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# Nurse's performance in a clinical analysis laboratory

Desempeño de la enfermera en un laboratorio de análisis clínico

Atuação do enfermeiro em laboratório de análises clínicas

## ABSTRACT

The aim was to describe the duties of nurses working in a clinical analysis laboratory in Florianópolis, in the state of Santa Catarina, Brazil. It is a qualitative, field, descriptive - exploratory study. The methodological design was carried out in 5 phases: phase 1: research authorization; phase 2: validation of the data collection instrument by specialists in the field; phase 3: delivery of the informed consent form to the research subjects, the target audience was nurses working in the clinical analysis laboratory sector; phase 4: data collection after application of the open questionnaire containing 19 questions; and phase 5: collecting the questionnaires and interpreting and analyzing the data. The study demonstrated that the nurse has assignments in the three distinct phases of the process, developing private assignments of the Nurse, both in the assistance part and in the managerial part. In addition, the importance of using instruments that support their practices for decision making was evidenced and the importance of the search for constant knowledge in this area that more and more the professional Nurse has been inserted.

**DESCRIPTORS:** Nursing Care; Laboratories; Pre-Analytical Phase; Nurse.

## RESUMEN

El objetivo fue describir las funciones de las enfermeras que trabajan en un laboratorio de análisis clínicos en Florianópolis, en el estado de Santa Catarina, Brasil. Es un estudio cualitativo, de campo, descriptivo-exploratorio. El diseño metodológico se llevó a cabo en 5 fases: fase 1: autorización de la investigación; fase 2: validación del instrumento de recolección de datos por especialistas en la materia; fase 3: entrega del formulario de consentimiento informado a los sujetos de investigación, el público objetivo fueron enfermeras que trabajan en el sector de laboratorios de análisis clínicos; fase 4: recopilación de datos después de la aplicación del cuestionario abierto que contiene 19 preguntas; y fase 5: recopilación de los cuestionarios e interpretación y análisis de los datos. El estudio demostró que la enfermera tiene asignaciones en las tres distintas fases del proceso, desarrollando asignaciones privadas de la Enfermera, tanto en la parte asistencial como en la gerencial. Además, se evidenció la importancia de utilizar instrumentos que apoyen sus prácticas para la toma de decisiones y la importancia de la búsqueda del conocimiento constante en esta área que cada vez más se está insertando la Enfermera profesional.

**DESCRIPTORES:** Cuidado de Enfermería; Laboratorios; Fase Preanalítica; Enfermera.

## RESUMO

Objetivou-se descrever as atribuições dos enfermeiros que atuam em um laboratório de análise clínica da grande Florianópolis, do estado de Santa Catarina, Brasil. Trata-se de um estudo qualitativo, de campo, de caráter descritivo - exploratório. O desenho metodológico foi executado em 5 fases: fase 1: autorização da pesquisa; fase 2: validação do instrumento de coleta de dados por especialistas na área; fase 3: entrega do termo de consentimento livre esclarecido aos sujeitos da pesquisa, o público alvo foram os enfermeiros lotados no setor de laboratório de análises clínicas; fase 4: coleta de dados após aplicação do questionário aberto contendo 19 questões; e fase 5: recolhimento dos questionários e interpretação e análise dos dados. O estudo demonstrou que o enfermeiro possui atribuições nas três fases distintas do processo, desenvolvendo atribuições privativas do Enfermeiro, tanto na parte assistência quanto na parte gerencial. Além disso, evidenciou-se a importância de utilizar instrumentos que sustentem suas práticas para a tomada de decisão e a importância da busca de conhecimento constante nessa área que cada vez mais o profissional Enfermeiro vem sendo inserido.

**DESCRITORES:** Cuidados de Enfermagem; Laboratórios; Fase Pré-Analítica; Enfermeiro.

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## INTRODUCTION

The laboratory aims to provide diagnostic data, which assist in the patient's therapeutic management. The data are obtained from the analysis of the organic matter of a given patient, for example: urine; feces; Spittle; arterial and venous blood; tissue and CSF samples. The collection of organic matter corresponds to the process of greater complexity because it has different techniques, some less invasive, generally with low risk and others more invasive, which may present a significant risk. In this process, the nurse is trained and competent to provide direct care to the patient, supervise and train the professionals who performed the collections and act as a manager in the administrative process in the places where they provide health care<sup>(1)</sup>.

Clinical analysis laboratories use the dynamic process that is based on three distinct phases: the pre-analytical, analytical, and post-analytical phase. The first, that is, the pre-analytical phase corresponds to

the customer's preparation, the collection technique, the products and materials used, the storage and transportation of the material<sup>(1)</sup>.

In this context, the nurse develops several activities in the Clinical Analysis Laboratories, for example: the management of nursing care; organization of the institution; protocols; standard operating procedures (SOPs); elaboration of questionnaires for data collection; customer guidance; manuals; sector administration; training of nursing professionals, guidance and interventions in preparing patients before, during and after collection. These duties demand a broad and scientific view by the professional nurse, encompassing not only the technical, ethical and legal aspects of the services provided, but also the knowledge about the nursing work in this field<sup>(2)</sup>.

Ordinance CVS-13, of 11/4/2005, approves the Technical Standard that deals with the operating conditions of the Laboratories of Clinical Analysis and Research, Clinical Pathology and the like,

describes in its paragraphs the definition of the procedures for collecting human material and defines the professionals who can work in the collection area and in its coordination. In Article 4,441 of human resources, it authorizes the performance of higher education professionals to work in the sector, they are: doctors and nurses; pharmacists; biomedical; biologists; and chemicals<sup>(3)</sup>.

Even with legal support for the exercise of the profession, it can be observed that in nursing graduation, the knowledge that nurses acquire is aimed at other health sectors, however, in general it covers the need found in the different functions that an analysis laboratory clinics need. In nursing graduation, there is no specific subject in the grade directed to performance within a clinical analysis laboratory. In the practical part, in the curricular internships, this area is also not considered<sup>(2)</sup>.

Within a clinical analysis laboratory, in the pre-analytical phase, many collection procedures are exclusive to nurses, according to Decree No. 94.406 / 1987, Art.

“8th, The nurse who masters his technique and the knowledge that involves nursing care for this type of client, is one capable of providing better quality in the service provided”.

This study becomes viable due to its academic and social relevance, being able to provide greater knowledge in this area, helping nursing professionals and academics to look at this sector that is growing and to know that it is a possibility of acting, and mainly to highlight about the main attributions that nurses currently perform in this sector, since, professionals must perform their services within the highest quality standards and the principles of ethics / bioethics, taking into account that the responsibility for health care does not end with the technical act, but with the resolution of the health problem, both on an individual and collective level. From the collective point of view, it will contribute to the improvement of nursing care, directly reaching the public assisted by them. Thus, this study provides knowledge to professionals, guiding nursing care.

The research was carried out with the participation of nursing professionals from a network of clinical analysis laboratories, in the private initiative operating in the greater Florianópolis, Capital of Santa Catarina, Brazil. Which has the research question: “What are the nurse's duties given to clients in a clinical analysis laboratory in greater Florianópolis, in the State of Santa Catarina, Brazil? Given the above, the objective was to know the duties exercised by nurses who work in a network of clinical analysis laboratory in greater Florianópolis, Santa Catarina - Brazil.

## METHODOLOGY

This is a qualitative, descriptive, and exploratory study that seeks to describe the role of the professional nurse who works in clinical analysis laboratories.

The research took place in a clinical analysis laboratory located in greater Florianópolis, in the state of Santa Catarina.

It is a private institution organized by 1 head office and 16 branches.

All 13 nurses were invited to this research, based in laboratory units, based on the inclusion criteria, which were established in: professionals who have more than 06 months of experience and who worked daily during the period of the referred research. The exclusion criteria were: nurses who were unable to contact after 3 attempts; who were not interested in participating in the research and professionals who were on vacation, leave or a certificate during the data collection period, factors that resulted in the 08 participants informed.

The entry into the field occurred through the presentation of the completed project to the institution's nursing management, informing the aspects related to the research. The methodological design has 5 phases, with 1 pre-data collection phase as described below:

Phase 1 - Authorization for the development of the research by means of a letter presented to the nursing manager of the institution where the research was developed, in order to analyze and approve it, and proceed to the opinion of the Ethics and Research Committee of the Universidade Paulista (CEP / UNIP). After the respective approvals, other subsequent methodological steps began.

Phase 2 - Validation of the Instrument after sending the IC and an invitation letter to the judges. In this phase, the validation instrument was built with the objective of evaluating 19 open questions of the data collection instrument. Then, 3 judges were invited to participate in the validation of the instrument before proceeding with data collection. The inclusion criteria for participation in the adopted research were having consolidated experience in the sector and / or specialization in the area (analysis carried out through the *Lattes* curriculum). Professionals who met the required characteristics were previously contacted via phone / e-mail and, subsequently, letters of invitation and informed consent were sent, together with the instrument for validation with characteriza-

tion of the judges and information on how to carry out the evaluation. In the validation process, each activity was assessed for relevance and agreement. After receiving the instruments, the data were analyzed. For each item assessed as not relevant by any judge, that item and the reasons given for its non-relevance were presented to the other judges so that the agreement could be judged. It is important to note that the anonymity of the judges was maintained at all stages. Three judges who previously agreed to participate in the study validated the instrument. Validation took place in May 2019.

Phase 3 - In this phase, the researchers presented themselves to each subject of the study individually, invited to participate in the study and clarified the nature of this, their justification, their objectives, the possible benefits and risks of the same, the importance of the participation of each one, guarantee of anonymity and, finally, that the data obtained will be used for scientific purposes, will read, discuss and sign the IC.

Phase 4 - Data collection was performed using an open questionnaire, prepared by the researchers, containing 19 questions as an instrument. The instrument was filled out by the research subjects at the time they were available, and it was agreed that the researchers would return after 1 week to remove the answered questionnaire.

Phase 5- This phase consists of collecting the questionnaires by the researchers in each sector shift. Those who did not deliver the answered questionnaire after 3 attempts by the researchers were discarded. Qualitative interpretation and analysis performed.

After data collection, the database was organized using a spreadsheet in the Microsoft Excel® program. Subsequently, descriptive analyzes of the data were carried out through the thematic modality(5) and the results were organized into categories. However, together with the literature and in line with the theory of Virginia Henderson<sup>(6)</sup>, the answers were correlated.

## RESULTS AND DISCUSSION

The population that makes up the present research is 06 nurses, were removed from the research based on the exclusion criteria, 01 left the company, 01 was on vacation, 02 had only 3 months of experience in the sector and 03 did not deliver the questionnaires in the various attempts made.

The profile of the nursing professionals in the network of laboratories in which the present research took place is described below, as we can see: all the respondents were female and worked during the day; as for age, age group from 25 to 37 years old; as for the time working in the area, there are professionals between 06 months and 10 years of experience; none of the research subjects had experience in the laboratory considering other institutions; as for titles, only 02 are specialists, but in other areas of expertise.

Nurses have their space guaranteed in the multiprofessional team, since they have some procedures that are exclusive to their training. The determination of the Professional Nursing Practice Law establishes private nurse procedures, and in the presence of nursing technicians and assistants determines the need for nurse supervision. However, in spite of the fact that the laboratory area is a sector that nursing has been gaining space in the last decades, we observed few nursing studies on the subject, the sector is being adapted to the standards of the Federal Council of Nursing (COFEN), bringing new opportunities field of action for nursing, even so, it is common to have the technical nursing professional in the sector, being supervised by professionals from other areas(7).

The next stage of data analysis and interpretation occurred after organization and exhaustive reading of the results for better understanding, will be presented in the next subtitles 1 category and 4 sub-categories, such as: Main Duties of the Nurse in the clinical analysis laboratory (Pre-analytical phase, Analytical, Post-analytical; Management activities).

### Main duties of nursing professionals in the clinical analysis laboratory

The laboratory area of clinical analysis, requires the professional nurse to differentiate from the traditional pattern of the Biomedical model, the assistance is organized by routines and protocols to guide him, in addition, technological modernization and new techniques are constantly emerging, demanding from this professional technical knowledge and updated scientific. The care provided in this sector has been adapted to public policies of individualized and humanized care, focused not only on problems, but on the individual as a whole<sup>(2)</sup>.

Regarding specifically to the conduct of the professional nurse within the scope of the clinical analysis laboratory, His performance is supported by Law No. 7,498 / 86 on the exercise of his profession, on Decree No. 94,406 / 87 that regulates his duties and standards specific to the sector, such as CVS-13/2005, which deals with the operating conditions of clinical analysis laboratories and enables professional technical nurses and nursing assistants, among other professionals, to work in this area<sup>(4)</sup>.

Even so, it is still common to have places that do not suit the presence of the nurse, another existing factor is nursing professionals who are unaware of this place as an area of expertise for nurses. In this way, the professional is obligatory in this sector and knowing the duties in this area are necessary for the class in question. The Nurse's duties within the clinical analysis laboratory are focused on the phases: pre-analytical, analytical, post-analytical and managerial activities.

- Pre-analytical phase: the duties performed by the Nurse in the pre-analytical phase according to the research subjects include:

*“The nurse can act, from the pre-  
per registration of the examination  
protocols, collection of the same, and  
also from the Centrifugation Sector,  
in which the samples are conditio-*

*ned and / or centrifuged until they  
are transported.” (Nurse 1)*

*“The nurse participates from the  
reception giving guidance to the  
client until the collection takes place,  
paying attention to signs of PTE  
and Crates in the bed.” (Nurse 2)*

*“Guidance and collection of mate-  
rials. Organization of training for  
teams.” (Nurse 4)*

*“The nurse participates in all pre-  
-analytics, in the instructions for  
exam collections, in the material  
registration and in all preparation  
for collection.” (Nurse 5)*

Can be seen that most nurses reported the nurse's performance in the whole process of the pre-analytical phase and demonstrate to be well-grounded as to their attributions. Those surveyed cited both assistance and management assignments.

Thus, the nurse has competence and legal qualification to develop these procedures, another activity that can be developed by him is centrifugation.

The centrifugation sector is the place where we separate the samples of exams collected by analysis sector such as: hematology, biochemistry, urinalysis, parasitology, immunochemistry. There, all materials are handled correctly, packaged, and safely separated. In this pre-analytical phase, the reliability, safety, and punctuality of the collected samples is guaranteed. The nurse participates directly with the training of the team related to the correct handling of the material, temperature of the samples, packaging of the same, aiming to guarantee the minimization of the contamination risks, until its correct transport, maintaining the exact temperature for each sector of samples in their due cases. . Most samples follow a biological sample transport routine between laboratories<sup>(8)</sup>.

Also considering the attributions of the pre-analytical phase, in addition to direct assistance, the Nurse also has managerial attributions as shown below:

*“Not always directly. But it has it share in adding information, preparing some documents and applying new processes.” (Nurse 6)*

*“The nurse participates from planning and supervising care to evaluations and care for both the patient and the services.” (Nurse 3)*

It is evident that nursing supervision is an especially important task for improving the quality of care provided to clients and involves the entire pre-analytical phase. In addition to supervision as an extremely important assignment in the managerial part, we also have mentioned duties, and no less important, such as: guidance, continuing education, training, and qualifications.

Therefore, the more the nurse is able to train his team, either through continuing education, the elaboration of SOPs or establishing new processes based on scientific evidence, the more he will be contributing to the safety of the patient and the professionals who work there. According to a study(9), the dan-

gers in the laboratories include chemical, physical, biological, ergonomic risks and professionals must keep up to date to prevent accidents at work.

For a better understanding, a chart was elaborated below, which describes the private duties of the nurse, containing their respective legal references.

According to reports by research subjects regarding the private procedures they perform in their routine, they include:

*“Procedures such as: collections by means of bladder catheterizations for relief; Colpocytology collections; arterial blood gases; etc.” (Nurse 1)*

*“Bladder catheterization, arterial blood gas analysis, oncotic colpocytology, medication administration in hormonal tests, delivery of HIV report and leadership.” (Nurse 5)*

It is observed that the research subjects are in agreement regarding the nurse's private procedures, only one mentioned medication administration in hormonal tests, although we do not find in the literature

legal support that determines that this assignment is exclusive to the nurse, it is possible that this activity be performed in the standardized routine by a POP of the researched place, after all, administration of insulin and clonidine include risks related to administration, which may cause hypotension, cardiovascular changes, requiring a structure set up for urgent and emergency situations, requiring the nurse to have an apparatus for the correct decision making and coordination of the team in the event of a complication, where time is of the essence.

For the nurses surveyed, the most complex and / or more difficult nurses' private assignments are:

*“Pediatric patient blood gas analysis, as it is a child, does not understand that he needs to remain with a limb, we often need to immobilize the child.” (Nurse 5)*

*“Bladder catheterization for relief, patients with surgery in the perineum have a certain difficulty in locating the urethra.” (Nurse 3)*

Chart 1. Nurses' private activities. São José, SC, Brazil, 2019

ATIVIDADES PRIVATIVAS DO ENFERMEIRO (D E C R E T O N 94.406/87)		
01	Processo de enfermagem	RESOLUÇÃO COFEN- 514/2016
02	Aprazamento de Prescrição Médica	PARECER COREN –SP- 036/2013
03	Classificação de risco	RESOLUÇÃO COFEN-423/2012.
04	Cateterismo vesical de alívio e demora	RESOLUÇÃO COFEN-450/13
05	Punção de Port-a-Cath	PARECER COREN-DF-30/2009. COREN-DF-10/09
06	Punção de Veia na Jugular	PARECER COREN-MG-31/06
07	Passagem, cuidados e manutenção de PICC	RESOLUÇÃO COFEN-58/2001 PARECER COFEN- 15/2014 PARECER COFEN-243/2017
08	Cateterismo umbilical.	RESOLUÇÃO COFEN- 388/11
09	Coleta de Gasometria Arterial/ Punção arterial	RESOLUÇÃO COFEN-390/2011 PARECER COREN-SP-21/20 09
10	Retirada de Introdutor Vascular	PARECER COREN-SP-007/2012
11	Retirada de Drenos	PARECER COREN-SP-053/2013
12	Terapia de Nutrição Parenteral	RESOLUÇÃO COFEN- 453/2014
13	Sondagem/ Cateterismo Nasoenteral	RESOLUÇÃO COFEN-0453/2014
14	Consulta de enfermagem	RESOLUÇÃO COFEN n° 514/2016
15	Colpocitologia oncológica pelo método de Papanicolau	RESOLUÇÃO COFEN-381/2011
16	Entrega de laudos HIV	PORTARIA MINISTÉRIO DA SAÚDE N° 151/2009

*"Bladder catheterization in newborns, due to the welcoming of parents."*  
(Nurse 4)

*"Child / Babies sounding which the urethral orifice is difficult to access due to the size and location of the urethra and vagina, as they are close. Since muscle contraction also compromises the success of the procedure."* (Nurse 6)

*"Gasometry. Artery location."*  
(Nurse 2)

As can be seen, half of them reported difficulty in performing procedures in the pediatric public, in the case of nurse-only procedures, where the procedure alone involves greater complexity because it is invasive.

When we assist children who still do not understand the need to perform the procedure or do not collaborate due to various causes, they can put the procedure at risk, requiring the child to be immobilized. This occurs in young children, but only in cases of extreme need. With older children, on the other hand, good guidance and information about the exam or treatment that will be performed can reassure them and obtain a good collaboration. The restriction of movements is made with the following objectives: to facilitate the performance of examinations and the application of treatments, to protect the child against accidents due to its agitation, to prevent the child to remove with the hands probes, drains, collectors and applications of serum, prevent the child from causing injuries in the treatment area, among others<sup>(10)</sup>.

Assessing the risks related to the procedure and which can harm the patient, the following reports are observed:

*"In bladder catheterization, it can occur from any lesion at the level of the urethra, to perforation of the bladder; in colpocytology,*

*lesions and / or trauma can occur at the level of the vaginal canal, up to the cervix; in blood gas analysis, vascular lesions and even tissue necrosis can occur; etc."* (Nurse 1)

*"Gasometry - nerve injury. It is important to know the anatomy, and to know signs that indicate injury. Bladder catheterization - Urethral stricture. Know how to use the correct material, adequate probe size, contamination by microorganisms. Medication administration. Administer wrong dosage."* (Nurse 5)

As much as the procedure frequently occurs in nursing routines, care cannot be neglected by the professional, requiring scientific knowledge and constant updating, with the risk of damaging the patient's health.

The reported risks demonstrate the importance of the procedures being performed by a professional with technical / scientific knowledge and training related to the procedure, as well as in colpocytology, even though it is a painless and fast procedure, the preventive exam can, at most, cause a little discomfort that decreases if the woman is able to relax and if the exam is performed with good technique and in a delicate way.

This knowledge is necessary for a correct analysis of the ectocervix, to rule out lesions, possible STIs, HPV lesions, a characteristic odor of vulvovaginitis, assessment of the healthy color of the cervix, among other findings that the professional nurse has been qualified since his training, due to acquired knowledge in the curriculum, such as: anatomy, physiology, semiology and semiotechnics, internship (practical) among others.

Several situations that require a quick decision-making can arise in the daily routine of the nurse who works in the clinical analysis laboratory. This is a sec-

tor that serves both healthy clients who are going to have their routine exams, as well as clients who are going to monitor different pathologies, with different levels of severity. When analyzing the nurses' behavior in the face of possible complications, which can be observed in the client's return for a recollection, the research subjects report that:

*"First, it is necessary to analyze the adverse event, as well as the appropriate guidelines for the client. Make other referrals (medical evaluation), when necessary. And, subsequently, record the adverse event and pass on the guidelines to the responsible employee and the team."* (Nurse 1)

*"Evaluate the location with Phlebitis, if it is something recent, advise on cold compresses in the first moments and next day's warm compresses. Evaluate limb flexibility, movements, if there was nerve involvement, tension, and follow up with the client. If I need to inform the responsible doctor to evaluate. Find out who the collector was, talk and go over the case so that you are aware of the situation."* (Nurse 8)

Usually, the bruises that arise after the client is released from the collection are related to failure in local compression, when the patient bends the arm immediately after the puncture. The injury can cause discomfort and pain, but the simple visualization of the hematoma can generate great anxiety and discontent. The patient may associate a hematoma with a negative experience of venipuncture and hesitate to have blood tests in the future.

The analysis of adverse events involves the verification of the conduct of the collection procedure, nursing assesses the types of adverse events that enable improvement in the process and, consequently, the quality of the

care provided to the patient, with the possible development of indicators for the care of patients. that impact on the improvement and improvement of management processes<sup>(11)</sup>.

The clinical analysis laboratories, as it is considered a place that provides health care and has an expressive flow of clients with the most varied health problems, often leading to changes in routine, such as the need for prolonged fasting, discontinuation of medications, and the emotional factor generated by the preparation for the exam and the anxiety for the results, can lead to an exacerbation of the condition, requiring immediate care to stabilize the patient's health status, which can be referred to appropriate care. Given these possibilities, the professional who helps needs to have knowledge for such an intervention. The nurse acts as the main intervener in urgent and emergency situations, as shown in the statements below:

*“Yes, in addition to the collection team. Assess the severity of the complication and take appropriate measures for the situation.” (Nurse 4)*

*“Yes, first identify yourself, inform yourself of the situation, calm the client, check vital signs (PA, FC, FR), control the situation of signs and symptoms, if you need to feed, and if necessary, ask for help from SAMU (firefighters) or any other emergency support.” (Nurse 6)*

According to COFEN<sup>(12)</sup>, in its Resolution No. 146, the nurse is properly inserted in the care of these conditions and has legal support according to its regulations, at the national level, the obligation to have nurses in all service units in which nursing actions are developed that involve procedures of high complexity, common in the care of critical / potentially critical patients.

**Thus, it is important to consider that the pre-analytical phase concentrates most of the mistakes that can generate results that are not consistent with the patient's clinical condition. It is estimated that problems at this stage are responsible for about 70% of errors that occurred in the laboratories.**

Additionally, the exclusive responsibilities of the Nurse include direct nursing care for critically ill patients at risk of life and nursing care of greater technical complexity and which require adequate scientific knowledge and the ability to make immediate decisions; and, as a member of the health team, participation in programs and activities of comprehensive assistance to individual health and specific groups, particularly those with high risk and priority.

Thus, it is important to consider that the pre-analytical phase concentrates most of the mistakes that can generate results that are not consistent with the patient's clinical condition. It is estimated that problems at this stage are responsible for about 70% of errors that occurred in the laboratories. Among them, it is worth highlighting the aspects related to the patient's orientation, such as the need or not to fast and its adequate interval, the type of food, the practice of physical exercise, the use of medications capable of interfering in the analysis and abrupt changes in daily routine habits preceding collection<sup>(13)</sup>.

Therefore, it is necessary to pay total attention to the client and the procedure, to guarantee its quality and satisfaction. At the time of collection, you have to pay attention, in every process, because it gives satisfaction and construction of the bond with the customer, then the material will be packaged correctly according to current guidelines until the samples are sent.

- Analytical phase: Regarding the nurse's duties in the analytical phase, it was reported by the research subjects that the nurse contributes to the application of rapid tests:

*“The nurse can participate, in the case of performing rapid tests; TS's and TC's procedures, among others.” (Nurse 1)*

*“Yes, we do the PPD reading which is a test for TB screening, we do some coagulation tests and capillary blood glucose.” (Nurse 5)*

The Bleeding Time (TS) test, as well as the Activated Partial Thromboplastin Time (APTT), Prothrombin Time (TP), Thrombin Time (TT) and Fibrinogen Measurement, are tests that assess the coagulation profile of individuals on the occasion of preoperative routine or for investigation of hemorrhagic and thrombotic diseases<sup>(14)</sup>.

The CT and TS tests, if requested, can be performed without specific preparation and do not demonstrate technical complexity, however, they require training and professional qualification, since any error in the process can interfere with the final result<sup>(14)</sup>.

The capillary blood glucose test is used in clinical analysis laboratories in urgent and emergency situations to rule out a metabolic lack of control of hypo or hyperglycemia that can be triggered by prolonged fasting, or even by the patient with untreated or decompensated pathology. According to the opinion of the federal nursing council, glycemic tests are carried out using reagent strips, and can be read visually by means of color tables contained on product labels or, more accurately with the aid of a blood glucose monitor that provides the exact result of blood glucose.

According to the evidence presented, the nurse works in the analytical phase and has legal competence to perform such assignments. Considering the diagnosis of rapid tests, it is necessary to carry out a joint assessment without the patient's exposure to his laboratory results, clearly guiding the diagnosis and always respecting the ethical code of our profession.

- Post-analytical phase: when asked about the nurse's participation in the post-analytical phase, the research subjects reported that:

*“The nurse acts in the post-analytical phase, when delivering the results of exams, ensuring the reliability of the results to the clients.” (Nurse 1)*

*“Yes, delivery of serology reports. Control of unit codes.” (Nurse 4)*

The role of the nursing professional is recognized for the ability and ability to understand the human being holistically, for the integrality of health care and for the ability to welcome and identify with the needs<sup>(15)</sup>.

However, in the face of a serology result, HIV positive, the behaviors reported by the research subjects include:

*“Usually, the serology results are guided by the nurse, after telephone contact of the responsible sector with the client. At this moment, the nurse, in an appropriate place, preserving the client's privacy and secrecy, passes on the guidelines regarding the exam results.” (Nurse 1)*

*“The nurse delivered the HIV positive report, giving guidance and giving support to try to reassure the patient in this very difficult moment.” (Nurse 3)*

According to Ministerial Ordinance No. 151/2009, it is the responsibility of the health services that offer the HIV diagnosis to carry out counseling, to inform about the procedures to be performed and the possible results and to guarantee secrecy and confidentiality<sup>(16)</sup>. Considering that there are several flowcharts established in accordance with scientific progress and with consolidated worldwide experience, which allow the correct diagnosis of HIV infection through the combination of the different tests available on the market<sup>(17)</sup>.

- Nursing management: the nurse has the function in clinical

analysis laboratories: the coordination of the unit, administrative management of the institution, preparation of the professionals' work scales, as described by the respondents in their reports below:

*“Lead, Train (multiply) the team, Coordinate the unit, pass directly and indirectly information to the management and Administrative of the company with an overview. Perform procedures appropriate to the nurse, assist in doubts to the whole team. And in general, to be present in all phases and moments that happen during the day-to-day.” (Nurse 6)*

*“Support the team in the procedures performed, carry out continuous training, Organization of scaling scales. Control of the unit's signs. Perform specific nurse procedures, such as: bladder catheterization and collection Pap smear.” (Nurse 4)*

*“Lead and manage staff, human resources, work schedule.” (Nurse 5).*

Supervision and coordination are an important part of the manager's work process, as it is an educational and continuous process that fundamentally consists of motivating and guiding the supervised in the execution of activities always based on standards, in order to maintain high quality of services provided. Coordination aims to harmonize all the actions of an institution, seeking its success, balancing physical, material, and human resources. When nurses talk about the importance of the nursing manager's work, they do so by characterizing the work process, they consider each step important for care as a whole<sup>(18)</sup>.

Despite not mastering administrative theories, nursing managers demonstrated sufficient knowledge

about management, which allows them to perform well in management. Among the aspects considered most important in managerial work, we highlight the guarantee of working conditions, a dimension compatible with the service, supervision of the Nursing team and organization of care actions<sup>(19)</sup>.

As for continuing education, most reported that they develop routinely, as seen in the statements below:

*“Continuing education occurs from the training of a colleague / collaborator for a new collection technique, to the continuous orientations of the process. The updating of each Professional, as well as the recycling / training, directly reflect on the development and progress of the team in general.” (Nurse 1)*

*“Yes, work with continuing education, with theoretical and practical training, on topics that we deal with on a daily basis in a clinical laboratory.” (Nurse 5)*

As for the attributions mentioned as continuing education, training, training and other orientations, we found evidence in the scientific literature as part of the nurse's duties to guide training in order to promote the knowledge of his team and update on new knowledge and techniques, as well as the society in question. with a focus on prevention and changes in habits that promote individual and collective health. A study states that continuing education is one that takes place throughout life, continuously, being inherent to the development of the person and is related to the idea of construction of the human being and promotes an increase in the capacity to discern and act<sup>(20)</sup>.

Performing this assignment in the clinical analysis laboratory is essential, given the inherent risks and specificities of this work environment.

**The effort on the part of nursing to work with the union of scientific knowledge and practice is extremely important, when caring for human beings, having to look beyond the clinical aspects, but analyze the consequences of the interventions.**

Virginia Henderson's nursing theory used is based on the main questions that inspired his work were: What is nursing practice? What specific functions do they perform? And what are the nurse's exclusive activities?<sup>(6)</sup>. These philosophical questions came up against the questions that the research intended to answer.

## FINAL CONSIDERATIONS

The present research made it possible to understand about nursing care by reflecting on what occurs in practice with the recommendations of Organs competent bodies and research, thus answering all the objectives proposed in this work.

The effort on the part of nursing to work with the union of scientific knowledge and practice is extremely important, when caring for human beings, having to look beyond the clinical aspects, but analyze the consequences of the interventions. The identification of possible emotional problems, injuries generated by invasive procedures, ineffective knowledge about the procedure and its health condition, which can lead to inaccurate results, resulting in a different treatment from the client's needs and, consequently, an unwanted treatment response.

Analyzing the results of the work, the importance of the professional nurse was demonstrated, in view of the judgment and execution of the care provided in the assistance provided by the clinical analysis laboratory. The respondents described their participation in the processes that make up the routine of the laboratories, within which it was observed that, it is part of some private duties of the nurse, such as blood gas analysis, bladder catheterization, colpocytology, management of the nursing team, direct patient care in intercurrents, training of the nursing team and others that, in the private sphere of the institution, were hormone-related medications, about which they demonstrated know-

ledge and are linked to nursing training and its attributions.

Even though this sector is multiprofessional, the importance of the professional nurse was evidenced, and that this participates in the three distinct phases of the process, in the pre-analytical phase the nursing team acts, in the laboratory logistics, materials and inputs, in the collection of materials when the activity is private to the nurse and in storage. In the analytical phase, they described that they performed some procedures, such as rapid tests. In the post-analytical phase, they issue reports, deliver HIV tests including counseling to the client, thus participating

in all phases described in the process.

The training and updates that professionals receive are provided by the institution in courses taught by nurses, where a professional is assigned to this exclusive function. As for the theoretical basis, it is scarce, leading to the search in international protocols. The lack of a theoretical basis for nursing and of specific ordinances for the performance of nurses in a clinical analysis laboratory were obstacles that we found to make the research more complete; likewise, the short time that researchers had to develop the analysis was the main difficulty encountered. Finally, it became evident that this research is important

and contributes to the knowledge about the attributions of nurses in this sector, professionals, academics of higher education and professionals working in the area of health who seek to study the topic and strengthen knowledge in the area, that has been growing and opening doors for nursing.

It was observed that the researchers did not mention in their answers about the practice of Systematization of Nursing Care (SAE) in the laboratories. As COFEN recommends its implementation, there is a gap on the theme and its practice in these institutions, which may be the subject of research in the future. ■

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