

THE USE OF INFORMATION SYSTEMS: CHALLENGES FOR HEALTH MANAGEMENT

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ABSTRACT

This is a qualitative study with the aim of analyzing the use of health care information systems in the decision-making process by the co-managers of two municipalities in southern Bahia, Brazil. Eighteen nurses working at the central level of primary care were interviewed. Content analysis and thematic modality were elected. The classification of meaning units pointed to the category the power of using information systems for management decision making, which resulted in two subcategories: (1) the relevance of the primary care information system, which is seen as a powerful management tool, although there are limitations to its use because of the non-reliability of data and information; and (2) the management qualification for the use of information systems, because there is not enough knowledge for handling them. This latter signaled that co-managers often develop individual strategies to close this gap, and generally the information is used to meet vertical decisions from other spheres. Thus, it is up to managers to (re)think their practices and develop a greater capacity to use the information in order to make their management more effective in reality and to trigger actions that maximize health.

Keywords: Health Information Systems. Health Manager. Primary Health Care. Decision Making.

INTRODUCTION

In Brazil, the management process of the Brazilian Unified Health System (SUS, as per its acronym in Portuguese) is supported by a set of nationwide information systems, with functionality for epidemiological, outpatient, hospital, and administrative areas⁽¹⁾. Until the 1970s and 1980s, the health information systems (HIS) were under management at the federal level. In the mid-1990s, it was still common to use data storage servers located in central agencies such as the Ministry and State Health Departments. With the expansion of HIS into morbidity, mortality, and births and the decentralization of service care assistance, especially primary care, it was possible to obtain data at the municipal level⁽²⁾.

From this perspective there is a pressing need for health management of the three spheres of

government in order to systematize and democratize strategic information to support policy, planning, and decision making⁽³⁾.

In general, there are deficiencies in health managers' management capacity that affect the efficiency, efficacy, and effectiveness of care provided to the population. Among these limitations, we highlight the misuse of information for decision making, and the lack of skills for critical analysis, which can compromise the implementation of preventive and/or corrective actions⁽⁴⁾.

Decision making constitutes a formal competence of managers. In addition to the information obtained it makes use of personal knowledge that they possess (technical, political, and cultural, among others) and their perception of the problem, forming convictions that enable them to make decisions mobilizing necessary resources. However, the decision-making

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process in general is complex and riddled with uncertainty and subjectivity⁽⁵⁾.

In particular, management in primary health is configured as a complex arena that involves several dilemmas and challenges, as it has the purpose of direct health services to meet the population's needs, whether collectively or individually⁽⁶⁾. The formulation of the National Program for Improving Access and Quality of Primary Care (NPIAQ-PC), aligned with the policy of primary care, emphasizes⁽⁷⁾ the production of a culture of analysis, assessment, and intervention capable of generating institutional capacity in management, teams, and local systems to produce changes in the implementation of services.

Thus, this study proposes to contribute to the debate on the knowledge/daily routines of co-manager nurses in primary care, to reflect on the use of health information systems, specifically the handling, relation to the production of health, challenges that arise, and dialog in the process of decision making. The study aims to support managers and others interested in the subject to perform more consistently in the use of HIS, renewing their actions and knowledge.

The study intends to point out gaps in knowledge on the subject because, when we performed an in-depth foray into the available literature, we observed that the majority of the articles address the subject from the perspective of professionals in the Family Health Strategy (FHS), but there are few studies whose authors contextualized an incorporation of HIS by managers in decision making. This shows the need to seek more evidence on the subject.

Thus, this study aimed to analyze the use of health information systems in the decision-making process by co-manager nurses in primary care in two municipalities in the south of Bahia, Brazil.

MATERIALS AND METHODS

In view of the characteristics of the object in question, a qualitative study was chosen, because the adopted analytical course had the objective to make possible the objectification of

a type of knowledge that has as raw material opinions and values, among others, taking into account that individuals learn from the place they occupy in the world and the actions they perform⁽⁸⁾.

The selected locations were two cities in the south of Bahia, Brazil. Both are situated in the macro-region of the south of the state, with a population of around 200,000 inhabitants, with similar infrastructure capacities and health region headquarters.

In the organizational structure, according to the organizational chart, in addition to the health secretary there are other professionals responsible for the primary care network who occupy departments and coordination, among others, appointed into commissioned or non-commissioned positions. In both cities, most professionals who take these positions have a nursing education, and in this sector only one had a different professional training. Thus, the study subjects were 18 nurses working in the co-management of primary health care in the central level of health services.

For the data collection technique, semi-structured interviews were used, which took place from November 2011 to March 2012 and were recorded using audio equipment. A script was prepared with questions defined *a priori* that initiated the interaction between interviewer and interviewee.

After transcription/data entry, a matrix was developed with selected items of convergence and divergence in the interviews, generating a preliminary classification into empirical categories. Then, through successive approximations, the analytical dimension was determined; for this we used thematic modality content analysis, in which the raw results were treated so as to be significant (interviewees) and valid, merging items of significance in the discourse into categories⁽⁹⁾.

The study was conducted in compliance with Resolution 196/96 of the National Health Council, and submitted and approved by the Ethics Committee on Human Research of the State University of Santa Cruz, in accordance with Protocol 462/2011. The participants were fully informed about the research content, its objectives, the nature of the research and

methods, and had the freedom to refuse participation or withdraw their consent at any stage of the research without any prejudice or penalty. Permission for voluntary and anonymous participation was given by signing the free and informed consent form.

In order to preserve anonymity, the municipalities were referred to as M1 and M2. Participating nurses (all female), 10 in municipality 1 and eight in municipality 2, were named alphabetically in the order of their participation in the study: Na, Nb, Nc, etc. It is this code that appears in the extracts of the speeches—for example, (Na, M1), referring to Nurse “a” in municipality 1.

RESULTS AND DISCUSSION

From the classification of units of significance, the results indicated the category “The power of the use of HIS for Decision Making by Management” with two sub-categories, namely: (1) the relevance of information systems in primary care; and (2) qualification management for the use of information systems in health care.

Category: The power of the use of HIS for Decision Making by Management

Subcategory 1: Relevance of Information Systems in Primary Care (ISPC)

The primary care co-manager nurses said that, among the most-used HIS, the most prominent is the ISPC, as reported below:

... in the case of my coordination, the system I use most is the ISPC. Now, with the other coordinators, we are always confronting indicators considered. Do you understand? (Nc, M1)

[...] I use the ISPC here, the SISPRENATAL, HIPERDIA, and SINAN. (Nd, M1)

[...] the most widely used for coordination is the ISPC; we have more affinity [...]. (Nb, M2)

The relevance of ISPC reiterated by primary care co-managers is presumed, given that this system, while it is a local and municipal management tool, constitutes a key element in allowing the knowledge of the reality of the social health study population, and facilitates the formulation and evaluation of policies, plans, and health programs for monitoring, control, and transfer of funds, as

well as directing the adequacy of health services offered. This system is ultimately a tool for the process of decision-making aimed at improving the health status of the population^(6, 10).

Despite some shortcomings present in the ISPC, it has unquestionable relevance in primary care. Recently there was a transition from ISPC to a new Information System in Primary Health Care (ISPHC) using e-SUS AB software in the municipalities in this study. This change aimed to improve the quality and the details of health information⁽¹¹⁾.

In addition, the new system aims to integrate the various existing information systems in primary care, reducing the need to record the same information in more than one instrument. The intention is therefore to bring the information produced to the professional work process in the perspective to qualify the health care and culture of information use^(12, 14).

The relevance of the HIS was emphasized by the interviewees as a tool for planning, decision making and the management of health in general:

The network already knows very well the importance of the information system today and is a management tool, and a care management tool mainly for nurses [...]. (Na, M1)

The generation of reports at the time that we want . . . it (the HIS) permeates our planning, all the decisions we take here in the department. (Ne, M2)

[...] can set the action to be taken [...] what counts is what is there on paper, what's going to the system [...] (Nf, M1)

[...] the information system is fundamental, it is the backbone of primary health care. It is through this that you have a picture of the population you serve; it is through this that you have to trace the evolution or involution of the services that are offered and what effect this has on the community [...]. (Na, M2)

However, while respondents confirm the importance of HIS, most agree that there are difficulties in obtaining the information because it does not always coincide with reality and/or is not very reliable, as reported below:

[...] the information system, at least here in the city, we have no way to be certain on reliability,

because usually they do not match with reality. So there is an incompatibility of data in information systems. (Nc, M2)

[...] often the information system can be unequal with reality [...]. (Ne, M1)

[...] precisely the incompatibility of data, we do not have data that is reliable [...]. (Nc, M2)

Fragile HIS are a constant challenge for all levels of management; the performance of health systems cannot be adequately assessed or monitored because the data are incomplete, inaccurate, or untimely⁽¹²⁾.

The co-managers believe that managers (municipal health secretaries) have little knowledge or understanding of the strategic value of information for the development of plans and programs and, consequently, the decision-making process.

[...] most managers do not have this understanding that the information system is essential, that [it] must have investment . . . to hire qualified people. (Ne, M2)

[...] many indicators that we cannot reach because of the difficulty of the work, material . . . we cannot work on some indicators . . . so we have this problem of raising the awareness of the manager and showing the importance it is to work on the indicators. (Na, M1)

Subcategory 2: Qualification management for the use of HIS

A major weakness pointed out by nurses is the lack of or few qualifications for the use of HIS. The selected excerpts below reinforce this statement:

[...] we have trouble in reporting and also in capabilities [...]. (Nd, M1)

[...] I think today one of the difficulties would be the issue of lack of professionals with regard to information systems. (Nh, M1)

[...] managers must be able to better understand what the information system is and have the ability to use it [...] I as a manager, can say that we do not have much ability to handle the system. (Nh, M2)

[...] most of these programs do not talk to each other. We have difficulty cross-referencing the data; there are many reports that are generated to evaluate [...]. (Na, M2)

There are other studies with similar results, with the difference that the people involved did not occupy management functions at the central level, but were professionals in the family health team, which highlighted the lack of training of professionals and the low reliability of the data contained in the ISPC^(6,13). It is not enough to just have availability of ISPC data, as these are not always sufficient to be used as information; there must be investment in the continuing education of management and professional teams⁽⁶⁾.

Quality data are able to reveal the reality of services and programs in health as well as the health status of the population, highlighting priority issues and targeting investments⁽²⁾.

From the extracts below, it appears that two realities coexist: co-managers who realize the importance of HIS and who see the potential of these systems, but have difficulties in their use, and others who understand the use of HIS as a task to be fulfilled under the orders of other levels of management:

[...] because our actions in the year 2012 were precisely directed to the change in working process of the family health teams, guided by the State Department, so we ended up using information systems. (Nb, M1)

In relation to the management, we use [it] because we work with indicators and had to adhere to the NPQA quality program so, like it or not, we are working. (Nc, M1)

In addition, one of the weaknesses revealed is that the manager needs political will and commitment to the decision making, and to direct this to the production of health:

Today in the municipality, the greatest difficulty in making decisions is the question of political will and commitment of the manager, because we have trained professionals, we have an information system today, which is unfortunately not yet working as it should [...]. (Nb, M1)

The areas of policy, planning, and management have great complexity, because there are times when there is a lack of knowledge for decision making and other times when there is sufficient knowledge but the decisions are postponed. Finally, there are

those times when decisions are needed in the face of scant evidence⁽¹⁴⁾.

Concentrating efforts to establish an information culture assumes changes in the health management process where information and knowledge are intensively used, as well as in information management and health information technology (HIT), by directing the culture toward training, analysis, and promoting their use. However, for each step fulfilled, new challenges arise for managers committed to reducing inequalities and improving health in society⁽¹⁵⁾.

The co-managers also pointed out the value and use of measurable qualitative indicators:

[...] so, there we have, through the health indicators of women; we see children less than one year old who have been vaccinated [...]. (Na, M1)

[...] each in its area of operation, we are always comparing statistical indicators. Do you understand? (Nc, M1)

[...] other actions that the HIS could support would be related to mortality, both mother and child; also on the program of adolescent and adult male health. We do not see good utilization of the information system for those programs. (Nh, M2)

Although the use of epidemiological indicators is essential to management, it is inconceivable that their use is sufficient in understanding and explaining the complexity that is the field of health. In general, there is still a way of thinking that assumes that the existence of well-designed quantitative indicators is sufficient to induce proper care. However, one must have an anthropophagic attitude with the “hard” indicators: know them, digest them, recreate them, but never indulge in relying on them exclusively⁽¹⁶⁾.

An important aspect of mediation in the information relates to the interdisciplinary nature of its production and use. We must connect the subject and its context, seeking to build networks of directions, as the information/knowledge must be used to produce movement and changes in the view, feel, and action of work in health care and to produce care practices and more committed management to quality of life and the advancement of public policies⁽¹⁵⁾.

We highlight the progress that can result from the implementation of information resources management (IRM) that arises from the convergence of the terms “information” and “information technologies” in order to structure information in the area of health. The IRM is conceived as a multidisciplinary concept that involves four elements: management, technology, information and environment⁽¹⁷⁾.

[...]While “management” of IRM can offer “informational support” to the various decision-making levels of the organization, especially those related to cost, quality, and effective use of information, with regard to the “technology” element, this should be considered as information technologies available that can support the decision-making process of the organization, such as hardware and software management, data communication, and processes of electronic communication. While a resource of the organization, the “information” element has cost and value, and its management can increase the ability to create and retain organizational knowledge, and contribute to improving the decision-making process. Regarding the “environment” element, the work of the IRM is critical to integrate the various internal and external resources (people, information sources, and technologies) to support organizational management. It is from this scope, arising from the development of the information society, in which the actions related to information and information technologies overlap more and more organically^(17:410)

Given the limitations in the use of HIS as a tool for decision making that emerged in the discussion, it can be inferred that one of the main functions of the Municipal Health Department is to provide the members of its team with an enabling environment that allows them to maximize their potential by providing them with the necessary information so that they can make choices in the most appropriate form and direct their own decisions in the SUS goals.

The information available from the HIS may have the potential to trigger, or not, new dimensions of management and health care. It can also contribute to the arrangement of new working practices consistent with the PHS principles, in order that the field of health can experience a series of profound structural,

procedural, and management transformations as well as a recognition that the use of HIS is fundamental in order to monitor and offer answers to new and complex demands.

Thus the challenge for management is to further⁽¹⁸⁾ the use of the HIS to produce improved management practices and more committed care, to the advancement of public policies built for the defense of life and health, and the strengthening of the citizenry.

FINAL CONSIDERATIONS

In addition to answers and conclusions, the research proposes a reflection on the particularities of the object, that is, the use of HIS for decision making by primary health care co-managers. In fact, the global context increasingly requires expanding the use of information in everyday decision making, especially in health, due to its scope and complexity.

The results and discussion pointed to the following: in general, the HIS data are not reliable; the ISPC is mostly used by HIS co-managers, although unqualified use of HIS occurs, signaling the creation of individual strategies to address this shortcoming, because co-managers state that they use the HIS in their daily routines. There has recently been the prospect of enhancing and promoting even more information culture with the restructuring of the ISPC and the emergence of e-SUS AB.

Yet other results emerged, namely: the valuation of measurable indicators, to the detriment of qualitative indicators; there are some nurses who understand the importance of using the HIS for decision making and others who report use with respect to hierarchical decisions from other levels of government.

Although there is no existing route to be followed, we suggest some points that can be

thought about and discussed by management and by the city health department in order to promote an organizational environment that strengthens the use of HIS for decision-making. Specifically, co-managers should be qualified in HIS and also in decision making, preferably in their places of work, as this can be an opportunity to reflect on their everyday experiences.

Considering that in general the HIS data are unreliable, management must create conditions to reverse this situation: delve more deeply into the steps that are the biggest obstacles (in collection and/or processing, or other) and, from there, make efforts to ensure that these systems reflect reality as closely as possible.

Nevertheless, the establishment of information resources management (IRM) in municipal departments is necessary. It is recommended that this consist of a team of professionals (typists, administrative staff, IT, and health care) that may be responsible for structuring the databases and the use of information, from production to analysis and dissemination. Professionals should meet periodically to plan, deploy/implement projects, and monitor the activities in the region.

We propose therefore to initiate a dialogue with the other spheres to address the further integration of HIS so that they all become interoperable systems. In addition to the use of HIS, management should seek knowledge and tools aimed at using scientific evidence for informed decision making in health management.

Thus, it is up to co-managers to (re)think their practices, develop greater handling capacity and flexibility of information and knowledge, and seek to become a more adequate in intervening in reality and making decisions that maximize community health.

UTILIZAÇÃO DOS SISTEMAS DE INFORMAÇÃO: DESAFIOS PARA A GESTÃO DA SAÚDE

RESUMO

Estudo qualitativo, cujo objetivo foi analisar a utilização dos Sistemas de Informação em Saúde para a tomada de decisão por cogestoras em dois municípios do sul da Bahia, Brasil. Foram entrevistadas 18 enfermeiras que atuam no nível central da atenção básica. Elegeram-se a análise de conteúdo, modalidade temática. A classificação das unidades de significação apontou a categoria - A potência do uso dos Sistemas de Informação para a

Tomada de Decisão pela Gestão, que deram origem a duas subcategorias: 1- A relevância do Sistema de Informação da Atenção Básica que é visto como potente ferramenta da gestão, embora haja limitações na utilização pela não fidedignidade dos dados e informações, e 2- A qualificação da Gestão para a utilização dos sistemas de informação, visto que há pouco conhecimento para o manuseio dos mesmos, sinalizando que as cogestoras desenvolvem estratégias individuais para suprir essa lacuna e, geralmente, as informações são utilizadas para atender as decisões verticalizadas das outras esferas. Assim, cabe às gestoras (re) pensar suas práticas, desenvolver maior capacidade de utilização da informação, a fim de tornar sua gestão mais adequada para intervir na realidade e disparar ações que maximizem a saúde.

Palavras-chave: Sistemas de Informação em Saúde. Gestor de Saúde. Atenção Primária à Saúde. Tomada de Decisões.

EL USO DE LOS SISTEMAS DE INFORMACIÓN: DESAFÍOS PARA LA GESTIÓN DE LA SALUD

RESUMEN

Estudio cualitativo, cuyo objetivo fue analizar el uso de los Sistemas de Información en Salud para la toma de decisiones por cogestoras en dos municipios del sur de Bahia, Brasil. Se entrevistaron a 18 enfermeras que trabajan en el nivel central de la atención primaria. Fue elegido el análisis de contenido, modalidad temática. La clasificación de las unidades de significación señaló la categoría - La potencia de la utilización de los Sistemas de Información para la Toma de Decisiones por la Gestión, que se tradujo en dos subcategorías: 1- La importancia del Sistema de Información de Atención Primaria, visto como una eficaz herramienta de gestión, aunque haya limitaciones en el uso por la no fiabilidad de los datos y de las informaciones; 2- Cualificación de la Gestión para el uso de los Sistemas de Información, puesto que hay poco conocimiento para su manejo, señalando que las cogestoras desarrollan estrategias individuales para solucionar esta carencia y, por lo general, las informaciones son utilizadas para cumplir las decisiones de las otras esferas. Por lo tanto, le corresponde a la gestión de (re) pensar sus prácticas, desarrollar mayor capacidad para utilizar la información, con el objetivo de hacer con que su gestión se vuelva más adecuada para intervenir en la realidad y desencadenar acciones que maximicen la salud.

Palabras clave: Sistemas de Información en Salud. Gestor de Salud. Atención Primaria a la Salud. Toma de decisiones.

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Submitted: 14/07/2014

Accepted: 30/03/2015