHC territory, Home Care, Collective Activities, among others[4-6].

For the effective implementation of e-SUS PHC systems, it is necessary to identify the technological characteristics available in each BHU, such as the number of computers and printers, support for computerization of units, internet connectivity, among others. Even with

the lack of these mechanisms, the systems of the e-SUS PHC strategy can be implemented, since the system can be installed in several scenarios, according to the local reality[2,7].

It is also necessary to establish training processes for all actors involved in the implementation and use of systems, such as health managers and professionals working in BHUs[2]. Cities that perform these processes have higher chances up to three times when compared to the others. About 49.1% of the cities of Minas Gerais adopted some of the e-SUS PHC strategy systems, and, in 29.8% of the cities, there was the implementation of the SDC system, in 7.9%, the implementation of the ECR system, and 11.4% of the cities adopted both systems[8].

The execution of these training programs in a systematic and structured manner has great potential to contribute to the effective implementation of health information systems (HIS)[7-9]. On the other hand, factors such as low connectivity, lack of standardization to obtain and treat data, and low training are weaknesses that hinder the implementation and use of HIS[10-12]. It is also necessary to highlight that, in PHC, nurses contribute significantly to the management processes of the units, including the responsibility of using health information and communication technologies to improve the quality of care provided to users[7-8].

Thus, the maintenance of professional training processes becomes important for the proper use of different PHC information systems. Professionals are expected to be prepared to use all the tools of the systems, such as the search for information about the assisted population, conducting discussions and the interpretation of the data and their application in local programming. In this sense, the development of training processes should be perennial[11-12].

According to the national guidelines for the implementation of the e-SUS PHC, the strategy for the training of each state should be elaborated in the Regional Action Plan, which includes the schedule of activities for implementation, training, monitoring and technical support for professional training processes[2]. Supported by the Department of Informatics of the Unified Health System (DATASUS) and the State Health Departments, which will provide rooms and equipment for training, auditorium for conferences, technical support and distance learning courses (DLC), which will allow an improvement in this process[2].

However, a qualified professional is necessary for municipal training. To this end, the Ministry of Health proposes that each city should appoint an e-SUS PHC manager, who will be responsible for implementing the strategy in the city, including the competence to train PHC professionals to use the system[4].

It is in this sense, this study emerges, with the objective of analyzing training processes for health managers and professionals adopted in the implementation of the e-SUS PHC strategy in cities of Minas Gerais.

Method

This is a quantitative study with a cross-sectional design. This study had as its unit of analysis the cities of the state of Minas Gerais, which together total a population of approximately 20.9 million inhabitants. It is the Brazilian state with the largest number of cities, totaling 853 cities, 79% of which have less than twenty thousand inhabitants. In addition, it is the fourth state with the largest territorial area in Brazil and the second in number of inhabitants[13].

This study is an integral part of the Implementation Analysis and Effects of the Electronic Citizen Record of the e-SUS PHC strategy and had financial support from the National Council for Scientific and Technological Development (CNPq) and the Minas Gerais Research Foundation (FAPEMIG).

Due to the large number of cities in Minas Gerais and the logistical difficulties for this study involving all these cities, the researchers decided to define a statistically significant sample of this universe. Thus, the calculated sample considered a finite population of 853 cities, a level of significance and sampling error of 5%.

The sample size calculation took into account the distribution of cities according to population size. Thus, the estimated sample size was 100 cities, distributed proportionally according to population size. Since it is websurvey, and considering a response rate of 55%, 182 municipalities distributed according to population size were randomly selected. The draw was carried out using the statistical software Statistical Package for the Social Sciences (SPSS) 21.0.

The participants of this study were the municipal managers of the e-SUS PHC strategy of the selected cities. It is worth mentioning that, according to the guidelines for the implementation of the e-SUS PHC strategy of the Ministry of Health, each city must have at least one professional responsible for the implementation of this strategy, called the Municipal Manager of the e-SUS PHC Strategy[4].

After defining the cities for the composition of the sample, telephone contact was made with all municipal health departments of the respective selected municipalities in order to identify the manager. Data collection was done through the application of an online questionnaire, websurvey type. The use of this type of questionnaire allows the acquisition of a large amount of data in a short time and offers a number of advantages, not only in terms of costs, but also in terms of the quality of the data acquired[14].

The questionnaire used was built according to strategies defined in the manuals that address the National Guidelines for the Implementation of the e-SUS Primary Care Strategy of the Ministry of Health[1-4]. To verify the understanding of the issues present in the data collection instrument and possible inconsistencies, a pre-test was also performed, applied to a city outside the selected sample. After performing this pre-test and adjusting the questionnaire, data were collected. The instrument contained questions concerning:

a) profile of the municipal manager of the e-SUS PHC strategy: sex, age, education, time working as manager of the e-SUS PHC strategy, time working at the Municipal Health Department, type of employment relationship, occupation of functions other than manager of e-SUS PHC, appointment to the position of manager of e-SUS PHC;

b) e-SUS PHC manager training: training hours, entities responsible for training managers and what the training process was like;

c) training of PHC professionals: strategies adopted for training, workload of municipal training and the training processes adopted.

Initially, telephone contact was made with municipal managers of the e-SUS strategy. Then, an email was sent containing information about the research and requesting their participation. In the body of this email, in addition to the information, there was a link to access the questionnaire.

By clicking the link, the participant was directed to an acceptance page, with all the information present in the Informed Consent Form (ICF) for websurvey and, only after the online confirmation of the acceptance, the participant was directed to the data collection instrument. The email with the invitation to participants was sent three consecutive times. When there was no return, telephone contact was made for another invitation attempt. At the end of the data collection, a response of 114 cities was obtained. Participants' responses were recorded electronically through the online survey site called Online Survey.

The data collected were transferred and processed in the statistical software SPSS 21.0, with duplicate typing to verify duplication, typing errors and inconsistencies. Univariate analysis procedures were performed: absolute and relative frequency distribution and mean calculation for the numerical variables.

The present study obeyed Resolution n. 466/2012, of the National Health Council, and was approved by the Human Research Ethics Committee of the Federal University of São João Del Rei – Western C. C. Dona Lindu, under Opinion n. 1,437,247. The Informed Consent Form was presented electronically and the acceptance was also registered online.

Results

The study included 114 municipal managers of the e-SUS PHC strategy of the state of Minas Gerais. The mean age of the participants was 33 years, ranging from 18 to 61. Most were women, do not have higher education, occupy other functions besides e-SUS PHC manager and do not have an effective link with the public service (Table 1).

Table 1 – General characteristics of municipal managers of the e-SUS PHC strategy. Minas Gerais, Brazil – 2017. (N=114)

Variables	n	%
Sex		
Male	48	42.1
Female	66	57.9
Age (years)		
18 - 30	53	46.5
31 - 45	52	45.6
46 - 61	9	7.9
Higher education		
No	60	52.6
Yes	54	47.4
Type of link		
Effective	54	47.4
Commissioned Position	28	24.6
Others	32	28.0
Function other than e-SUS PHC manager		
No	19	16.7
Yes	95	83.3

Source: created by the authors.

The mean time of the participants in the corresponding Municipal Health Department is five years and in the position of manager of e-SUS PHC, 22 months. Among professionals with higher education, 48.1% are nurses. Most managers stated that they were appointed to the position because they already have experience in the management of other HIS (51.3%) or because they are coordinators of PHC (13.3%).

As shown in Table 1, most participants perform other functions in municipal management besides managing e-SUS PHC. About 38.6% coordinate wother sectors (health surveillance, primary care, among others) and 7.2% are the municipal health secretaries themselves. It is worth mentioning that 36.1% of the participants act as managers of other HIS.

About 71.9% (95%CI: 64.0-80.7) of e-SUS PHC managers said they had received training to perform the function. These trainings had an average workload of 14 hours, ranging from 3 to 60 hours and were performed mostly by the State Health Department through the Regional Health Superintendences and collectively (Table 2). We also highlight that 9.9% of managers considered the training quick and superficial.

Table 2 – Characteristics of the training activities of municipal managers in the e-SUS PHC strategy. Minas Gerais, Brazil – 2017. (N=114) (continued)

Characteristics	%
Workload of the training activities (hours)	
3 - 8	52.5
10 - 20	32.5
21 - 60	15.0

Table 2 – Characteristics of the training activities of municipal managers in the e-SUS PHC strategy. Minas Gerais, Brazil – 2017. (N=114) (conclusion)

Characteristics	%
Bodies responsible for the training activities	
Regional Health Superintendence	78.9
Municipal Health Department	11.1
Private companies	7.8
Others	2.2
How the training activities for the e-SUS PHC manager were	
Collective training carried out at the Regional Health Superintendence	62.6
Through the manual and training system	11.0
Practical knowledge (Self-taught)	8.8
Monthly professional visit/Technical reference	5.5
Others	12.1

Source: created by the authors.

Table 3 identifies the steps taken in the cities to adopt the e-SUS PHC strategy as established by the Ministry of Health. The least performed action by the cities was the integration of the local plan with the regional implementation plan of the system.

Table 3 – Activities carried out to implement the e-SUS PHC strategy systems. Minas Gerais, Brazil – 2017 (N=114).

Actions	n	%
Situational diagnosis of the necessary human resources	96	84.2
Survey of technological capacity	92	80.7
Integration of the Local Plan into the Regional Action Plan	62	54.9
Coordination and viability of a support team for the computerization of the units	77	67.5

Source: created by the authors.

Finally, the process of training of professionals linked to PHC teams to use the e-SUS PHC strategy systems was analyzed. In most cities (52.6%), training activities were not carried out to adopt/use the systems linked to the strategy.

In the cities that performed training for PHC professionals, the average workload was 10.7 hours (95%CI: 8.3-13.5). In 43.0% of these cities, the main training adopted was a single presentation, collectively, of the strategy and data collection system to be implemented. In 11.4% of the cities, training was performed individually for each PHC team, and, in 7.9%, there was training of the teams with systematic monitoring in the BHU itself. It is noteworthy, therefore, that the municipal training was heterogeneous with different workloads and strategies.

Discussion

The results indicate that the cities adopted the main steps for the implementation of the e-SUS APS strategy systems, such as: situational diagnosis of the necessary human resources, technological capacity and feasibility of a support team for the computerization of the units. In addition, most municipal managers of e-SUS APS reported having been trained to implement the systems.

The managers selected through public tender, with more than one year of experience in the city and duly trained, were responsible for the training of the professionals of the city, enabling the process of implementation of the strategy in the city, in contrast to studies that alert to the possible challenges associated with the accumulation of functions by managers, as well as the lack of clear criteria in the selection of professionals, which may negatively interfere in the implementation of strategies in their respective cities[7-9,15-19].

On the other hand, less than half of the cities carried out training strategies for health professionals linked to PHC, the main users of the systems. In those cities that reported training, the

mean workload was below that recommended by the MH. The MH emphasizes that training is important and should be performed systematically and continuously for health professionals. These trainings should last at least one week for use of the SDC system and up to 4 weeks in case of implementation of the ECR with later assisted operation, that is, effective monitoring of the use of the tools available by the systems[4].

Importantly, only 7.9% of the cities had systematic monitoring of operations in the system after training, which is the ideal scenario for the effective implementation of the systems. It is known that only a local and punctual action with low workload is not sufficient for the proper implementation of HIS, thus compromising the use of the system in its entirety[20].

Training strategies are necessary for a formal moment in which the main tools of the system should be presented, and it is necessary to systematically monitor the responsible manager in the place of service so that doubts can be clarified, according to the professional using the system[21].

The implementation of HIS is not an easy task, especially in a country like Brazil, due to its large territorial extension and spraying of PHC. There are several weaknesses that can compromise this process, such as organizational culture, insufficient technological infrastructure, low funding, resistance and professional training[5,21].

Studies identify that low training is one of the important obstacles in the implementation and use of HIS, leading to low quality of data collected and underuse of the information produced[21-22]. The low qualification of HIS users may still lead to the lack of standardization of procedures for obtaining and, especially, treating health data, compromising better performance of services[8].

The training processes offered by managers of the e-SUS PHC strategy to health professionals play a crucial role in the implementation of software systems[8-9,11]. Implementing a system of this magnitude requires a solid permanent education process, since the lack of such a training can harm the process and lead to underuse of technologies. The training has been carried out and reproduced vertically, and it is often far from the reality of services[23-25].

The e-SUS PHC strategy is a broad proposal for restructuring the HIS seeking innovation in information management in order to increase the quality of service to the population. However, the management bodies still keep the same implementation policy adopted long ago in Brazil. It is necessary to establish new professional training practices for the use of HIS[15-19].

Even if the results show that managers have been trained, it is likely that not carrying out structured training processes may be associated with the accumulation of function[7]. It should be noted that a training process for the implementation of a new informational policy requires time and dedication on the part of managers in maintaining an effective policy of permanent education. Therefore, professionals must be trained and qualified so that they can use the system to its full potential, collaborating for the successful implementation of the system[2].

The strategy came to offer numerous benefits, including: improvement of quality and access to user information, assistance to the manager for decision making and obtaining interoperability between different HIS, in addition to facilitating a safe and efficient service to the user, with reduction in costs and length of service, dealing with a dense and strengthened system[1-2].

Increasingly, the importance and challenges of using information to support decisions in the Brazilian health system are understood. For this, it is essential to establish effective practices for the use of health information systems. It is already known that several factors negatively interfere with the success and adoption of these systems[8,24]. The implementation of new systems, such as the e-SUS PHC strategy, requires planning, organization, financing, preparation and mainly training of system users[2-4].

The process of implementing the e-SUS PHC strategy in Minas Gerais, despite its evolution, presents weaknesses related to the training process of Primary Health Care professionals. Cities need to take the lead in the process of implementing these systems, especially in defining an effective strategy for professional training and systematic monitoring of activities related to information management[4,8,25-26].

Study limitations

This study has as limitation the overestimation of training processes for the use of software systems of the e-SUS PHC strategy, since the data were self-reported by the responsible managers. Another limitation is the time frame of data collection that may restrict the understanding inherent in the implementation of information technologies.

Study contributions

This study has significant relevance for the health area, especially in the scope of Primary Health Care, a field of action preponderant for nursing, since it identifies the characteristics of the training processes adopted linked to the e-SUS PHC strategy. This study has the potential to contribute to the improvement and knowledge of health professionals about the strategies used in training processes and their possible improvements for computerization of BHUs.

Conclusion

It is necessary to highlight the importance of an adequate implementation of the e-SUS PHC strategy systems, for the consolidation of a computerized policy for primary health care. Based on this study, it is noticed that the implementation process of the e-SUS PHC strategy in Minas Gerais, despite the evolutions, presents weaknesses in the training process of the professionals who use the systems. It is necessary to establish solid and more structured training processes that meet the precepts of permanent education.

The low incorporation of educational processes for the training of the correct use of information systems of the e-SUS PHC strategy can significantly compromise the adoption of these systems, with limitations on the use of the potentialities of the new informatics policy.

Collaborations:

1 – conception and planning of the project: Larissa Carvalho de Castro, Lorena Maria Diniz and Tarcísio Laerte Gontijo;

2 – analysis and interpretation of data: Larissa Carvalho de Castro, Lorena Maria Diniz and Tarcísio Laerte Gontijo;

3 – writing and/or critical review: Larissa Carvalho de Castro, Lorena Maria Diniz, Tarcísio Laerte Gontijo, Valéria Conceição de Oliveira and Eliete Albano Azevedo Guimarães;

4 – approval of the final version: Larissa Carvalho de Castro, Lorena Maria Diniz, Tarcísio Laerte Gontijo, Valéria Conceição de Oliveira and Eliente Albano Azevedo Guimarães.

Competing interests

There are no competing interests.

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