



HOSPITAL INFORMATION SYSTEM: MANAGER'S CONCEPTION OF A TEACHING HOSPITAL

SISTEMA DE INFORMAÇÃO HOSPITALAR: CONCEPÇÃO DE GESTORES DE UM HOSPITAL DE ENSINO

SISTEMA DE INFORMACIÓN HOSPITALARIO: CONCEPCIÓN DE GERENTES DE UN HOSPITAL DE ENSEÑANZA

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ABSTRACT

Objective: to characterize the process of managerial decision based on hospital information system; to identify the managers' information needs for decision-making process; and to describe the information network beyond the managerial scope and its use concerning the management practice. **Method:** it is a qualitative study. The data was collected by interviewing twelve managers and was submitted to content analysis. The research was approved by the Research Ethics Committee of Hospital Lauro Wanderley/UFPB and by means of CAAE No. 0051.0.000.126-11. **Results:** the hospital information system is still rudimentary and non-systematized; the process of generating information is manually performed on-demand and once they do not exert influence on the process of managerial decision. **Conclusion:** the study points out the need for sensitization and training of the managers who are involved in the decision process, considering the complexity and influence of the information system. **Descriptors:** Hospital Information System; Hospital Records; Hospital Statistics.

RESUMO

Objetivo: caracterizar o processo de decisão gerencial com base no sistema de informação hospitalar; identificar as necessidades de informação dos gerentes para o processo de decisão; e descrever a rede de informações no âmbito gerencial e sua utilização no exercício da gestão. **Método:** estudo qualitativo, no qual os dados foram coletados por meio de entrevistas com doze gestores e submetidos à análise de conteúdo. A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa do Hospital Lauro Wanderley/UFPB, mediante CAAE nº 0051.0.000.126-11. **Resultados:** o sistema de informação hospitalar é rudimentar e não sistematizado; o processo de geração da informação é realizado manualmente e por demanda e não influenciam o processo de decisão gerencial. **Conclusão:** o estudo aponta a necessidade de se sensibilizar e capacitar os gerentes envolvidos no processo decisório, considerando a complexidade e a influência do sistema de informação. **Descritores:** Sistema de Informação Hospitalar; Registros Hospitalares; Estatísticas Hospitalares.

RESUMEN

Objetivo: caracterizar el proceso de decisión gerencial con base en el sistema de información hospitalaria, identificar las necesidades de información de los gerentes para el proceso de decisión; y, describir el sistema de informaciones en el ámbito gerencial y su utilización en el ejercicio de la gestión. **Método:** estudio cualitativo, los datos fueron colectados por medio de entrevistas con gerentes y sometidos al análisis de contenido. La investigación fue aprobada por el Comité de Ética en Investigación de lo Hospital Lauro Wanderley/UFPB y por medio de CAAE 0051.0.000.126-11. **Resultados:** el sistema de información del hospital aún es rudimentario y no sistematizado; el proceso de generación de la información es realizado manualmente y por demanda y no influyen el proceso de decisión gerencial. **Conclusión:** el estudio apunta la necesidad de sensibilizar y capacitar los gerentes envueltos en el proceso de decisión, considerando la complejidad y la influencia del sistema de información. **Descriptor:** Sistema de Información Hospitalario; Registros Hospitalarios; Estadísticas Hospitalarias.

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INTRODUCTION

Without any difficulty, we identified a myriad of everyday situations in which the information is used to guide decision-making: the balance in the bank account, to decide about buying something; road conditions, to decide on a trip, etc.

However, access to certain information does not guarantee that the decisions and actions taken are always ' correct ', are ' correct '. That's because the information reflect ' the degree of myopia ' of him who uses them, that is, their ideas, their values, their intentions, their worldview and other peculiarities, which influence, directly, making decisions. Therefore, we can say that the information are not neutral. Furthermore, even when we access relevant and reliable information, the uncertainty remains present. The size or the degree of uncertainty is variable. Depends on the type of situation found and who wish to speak on it.

The process of health sector management requires decision-making of high responsibility and social relevance. The information can act as a means to reduce the degree of uncertainty about particular health situation, supporting the process of decision-action. However, it should be clear that decisions are supported by assumptions, that is, by design of model for health care of those involved in case management.

In this sense, the Hospital information system of the unified health system (SIH/SUS) is a health administrative tool available in all hospitals of Brazil and has its origins in the authorization of Hospitalization (IAI), which is intended for the payment of public and private hospital admissions annually with the SUS. This instrument, which helps in the decision-making process of the Manager, presents as diagnostic information advantages, geographical and demographic for each hospitalization, enabling the expansion of production of knowledge.¹⁻²

But if, on the one hand, the SIH/SUS is one of the most used systems in the various levels of health services management, on the other, its use is associated with, primarily, to the transfer of resources. So, what happens with the other system-generated information? As managers, explore scientific and technological potential based on SIH/SUS? What information they seek and how to use them in the decision-making process?

The information and communication system is a powerful instrument that can contribute to organizational transformation, both

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internal and external, in facilitating interaction and exchange of information among professionals, and services sectors, and between information centers and institutions of excellence in the area, as it allows one to organize the information produced during the work process. Therefore, it is up to the Manager to know what to do with the information generated to implement policies that can bring benefits to the Organization and to society.

So, given the above, the present study aims to analyze the use of SIH as tool to assist in the process of managerial decision.To this end, the following objectives have been defined:

To characterize the managerial decision-making process based on SIH;

To identify the information needs of managers for decision-making;

To describe the information in network management and its use in the conduct of management.

METHOD

This research is a descriptive study with a qualitative approach that presents itself on three axes: the investigative unit manager, the decision-making process in the exercise of managerial function, and the survey and the analysis of the information used by managers in decision making. To that end, the field of study chosen was a teaching hospital of João Pessoa, Paraíba.

The University hospital is formed by a single drive divided into two areas: Outpatient and hospital. For this study we have selected inpatient units, involving the welfare-oriented Nursing management, Medical management and three departments (technical, planning and Supervision). On these criteria, participated in ten managers.

Also participated in this study two intermediate management professionals (Division of nursing and Medical Services Division), with the purpose of broadening the focus of the analysis in the decision-making process that can have an impact on the operational management level. Therefore, the subjects participating in the study were 12 professionals who develop management actions in the units mentioned above. It is important to note that only started collecting data after the project has been assessed and approved by the Research Ethics Committee of the Hospital Lauro Wanderley-CEP/HULW, by 0051.0.000.126 n. CAAE-11 and under Protocol No. 132/2011, so that the participants were informed of the objectives

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of the study and asked to sign the informed resolution recommends the 196/96 of the National Health Council.

As a strategy for data collection, a semi-structured interview with study participants, which contained the following questions: 1. What are the activities that characterize your management function on this unit? 2. What information is needed to assist in the decision-making process? 3. Describe how the information network (SIH) in which you use in the course of management. 4. What do you do with the information generated from the hospital information system? The interviews were taped with the permission of the interviewees, numbered chronologically and the transcript of the speeches was held fully parsed, contextualized, punctuating the categories and working the meanings of loving phenomena. To preserve the integrity of respondents identified the participants with

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the letters: A, B, C, D, E, F, G, H, I, J, L, and M.

The Organization of data was accomplished through the thematic analysis of content.³ this is a set of techniques of analysis of communications that uses systematic procedures and objectives description of the content of the messages.

RESULTS

The processing of the data has identified four thematic categories: characterizing the function of management, information to assist in the process of managerial decision; realizing the operation of the current network of information; and having trouble in managing the information generated by the SIH. (Figures 1, 2, 3 and 4).

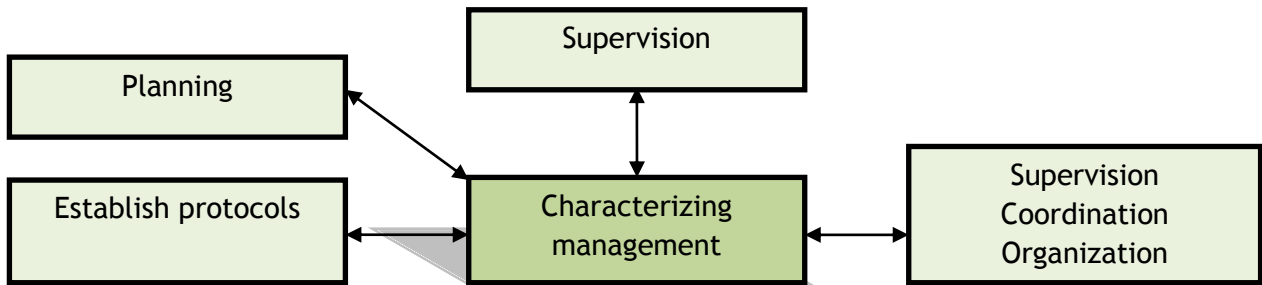


Figure 1.Category and sub-categories, extracted from the question: what are the activities that characterize your management function on this unit?

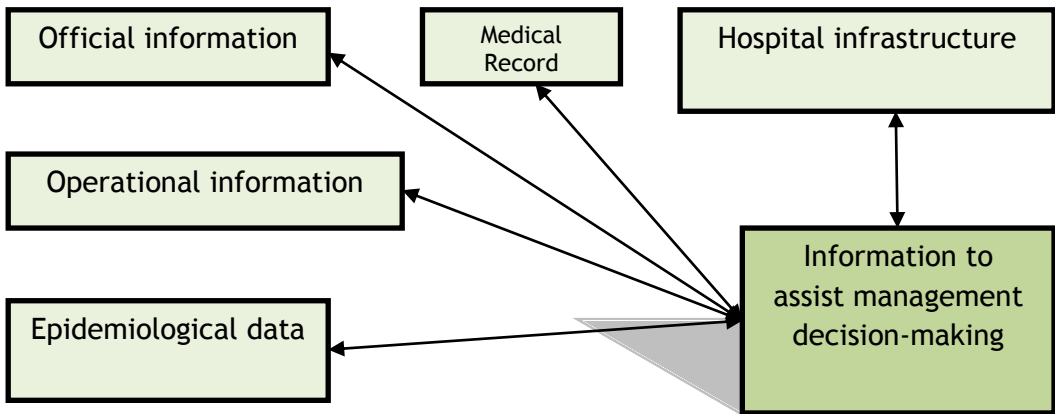


Figure 2: category and sub-categories, extracted from the question: what information is required to assist in the decision-making process?

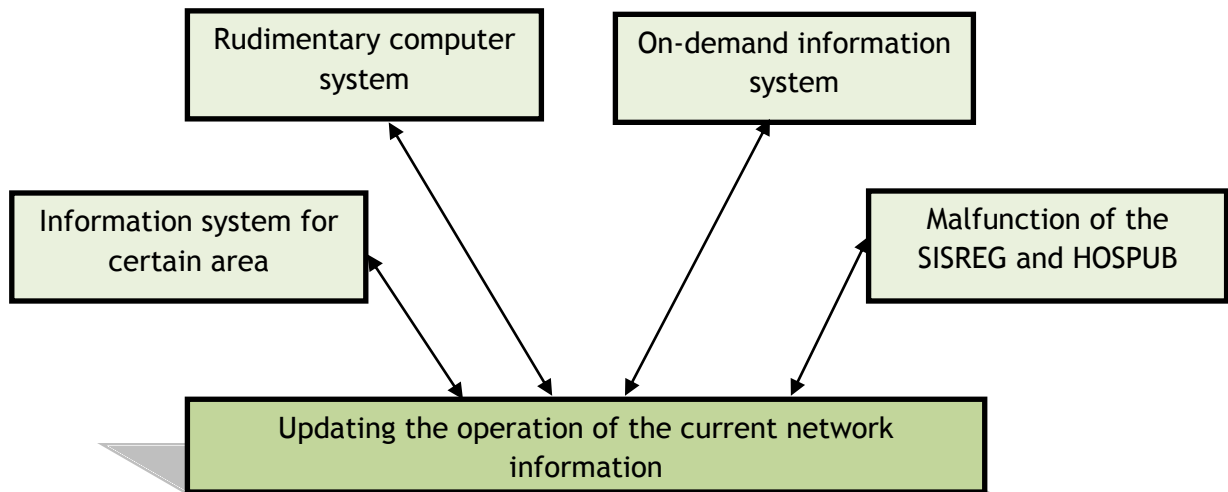


Figure 3: Categories and sub-categories, extracted from the question: describe how the information network (SIH) in which you use in the course of management.

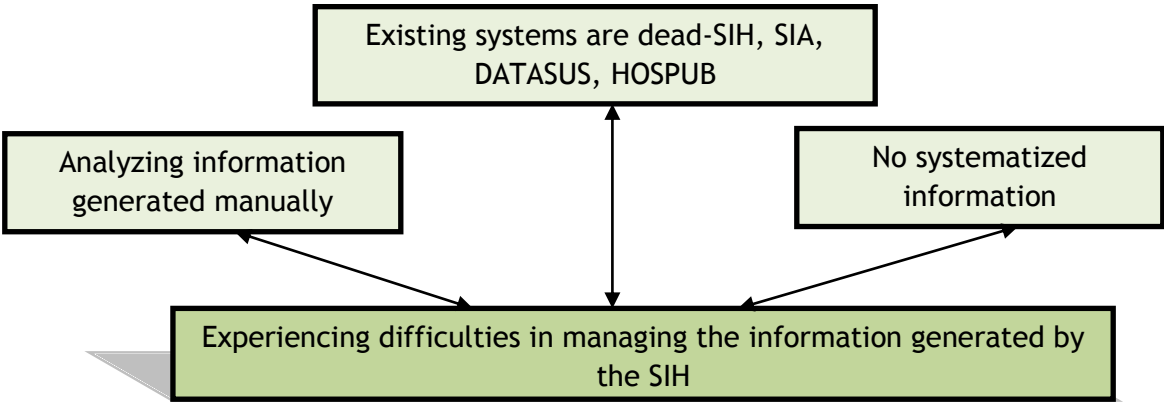


Figure 4: category and sub-categories, extracted from the question: what do you do with the information generated from the hospital information system?

DISCUSSION

The managerial function can be considered the cornerstone of the administrative process. Has always been so and it looks like it will continue for a long time. It is known that in any activity, business success depends on directly or indirectly from performance management in its activities. Managerial work is crucial in the definition and in the achievement of organizational objectives, in the formulation and implementation of strategies and in the realization of the vision of the future of the company.⁴

The University hospital, both on the qualitative aspect of productivity depends on how much of the management activity. To reach their goals and consolidate its premises, the organization is based on the work of its managers, because they are responsible for the suitability of any organizational base with respect to assistance, research and teaching.

In this sense, the managerial function perceived by managers can be correlated with the hospital's own profile, as a public institution, assistance and professional training. The organizational structure influences directly the work process, so that the organization is formed according to the beliefs and values of the person who is.⁵

Thus, the managerial role is perceived as a set of interrelated activities to elements of the Administration, namely: planning, monitoring, coordination, organization, monitoring and protocols. These subcategories comprise a category featuring management function (Figure 1) and can be observed in the following testimonials:

- [...] We plan to the functionality of the hospital as a whole, in fact there is so much physical space planning, the planning of new services, the budget planning. (A1)
- [...] is overseeing the divisions and services that act directly on clinical activity. (B1)
- [...] team coordination [...] the Organization of services. (C1)

[...] formation of scale [...] distribution of the points [...] the acquisition and programming of new equipment and materials [...] establishing medical or ducts multiprofesional protocols. (E1)

The expressions such as planning, supervision, coordination and other denote the vision influenced by the Taylor paradigm, to the detriment of a broader view of management that meets the requirements of competence, which is one of the factors of influence to achieve satisfactory levels of performance. It is noticed in an effort to try to describe the function of management. This can be explained because professionals who lack systemic vision of the Organization, namely, that present certain “systemic myopia” occupy the managerial positions, often.

It can be said that it is up to the Manager to achieve desired results and planned in its work process, or fulfill the Mission in which failures designed for your process. Its function, therefore, is to make the process that is under your responsibility to comply with the proposal for which was constituted.

Although it is a desire for any admin, can verify that the managers of the University hospital, in spite of the responsibility and seriousness with which they exert their functions, are struggling not to see the processes that are under their responsibility comply with your wishes and requirements. This somehow puts them hostages of their own systems and reveals that top management faces problems to exercise organizational control.

It is known that the completely decision-making process executed by a demand as primordial clear, objective information resource and trusted. The information required to aid in the decision-making process must meet that purports to decide, that is, not all information generated will meet the real need of the Manager.

Is normally realized that university hospital managers are not aware of their role and

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responsibility to lead the decision-making regarding care, teaching and research that are carried out in their work. In this way, also need to have knowledge of the entire decision-making process, which involves data collection, information production, establishment of proposed solutions, choice of decision, implementation, and evaluation of results, so they know to select and correctly use the information that will help in the process.⁶

For these managers, this information is official information, hospital infrastructure, operational information, epidemiological data and medical record. Are subcategories of the category information to assist in the management decision process (Figure 2), as can be observed in the following testimonials:

[...] I need to have all the information from the point of view of engineering, part of the electrical engineering, hydraulic engineering, civil engineering, of architecture [...] all this information, it has to arise. (A2)

[...] the procedures, services that are operated or performed in the hospital, as well as epidemiological data [...] as well as the infrastructure of the hospital. (B2)

[...] know what is happening with each sector, how does each service. (D2)

[...] usually I need legal basis, the rules of both the rectory and the Ministry of health and education, ANVISA. (E2)

[...] information concerning the functioning of the operating theatre itself, check the number and meeting rooms available that day, in relation to the operation, the sterilization sector. (F2)

Note on talk that managers are important to the information they need to administer bureaucratically your work process, but not to those which are essential to support your decision-making process. Posing as broad, general information, and even raw data, which makes it difficult to make a decision.

In addition, unaware of the decision making process systematized, because they have the vision it is a simple task to decide or make a choice, for example: "give the final word, because it is the boss". Managers need to be aware of the need to redefine its role within the Organization and change its shape, because they are responsible for the achievement of organizational objectives.⁷

In fact, take decision is not an easy task; a planned action improperly can affect the structure of the organization. Uncertainty and risk are constant, but can be minimized, since the information is considered a crucial component in the decision-making process and

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is provided properly at the time of the decision.⁸

It is obvious that an information network running efficiently within an organization facilitates the process manager's work, so that having accurate information is essential for decision-makers. The information only acquire meaning as the agent of the decision and revert into concrete actions and Resolute to health problems in the space where they are produced.⁹

Contextualizing this reasoning, it is observed that the SIH is based on IAI and main objective the payment of admissions made by the hospital network. Soon, it is used as a measuring instrument of hospital morbidity. At University hospital, managers understand the functioning of SIH as: information system for certain area, rudimentary computer system, on-demand information system and regulatory system malfunction (Sisreg) and the integrated system of information of Hospitals (Hospub). These subcategories make up the category realizing the operation of the current network of information (Figure 3), as can be seen in the following testimonials:

[...] Today, this system of information, it is done on demand [...] we are going behind the information [...] a network of established information does not exist, this information network, she is much more informal, it is not a systematic network. (A3)

[...] at the moment we are still running some manual information [...] is a rudimentary computer system [...] he does not bring the patient's clinical information and, Yes, data of birth, date and the principal diagnosis [...] also fails to address the health care needs outside [...] the Manager's control outside the hospital [...] there is no [...] enter the data, inform but he ends up returning on paper, yet the manual [...] have the data I still can't get online. (B3)

[...] What we use is the craft, memo and in the patient's admission the system, ... the SISREG and the HOSPUB that much evil works, which neither serves as parameter for us by the malfunction. (G3)

By reports, the precariousness of the information system in the hospital, where the network of computers is misused. The justifications may be related since the ignorance on the part of managers of how does an information system to the lack of qualified human resources to work in the process of obtaining, processing, data analysis and generation of information, apart from the lack of initiative and interest in deploying a computerized system in which all sectors of the hospital can access and use information quickly and accurately. Connectivity is vital to efficient information as streamlined

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production, updated, complete and reliable health information, on all levels of management, is an important instrument for social control of the SUS and in local programming.^{10,11}

The subcategory demand information system demonstrates that the information is not ready for use at any time. When you need it is still necessary to generate it. The system is not powered constantly to anticipate the needs of decision-makers, i.e. you lose time, slows the process and reduce the quality of care.

It is known that information systems have contributed to the development of the production process in organizations and that, in the hospital environment, in particular, has made possible greater security for decision-making, resulting in better patient care. An information system that will serve the process must respond to the demands and needs of the various services and units of the institution.⁷ according to the discourses, the operation of the current network of information is perceived as a system that meets certain area of the hospital, so it is fragmented and serves only to a given sector, being useless for others.

Subcategories found therein that the University hospital faces a huge challenge with regard to the functioning of its network of information. Managers, even with all the commitment to meet the goals of your function in the Organization, have not yet realized the importance of their involvement as responsible for the entire process of collection, organization, distribution and availability of information, as essential to the managerial function.

On the other hand, there is the Hospub, a system developed in a database operating environment and also an effective tool to provide information that could subsidize the hospital management; and Sisreg, an information system, provided by SUS it Department (Datusus), for the management and operation of the regulation.^{12,13} are instruments that could facilitate the work of management in the planning process, operation or control of actions in health, but according to the discourses, these two systems exist in University hospital, but are not used in the managerial function by its malfunction.

Thus, the managers have difficulties and end up analyzing the information generated manually, because the existing systems are inoperable and the information are not systematized. These subcategories comprise a category having trouble in managing the

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information generated by the SIH (Figure 4), as can be seen in the following testimonials:

[...] the Planning Board receives the information, but this information, she is not systematized. (A4)

[...] the CIS ambulatory and hospital information SIH, which is what we do this interface, but it is not automatic yet [...] because the DATASUS is not being used to generate this information. (B4)

[...] the information is still very precarious in terms of technology, we use paper [...] if we had a computer-based information system with use of terminals could be much more efficient. (E4)

[...] the US uses a lot is the statistic manual, we have in the form of a memo to boards of Directors of divisions, because the HOSPUB is not reliable. (G4)

It is important to note that the health information serves to identify individual and collective problems of population health framework and to analyze the situation found, evaluating priorities and assisting in decision-making. At the hospital, managers find it difficult to use the information generated by the system to support the activities of its service, because this system is inoperative. In the speeches, the lack of reliability of existing hospital information systems and, for this reason, the manager prefers not to use them. The expressions denote the uselessness of the system, because a non-trusted information is not meant to be used. Information obtained from data produced by various systems do not constitute an end in themselves, but represent a way to subsidize the best decisions for policy, planning, management, monitoring and evaluation of health programs, as well as, of course, serve to the epidemiological analysis and assessment.¹⁴ the technological development in the information technology area was that enabled a considerable leap in quality, not only in the registry, in the collection and processing of the data, but mainly in its timely disclosure, understood this as the lowest elapsed time between production and the provision of information.¹⁴ the category *experiencing difficulties in managing the information generated by the SIH* stems, among other things, the lack of computerization of the system generated in the University hospital. Therefore, before the speeches, one senses that this is a rudimentary system, in which, since the collection up to the provision of information, the entire process is done manually, by registering on paper, which makes the information an obstacle, rather than an ally.

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Although they are aware of the importance of the use of the information generated by the information systems managers, still show little familiarity with the production process, providing information and feedback systems. The difficulties of use there are by insecurity and failure of the system that barely works because the managers have not yet incorporated into your work process.

CONCLUSION

The University hospital is a large assistance scenario, teaching and research where the managerial role is perceived as the function of leading a group of professionals. This activity, in fact, need to meet the objectives of the institution so planned, through a decision-making process subsidized by clear information, reliable and available quickly and accurately.

Through the speeches of the participants of this study, it was possible to identify the following categories: characterizing the function of management; information to assist in the process of managerial decision; realizing the operation of the current network of information; and experiencing difficulties in managing the information generated by the SIH; In addition to subcategories which have helped us to achieve the objectives of the study.

Thus, it is concluded that the problems with the information on the University hospital arising from ignorance of how it works the information system, the lack of qualified human resources for management positions and the lack of interest and initiative to deploy a computerized system. So, make yourself necessary incentives for the training of managers to operate and use the information system, through permanent and continued investment in education, such as workshops, courses and improvements in the area of information management.

Anyway, the use by the managers of the University hospital of information generated by a well-functioning information system to support the decision-making process is also in a dream to fruition, an obstacle to be overcome, that requires the managers awareness to redefine their roles within the Organization and to expand its vision within this.

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REFERENCES

1. Viacava F. Informações em saúde: a importância dos inquéritos populacionais. Ciênc saúde coletiva [Internet]. 2002 [cited 2012 Apr 17];7(4):607-22. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232002000400002
2. Bittencourt SA, Camacho LA, Leal MC. O sistema de informação hospitalar e sua aplicação na saúde coletiva. Cad saúde pública. 2006 Jan [cited 2012 Apr 17];22(1):19-30. Available from: http://www.scielo.br/scielo.php?pid=S0102-311X2006000100003&script=sci_arttext
3. Caregnato RCA, Mutti R. Pesquisa qualitativa: análise de discurso versus análise de conteúdo. Texto contexto enferm on line [Internet]. 2006 Oct-Dec [cited 2012 Aug 23];15(4):679-84. Available from: <http://www.scielo.br/pdf/tce/v15n4/v15n4a17>
4. Chiavenato I. As quatro chaves da função gerencial. 2012 [cited 2012 Apr 17]; Available from: http://carreiras.empregos.com.br/comunidades/rh/colunistas/190902-chiavenato_funcao_gerencia.shtm
5. Brusamolín L, Montezeli JH, Peres AM. A utilização das competências gerenciais por enfermeiros de um pronto atendimento hospitalar. Rev enferm UFPE on line [Internet]. 2010 Apr-June [cited 2012 May 24];4(2):808-14. Available from: http://www.ufpe.br/revistaenfermagem/index.php/revista/article/view/984/pdf_20
6. Pinho FA, Melo LLS. O Sistema Pergamum no processo de tomada de decisão. Biblios on line [Internet]. 2011 [cited 2012 Mar 20];(43). Available from: <http://redalyc.uaemex.mx/redalyc/pdf/161/16120047003.pdf>
7. Guimarães EMP, Évora YDM. Sistema de informação: instrumento para tomada de decisão no exercício da gerência. Rev ci inf on line [Internet]. 2004 Jan-Apr [cited 2012 Jan 17];33(1):72-80. Available from: <http://www.scielo.br/pdf/ci/v33n1/v33n1a09.pdf>
8. Cândido CA, Valentim MLP, Contani ML. Gestão Estratégica da Informação: semiótica aplicada ao processo de decisão. Rev ci inf on line [Internet]. 2005 June [cited 2012 Jan 17];6(3);[about 1p.]. Available from: http://www.dgz.org.br/jun05/Art_03.htm
9. Paiva NST, Anselmi ML, Santos CB. Projeto "Viver em Cascavel": análise do fluxo de informações. Rev latinoam enferm on line [Internet]. 2002 July-Aug [cited 2012 Apr

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Hospital information system: manager's conception...

- 19];10(4):537-43. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692002000400011&lng=es&nrm=iso
10. Godlee F, Pakenham-Walsh N, Ncayiyana D, Cohen B, Packer A. Can we achieve health information for all by 2015?. Lancet on line [Internet]. 2004 July [cited 2012 July 20]. [about 6 p.]. Available from: <http://image.thelancet.com/extras/04art6112web.pdf>
11. Freitas FP, Pinto IC. Percepção da equipe de saúde da família sobre a utilização do sistema de informação da atenção básica - SIAB. Rev latinoam enferm on line [Internet]. 2005 July-Aug [cited 2012 Apr 09];13(4):547-54. Available from: <http://www.scielo.br/pdf/rlae/v13n4/v13n4a13.pdf>
12. Portal da Saúde/ Hospub - Sistema Integrado de Informações de Ambiente Hospitalar [Internet]. Brasília, DF: Ministério da Saúde; [cited 2012 Feb 12]. Available from: http://portal.saude.gov.br/portal/se/datasus/area.cfm?id_area=747
13. Portal Sisreg/ Sistema de regulação [Internet]. Brasília, DF: Ministério da Saúde; c2003 [cited 2012 Feb 12]. Available from: <http://www.portalsisreg.epm.br/conteudo/oque.htm>
14. Jorge MHPM, Laurenti R, Gotlieb SLD. Avaliação dos Sistemas de Informação em Saúde no Brasil. Cad saúde coletiva on line [Internet]. 2010 [cited 2012 Feb 12];18(1):7-18. Available from: http://www.iesc.ufrj.br/cadernos/images/csc/2010_1/artigos/Modelo%20Livro%20UFRJ%201-a.pdf

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