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KNOWLEDGE OF NURSING ACADEMICS ON ACTIVITIES DEVELOPED IN A MATERIAL AND STERILIZATION CENTER

CONHECIMENTO DE ACADÊMICOS DE ENFERMAGEM SOBRE ATIVIDADES DESENVOLVIDAS EM CENTRO DE MATERIAL E ESTERILIZAÇÃO

CONOCIMIENTO DE ACADÉMICOS DE ENFERMERÍA SOBRE ACTIVIDADES DESARROLLADAS EN CENTRO DE MATERIAL Y ESTERILIZACIÓN

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ABSTRACT

Objective: to identify the knowledge of Nursing students regarding the activities developed in Material and Sterilization Center. **Method:** an exploratory study, with a quantitative approach, with 50 students from the last two semesters of the Nursing course. An interview form was used to collect data that was then entered into the Office Excel 2007 Program and presented in tables. **Results:** the students mentioned, among the activities, sterilization (28.6%) and infection control (45.8%), with greater importance; The need for training in updating machinery and making protocols (36.6%); Sterilization equipment (67.7%) and Practical Training (73.7%) as a source of knowledge. **Conclusion:** the students, in the course of theory, do not materialize the true activity of the service of Material and Sterilization Center. **Descriptors:** Center Material Sterilization; Nursing; Nursing Course.

RESUMO

Objetivo: identificar o conhecimento dos acadêmicos de Enfermagem frente às atividades desenvolvidas em Centro de Material e Esterilização. **Método:** estudo exploratório, de abordagem quantitativa, realizado com 50 estudantes dos dois últimos semestres do curso de Enfermagem. Utilizou-se formulário de entrevista para a coleta de dados que, em seguida, foram inseridos no Programa Office Excel 2007 e apresentados em tabelas. **Resultados:** os discentes mencionaram, dentre as atividades, a esterilização (28,6%) e o controle de infecção (45,8%), com maior importância; a necessidade de capacitação quanto à atualização dos maquinários e confecção de protocolos (36,6%); equipamento de esterilização a autoclave (67,7%) e Estágio Prático (73,7%) como fonte de conhecimento. **Conclusão:** os discentes, no decurso da teoria, não concretizam a verdadeira atividade do serviço de Centro de Material e Esterilização. **Descritores:** Centro de Material e Esterilização; Enfermagem; Curso de Enfermagem.

RESUMEN

Objetivo: identificar el conocimiento de los académicos de Enfermería frente a las actividades desarrolladas en Centro de Material y Esterilización. **Método:** estudio exploratorio, de abordaje cuantitativo, realizado con 50 estudiantes de los dos últimos semestres del curso de Enfermería. Se utilizó un formulario de entrevista para la recolección de datos que, a continuación, fueron insertados en el programa Office Excel 2007, presentados en tablas. **Resultados:** los discentes mencionaron, entre las actividades la esterilización (28.6%) y el control de infección (45.8%), con mayor importancia; la necesidad de capacitación en cuanto a la actualización de las maquinarias y confección de protocolos (36.6%), equipo de esterilización a autoclave (67.7%) y Pasantía Práctica el (73.7%) como fuente de conocimiento. **Conclusión:** los discentes, en el curso de la teoría, no concretizan la verdadera actividad del servicio de Centro de Material y Esterilización. **Descriptores:** Centro de Material y Esterilización; Enfermería; Curso de Enfermería.

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INTRODUCTION

The Material and Sterilization Center (MSC) is the basic operational functional unit for the reprocessing of durable articles used in the process of providing patient service. It is directly linked to the quality of care provided. In this sector, the principles of microbiology of physics and technological innovations, coordinated by nurses, are present.¹⁻² This unit is responsible for receiving, cleaning, preparing, sterilizing, storing and distributing materials for the hospital sectors.²

It is vitally important to have standardization of activities, training and training of human resources, procedures and techniques of sterilization, which are part of the purpose of the MSC. It is necessary that the Nursing professionals of this sector have knowledge of all the materials used in the hospital, differentiating, efficiently, those articles that must be sterilized in suitable methods, observing cost and benefit in the choice of each one.¹

The Collegiate Board Resolution (CBR) 307, of November 14, 2002, considers the MSC a technical support unit whose purpose is to process and supply health products to be used in health care establishments. It advocates its existence in the hospital. When there is a surgical, obstetrical, outpatient and emergency room and / or have a highly complex service and can be equidistant from the hospital.³

The MSC goes beyond the logic of being a simple place to collect contaminated materials: becomes a sector of extreme importance for the success of patient safety and activities performed at the hospital. The responsibility of a MSC goes beyond the development of simple activities, since it can be interpreted as actions that directly and significantly influence the health-disease process in a positive or negative way, translated by the quality and safety of the articles it will provide and will help the Consumer units.⁴

Considering the complexity of the service where Nursing students work for a short internship, usually, brought on by a feeling of discouragement of the activities developed in the MSC, due to a biased analysis that it is a sector to which it does not require scientific knowledge and professional competence, this identified problem motivated the accomplishment of this study.

Thus, according to the above, this study had the following objectives:

- To analyze the Nursing students' knowledge of the activities carried out in the Center of Sterilization Material;
- To ascertain, among the Nursing academics, the knowledge of the activities performed by the material center nurse;
- To investigate the knowledge of academics about the types of sterilization equipment in use in the hospital and the legal aspects that regulate the material and sterilization center.

METHOD

This is an exploratory, quantitative study, carried out in classrooms of the Health Sciences Center of the Federal University of Paraíba, in the municipality of João Pessoa / PB, in April 2015. The sample consisted of Nursing students, %, Totaling 50 interviewees, attending the 9th and 10th graduation, last semesters for the conclusion of the course. The students who were present at the time of data collection, who explained the content of the study, as well as the clarification about the need to sign the Free and Informed Consent Term participated in the study. Students who were not regularly enrolled and / or refused to respond to the interview form were excluded.

The instrument used was formulated containing, in the first part, data regarding the identification of the academics and the second, intentionally, about the knowledge of them in relation to the activities developed in the MSC. The questionnaire was composed of five multiple-choice questions, regarding the students' knowledge about the activities developed in the MSC, the importance of the sector to the hospital structure, the need for training of the Nursing team in the MSC, equipment used and sources of knowledge about the subject, all of which offer the student the option of ticking more than one answer if he or she considers it appropriate. The last question, of a subjective nature, was about the ethical aspects that regulate the sector.

After the collection, the findings were tabulated and presented in tables, transcribed based on the data collected. The processing was performed using the Office Excel 2007 program, using simple statistics and presented in absolute numbers and percentages. The discussion was based on the literature on the subject.

Throughout the research, anonymity, privacy and the right of withdrawal were emphasized at any time without prejudice to both parties. Consideration was given to CNS, Resolution 466/12 for human research,⁵ which

guides development through regulatory guidelines and standards and generated a CAAE: 39129514.80000.5188. This research presented no imminent risk to the participants, only the embarrassment at the moment of the answers. The benefit was to raise a more attentive look at the importance of the activities developed in the MSC sector that requires scientific knowledge in order for its purpose to be achieved.

RESULTS

Fifty students participated in the study. Of these 40 (80%) were female and ten (20%) were male. As for the number of participants

per period of the course, both the 9th and the 10th were obtained the same results: 25 (50%).

It was verified that 42 (84%) of the students reported knowledge of the service activities, while eight (16%) reported not knowing the assignments related to the sector.

When the responses of the students about the activities developed in the sector, 91 responses were obtained, of which the most relevant were the **placement of material for sterilization** - 26 (28.6%), followed by coordination and / or management of the sector, with 19 (20.9%) as expressed in table 1.

Table 1. Nursing academic responses on the activities developed in the Material and Sterilization Center. João Pessoa (PB), Brazil, 2015.

Activities developed at MSC	n	%
Placement of sterilization material	26	28.6
Coordination / Management of Nursing team	19	20.9
Distribution of materials for the consumer sectors	14	15.4
Packaging of articles	11	12.1
Daily control of equipment with biological and chemical tests	10	10.9
Handling of sterile material	6	6.6
Industry Administration	5	5.5
Total	91	100

Regarding the participants' perception about the importance of the Material and Sterilization center, the study revealed 48 responses, of which infection control

prevailed - 22 (45.8%), followed by quality assurance of the services provided - 15 (25%) by the sector, in order to attend hospitalized patients safely and immediately (Table 2).

Table 2. Student response on the importance of Material and Sterilization Center in the hospital structure. João Pessoa (PB), Brazil, 2015.

Importance of CME in the Hospital	n	%
Infection control	22	45.8
Ensuring quality of service to the patient	12	25.0
Provision of sterile material for inpatient procedures	7	18.8
Scientific knowledge about the infectious process	5	10.4
Total	48	100

Regarding the training as a resource to guide the service, 45 (90%) students mentioned it and five (10%) left unanswered this item. Thus, the most important item

reported to the machinery and protocols of the sector 15 (30.6%) mentions as being the determining factor for the constant qualification of the professional (Table 3).

Table 3. Responses on the importance of training of the Nursing staff of Material and Sterilization Center. João Pessoa (PB), Brazil, 2015.

Training of the MSC nursing team	Nº	%
Updating of machinery and new protocols	15	30.6
Prior knowledge for correct employee orientation	11	22.5
Ensure the effectiveness of sterilization	10	20.4
Ability to coordinate team	7	14.3
Extremely important sector for hospital activities	6	12.2
Total	49	100

As to the knowledge of the students about the equipment used in the sterilization process, 40 (66.7%) of the students reported

having knowledge about the autoclave and 11 (18.3%) mentioned the stove (Table 4).

Table 4. Knowledge of Nursing students related to the types of equipment used for hospital sterilization. João Pessoa (PB), Brazil, 2015.

Types of sterilization equipment	nº	%
Autoclave	40	66.7
Greenhouse	11	18.3
Dryer	4	6.7
Chemical Agents	2	3.3
Sealing machine	2	3.3
Washer	1	1.7
Total	60	100

It was found that 57 responses occurred, of which the practical stage obtained 42 (73.7%) of the answers. So, this was the main

knowledge source for academics about Material and Sterilization Center.

Table 5. Nursing students' answers about the sources they use to know the sterilization equipment. João Pessoa (PB), Brazil, 2015.

Sources of knowledge used	n	%
Practical internship	42	73.7
My Account	6	10.5
Websites / internet	3	5.2
Articles	2	3.5
Videos	1	1.8
Courses	1	1.8
* Other sources	2	3.5
Total	57	100

DISCUSSION

Considering the prevalence of the female sex, this result is justified because it is this condition in the common Nursing, dating from, its historical origin when Florence Nightingale was pioneer of the care, where it was evident a summarily feminine picture imposed by her. In the period that Nursing was structured in Brazil, it was also determined that the candidate was a woman and possessed moral precepts and professional aptitude.¹

It was only from Florence that the idea of contents carefully came to be discussed as an object of Nursing study, although concepts and formulations about care were much earlier. Therefore, it provides training for these professionals as responsible for putting individuals in a better condition, by having an impact on the environment. Nursing, while working in the health field takes care of human beings, in its multiple dimensions. This care must be gradually constituted in each course of the subjects in a holistic and reflexive manner.⁶⁻⁷ It is noticed that Nursing grows not only in an exclusively female context, but with the search for the masculine gender by the profession. It is understandable that this growth requires not only scientific knowledge, but above all, the sensitivity to hear and see the patient in its integrality, a characteristic that is present in contemporary man.

Reflecting on the two course periods of the students, it was verified that each student in

his way of thinking and acting, learns differently from one another. The periods can be considered as a unique moment for debates, the addition of theory and practice and the construction of the learning process itself.

When considering the knowledge of the students about the placement of material to sterilize, according to the literature, there are several technologies on the market, wet heat, chemical procedure and the physico-chemical. Of these, the most used in health institutions is steam Saturated under wet heat, which provides safety because it has thermo-coagulation mechanism and denaturation of enzymes and structural proteins of the microbial cell.⁸ It is possible to detect the rapid heating and penetration of heat in the articles, which destroy short bacterial spores Period of exposure is economical, easy to handle and leaves no toxic residue on the materials that are subjected to the sterilization process.⁹

To guarantee the efficiency of the sterilization processes, a monitoring program for quality control should be developed. It aims to control all phases of sterilization in order to detect possible failures during the process. An internal indicator like test challenge for checking the vacuum pump, commonly used is the Bowie & Dick test on the first day load after heating the equipment. This indicator tests the effectiveness of the vacuum system in the pre-vacuum autoclave.¹⁰

Regarding the **coordination and management of Nursing staff**, this answer is restricted by the nurse. It is observed that there was a divergence between the activities performed by the technicians and those practiced by the nurse in the sector. There are numerous tasks performed in the MSC, such as: receiving and separating articles; perform washing; receiving clothes from the laundry; prepare and process the products; sterilized by different methods; physical, chemical and biological control; verify the validity of the inputs; storing all sterile items; distribute it to the requesting sectors, and watch over the protection and safety of the workers.¹¹ The activity developed by the nurse is essential for the daily practice of Nursing care and should be considered a legitimate work for instrumentalizing care, some authors affirm Which is in management where the true role of the nurse is present.¹²

COFEN Resolution N°424 / 2012, regulates the duties of nurses in MSC, making their primary activities in relation to management such as: planning, elaboration of administrative and operational instruments, management of material resources, personnel and supervision. The work objects of the MSC nurse become the hospital articles, the human resources. These reflect the predominance of the instruments of work with the interpersonal relationship, planning, supervision, communication and knowledge.¹³ Several literatures point out that the nurse is the professional apt to perform the management function of the sector, since the form of the care also occurs for Management. Although not recognized by many professionals as work tools, the provision, forecasting, supervision and validation of the materials are as important as the direct care provided by the Nursing to the patient. In addition to working safely, and delivering material at the right time, with the certainty that everything has been done properly by the employees.

On infection control, it may be related to health care and presented as acquired at hospitalization and / or that may be related to hospitalization, acquired through hospital procedures. Studies show that Nursing recognizes its importance through the management of activities in the process of material sterilization.¹⁰ The routine of the MSC is to control HI (Hospital Infections), by developing the procedures that are their responsibility, with the necessary techniques and care. With regard to infection control, there is a consensus among specialists regarding the need for strategic actions to

reduce infections related to invasive procedures of high complexity.

Addressing the elimination of IRAS depends on four strategic pillars of action: 1) promote adherence to evidence-based practices, educate, implement and invest; 2) increase sustainability, through alignment of financial incentives and reinvestment in strategies that prove successful; 3) fill knowledge gaps to respond to emerging threats through basic epidemiological and translational research; 4) collect data to guide prevention efforts and measure progress.

As a member and manager of the MSC Nursing team, it is the responsibility of the nurse to participate in the planning, execution and evaluation of the strategic actions to be developed with the other hospital sectors in order to obtain a safe result in the prevention of infection in the hospital environment.

Regarding the importance of the Nursing team's capacity to guide the good progress of the service, some reports show that both the activities related to supervision, and the functioning of the equipment (machinery) need to move parallel to know their function, to guarantee the reliable process and processing. The monitoring of the equipment is fundamental for efficient performance in the Material and Sterilization Center.¹² This competence happens through continuing education in service, valorization of human resources, and available input, being this the successful formula for monitoring the technologies in the process execution of work.

Continuing education is the path that leads to the improvement of services provided, making it a two-way street for the professional and the service. In order to be successful in the operation of the MSC, it is necessary that the workers be of adequate quantity and quality and that there be an effective continuing education program in order to maintain professional qualification and, consequently, to carry out work with competence.¹⁵

Concerning the knowledge about equipment used in the material center, and although the students refer, mostly, to the use of the autoclave, which arouses special attention, it refers to the mention of 11 (18.3%) of them in Since it is totally outside the Ministry of Health, stasis has been in disuse since 1980, a controversial issue for the MSC sector. The sterilization cycle by saturated steam under pressure is the most used method in the Health Units. It comprises the phases of: removal of air from the chamber; steam inlet; sterilization; steam exhaustion and drying. The equipment has

different forms of cycle programming and the manufacturer's guidelines must be followed.¹⁶ The mechanism of action of saturated steam sterilization under pressure is based on the transformation of water-vapor particles with the same temperature. It consists of a type of process of great reliability and cost / benefit for the hospital services, to meet the expectations of product sterilization, to have low cost of the process with total exemption of toxicity.¹

With this method, the cellular structure of the microorganisms is disorganized by the combination of temperature, pressure and humidity, leading to their destruction. Steam sterilization involves several steps and parameters that must be constantly monitored. For this, the process must be validated, by means of the practical and documented verification of the equipment and process performance.¹⁷ In relation to the stove mentioned by the students, the literature shows that it is in disuse because it is a process that requires a long time, and reaches very high temperatures so that it can occur to microbial death, does not sterilize all types of articles.¹⁶⁻⁷

In relation to the source of knowledge considered as primordial, the reference to the **practical stage** can be related by if a moment where more coherent information about the MSC is sought and 10.5% placed books. The practical stage in the curricular strategy of the course occurs in two moments: the first in the eighth period when the student passes quickly in the discipline and knows the sector, and in the 10th period, when the students are under the indirect supervision of the teachers and the nurse's direct. The latter has a total workload of 48 hours for each student, this internship is compulsory and regulated by the Coordination of the Course and approved by a Resolution of CONSEPE. Based on this response from the **practical stage**, which has consolidated learning, it is scientifically necessary to join theory / practice, one is not dissociated from another. In the context of learning there are processes that involve teaching methodology, characterized by the pillars of learning-to-do, learn-to-be, and by learning-to-live. Thus, the academic develops technical and humanistic skills, for the future professional practice, through the guidance and *feedback*, either of a teacher or supervisor, about their development in the activities related to the profession and educational environment, with the objective of performing an adequate, Have their knowledge expanded in theory / practice, thus forming a critical and reflective

professional capable of acting within the environment of experience and fit for social demands.¹⁸

Regarding the legal aspects that regulate the material center and according to the study, of the 50 respondents, 16 were obtained with divergences and / or lack of knowledge of the legalization that regulates the MSC. The CRD was the most cited question by 68.8% of respondents, followed by the SOBECC manual, with 18.8% that treated it as a standard, is adopted in the discipline, which serves as a recommendation for the service, but even Thus, it needs to make its protocols and its routines within the legal aspects. Since 2012, CRD 15 has been issued and deals with good practices in MSC. This is a specific industry standard, but it is necessary to check other references to professionals and the institution such as: NR 06, which regulates the use of PPE; To NR 32, exclusively for health professionals; CRD 50, which provides for the technical regulation for planning, programming, elaboration and evaluation of physical projects of health care establishments, among other measures.

In this sense, the Material and Sterilization Center is a place that adds knowledge to the student in relation to his / her learning of the ethical, technical and managerial issues. The feelings of fear and fear that arise at the beginning and after stage in this sector, are disappearing, and, at the same time, it prevails in the will to learn, since the flow of the processable articles and the actions of the professional of Nursing, to maintain it with quality provides satisfaction and instigates it to continue in the profession.¹⁹

From the principle that the sector is eminently practical, professional qualification, but it should not be forgotten that practices demand the need for research and the constant search for improvement. It is important to emphasize that in the search for the improvement of the profession, the research emerge from the practice, as well as, the new practices emerge from the research.²⁰

CONCLUSION

From the findings, it is confirmed that the Nursing students understand the importance of the service and the nurse in the material center, when they go through the practical stage in the last periods of the course, with the greatest workload and are directly connected to the nurse. It was possible to verify that there is a need to extend the theoretical / practical workload of Nursing students so that they can safely and

accurately discern, the true role of MSC nurses.

It is necessary to understand that at the end of the graduation, the nurse needs to be able to manage any service, considering that the curricular strategy proposes that the professional is generalist, humanist with a comprehensive vision of health, at all levels of health care. It is hoped that this study will maintain a new way of thinking and acting for those who will be future professionals, where they can understand that the care provided to the patient also materializes in an indirect way, being as important the service as direct assistance and that brings new Looks to the Material and Sterilization Center.

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