



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

CASE REPORT ARTICLE

SITUATIONAL DIAGNOSIS: AN AID TOOL IN QUALITY MANAGEMENT DIAGNÓSTICO SITUACIONAL: FERRAMENTA DE AUXÍLIO EM GESTÃO DA QUALIDADE DIAGNÓSTICO SITUACIONAL: UNA HERRAMIENTA DE AYUDA EN LA GESTIÓN DE LA CALIDAD

Elana Maria Ramos Freire¹, Maria Regina Martinez²

ABSTRACT

Objective: to describe the development of a Situational Diagnosis of a Materials and Sterilization Center (MSC) **Method:** descriptive study. Experience report. Data were collected through a simple checklist, the analysis of institutional documents and the mapping of processes. Primary goal was to create restructuring actions for a Materials and Sterilization Center in order to achieve the quality standards established for accreditation as level I. **Results:** through the situational diagnosis it has been possible to trace the profile of the MSC and to identify nonconformities, which supported the preparation and execution of a compliance project for this unit. **Conclusion:** situational diagnosis and the mapping of processes were crucial tools for the identification of requirements necessary to achieve quality services, and implement improvements and adjustments according to the hospital accreditation model. They have provided detailed knowledge about the MSC environment and the processes performed there. **Descriptors:** Quality Management; Nursing; Central Supply, Hospital; Sterilization.

RESUMO

Objetivo: descrever a elaboração do Diagnóstico Situacional de uma Central de Materiais e Esterilização. **Método:** estudo descritivo, do tipo relato de experiência. Os dados foram coletados por meio de lista de verificação simples, análise de documentos institucionais e mapeamento de processos, a fim de construir ações de reestruturação da Central de Materiais e Esterilização para que a mesma alcance os padrões de qualidade estabelecidos para acreditação nível I. **Resultados:** por meio do diagnóstico situacional foi possível traçar o perfil da CME e identificar não conformidades, gerando subsídios para a elaboração e execução de um projeto de adequação deste setor. **Conclusão:** o diagnóstico situacional acrescido do mapeamento de processos foram ferramentas de crucial importância para a identificação de requisitos necessários para o alcance da qualidade e a execução das melhorias e adequações previstas no modelo de acreditação hospitalar, uma vez que viabilizaram o conhecimento aprofundado do ambiente da CME e dos processos ali executados. **Descritores:** Gestão da Qualidade; Enfermagem; Central Hospitalar de Suprimentos; Esterilização.

RESUMEN

Objetivo: describir la elaboración del Diagnóstico Situacional de una Central de Materiales y Esterilización (CME). **Método:** Estudio descriptivo. Reporte de experiencia. Los datos fueron recolectados a través de una lista de verificación sencilla, el análisis de documentos institucionales y la cartografía de procesos. El objetivo fue realizar acciones de reestructuración de la Central de Materiales y Esterilización para que ésta alcance los estándares de calidad establecidos para acreditación de nivel I. **Resultados:** a través del análisis situacional fue posible trazar el perfil de la CME e identificar incumplimientos, lo que auxilió en la preparación y ejecución de un proyecto de adecuación de este sector. **Conclusión:** el diagnóstico situacional y la cartografía de procesos fueron herramientas cruciales para la identificación de los requisitos necesarios para alcanzar la calidad, y realizar mejoras y ajustes previstos en el modelo de acreditación de hospitales, ya que ofrecieron conocimiento detallado del ambiente de la CME y de los procesos realizados allí. **Descriptor:** Gestión de Calidad; Enfermería; Central Hospitalaria de Suministros; Esterilización.

¹Nurse, PhD student in Nursing, Nursing School, Federal University of Minas Gerais/UFMG. Belo Horizonte (MG), Brazil E-mail: elanafreire@gmail.com; ²Nurse, PhD Professor in Sciences, Nursing School, Federal University of Alfenas/UNIFAL/MG. Alfenas (MG), Brazil E-mail: martinez@unifal-mg.edu.br

INTRODUCTION

The Materials and Sterilization Center (MSC) is a unit that performs the processing of materials meant for use in health procedures. It provides correctly processed products in order to ensure their quality and safety for the direct use in healthy or sick individuals.¹⁻² The historical origin of the MSC is directly linked to the advent and evolution of surgery, and the need to create instruments that ensured the conduction of ever more sophisticated and invasive procedures. Thus, it became necessary to develop mechanisms for the cleaning and conservation of increasingly complex surgical and hospital supplies, in order to avoid their becoming a source of contamination for patients.³⁻⁴

The MSC is considered a supporting unit to other care areas within a health care facility. It receives dirty/contaminated material, and is responsible for cleaning, decontaminating, preparing, sterilizing, storing and distributing it to all the consumption units of the hospital. Moreover, it is responsible for preparing and sterilizing clean clothes collected from the laundry.⁴ The logistics of MSC in providing dental-medical-hospital supplies in the adequate quantity and quality, allied to the concepts of efficiency, effectiveness, provision and hospital infection, have a direct impact on quality assurance of the care provided at a health institution.⁵

Considering the relevance and accountability of services provided by the MSC, it is essential that healthcare institutions comprising this unit take steps to ensure its correct functioning. When processed correctly, medical/hospital supplies can save lives and contribute to quality care. However, if improperly sterilized, they can cause complications and infections that may even progress to the death of the patient. Thus, in order for a MSC to be considered of quality, it must comply with the prevailing standards and regulations, besides holistically meeting the customers' needs. For this, it is necessary to get to know the reality, dynamics, organization and routines of this unit, and to survey problems or nonconformities, in order to plan and schedule actions for its compliance and improvement, and to contribute to maintaining quality service.

The situational diagnosis is a fundamental management tool for the identifying problems and the construction of strategic planning. It enables the development of more targeted and effective health care actions directed at the problems found. Inadequacies in the services of an institution contribute to an

unfavorable environment both for users and professionals, compromising the quality of service offered.⁶

Situational diagnosis is the analysis of the real situation of an organization. It is conducted in order to get to know the company or business, and is one of the most important management tools available.⁷ Knowing the reality of an institution helps to identify problems and needs that should be addressed, and to discover ways and strategies to improve services and processes.

This study aims to describe the development of a Situational Diagnosis of a Materials and Sterilization Center.

METHODS

Descriptive study. Experience report on the elaboration of a Situational Diagnosis of a MSC of a small private hospital located in a municipality in the south of Minas Gerais. Primary goal was to create re-structuring actions for a Materials and Sterilization Center to achieve the quality standards established for accreditation as level I.

The diagnosis was performed by investigating nonconformities of the MSC in relation to quality standards established in the prevailing rules and legislation. Data were collected from May to November 2011, and updated in 2012 due to the publication of Resolution RDC No. 15, which "makes recommendations concerning good practices for the processing of health products and other measures".²

The identify of nonconformities was conducted by using a simple checklist based on the Initial Quality Assessment Tool⁸, as well as the analysis of institutional documents and the mapping of processes of the MSC. The simple Checklist is a Quality Management tool consisting of pre-set items that should be checked as soon as they are conducted or assessed. It is used to collect data, in order to assess the level of accomplishment of the pre-established items or to check whether they have already been completed.⁹

The mapping of processes was conducted in order to understand the flow and the routine of MSC services. It enabled the identification of flaws in the processes performed. Mapping of processes is a visualization tool of activities performed in a process, and of the interrelation between these activities and the process. Mapping the processes of a particular service helps to identify where and how it should be improved.¹⁰

After data collection and analysis of the mapping of processes, nonconformities of the

sector could be identified. Each one of the nonconformities was explained according to the prevailing standards and legislation.

Once nonconformities had been identified, a list of possible activities to remedy these inadequacies was elaborated. In addition, we conducted the analysis of a list of activities that were recommended by a quality consultancy service on a visit to the institution in 2006.

RESULTS AND DISCUSSION

● Profile of the MSC

The Materials and Sterilization Center of the studied hospital is linked to the surgical center. It shows a semi-centralized structure, since the sterile materials are not stored on the premises of the MSC, but are retained in the units where they will be used. This may hamper the standardization of reprocessing steps, the supervision of services, as well as quality assurance and maintenance of sterility of reprocessed materials.¹¹ Storing sterile materials outside the premises of the MSC makes it impossible to control their handling and storage conditions (temperature and humidity). Thus, the expiration date of sterilization cannot be really guaranteed.

The MSC studied can be classified as Class I, according to the RDC No. 15 of March, 2012. It performs the processing of non-critical, semi-critical and critical products of non-complex formation that may be processed. Complex formation products are those products with a lumen lower than five millimeters or with blind bottom, internal spaces that are inaccessible to direct friction.²

The unit is divided into three areas: dirty, clean and sterile. The dirty area is intended for the reception and cleaning of materials. The clean area is intended for the reception of clean clothes and materials, and for the drying, preparation, packaging, disinfection and sterilization of materials. After sterilization, items are temporarily kept in the MSC (sterile area), and then distributed to consumption units, where they are actually stored. Thermosensitive and complex structure materials are sterilized by an outside contracted service.

Dynamics and materials flow in the MSC take place continuously and unidirectionally. There is no mixing of clean materials with contaminated ones, or vice versa, as can be seen in the mapping of processes of the unit (Figure 1).

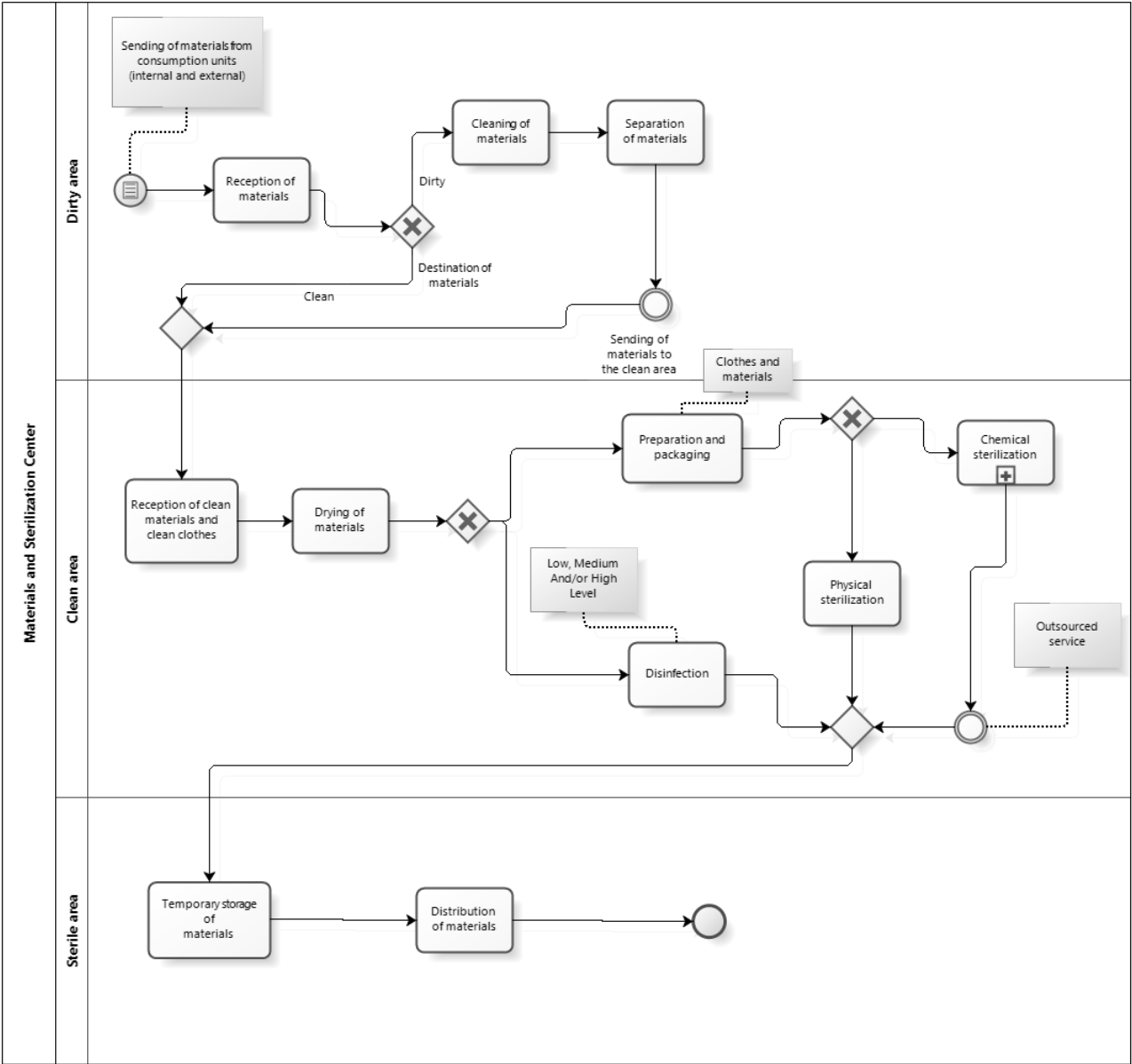


Figure 1. Mapping of processes of the MSC of a small private hospital of a municipality in the South of Minas Gerais, 2011.

The staff of MSC consists of three nursing technicians and one nurse supervisor per shift. However, the nurse supervisor does not work exclusively at the MSC, but is also responsible for the supervision of other units of the institution. Depending on the dynamics of the Surgical Center and the demand for surgeries, two employees of the Surgical Center are assigned to the MSC to assist in the cleaning and preparation of materials.

Nonconformities found in the unit

Nonconformities are issues identified during the assessment of a unit or service,

that are not in accord with the prevailing standards, thereby compromising the coherence and functioning of the system.¹²

The MSC studied was found to have an inadequate physical structure, due to the absence of some areas that are recommended by the RDC No. 50¹ and RDC No. 15², among other nonconformities listed in Figure 2.

Nonconformities found
1-Absence of a specific area for the storage of materials.
2-Absence of a specific area for disinfection.
3-Absence of a changing room for employees of the sector.
4- Poorly aired environment.
5- Manually operated tap.
6-Temperature and humidity of sterile materials are not daily controlled
7-Unrestricted access to the sector.
8-Incomplete use of IPE (Individual protection equipment).
9-Outdated rules and routines manual.
10-Absence of drains in the MSC.
11-Absence of personal uniforms for employees.

Figure 2. Description of nonconformities found in the MSC, based on the simple checklist and the mapping of processes, 2011.

Regarding nonconformities 1, 2 and 3, according to the RDC No. 50, a MSC must have a specific room for the storage and distribution of materials and sterilized clothes. Moreover, the RDC No. 15 requires a specific area for the handling of chemical substances, i.e., a disinfection room. Besides having standard areas, a MSC must comprise supportive environments such as a dressing room with toilet facilities for employees of the sector.¹⁻²

With regard to the fourth non-compliance ("poorly aired environment"), the area of MSC is usually "hot" due to the type and quantity of equipments used. The "dirty" area should have a natural ventilation or exhaustion system. The "clean" area should have an exhaustion system, and the sterile area should have an air conditioning system.¹³⁻¹⁴ The absence of an airy environment may negatively influence the performance of professionals.

In relation to non-compliance 5, as required by NR the 32, all washbasins and sinks of health facilities must have water faucets that do not require hand contact for closing the flow of water.¹⁵

According to the rules for storage of sterile materials (item 6 of Table 1), these products should be stored separately from non-sterile items, in a restricted area, with an airy environment, under temperature control between 18°C and 25°C, and relative humidity of 30% and 60%. High temperatures may favor the growth of microorganisms and compromise the quality of reprocessed items.¹³

Since the MSC is a closed sector, it should be an area of restricted access, with reduced flow of people. Access should be restricted to employees, in order to keep the environment clean, and reduce the risk of contamination¹³. This explains nonconformity 7.

Regarding the use of individual protective equipment (IPE), professionals who may be exposed to biological and chemical agents should use IPEs correctly¹⁵, in order to protect and prevent damage to employees, and reduce complications in cases of occupational accidents.

Concerning item 9 of Table 1, one of the responsibilities of the MSC nurse supervisor is to update the rules, routines and procedures manual, leaving it available for consultation.¹³

With regard to the lack of a drain in the dirty area, according to RDC No. 50/02, wet areas should have a liquid seal (syphons) and a retractable closure cap. The absence of drains hampers the cleaning of the area.¹⁶

In relation to item 11, the MSC worker must wear personal uniforms, a cap and closed footwear in all technical and restricted areas¹. It is the duty of the institution to provide such garments, in order to contribute to a better dynamics of the unit and reduce the risk of internal contamination.

• **Activities developed to eliminate nonconformities**

The analysis of nonconformities enabled the creation of a list of actions that should be carried out to adapt the MSC to the quality standards and rules in force. In order to complement these actions, activities proposed by a consulting firm specialized in the assessment of hospital quality on a visit to the institution in 2006 were adapted to the current reality of the sector and added to the other list.

According to the data collected through a simple checklist, the mapping of processes, and analysis of the report of the consulting firm, the following activities should be developed:

- Continuing education in health: use of IPE.
- To update the rules and routines manual.
- To provide personal uniforms for employees of the unit.
- To restrict access to the unit.
- To provide water faucets with touchless controls for the clean area.
- To develop strategies for the validation of wrappers.
- To establish procedures for the traceability of instruments.
- To construct a dressing room for employees of MSC.

- To centralize the storage of sterile materials at the MSC and perform daily measurements of temperature and humidity.
- To create a specific area for disinfection processes.

hus, a project for the adaptation of the MSC was developed and executed, by carrying out activities that were identified in the situational diagnosis. The project lasted for five months, and the following results were obtained:

Modifications conducted in the MSC
Restricted access to the MSC.
Three different areas: dirty, clean and sterile areas.
Specific area for the conduction of disinfection processes.
Storage of materials in a sterile area.
Daily measurements of temperature and humidity of the sterile area.
Water faucets with touchless control in the clean area.
Updated rules and routines manual.
Personal uniform for employees of the sector
Correct use of IPEs by workers of the sector
Instrument for the validation of wrappers
Traceability of materials
Dressing room with toilet facilities

Figure 3. Results of the MSC Compliance Project, 2012.

After project completion and delivery of results, a new mapping process of the MSC was performed in order to verify the contribution of the project to the improvement of processes developed in the unit (Figure 4).

Comparing the current mapping of processes with the previous one, the contributions of the MSC compliance project

to the improvement of processes become evident. With the addition of an disinfection area, the storage of sterile materials in the own MSC, and other changes described in Figure 3, processes now are in accordance with the standards and laws in force.

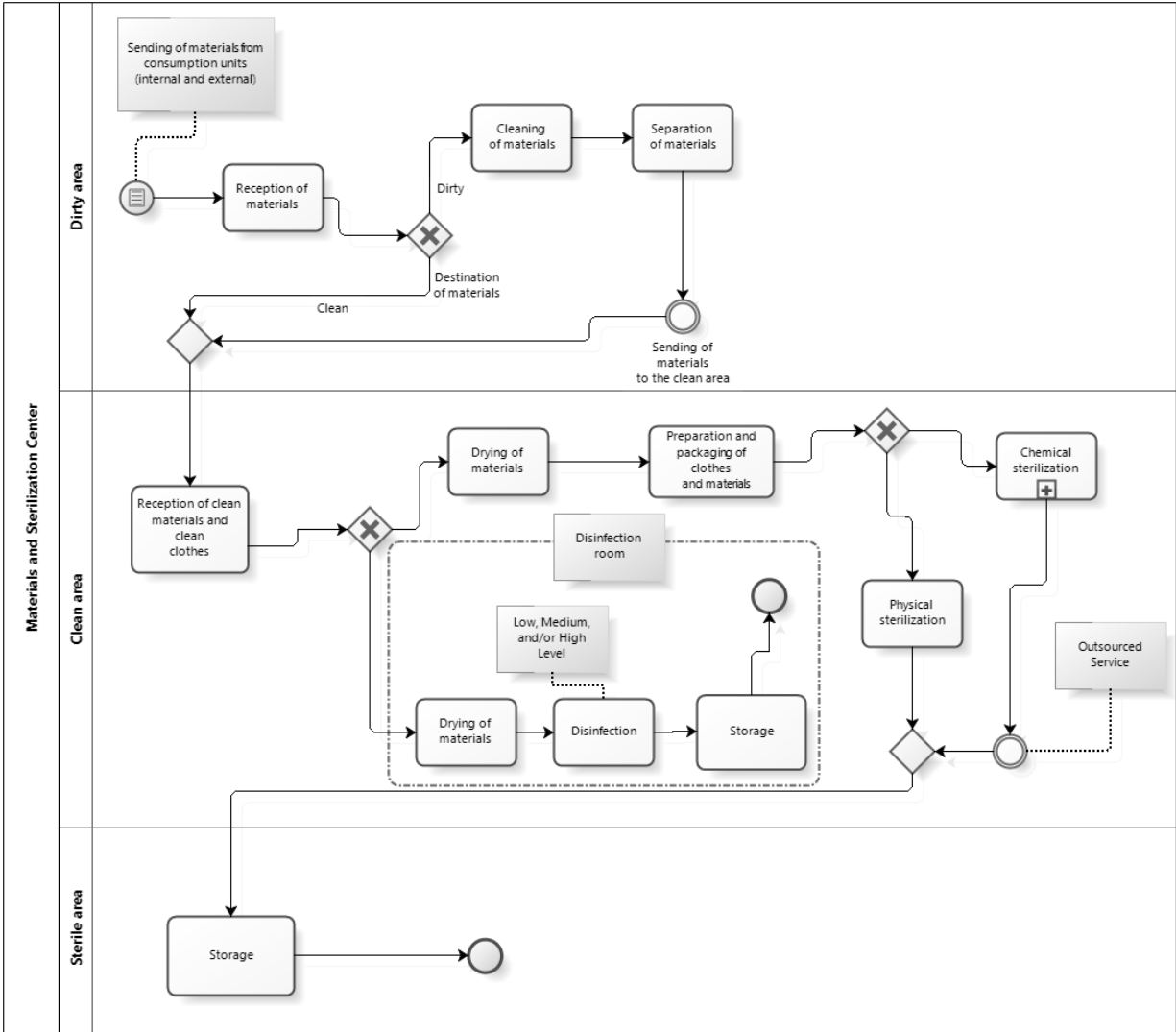


Figure 4. Mapping of processes of the MSC after execution of the MSC Compliance Project, 2012.

CONCLUSION

The situational diagnosis and mapping of processes were important tools for the

identification of nonconformities of the Material and Sterilization Center. Their use helped in the elaboration of a series of activities that needed to be carried out in

order for this sector to meet the prevailing quality standards. In this sense, we realized that the institution also had to take actions to make sure that the quality rules and precepts were followed in the MCS of the hospital studied. Thus, a compliance project was developed and implemented through a partnership between institution and researcher.

The implementation of the project made it possible to transform in concrete results the goals and strategies developed based on the situational diagnosis. The detailed situational diagnosis and the mapping of processes were of crucial importance for the implementation of improvements and adjustments required in the hospital accreditation model. The in-depth knowledge of the MSC environment and of the way in which work was processed in all stages allowed the achieving efficiency and effectiveness, surpassing initial expectations and causing greater satisfaction to the organizational management.

This study provides new insights and opportunities for nurses who work as managers of health services to implement high-quality, professional management services, making use of tools and skills for the optimization of the management process and the implementation of projects. We emphasize that only by knowing the reality of a work environment it is possible to rethink strategies for its improvement.

ACKNOWLEDGEMENTS

The present study was conducted with the financial support of the CAPES.

REFERENCES

1. Agência Nacional de Vigilância Sanitária. Resolução RDC nº 50 de 21 de fevereiro de 2002: dispõe sobre o Regulamento Técnico para planejamento, programação, elaboração e avaliação de projetos físicos de estabelecimentos assistenciais de saúde [Internet]. ANVISA, 2002 [cited 2011 July]. Available from: <http://www.saude.al.gov.br/print/resoluordcn50de21defevereirode2002regulamentotcnico deestabelecimentosassistenciaisdesade-11-01-2008>.
2. Agência Nacional de Vigilância Sanitária. Resolução RDC nº 15 de 15 de março de 2012. Dispõe sobre requisitos de boas práticas para o processamento de produtos para saúde e dá outras providências [Internet]. ANVISA, 2012 [cited 2012 July]. Available from: <http://www.saude.mt.gov.br/portal/control>.
3. Costa ABG, Soares E, Costa SA. Evolução das centrais de material e esterilização: história, atualidades e perspectivas para a enfermagem. Rev enferm global [Internet]. 2009 [cited 2012 Dec]; (15):1-6. Available from: http://scielo.isciii.es/pdf/eg/n15/pt_reflexio n2.pdf
4. Silva A. Organização do trabalho na Unidade Centro de Material. Rev esc enf USP. 1998;32(2):169-78.
5. Tillvitz LR, Nascimento LA do, Ribeiro RP, Fonseca LF. Avaliação da qualidade de uma Central de Materiais e Esterilização em um Hospital escola pública. Rev enferm UFPE on line [internet]. 2012 [cited 2013 Jan]; 6(9):2077-85. Available from: http://www.revista.ufpe.br/revistaenfermage m/index.php/revista/article/view/2719/pdf_1435
6. Rezende AC, Santos C, Biazini H, Miranda MM, Carvalho LEM. Diagnóstico Situacional da Unidade Básica de Saúde Barreiro de Cima [internet]. UFMG, 2010 [cited 2012 July]. Available from: https://www.ufmg.br/portalprosaudebh /images/pdf/BC_diagnostico.pdf
7. Bauli JD, Matsuda LM. Diagnóstico situacional do serviço de enfermagem de hospital de ensino sob a ótica dos profissionais de nível médio. Rev administração em saúde [Internet]. 2009 [cited 2011 July];11(43):55-62. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IisScript=iah/ia h.xis&src=google&base=LILACS&lang=p&nextA ction=lnk&exprSearch=574995&indexSearch=ID>
8. Campos LI. Instrumento de avaliação inicial da qualidade - Hospitais Pro-Hosp/Política de Acreditação - ONA. Belo Horizonte: Secretaria de Saúde do Estado de Minas Gerais, 2008.
9. Serviço Brasileiro de Apoio às Micro e Pequenas Empresas. Manual de Ferramentas da Qualidade [Internet]. SEBRAE, 2005 [cited 2011 Sept]. Available from: <http://www.dequi.eel.usp.br/-barcza/Ferram entasDaQualidadeSEBRAE.pdf>
10. Correia KSA, Almeida DA. Aplicação da técnica de mapeamento de fluxo de processo, no diagnóstico do fluxo de informações de cadeia cliente-fornecedor. Anais do 22º ENEGEP, Encontro Nacional de Engenharia de Produção [Internet]. 2002 [cited 2012 Sept]. Available from: <http://www.aprendersempre.org.br/arqs/GE %20B%20- Aplica% E7ao%20da%20tecnica%20de%20mapea>

[menbto%20de%20fluxo%20de%20processo....pdf](#)

11. Guadagnin SVT, Tipple AFV, Souza ACS. Avaliação arquitetônica dos centros de material e esterilização de hospitais do interior do estado de Goiás. Revista eletrônica de enfermagem [Internet]. 2007 [cited 2012 July];9(3):656-673. Available from: http://www.fen.ufg.br/fen_revista/v9/n3/pdf/v9n3a07.pdf

12. ONA. Manual das Organizações Prestadoras de Serviços de Saúde. Brasília: Organização Nacional de Acreditação; 2010. 164p.

13. Sociedade Brasileira de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e Centro de Material e Esterilização (SOBECC). Práticas recomendadas SOBECC. 5ª Ed. São Paulo: SOBECC, 2009. 304 p.

14. Ministério da Saúde. Secretaria de Assistência à Saúde. Manual Brasileiro de Acreditação Hospitalar. 3ª ed. Brasília: Ministério da Saúde; 2002.

15. Ministério do Trabalho e Emprego. Norma Regulamentadora NR nº 32, de dezembro de 2005 [Internet]. Dispõe sobre Segurança e Saúde no Trabalho em Serviços de Saúde. 2005 [cited 2011 Oct]. Available from: <http://inter.coren-sp.gov.br/sites/default/files/NR-32.pdf>

16. Guadagnin SVT, Primo MGB, Tipple AFV, Souza ACS. Centro de Material e Esterilização: Padrões e Processamento de Artigos. Rev eletrônica de enfermagem [Internet]. 2005 [cited 2012 July]; 7(3):285-293. Available from: http://www.fen.ufg.br/fen_revista/revista7_3/original_05.htm

Submission: 2013/01/05

Accepted: 2014/03/22

Publishing: 2014/05/01

Corresponding Address

Elana Maria Ramos Freire
Avenida Bias Fortes, 1150
CEP: 30170-011 – Belo Horizonte (MG), Brazil