



Federal Fluminense University

AURORA DE AFONSO COSTA  
NURSING SCHOOL

uff  
Review Articles



## The role of a nurse in the management of medical-hospital material: an integrative review

Simone Domingues Garcia<sup>1</sup>, Roseli Broggi Gil<sup>1</sup>, Maria do Carmo Lourenço Haddad<sup>1</sup>, Marli Terezinha Oliveira Vannuchi<sup>1</sup>, Daniele Bernardi da Costa<sup>2</sup>,

<sup>1</sup>University of Londrina

<sup>2</sup>University of São Paulo

---

### ABSTRACT

The object of the study is the management of medical-hospital supplies. This is an area that requires the nurse to have specific knowledge and which has currently sparked discussions among experts on the subject.

**Aim:** To characterize the production of knowledge on the management of medical-hospital material conducted by nurses.

**Method:** A retrospective, descriptive method that followed the steps of an integrative review. For the research the Lilacs, Medline and Google scholar databases were used.

**Results:** We found 104 studies, of which ten were selected. The analysis of the publications showed that the management of material has been discussed in the context of educational practices, control of costs and materials, as a working tool, and from the perspective of the nurse in material management.

**Discussion:** It is necessary to incorporate the theme in the working process of nurses, providing critical thinking in relation to management.

**Conclusion:** The expansion of scientific production and greater interest of nurses in this area are essential.

**Descriptors:** Resource Management; Materials administration in hospital; Nursing

---

## INTRODUCTION

In health care institutions, especially in hospitals, material resource management (MRM) constitutes a particularly important issue, considering the diversity of materials used and their high cost, especially those related to the care of the hospitalized people. The administration of these is normally carried out by the administrative area without the involvement of specialized areas such as nursing<sup>(1)</sup>.

Material resources in healthcare can be classified according to several criteria: purpose, storage specificity, value and level of criticality or application. In relation to purpose the resources can comprise large groups of materials, namely: medicines, hygiene, laboratory, computer, maintenance, food products and medical-hospital supplies<sup>(2)</sup>.

It has been proved that expenditure on equipment in a hospital takes second place behind human resources. This makes clear the importance and need for data and information to assist management in this segment<sup>(3)</sup>.

Efficient and effective management of material resources in health institutions needs to be aligned with the issues care. Effective controls need to be adopted to ensure the availability of such resources with quality, timing, quantity and fair price<sup>(8)</sup>.

Nursing staff are the greatest requesters and user of these products, mainly items classified as medical-hospital. The nurse therefore has a great responsibility to rethink the significance of material management in managerial activities<sup>(4)</sup>.

The nurse's work in coordinating positions has been noted for enabling, encouraging and creating technical conditions so that assistance is properly developed<sup>(1)</sup>. However, this professional, increasingly involved in management, is not producing scientific research and publications that demonstrate the involvement and scale. This has real importance in upgrading the area.

The labor market has required nurses to expand their managerial skills, highlighting aspects of economics in health, including financing, billing and cost. Thus, the nurse has to demonstrate other skills and functions in addition to care. Both within and outside the hospital the Nurse is becoming an important professional in managing material resources<sup>(1)</sup>.

By stating that material resources are essential working tools for the development of assistance activities, nursing participation in its management is directly related to the quality of care<sup>(1)</sup>.

It is, thus, crucial for the nurse to demonstrate, by means of scientific production, the necessary reasoning for the work process in materials management. This will highlight the nurse's theoretical and practical competence as the main stimulator for improving the science of administration<sup>(5)</sup>.

In this context, the objective was to characterize the production of knowledge in the management of medical-hospital material conducted by nurses.

## **METHOD**

This is a retrospective and descriptive study, which followed the steps of an integrative review. The research method used was to analyze primary research and compile a summary of the knowledge produced about a topic.

The construction of this integrative review was based on studies<sup>(6,7)</sup> that followed seven established stages, namely: (1) problem identification and definition of the research question of the review; (2) definition of the criteria for inclusion and exclusion of articles; (3) literature review; (4) definition of information to be extracted from the reviewed studies; (5) analysis of the studies included in the integrative review; (6) discussion and interpretation of results and; (7) synthesis of knowledge.

The integrative review becomes important when there is little research on a given topic<sup>(7)</sup>. When locating and integrating information developed by various authors on the subject the method allows identification of the stage at which the knowledge produced or even elucidates matters not solved<sup>(7)</sup>.

It is considered that a well-developed integrative review on a relevant topic could impact on professional practice<sup>(7)</sup>.

In relation to the first step suggested by the method, when identifying the problem of the need for the participation of nurses in materials management, the guiding question of the study was: "In scientific publications, is the participation of nurses in the management of medical-hospital material mentioned?"

The second step established by the methodology involves the inclusion of criteria, which were: studies related to materials management by nursing, published in the period from 2000 to 2010, in Portuguese, English and Spanish, and a summary available in the database. We considered the research presented in free teaching contests, theses, dissertations, research papers and extended abstracts relevant to the topic.

In the methodological sequence a literature review was performed by a search in the Virtual Health Library (VHL) of the following databases: Lilacs, Medline and Google scholar.

The publications were selected from the following descriptors of Health Sciences in the three languages covered by this research: management, material resources, medical-hospital supplies and nursing material. We used the combination of these elements using the Boolean operator AND.

Afterwards, there was a new search preserving the same descriptors listed above, excluding the term *nursing*. This was to see if there was a change in the number of studies found, and also attempt to identify other areas that could work with this theme, given the involvement with the management of materials, such as the administration area.

We used a time frame of three months between the first and second search, corresponding to early June and early September 2011. The interval of time is considered sufficient for the correct identification of the subject in the studies, respecting all the steps recommended by the method in question.

After defining the information to be extracted from the articles identified containing the quote of the nurse in the management of materials, we proceeded with the analysis of the studies included in the integrative review.

The steps five and six were performed by the development of categories that would help the discussion and interpretation of the results. In addition, this enriched the synthesis of knowledge which is part of the seventh stage seven. This last step involved the organization of the information provided and the presentation of the evidence revealed. This was implemented after evaluation of the studies included in this review.

## RESULTS

The first search of databases resulted in 76 publications, of which 24 were returned in Lilacs, 38 in Medline and 14 in Google scholar. Of those publications, four were the result of research advocated in free teaching contests, 17 were doctoral dissertations, 30 masters' dissertations, 24 journal articles and an expanded abstract. At this stage only eight were selected.

In the second search, in which the descriptor nursing was removed, 28 publications were returned. We applied the inclusion criteria that required analysis of the abstracts and from this stage only two studies were selected.

Through the analysis of the abstracts it was noted that the materials management by nurses was mentioned in three Masters' Dissertations from different areas: nursing, production engineering and medicine.

Once selected, the publications were classified and categorized in the following modalities: 1) materials management in the process of teaching, in nursing; 2) materials management as a working tool; 3) the nurse in controlling costs and materials and; 4) nurses as one of the players of materials management.

The matters discussed in the studies are related to the development of medical-hospital supplies, consumption, instrument validation and classification.

Next, here are the results by category, featuring the selected publications and their main characteristics.

**Table 1** – Selected publications related to educational practices on material management in nursing. Londrina, Paraná, 2011.

Title and Author	Year	Databasis*	Study Characteristics
Understanding the expectations in a nursing undergraduate course: teachers' and students' perspectives Santos CE <sup>(I)</sup>	2005	USP Digital Library	<b>Theses. Objective:</b> To understand the expectations of the students entering and teachers in the nursing program on the management of materials. <b>Methodology:</b> This is a qualitative research. <b>Results:</b> The management of material resources was the topic of discussion among teachers as one of the expectations regarding the scientific and technical capabilities to be developed by students. It is expected that the undergraduate student becomes a professional capable of planning the material and human resources, with emphasis on continuing education, information and developing the ability to learn on their own. There is an educational project based on specific competencies and skills.
Materials management in nursing Albuquerque MTHGL <sup>(II)</sup>	2008	Google scholar	<b>Scientific article. Objective:</b> To understand an educational process developed with the nursing staff. We used the problematization methodology. <b>Results:</b> The material management was discussed as an area already conquered and reflected the importance of awareness concerning the participation of Nursing and the influence of involvement in the quality of care to users of health services.

\*It refers to the basis on which it was possible to extract the whole publication.

**Quadro 2** - Publicações selecionadas referentes à gestão de materiais como ferramenta de trabalho. Londrina-PR, 2011.

Título e Autor	Ano	Base de Dados*	Características do Estudo
Gerenciamento do cuidado de enfermagem em unidade de urgência traumática  Azevedo ALCS <sup>(III)</sup>	2010	Biblioteca digital USP	<b>Dissertação. Objetivo:</b> Analisar a prática do enfermeiro em uma unidade de trauma. <b>Metodologia:</b> Estudo descritivo, utilizou dados quanti e qualitativos. <b>Resultados:</b> A gestão de materiais evidenciou-se como atividade gerencial do enfermeiro que incluem a organização de materiais e equipamentos. Na sala de trauma especificadamente surgiu a necessidade do gerenciamento do cuidado centrado em atividades gerenciais e assistenciais, bem como na mobilização de recursos para atenção ao paciente.
Os atributos mobilizados pela enfermeira na saúde da família-uma aproximação aos desempenhos na construção da competência gerencial  Kawata LS <sup>(IV)</sup>	2011	Scielo	<b>Dissertação. Objetivo:</b> Analisar os atributos mobilizados nas situações de trabalho e que caracterizam os desempenhos das enfermeiras no que diz respeito à área de competência gerencial na Saúde da Família. <b>Metodologia:</b> Estudo exploratório-descritivo de abordagem qualitativa. <b>Resultados:</b> Foram divididos cinco grandes temas, e o referente a gestão de materiais considerava que como papel do enfermeiro estava a previsão e provisão de material. Os outros temas levantados foram: organizar o fluxo de usuários e informações tanto na unidade como entre os serviços, realizar controle de infraestrutura e recursos humanos.
Prazer e sofrimento no trabalho do enfermeiro em unidades de terapia intensiva: estratégias defensivas  Martins JT <sup>(V)</sup>	2008	Biblioteca digital USP	<b>Tese. Objetivo:</b> Identificar os sentimentos de prazer e sofrimento vivenciados por enfermeiros de UTI. <b>Metodologia:</b> Estudo qualitativo com o uso do referencial teórico da psicodinâmica do trabalho. <b>Resultados:</b> A gestão de materiais estava entre uma das tarefas atribuídas ao gerente de UTI. Para os entrevistados, a gerência significa prestar cuidado ao paciente, administrar a assistência, a equipe de enfermagem e de saúde e os equipamentos e recursos materiais. Foram desveladas quatro categorias analíticas: a gerência do trabalho, o sofrimento no trabalho, as estratégias defensivas por eles utilizadas e o prazer no trabalho.
Nível de atendimento dos materiais classificados como críticos no hospital universitário da USP  Lourenço, KG <sup>(VI)</sup>	2007	Biblioteca digital USP	<b>Artigo científico. Objetivo:</b> levantar o número de solicitações não atendidas dos materiais Z, calcular o nível de atendimento (NA) e nível de falta (NF) dos 20 materiais que mais faltaram, e conhecer as causas dessas faltas. <b>Metodologia:</b> Estudo exploratório descritivo com abordagem quantitativa. <b>Resultados:</b> A amostra das 747 solicitações não atendidas mostrou que dos 572 materiais Z, 39,7% apresentaram nível de falta e 100% dos setores vivenciavam a falta de recursos materiais. O atraso da entrega pelo fornecedor foi a causa mais representativa com 39%. Os NAs variaram de 92,11% a 27,08% e, os NFs de 7,89% a 72,92. Esses valores evidenciam a necessidade de ajustes no sistema de gerenciamento desses recursos com a finalidade de não causarem interrupções na assistência prestada.

\*Refere-se a base na qual foi possível extrair a publicação na íntegra.

**Table 3** - Selected publications related to the nurse in controlling costs and materials. Londrina, Paraná, 2011.

Title and Author	Year	Databasis*	Study Characteristics
The revenue generated by nursing procedures in an intensive care unit Zunta, RSB <sup>(VII)</sup>	2006	USP Digital Library	<b>Dissertation. Objective:</b> To calculate the revenue generated by nursing procedures in an ICU. <b>Methods:</b> This is an exploratory, descriptive and documentary study in which we used a quantitative approach. <b>Results:</b> It was shown that manager nurses are increasingly involved in financial decisions, having to manage human, material and financial resources. The importance of the nurse in generating revenue for actions prescribed to patients was noted. The study has revealed the nurse as an administrator of its business unit.
ABC classification: A management tool for nursing costs.  Lourenço KG, Castilho V <sup>(VIII)</sup>	2006	Scielo/Lilacs	<b>Scientific article. Objective:</b> To know the profile of expenditure on consumption material at the University Hospital, University of São Paulo in the period of one year. <b>Methods:</b> This is an exploratory-descriptive study in which we used a quantitative approach, in the case studies modality. <b>Results:</b> Of the 1938 classified materials, 67 items were Class A, corresponding to materials with higher costs for the hospital; 31.3% of these items correspond to assistance material, mostly used by nursing staff. With the measured results, the next step is the construction of the curve ABC of value per nursing care unit. This will enable control of expenses and cost with greater accuracy.
Control of materials and medications in a university hospital and the participation of the nurse  Santos, MPFM <sup>(IX)</sup>	2004	Google scholar	<b>Expanded abstract. Objective:</b> To analyze the participation of nurses in the control of materials and medications. <b>Methodology:</b> Case study, descriptive. <b>Results:</b> According to the interviewees, it is necessary to broaden nurses' participation in the control of materials so that there is a more effective contribution by nursing in streamlining these resources and controlling costs. This will reflect the improvement of the quality of nursing care. They believe that this will be possible, especially through the training of nurses and nursing assistants.

\*It refers to the basis on which it was possible to extract the whole publication.

**Table 4** – Selected publications related to the nurse as one of the enactors of material management. Londrina, Paraná, 2011.

Title and Author	Year	Databasis*	Study Characteristics
Nursing work at theMaterials Center and its place in the process of nursing care.  Bartolomei SRT, Lacerda RA <sup>(X)</sup>	2006	SciELO/Lilacs	<b>Scientific article. Objective:</b> To introduce subsidies that may expand the analysis of the reality of nursing work. <b>Methodology:</b> Strategic research using nurses discourse analysis. <b>Results:</b> It was found that management is the primary activity in a structured process that confirms the traditional practice of nursing. Material management involved coordination of the processing of medical-hospital supplies used in care. Such a practice is characterized by indirect care, which not only equips nursing work, but also those of other professionals.

\*It refers to the basis on which it was possible to extract the whole publication.

## DISCUSSION

### Material management in the teaching process in nursing

Material management, as an educational practice in nursing, is an important skill to be developed by the student. The student's critical thinking about the products used in the hospital will be stimulated <sup>(1)</sup>.

Thus, we reinforce the importance of including "Material management" in different areas of graduation taking account of students' development and the learning stage they have reached. It is necessary for the graduates to have successive encounters with the theme, so that they may build their knowledge of material management, from the planning to the acquisition process. , The feeling of unease and discomfort is considered relevant to the transformation of the working practices of health professionals. It is essential that these concerns are discussed, dialogued and thought through in all their dimensions. In this case, continuing education provides the capacity to do this <sup>(8)</sup>.

Continuing education alone will not transform the practices, but the gradual development of this educational process can be fully exploited in order to encourage the growth of individuals. Thus, education becomes a propelling source of professional transformation <sup>(8)</sup>. When suggesting the inclusion of material management in continuing education courses, we propose a new perspective on the relevance of the subject for transforming the empirical knowledge of nurses into a strategic differentiator in the workplace.



Professionals believe that participation is the most appropriate way to achieve the changes that meet the needs of human beings, whether in personal, professional or institutional areas <sup>(11)</sup>. These workers are aware of the importance of opinions on administrative needs and priorities, positioning themselves and raising awareness among institutional leaders about the management of material resources<sup>(1)</sup>. The strategy of continuing education outlined in the study, provided to the professionals, involved the need for change and appreciation that the role of each person in the professional practice was essential in the working process.

### **Material management as a working tool**

Material management as an important working tool was mentioned in the studies listed in Table 2. These show the importance of exploiting the practice of health professionals. When considering working tools it is important to cite the professional skills of nurses which have been defined as: "To know how to act in a responsible and recognized way, which implies in mobilizing, integrating, transferring knowledge, resources and skills that add economic value to the organization and social value to the individual"<sup>(8)</sup>.

The study also discusses the individual skills necessary for managers, such as leadership, persuasion, teamwork, creativity, decision making, planning, organization and determination. These skills are also listed as follows: to know how to act, to mobilize, to communicate, to learn, to commit yourself, to take responsibility and to have strategic vision <sup>(8)</sup>.

For the provision of nursing care the nurses' responsibility are the tasks directly related to client support, as well as the leadership of the nursing staff and the management of physical, material, human, financial, political and information resources.

Nurses must have knowledge (they must know what to do), skills (how to do it correctly) and have the appropriate attitude to perform their role with positive results <sup>(8)</sup>. In order to carry out the proposed activities the nurse should be equipped with working tools that

meet the needs of the service, the development of the team and the quality of care offered to patients.

The nurse plays a key role in the management of material and equipment resources in health services. The nurse usually takes over the management of the units and the coordination of the care activities that are performed by the entire healthcare team. In view of this the need to develop a material management system arises. This can be referred to as a working tool, with the goal of organizing these resources to facilitate nursing care<sup>(9)</sup>.

In the studies presented in Table 2<sup>(III, IV, V and VI)</sup>, the strategies researched by professionals in order to provide the qualification of the working process offered, either in primary care or hospital care, is demonstrated. The importance of the involvement of nurses in the management of materials is indisputable. The topic has been gaining strength with daily practice and in the studies already raised in recent years. However, it is necessary to stimulate discussion about which tools are best suited to each type of health service.

It is claimed that the classification of materials is an important management tool<sup>(VI)</sup>. As a result of the diversity of materials and with the need to minimize situations of shortages, deviations and waste of materials that hamper the process of hospital management, new management tools have been incorporated in this process<sup>(10)</sup>.

### **The nurse on the control of costs and materials**

In relation to the topic "costs", discussed in Table 3, the management of materials and equipment has concerns about both the qualification of nursing care and the management costs for the institution. Faced with increasing technological incorporation, the expansion of health care expenditures and the need to contain them due to lack of resources, more and more nurses, worldwide, are involved with issues relating to assistance economic values in their workplaces<sup>(11)</sup>.

The problem with the managing appropriate costs in healthcare is due to the disproportion between the demand for necessities and the availability of resources. This

has drawn attention to a recent theme in national nursing literature: the costs related to nursing services. It is considered that knowledge of nursing costs is a management tool that allows nurses to scale the available resources and make decisions based on the best scientific evidence<sup>(12)</sup>.

Concerns about the rising cost of the healthcare supply chain sector, particularly in hospitals, gives rise to the adoption of control strategies, primarily in the stock of materials, to ensure the viability of these institutions<sup>(10)</sup>. Unpredictability of demand is a permanent problem which requires administrative flexibility in meeting the requirements inherent in the institution's objectives<sup>(1)</sup>. In the hospital environment material expenses represent approximately 15% to 25% of regular expenditure. About 3,000 to 6,000 items of high complexity consumed in hospitals are purchased with certain frequency. It should also be highlighted that the peculiarities of the system are not restricted just to the quantity of items or their cost, but also the diversity of the productive process which normally remains detached from the support systems, thus complicating its management<sup>(1)</sup>.

The dimension of costs when deploying new technologies has not always been a concern in public services. However, nowadays, with the need for self-sufficiency and competitiveness in the market, managing, re-allocating and optimizing resources to minimize costs have become one of the concerns of nursing. This issue points to the need for the development of managerial competence processes focused on results<sup>(13)</sup>.

Thus, the participation of professionals is the most appropriate way to achieve changes that meet the needs of human beings, whether in personal, professional or institutional areas. These workers are aware of the importance of their opinions on the administrative needs and priorities; positioning themselves and raising awareness among institutional leaders about the importance of MRM. In addition, they identify the question "cost versus effectiveness versus satisfaction" and not merely the costs<sup>(1)</sup>.

Therefore, it is imperative to know and understand the administrative reality experienced, in order to be able to act on it. Thus, it is necessary to discuss with the

people that promote, collaborate and use the materials, about the knowledge they have regarding the management of material resources<sup>(1)</sup>.

### **The nurse as one of the enactors of material management.**

The nurse as one of the enactors of material management is a significant factor. Institutions require their employees have a professional profile and constantly develop to keep pace with technological innovation, the potential for problem solving, negotiation skills and pro-activity<sup>(x)</sup>. Within health organizations the current demand is a nursing profile that requires agility as well as assertive, creative, and innovative decisions, adding economic value to the company and social value to the individual<sup>(13)</sup>.

Faced with the relevance of these achievements in terms of the realization of advances in nursing, comes the importance of occupying these spaces, effectively, thereby guaranteeing those already conquered. Thereby, we must move in search of new targets for the effective engagement of these workers in the various participation forums. Preserving the autonomy that the occupation of administrative positions provides is of vital importance to the growth of nursing in the search for desired quality<sup>(1)</sup>.

Nurses accept their joint responsibility for MRM and feel they are able to modify the existing situation. They visualize a long road, but understand that their participation along with this management is still fragile and needs to advance. They realize the need for nursing staff to be aware of the importance of their involvement as a starting point for advances in this area. Moreover, they understand that MRM should be considered an activity related to nursing and should be incorporated as a professional attribute<sup>(1)</sup>.

Studies that allow enhancement of the management modalities used are essential for nurses to reflect on their practice and to propose changes that will contribute to the improvement in care. It is also important to be aware of the different management models to promote an awareness of these different management models<sup>(14)</sup>.

Therefore, in the nursing practice, MRM is of considerable importance and should be given greater emphasis and frequency, so that all the professionals involved may become aware of its relevance. It is totally impracticable to conduct the management of care

without knowledge of the management of materials. This calls for discussions on the subject from the academic sphere to the places providing continuing education in health services.

## **CONCLUSION**

When performing a search for scientific papers, the summary of a study provides the first contact with the appraiser's work, and, therefore, is commonly used by researchers as an instrument of analysis, as in this study. It is therefore essential that the information presented in this section is clear and of quality, enabling the evaluator to make a precise decision whether to read the publication in full. However, due to the lack of criteria in the construction of abstracts, it was found in the literature searched, that most showed no essential items and this directly influenced the process of selection of publications to compose the integrative review.

Nevertheless, knowledge about the management of medical-hospital supplies in nursing practice is still incipient, as evidenced in national studies included in this integrative review. Studies that showed stronger evidence were considered old and were used as a base, not presenting new comparative studies that demonstrate scientific development.

There is evidence of the need to arouse interest in nurses in the subject of MRM in order to use their knowledge as a tool for decision-making and leadership, as well as a management tool for healthcare for which they are responsible. This will empower their work processes.

## **REFERENCES**

- 1- Honório MT, Albuquerque GL. A gestão de materiais em enfermagem. *Ciênc Cuid Saúde*. 2005; 4(3):259-68.
- 2- Barbieri JC, Machline C. *Logística hospitalar: teoria e prática*. São Paulo: Saraiva; 2009.
- 3- Long G. Pursuing supply chain gains. *Healthc Financ Manage*. 2005; 59(9):118-22.

- 4- Rogante MM, Padoveze MC. Padronização, qualificação e aquisição de materiais e equipamentos médico-hospitalares. São Paulo: EPU; 2006.
- 5- Costa CMA, Guimarães RM. Considerações sobre a administração de recursos materiais em um hospital universitário. R Enferm UERJ. 2004; 12(2):205-10.
- 6- Mendes KDS, 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.
- 7- Ursi ES. Prevenção de lesões de pele no perioperatório: revisão integrativa de literatura [dissertação]. Ribeirão Preto: Escola de Enfermagem, Universidade de São Paulo; 2005.
- 8- Cunha ICKO, Neto FRGX. Competências gerenciais de enfermeiras: um novo velho desafio? Texto & Contexto Enferm. 2006; 15(3): 479-82.
- 9- Castilho C. Gerenciamento de recursos materiais. In: Kurcgant P, Tronchin DMR, Fugulin FMT, Peres HHC, Marrarollo MCKB, Fernandes MFP. Gerenciamento em enfermagem. Rio de Janeiro: Guanabara Koogan; 2010. p. 155-67.
- 10-Lourenço KG. Nível de atendimento dos materiais classificados como críticos no Hospital Universitário da USP [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2006.
- 11-Hausmann M, Peduzzi M. Articulação entre as dimensões gerencial e assistencial do processo de trabalho do enfermeiro. Texto & contexto Enferm. 2009; 18(2):258-65.
- 12-Santos DS, Carvalho EC. Analysis of cost in the nursing: integrative review. Online Braz J Nurs [Internet]. 2008 [cited 2011 Sept 9]. 7(3). Available from: <http://www.objnursing.uff.br/index.php/nursing/article/view/j.1676-4285.2008.1747>.
- 13-Martins C, Kobayashi RM, Ayoub AC, Leite MMJ. Perfil do enfermeiro e necessidades de desenvolvimento de competência profissional. Texto & Contexto Enferm. 2006; 15(3): 472-8.
- 14-Faustino AM, Jesus CAC, Reis PED, Moura EF, Medeiros KC, Amorim MAN. Models management of nursing care: qualitative study. Online Braz J Nurs [Internet]. 2010

[cited 2011 Sept 9]. 9(1). Available from:  
<http://www.objnursing.uff.br/index.php/nursing/article/view/2843>.

## REFERENCES OF THE INTEGRATIVE REVIEW

- I. Santos CE. Compreendendo as expectativas em um curso de graduação em enfermagem: o olhar discente e docente [tese]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2005.
- II. Honório MT, Albuquerque GL. A gestão de materiais em enfermagem. *Ciênc Cuid Saúde*. 2005; 4(3):259-68.
- III. Azevedo ALCS. Gerenciamento do cuidado de enfermagem em unidade de urgência traumática [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2010.
- IV. Kawata LS. Os atributos mobilizados pela enfermeira na saúde da família-uma aproximação aos desempenhos na construção da competência gerencial [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2007.
- VI. Martins JT. Prazer e sofrimento no trabalho do enfermeiro em unidades de terapia intensiva: estratégias defensivas [tese]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2008.
- VII. Lourenço KG. Nível de atendimento dos materiais classificados como críticos no hospital universitário da USP. *Rev Bras Enferm*. 2007; 60(1):15-20.
- VIII. Zunta RSB, Castilho V. O faturamento gerado pelos procedimentos de enfermagem em uma unidade de terapia intensiva. *Rev Latino Am de Enferm*. 2011; 19(3):573-80.

- IX. Lourenço KG, Castilho V. Classificação ABC dos materiais: uma ferramenta gerencial de custos em enfermagem. Rev Bras de Enferm 2006; 59(1):52-5.
- X. Santos MPFM. Controle de materiais e medicamentos em um hospital universitário e a participação da(o) enfermeira(o) [tese]. Salvador: Universidade Federal da Bahia; 2004.
- XI. Bartolomei SRT, Lacerda RA. Trabalho do enfermeiro no centro de material e seu lugar no processo de cuidar pela enfermagem. Rev Esc Enferm USP. 2006; 40(3):412-7.

**Received: 22/02/2012**  
**Approved: 05/03/2013**