

IMPACT OF HEALTH INFORMATION MANAGEMENT ON BRAZILIAN NURSING PRACTICE FROM 2004 TO 2009

IMPACTO DO GERENCIAMENTO DA INFORMAÇÃO EM SAÚDE NO EXERCÍCIO DA ENFERMAGEM BRASILEIRA NO PERÍODO DE 2004-2009

IMPACTO DEL GERENCIAMENTO DE LA INFORMACIÓN EN SALUD EN LA PRÁCTICA DE LA ENFERMERÍA BRASILEÑA ENTRE LOS AÑOS 2004 Y 2009

Juliana Alves Viana Matos¹
Lidiane Sales Vieira²
Lúcia Maciel de Castro Franco¹

¹ RN. Doctoral student in the Post-graduation Programme of the School of Nursing of the Federal University of Minas Gerais – UFMG. Belo Horizonte, MG – Brazil.

² RN. Primary Care Nurse. Master's student of the Post-graduation Programme of the School of Medicine of the UFMG. Health Department of the Municipal Government of Belo Horizonte. Belo Horizonte, MG – Brazil.

Corresponding Author: Lidiane Sales Vieira. E-mail: lidianesavi@yahoo.com.br

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ABSTRACT

Health information management is an essential practice in the constant quest for quality patient care. In this context professional commitment is fundamental; the present study is an integrative literature review that aims at analysing the impact of health information management in nursing practice in Brazil from 2004 to 2009, identifying the consequences of system integration and the advances in information technology applied to nursing work process. The authors did a bibliographic survey based on data from the Health Virtual Library. Other twenty papers from the National Information Policy and the Health Informatics version 2.0 were selected and analysed using three different significance models. A total of 60% of the studies dealt with the empowering of the nursing professional; 25% revealed the professionals' lack of training to deal with the National Information System; 15% identified the various hindrances to nursing practice. The research highlighted professionals' commitment with knowledge generation and in the development of strategies to deal with health information management. However, nurses still do not have the appropriate means to carry out the process.

Keywords: Health Information Management; Nursing; Information Systems; Health Information Systems; Nursing Informatics; Automatic Data Processing.

RESUMO

A crescente busca de qualidade no atendimento à saúde abrange o gerenciamento da informação em saúde como elemento constitucional de realidades profissionais e assistenciais aprimoradas. Em face de o engajamento profissional assumir papel tático nessa conjuntura, desenvolveu-se uma revisão integrativa da literatura com o objetivo de analisar os impactos do gerenciamento da informação em saúde que permearam os processos de trabalho da Enfermagem brasileira no período de 2004 a 2009. Identificaram-se os reflexos da integração de sistemas e tecnologias de informação no contexto da atuação do profissional enfermeiro. Efetuou-se levantamento bibliográfico na base de dados da Biblioteca Virtual em Saúde, sendo que 20 produções somadas à Política Nacional de Informação e Informática em Saúde versão 2.0 foram analisadas mediante três linhas de significado. Relevou-se o empoderamento da enfermagem brasileira em 60% dos estudos, em 25% ficaram expressas as desarticulações laborais da profissão frente aos Sistemas de Informação em Saúde nacionais e 15% das produções remeteram a um cenário caracterizado por percalços experimentados pela Enfermagem. Evidenciou-se o interesse da Enfermagem em gerar conhecimentos e programar estratégias consoantes os fenômenos gerenciais da informação em saúde. Todavia, o enfermeiro não se apoderou veementemente dos mecanismos mais acertados para tal processo.

Palavras-chave: Gestão da Informação em Saúde; Enfermagem; Sistemas de Informação; Sistemas de Informação em Saúde; Informática em Enfermagem; Processamento Automatizado de Dados.

RESUMEN

La búsqueda creciente de la calidad en la atención sanitaria incluye el manejo de la información como elemento constituyente de la realidad profesional y asistencial mejorada. Por ello, el compromiso profesional asume un rol tático en esta coyuntura. El presente estudio es una revisión integradora de la literatura con miras a analizar el impacto del manejo de la información en salud sobre el proceso de trabajo de la enfermería brasileña entre 2004 y 2009. Se identificaron los reflejos de la integración de sistemas y tecnologías de la información dentro del contexto de la actuación del enfermero profesional. Se realizó un relevamiento bibliográfico en la base de datos de la Biblioteca Virtual en Salud (Brasil) y se analizaron 20 producciones vinculadas a la Política Nacional de Información e Informática en Salud, versión 2.0, en tres aspectos distintos. En 60% de los estudios se observa el empoderamiento de la enfermería brasileña, en 25% es evidente la desarticulación laboral de la profesión ante los sistemas de información en salud en Brasil y un 15% mostró el escenario de dificultades que enfrentan los enfermeros. Ha quedado evidente el interés de Enfermería en generar conocimientos y planificar estrategias relativas al manejo de la información en salud. Sin embargo, el enfermero todavía no se ha empoderado de forma vehemente de los mecanismos más acertados para tal proceso.

Palabras clave: Gestión de la Información en Salud; Enfermería; Sistemas de Información; Sistemas de Información en Salud; Informática Aplicada a la Enfermería; Procesamiento Automatizado de Datos.

INTRODUCTION

The building of a solution-focussed and coherent health care model depends on the integrated use of information and related methodologies as key elements to the organization of contents and professional excellence.¹ "In this sense, health services need to consider information and knowledge as strategic inputs to achieve solvability, the new paradigm of the information society".^{2,23}

The result of a long and promising process of democratic construction, information technology courses and health informatics are in constant demand worldwide.³ Regardless of the country, information management is intimately attached to advance in health care services and actions. In order to achieve more efficiency in the process of the various specialties, health information management is a strategic ally to improve health care services.⁴

Brazil has been trying to develop a comprehensive and qualified information system which could improve its health policies. The Department of Health, in line with the international scenario, created the Information National Policy and the Health Information Technology (PNIIS) as sector priorities. The PNIIS aims at democratization of information and improvement of technology and integrative of information networks.⁵

Health information management is an organizational aspiration prior to such government policy and to other national or international actions in the twentieth century. The objective to convey information to specific management actions or generation of health knowledge was already imperative in mid nineteenth century. Florence Nightingale⁶, the precursor of modern nursing active during the Crimean War (1853-1856), made clear the need to control and share patient information. To Nightingale⁶, effective decision-making could use proper recorded information and make it available to health care providers. The Nightingale's timeless insight allows us to recognise how valuable and necessary systematic actions related to health work processes are.

Health information management focussed on strategy design and organized health care methods is in the process of being consolidated. Lacking in human, financial and organizational investment, it depends on multiple factors in order to meet the needs of users, health professionals, service providers and government managers.⁵

The professionals' commitment to handling information as an essential ingredient to the decision-making process is an essential aspect of the whole process. Such agents are strategically relevant players in the carrying out of actions for the institutionalization of the systematic management of information. Brazilian nurses' ability to confront this context is of special interest to the present study.

Considering the health professionals' engagement in the rational and renovating use of information and with a specif-

ic interest in the nurses' performance against this setting the researchers propose the following question: what was the impact of health information management in Brazilian nursing processes between 2004 and 2009?

Brazilian Nursing professionals use strategies amongst which there is information management.⁷ The proper handling of such strategies overlaps regulations and norms and must be understood in order to be integrated as a potential improvement to the work process. The present study proposes an integrative literature review and this aims at analysing the impact of health information management in Brazilian nursing processes in the period, identifying the effects of system integration and information technology in the context of the nursing professional.

The goal is the improvement of health care services; therefore this research regards the nurse as potential agent in a systematic and computerized health care system. It is up to this professional to catch hold of the Health Information Systems (SIS) and endorse its innovative and transformative use in the health care field.

It should be emphasized the importance of analysing nurses' resourcefulness in the management of tools and strategies that help to rescale nursing processes. Strategies embedded in the process of managing health information may represent potential allies to nursing decision-making or may be a complicating factor. This question will be elucidated in the course of this study.

METODOLOGY

This is an integrative literature review. This methodological approach favours a systematic production of knowledge that fosters dialogue between the results of different studies on the same subject.⁸

The integrative review depends on a question that will be developed in the course of the paper.⁸ The question is: "which was the impact that health information management promoted in Brazilian nursing processes between 2004 and 2009?"

This bibliographic and scientific summary relied upon the Virtual Library database in Health (BVS) and the BIREME exclusively. The latter is a decentralized tool of scientific health information on the internet operating from the gathering of various computerized data bases. Based on the BVS, significant data sources became part of this bibliographical survey: Latin American and Caribbean Health Sciences (LILACS); International Literature in Health Sciences (MEDLINE); and Nursing Database (BDENF).

The authors defined specific search guidelines to identify the work process of professional nurses and the impact of health information management on their performance. The online bibliographical survey was carried out in March 2010 through the following descriptors: "information systems and nursing"; "information systems applied to nursing"; "informa-

tion management and nursing"; "computer science applied to"; "automated data processing and health".

The criteria used for sample selection were: articles indexed in the BVS published between 2004 and 2009, regardless of research method or type of study used, written in Portuguese, English or Spanish.

The period was chosen due to the XII National Health Conference that took place in 2003 and that recognizes information management in Brazilian health services. The consolidation of this policy, the PNIIS, highlights the need to combine working methodologies that promote the rational management of information.⁵ Although multiple strategies precede the considered time frame or have motivations other than partisan ones, the researchers observed the need to consolidate management information tools. Due to a strong political incentive and the increase in the use of technology and information systems the creation of the PNIIS is a benchmark in the incorporation of tactical resources for health information management.

The methodological approach consisted of 1787 studies using the aforementioned descriptors. Of these, 50 were selected through exploratory analysis (reading of the titles). Articles published in more than one data base or common amongst different descriptors were disqualified. After that, the number of articles selected totalled 24. After reading of abstracts, three other publications were eliminated. A total of 21 papers were destined to a full reading. After that only one text was excluded since it was not in line with the proposed question of this topic. Therefore twenty studies were selected as the research sample. It consisted of eighteen articles, one dissertation and one thesis.

The researchers also used the National Policy on Information and Health Information Technology version 2.0 (PNIIS), available

on the Virtual Health Library of the Department of Health, because of the important role of such topic among political circles.

The publications selected as of interest for this study were available online (articles 17 and PNIIS) and printed in its entirety. Three articles were found in journals and acquired in libraries.

The sources of the articles were: 18 (90%) from LILACS; 1 (5%) from BDENF; and 1 (5%) from MEDLINE.

In summary, concerning the objectives of this research, the important contents and their quantitative path are illustrated in Figure 1.

As an integrative review lacks accurate method to extract information from the selected studies⁸, the contents in the study sample were slightly manipulated. Data collection encompassed an individualized categorization of productions through a simplified tool that clustered information about the article and its authors, location source, objectives and type of methodology, results and conclusions.

The presentation of results and data discussion synthesized the dialogue between the authors and promoted the convergence of knowledge produced on the subject. In order to interpret the meanings that emerged from the contents the discursive analysis followed guidelines defined by the authors.

RESULTS

The researchers analyzed eighteen articles, one thesis and one dissertation added to subsidized interpretations by the PNIIS. The research guiding question was "to examine the impact of health information management in the work processes of Brazilian nurses between 2004 and 2009". As a result, only national scientific essays were selected as study sample.

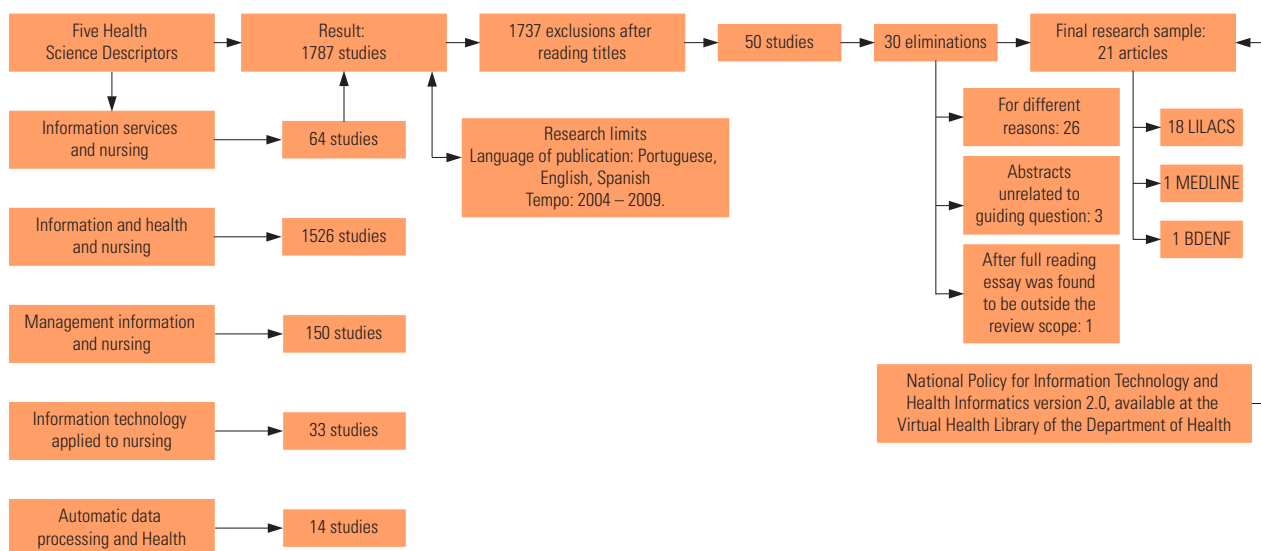


Figure 1 - Flow chart of the definition of the study subjects originated from the search in BVS – March, 2010.

However, as the determinant “Brazilian nurses” does not eliminate academic productions published in foreign journals, an article from a foreigner journal was included in the scientific essays.

The authors found that 17% of articles came from scientific journals unrelated to nursing; 11% of the papers originated from dissertations developed in the area.

Other 20 studies were grouped according to their research area: 60% were carried out in a hospital; 25% in primary health care units; and 15% did not specify the setting.

Such distribution does not mean that the studies dealt strictly with a determined environment defined as hospital or primary care unit. The above percentages refer, for instance, to the highest amount (60%) of studies carried out in a hospital setting, and not that the study was limited to that environment. It is important to highlight that the percentage related to the hospital environment (60%) could be more significant if other topics, not only health information management, were discussed.

The PNIS⁵ guidelines recommend that both health information data and the different contacts a person has with the health care system are equally important.

Regarding the type of research design the authors decided to combine the studies. Simplified aspects according to the objectives of the project were taken into account, e.g. seventeen studies (85%) registered instances in which nurses strived to incorporate health management to their work processes, while three studies (15%) prioritized the reflection on Nursing and health.

A total of 85% of the studies dealt with initiatives characteristic to specific demands or actions related to health care macro universe, where national health information systems contributed to rescale current approaches in Brazilian nursing. Some of these initiatives are not large-sized official policies but they set up mechanisms that enable the transforming use of health information technology.⁵

The second and final simplified aspect which brought together similar methodological approaches corresponds to studies that reflected on a determined topic. Such was the methodological design of three articles (15%). They used interviews or a theoretical framework to describe nurses' perspectives about a specific item.

When the studies' contents were analysed and the impact of health information management in Brazilian nursing was questioned, important meanings were found. The studies data essentially identified that successes, disjoints and mishaps had a strong impact in the work processes of Brazilian nursing.

In relation to the concrete representation of such meanings, the researchers came up with a strategy that measured three units of meaning, thoroughly interpreted according to the categories described below.

EMPOWERMENT OF BRAZILIAN NURSES

The 12 studies (60%) included on the first thematic area pointed out the importance of information management for care practice. They were either clinical, epidemiological or management information originated from concrete interventions or from reflective studies under the nursing practice.

The contents display units of meaning related to the nurses' opinions or specific projects that aimed at systematizing health information. They were practical initiatives for the improvement of nursing work processes or a reflection about the information management as decision-making process.

Regarding health information systems specifically designed for nursing practices, the researchers demonstrated to what extent they corroborated the professionals' care planning. The experiences converged to the improvement of health care services and, consequently, of nursing practices. The need to manage health information rationally instigated the development of management tools and the instrumentalization of nurses in order to foster decision making processes.⁹⁻¹²

The optimization of time – with the systematic transmission of reliable information – requires that nursing daily tasks are rescaled for nurses to handle efficiently the large amount of information specific to their practice.⁹⁻¹²

The concept that, whatever their contents, health care improvements do reach the patient is agreed upon in many studies. With competent and organized nursing information management the nursing staff would be able to spend more time providing direct patient care.^{9,11}

The development of instruments for health information management, requirement also expounded by Coelho,¹⁰ is clarified in Aquinas and Lunardi Filho's words^{9,23}: “an organized and systematized work process can demonstrate the force that exists in the nursing profession to produce new knowledge, to manage and plan autonomously their practice.”

Five studies agreed with the analysis of the nursing practices experienced here. Essentially, through similar situations, the studies explored the possibilities of organizing nursing practices using the SISs.^{7,13-16}

This group of studies enabled the researchers to clip the basic features that guided the multiple contexts tied to nursing performance. Interpretative analysis of these contents revealed that a competent use of the SIS is a valuable ally in the redesign of nursing practices. Nursing professionals are unanimously called to fulfil the task of combining clinical, managerial and epidemiological information from the SISs and insert them in their activities.^{7,13-16}

The planning of nursing decision making, the correct use and handling of the SISs are valuable elements in nursing processes.^{7,13-16} Its appropriation by the nursing professionals can reflect on the management of services, quality of care and perhaps contribute to public policies.^{13,14,16}

Other studies using different methodological designs arrived to the same conclusion. When working in health information management and its fundamentals, such studies added that the organization of nursing information on work processes benefits of technological resources. Computing and technological developments applied to nursing were recognized as a source of strategies whose objective is to improve the quality of information managed by nurses.¹⁷⁻¹⁹

Technological devices provide a substantial help to nurses, nevertheless their use should not mean dehumanization of care.^{9,11,17-19}

The debate about nursing information management increased considerably between 2004 and 2009: 60% of the study sample emphasizes this line of thought. Scientific production revealed nurses' empowerment regarding health information management and their attempts to improve practice by increasing the use of SIS in their workplace.

DISARTICULATIONS OF WORK PROCESSES IN THE FACE OF THE NATIONAL INFORMATION SYSTEMS

Studies in the second unit of meaning dealt with possibilities for nursing actions through the use of SIS information. Other researches that form part of the study sample also geared their investigative efforts towards such approach. The researchers found interesting to put together these five studies because categories "data reliability" and "health information data" were a constant presence.

The five studies analysed here (25%) dealt with national systems in place and in line with the analysis completed in the previous unit of meaning which reaffirmed the significance of the SIS in the Brazilian nursing context.²⁰⁻²⁴

However, the reliability of their contents is questioned. The authors identified their flaws in managing SISs health information.²⁰⁻²⁴

Assessments dealt with hindrances to the interchange of information processed by national SIS and the slight advantage those health professionals take from the contents. The researchers demonstrated the level of fragmentation between information management – national SISs – and nursing decision making.^{20,22-24}

Regarding quality and extensiveness of national SIS information which is widely used in Brazil, the studies unveiled the following characteristics: concealment or underreporting of data; inadequate form filling and consequent misinterpretations. This led to decision making dissociated from data that had been previously gathered in order to help in the decision making process about nursing practices.^{20,22-24}

When investigating similar contexts it is worth to point out how difficult it is for primary health care professionals to avail themselves of data stored in public information systems.

The studies highlighted their disjointed performance and their unpreparedness to use SISs, which stops them from using data that could have an impact on the implementation of health care programmes.^{20,22,24}

One of the papers²¹ favoured a different analysis. It argued that concealment of data does not emerge from the SIH-SUS but is evidenced by it. The study unveiled to which extend nursing and healthcare professionals can retrieve epidemiological information.

The research in question defends that basing decisions on national SISs can improve work performance. The use of SIS in nursing consolidates an evidence-based practice which is accessible, free and able to redesign nursing health care performances.^{16,21}

Nursing professionals need to be co-responsible for the use and management of health information: if they are not allowed to take ownership of the process, nurses will not be able to resort to such information to support their daily practice. Consequently, decision making process may be marred by costly programmes and impractical objectives.

CHALLENGES TO INFORMATION MANAGEMENT

The last unit of meaning highlights a development process. Nursing experiences identified obstacles emerging from health information management and the impact in practice. Three researches contributed particularly to this discussion.

The aforementioned papers examined computerization and related technologies, from the perspective of the nursing work process. Their objective was to identify the significance of information technology which is insufficiently apprehended by nursing professionals.²⁵⁻²⁷

These investigations²⁵⁻²⁷ detected the difficulty to reconcile the care and the management of health information. Nurses were obliged to juggle lack of time, bureaucratic records, difficulty in handling the computer and discontinuity of information contents.

Such aspects did not deal necessarily with the negative impacts of health information management in Brazilian nursing. In fact, the studies considered the supporting elements to information management in health that were earlier used by the nurses.

The need to incorporate and use technological devices was widely discussed in this latest analytical line. The manipulation of information technology is, however, secondary.²⁵⁻²⁷

In this perspective, the analysed literature exemplified the difficulty of Brazilian nursing to support their planning with computerized processes. One of the studies²⁵ observed the nurses' fragile involvement with computerized procedures. The professionals in question considered that only direct care gave meaning to their practice, what explains the slight interest in practices technologically systematised.

Santos and Santos²⁷ and Santos²⁶ agreed with Fonseca and Santos' perspective.²⁵ Information technology and related technologies were unconditionally valued in nursing theoretical models. However, in practice several obstacles hindered or limited the professionals' initiatives. The arguments of nursing teams were focussed on their non-agreement with investments in the area.

Given the above, the limited percentage of this category (15%) gained importance in the analysis, as the embedded meanings reveal the long course nursing will have to undertake to incorporate health information management in their practice.

Management of health information requires strategies to access, recover, retrieve and share information.⁵ Nurses and health professionals should master information technologies to be able to incorporate them in their work process.^{11,25-27}

FINAL CONSIDERATIONS

Given the interest in analysing the impact of information management in health on the nursing staff's performance in Brazil, this study aimed at identifying the repercussions of the theme on daily nursing practices. The researchers observed the tendency to incorporate information management mechanisms. Most studies focused on the practical engagement and empowerment of the nursing profession.

It is evident, therefore, the nurses' interest in generating knowledge and programming strategies consonant with health information management, without losing sight of caring. The analysed papers recorded the synergy between the studies. The nursing staffs consider the practical and professional relevance of their duties and that procedural handling of health information would support their performance.

The present research revealed thus their relevance and triggered a reflection on nurse's commitment to the process of health information management and the use of health information systems as essential tools for decision making and practice of care.

Regardless of the results of the research *corpus* professional nurses seemed to appreciate the significance of health information management in nursing processes. The researchers would like to emphasize the need for more investment in approaches that foster nurses' ability to transform and embrace technological innovations. Professional commitment has been a defining force to overcome frustrations, challenges and disarticulations that marred multiple nursing contexts.

The nursing profession is also concerned with the modest and uncharacteristic task of feeding public sources of information and with the resistance to use technology tools in their work processes. The authors recognise that nurses still have not taken possession of the means available to manage health information. This is a gradual process.

REFERENCES

1. Marin HF, Massad E, Azevedo Neto RS. Prontuário eletrônico do paciente: definições e conceitos. In: Marin HF, Massad E, Azevedo Neto RS, Lira ACO. O prontuário eletrônico do paciente na assistência, informação e conhecimento médico. São Paulo: USP; 2003. p.1-20.
2. Cunha FJAP, Mendes VLPS. A política nacional de informação e informática: uma base para a implantação da gestão da informação nos serviços de saúde. In: Anais do V Encontro nacional de ciência da informação, 2004 jun 28-30. Salvador: Universidade Federal da Bahia, Instituto de Ciência da Informação, Programa de Pós-Graduação; 2004.
3. Naffah Filho MN, Cecilio MAM. A política estadual de informação de saúde: um debate necessário. In: Botazzo C, Oliveira MA, organizadores. Atenção básica no Sistema Único de Saúde: abordagem interdisciplinar para os serviços de saúde bucal. São Paulo: Páginas & Letras; 2008. p.85-92.
4. Heimann LS, Castro IEN, Rocha JL, Pacheco AG, Kayano J, Junqueira V, et al. Informação para a gestão: o sistema de monitoramento e avaliação do Sistema Único de Saúde (SUS) a partir da Atenção Básica no Estado de São Paulo (SisMasus). In: Botazzo C, Oliveira MA, organizadores. Atenção básica no Sistema Único de Saúde: abordagem interdisciplinar para os serviços de saúde bucal. São Paulo: Páginas & Letras; 2008. p. 93-102.
5. Brasil. Ministério da Saúde. Secretaria Executiva. Departamento de Informação e Informática do SUS. PNIS - Política Nacional de Informação e Informática em Saúde - Proposta Versão 2.0; inclui deliberações da XII Conferência Nacional de Saúde. Brasília: MS; 2004.
6. Nightingale F. Notas sobre enfermagem: o que é e o que não é. São Paulo: Cortez; 1989.
7. Peterlini OLG, Zagonel IPS. O sistema de informação utilizado pelo enfermeiro no gerenciamento do processo de cuidar. Texto Contexto Enferm. 2006; 15(3):418-26.
8. Mendes KD, Silveira RCCP, Galvão, CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. Texto Contexto Enferm. 2008; 17(4):758-64.
9. Aquino DR, Lunardi Filho WD. Construção da prescrição de enfermagem informatizada em UTI. Cogitare Enferm. 2004; 9(1):60-70.
10. Coelho CD. A gestão em saúde e as ferramentas gerenciais: a experiência com o SISPLAN do Instituto Nacional do Câncer. Rio de Janeiro: Universidade do Estado do Rio de Janeiro, Instituto de Medicina Social; 2008.
11. Gomes JRAA, Lourencini JC, Horan LM. Elaboração de um sistema informatizado de materiais cirúrgicos: relato de experiência. Rev Sobecc. 2008; 13(4):30-4.
12. Rossetti AC, Carqui LM. Implantação de sistema informatizado para planejamento, gerenciamento e otimização das escalas de enfermagem. Acta Paul Enferm. 2009; 22(1):83-8.
13. Lima EFA, Sousa AI, Primo CC. Mortalidade neonatal em Serra, Espírito Santo, 2001-2005. Rev Enferm UERJ. 2008; 16(2):162-7.
14. Melo ECP, Knupp VMAO, Oliveira RB, Tonini T. A peregrinação das gestantes no município do Rio de Janeiro: perfil de óbitos e nascimentos. Rev Esc Enferm USP. 2007; 41(Esp):804-9.
15. Peterlini OLG. Cuidado gerencial e gerência do cuidado na interface da utilização do sistema de informação em saúde pelo enfermeiro. Curitiba: Universidade Federal do Paraná; Programa de Pós-Graduação em Enfermagem; 2004.
16. Silva EC, Costa Júnior ML. Transtornos mentais e comportamentais no sistema de informações hospitalares do SUS: perspectivas para a enfermagem. Rev Esc Enferm USP. 2006; 40(2):196-202.
17. Santos SR. Sistema de informação em enfermagem: interação do conhecimento tácito-explícito. Rev Bras Enferm. 2005; 58(1):100-4.
18. Marin HF, Cunha ICK. Perspectivas atuais da informática em enfermagem. Rev Bras Enferm. 2006; 59(3):354-7.
19. Rodriguez EOL, Guanilo MEE, Fernandes LM, Candundo G. Informática em enfermagem: facilitador na comunicação e apoio para a prática. Invest Educ Enferm. 2008; 26(2):144-9.

20. Freitas FP, Pinto IC. Percepção da equipe de saúde da família sobre a utilização do Sistema de Informação da Atenção Básica – SIAB. *Rev Latino-Am Enferm*. 2005; 13(4):547-54.
 21. Gomes FA, Mamede MV, Costa Júnior ML, Nakano AMS. Morte materna mascarada: um caminho para sua identificação. *Acta Paul Enferm*. 2006; 19(4):387-93.
 22. Oliveira CA, Palha PF. Sistema de informações HIPERDIA, 2002-2004, adequação das informações. *Cogitare Enferm*. 2008; 13(3):395-402.
 23. Pinto IC, Rodolpho F, Scochi CGS. Possibilidades de tomada de decisão a partir do sistema de informações de nascidos vivos. *Acta Paul Enferm*. 2004; 17(3):262-7.
 24. Sousa LB, Souza RKZT, Scochi MJ. Hipertensão arterial e saúde da família: atenção aos portadores em município de pequeno porte na região Sul do Brasil. *Arq Bras Cardiol*. 2006; 87(4):496-503.
 25. Fonseca CMBM, Santos ML. Tecnologia da informação e cuidado hospitalar: reflexões sobre o sentido do trabalho. *Ciênc Saúde Coletiva*. 2007; 12(3):699-708.
 26. Santos MS. Informatização de processos de trabalho do enfermeiro relacionados ao gerenciamento da assistência. *Nursing*. 2008; 10(116):21-5.
 27. Santos SR, Santos IBC. Impacto da informática na administração em enfermagem: relato de experiência. *Nursing*. 2004; 7(69):41-6.
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