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NURSING PERFORMANCE IN THE MANAGEMENT OF RESPIRATORY SAMPLES FOR THE DIAGNOSIS OF COVID-19

ATUAÇÃO DA ENFERMAGEM NO MANEJO DE AMOSTRAS RESPIRATÓRIAS PARA O DIAGNÓSTICO DA COVID-19

DESEMPEÑO DE ENFERMERÍA EN EL MANEJO DE MUESTRAS RESPIRATORIAS PARA EL DIAGNÓSTICO DE COVID-19

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ABSTRACT

Objective: To report the experience of nursing professionals in handling samples for the diagnosis of COVID-19, updating the steps from collection to delivery for analysis, in addition to proposing intervention actions. **Method**: This is an experience report based on the actions developed by nurses working in the Home Care Service who supported the collection of secretions for investigation by COVID-19. The training of nursing professionals, through permanent in-service education, was based on updates in the procedures of the biological material collection process. **Results**: Permanent education, combined with the supervision of nurses and technical procedures, contributed to improving the process of handling samples, in addition to reducing anxiety and insecurity among professionals. The difficulties related to registration failures, frequent registration changes and the need for constant monitoring of updates regarding technical guidelines were overcome through constant interventions. **Conclusion**: It appears that the nursing team is an integral part and responsible for the collection process, with diversification of its performance, given that the tasks listed here are not commonly performed by the category.

Descriptors: Coronavirus infections; Nursing; Diagnosis, Bodily Secretions.

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RESUMO

Objetivo: Relatar experiência dos profissionais de enfermagem no manejo de amostras para diagnóstico da COVID-19, atualizando as etapas da coleta até a entrega para análise, além de propor ações de intervenção. **Método**: Trata-se de relato de experiência a partir das ações desenvolvida por enfermeiros atuantes no Serviço de Atenção Domiciliar que apoiaram as coletas de secreção para investigação da COVID-19. A capacitação dos profissionais de enfermagem, por meio de educação permanente em serviço, se deu a partir de atualizações nos procedimentos do processo de coleta de material biológico. **Resultados**: A educação permanente, aliada à supervisão do enfermeiro aos procedimentos técnicos, contribuiu para melhorar o processo do manejo das amostras, além de reduzir ansiedade e insegurança dos profissionais. As dificuldades referentes às falhas de registro, alterações cadastrais frequentes e a necessidade de acompanhamento constante das atualizações referentes às orientações técnicas foram superadas através de intervenções constantes. **Conclusão**: Constata-se que a equipe de enfermagem é parte integrante e responsável pelo processo de coleta, com diversificação de sua atuação, haja vista que tarefas aqui elencadas não são comumente realizadas pela categoria.

Descritores: Infecções por Coronavirus; Enfermagem; Diagnóstico; Secreções Corporais.

RESUMEN

Objetivo: Informar la experiencia de los profesionales de enfermería en el manejo de muestras para el diagnóstico de COVID-19, actualizando los pasos desde la recolección hasta la entrega para su análisis, además de proponer acciones de intervención. **Método**: Se trata de un relato de experiencia basado en las acciones desarrolladas por enfermeras que laboran en el Servicio de Atención Domiciliaria que apoyaron la recolección de secreciones para investigación por COVID-19. La formación de los profesionales de enfermería, a través de la educación en servicio permanente, se basó en la actualización de los procedimientos del proceso de recolección de material biológico. **Resultados**: La educación permanente, combinada con la supervisión de enfermeros y procedimientos técnicos, contribuyó a mejorar el proceso de manejo de muestras, además de reducir la ansiedad e inseguridad entre los profesionales. Las dificultades relacionadas con fallas en el registro, cambios frecuentes en el registro y la necesidad de un seguimiento constante de las actualizaciones de las directrices técnicas se superaron mediante intervenciones constantes. **Conclusión**: Parece que el equipo de enfermería es parte integral y responsable del proceso de recolección, con diversificación de su desempeño, dado que las tareas aquí enumeradas no son comúnmente realizadas por categoría.

Descriptores: Infecciones por Coronavirus; Enfermería; Diagnóstico, Secreciones Corporales.

INTRODUCTION

In early December 2019, several cases of pneumonia of unknown cause were identified in the city of Wuhan, Hubei province, China.[1] Based on the analysis of genetic material isolated from the virus, it was found that it was a new coronavirus, initially named 2019-nCoV by the World Health Organization (WHO).[2] More recently, the virus has been renamed SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2).[3]

Infection with the SARS-CoV-2 virus causes COVID-19 (Coronavirus Disease 2019), whose main symptoms are

fever, fatigue, dry cough, and may progress to dyspnea or, in more severe cases, to Severe Acute Respiratory Syndrome (SARS).[3,4]

In view of the appearance of suspected cases in Brazil, the Public Health Emergency Operations Center for the new coronavirus was activated on January 22, 2020, a strategy provided for in the National Plan for Responses to Emergencies in Public Health of the Ministry of Health. January 2020 WHO declared a Public Health Emergency of International Concern (PHEIC).[6]

The advance in the number of cases of infected people and the declaration of a pandemic on March 11, 2020 by the WHO created a major challenge for health systems around the world. The pandemic developed in Brazil, until 12/21/2022, with a cumulative overall mortality rate of 329 per 100,000 inhabitants. Already the State of Minas Gerais presented the same rate around 303, while the city of Belo Horizonte presented 328 per 100,000.7 Since the beginning of the pandemic, changes in the dynamics of functioning of health services and the work process of nursing professionals have occurred in order to adapt to the demands of evolution of the pandemic in the country. The nursing team has the technical competence to act in the various stages of coping with the pandemic, from the procedures related to the collection of biological material for diagnosis to assistance in Intensive Care Centers.

In the daily work of biological sample collection, carried out by nurses, it was found that practical guidelines and recommendations were fragmented in manuals, technical standards and guidelines, in addition to frequent updates appearing, making the process of managing the collection of biological samples more complex.

In view of the above, the objective of this study was to report the experience of nursing professionals in handling samples for the diagnosis of COVID-19, updating the steps of the process from filling out the notification form of the suspected individual to delivering the material to the laboratory analysis.

METHOD

This is a descriptive study, with an experience report based on the actions developed by 3 nurses, working in the Home Care Service (SAD), in the city of Belo Horizonte - MG, who supported the collection of secretions for the investigation of COVID-19. These collections were made at the Reference Center for Worker's Health (CEREST), in

addition to Emergency Care Units, hospitals and some cases at home.

In order to compile the stages of the sample collection process, from completing the suspected individual's notification form to delivering the material for laboratory analysis, a technical bibliography review was carried out in March, April and May 2020. The review strategy was designed considering the guiding question: to identify updates in the handling of respiratory samples for the diagnosis of COVID-19.

The training of nursing professionals took place through permanent in-service education, in meetings during the working day, of variable duration that depended on the extent and complexity of updates in procedures and routines related to the process of collecting biological material.

RESULTS

According to the documents used to carry out this work it was possible to identify the guidelines for best practices related to the quality of the clinical specimen collected, the conditions of transport of samples and storage before processing by the reference laboratory. Steps that are directly related to diagnostic success. In order to facilitate the presentation, the steps were inserted in topic format, from the procedures performed prior to collection, to the delivery of the material in the reference laboratory.

Completing the notification form

COVID-19 is an event of immediate compulsory notification and must be carried out by the health professional or by the service that provides the first care to the individual, communicating the Center for Strategic Information on Health Surveillance and the State Health Department within 24 hours based on knowledge of the case[6] Thus, the completed notification form is a prerequisite for the nursing team to collect the respiratory sample.

Registration in the GAL (Laboratory Environment Manager)

GAL is a computerized system developed for public health laboratories. Among the objectives of the GAL, the following stand out: managing and monitoring laboratory analyzes from their request to issuing the final report, subsidizing decision-making by Surveillance at the National, State and Municipal levels.[8] At this stage, it is essential that the data are reliable to the

registration of the notification form, guaranteeing access and a final report with correct data of the individual submitted to the collection.

Material preparation

Prior to performing the respiratory sample collection, the nursing professional, responsible for the procedure, checked the availability of the necessary material: personal protective equipment (PPE), cooler box with attached thermometer and enough reusable ice (to guarantee the box's internal temperature between 2 and 8°C), transport grid, tube with Viral Transport Medium (MTV), 1 swab, scissors and tube identification label.

To release the materials used during the swab collection procedures, flows were created to standardize the release of both PPE and other materials. These flows were updated, requiring constant training of the nursing team.

Hands sanitization

The hands of professionals who work in health services can be sanitized using: water and liquid soap or 70% alcoholic preparation. Hands are vehicles for the spread of infections, and hygiene is fundamental for the control and prevention of the spread of SARS-CoV-2. Hand hygiene with water and liquid soap and/or alcoholic preparation according to technical standards.[10]

Personal protective equipment and biosecurity

The PPE that must be made available by health services and used by the nursing team to collect respiratory samples are: cap; goggles or face shield; mask; long-sleeved waterproof apron and procedure gloves.[9] Ensuring access to recommended PPE in adequate quantity and quality is the responsibility of the employer, as well as ensuring training for safe clothing and undressing.

Collecting a respiratory sample using a swab

According to guidelines updated in the CDC Guideline (Center for Disease Control and Prevention) in May/2020 is recommended, for initial diagnostic tests for SARS-CoV-2, the collection and testing of only one upper respiratory sample.[11] Thus, are considered acceptable samples collected through swab by the health professional: nasopharyngeal sample or oropharyngeal sample. In line with this guidance of the Ezequiel Dias

Foundation (FUNED), through Technical Note Nº 0001/2020 - Version 4 recommends from then on the collection of only one swab.[9]

To perform the collection, position the individual with the head back and gently introduce the swab with smooth rotational movements, to obtain mucosal cells in one nostril, bordering the palate, until reaching the resistance of the posterior wall of the nasopharynx (gently, avoiding bleeding) and letting it absorb the secretions for a few seconds.[9] The swab with the collected sample must be inserted immediately into the tube containing 2 to 3 mL of MTV.[9]

The nursing professionals who performed the swab collection were instructed to identify the collection tube before performing the procedure. The identification should contain the full name, type of biological sample and date of collection.[9] Upon entering the environment where the individual undergoing collection was located, the professional would introduce himself and explain the procedure that would be performed. In this way, the person would be more collaborative during the procedure, reducing the chances of incorrect collection.

Sample storage and transport

The tube, containing a swab with the culture medium for viral transport, must be stored in a refrigerator or cold chambers at a temperature that can vary between 2 and 8ºC.[9,11] After collection, the sample remained under refrigeration (2- 8ºC) for up to 72 hours before being delivered to the laboratory for analysis. It is noteworthy that the effect of temperature on the storage and transport of the sample, in addition to the time between collection and processing, can result in deterioration of the material and lead to possible errors in sample analysis.[2]

It is the responsibility of the nursing team to record and control the internal temperature of the refrigerator or cold rooms throughout the work period, in addition to the transport box with recyclable ice until the material is delivered to FUNED.

DISCUSSION

Failures were identified in the completion of the notification form, generating the need for interventions by nurses working in the COVID-19 investigation process. It was highlighted the illegibility in the reading of identification/ data of the suspected

individual, absence or error of filling in the fields: date of notification and date of first symptoms, as main failures. In order to minimize them, ensuring more agile work for the responsible nursing team and enable the release of the test result safely, training of nursing technicians involved in the management of samples for careful reading was performed, upon receiving the notification form. In addition, faced with the identified failures the nursing team approached the professionals responsible for filling out the notification form, guiding and requesting immediate rectification.

Inconsistencies in the GAL record were identified throughout the work, including impacting the release of the test result. In this context, accountability was directed at those involved, with relevant guidelines in each case and, whenever possible, subsequent correction of the record by the nurse together with the person responsible for typing.

At the beginning of the pandemic, collections were being carried out in a hospital environment and in the homes of suspects. From these demands, flows were created to meet the particularities of each environment, both regarding safety and the preparation of materials. To reinforce the safety process, the team was made aware of hand hygiene with the use of videos and posters, in addition to demonstrations of the technique.

Since it is a little-known pathology, the fear and insecurity of contamination by the professionals during collection were evident, not only due to the severity and infectivity of the disease, but also due to repeated readaptations and lack of specifications in the technical notes, throughout of time, of how the PPE's should be used. These changes generated difficulties and the need for adaptation. The interventions carried out focused on effective on-site training, through demonstrations, videos and educational posters on clothing and undressing, in partnership with FUNED. Another strategy used was the constant search for scientific evidence for such changes, and then the training and development of workers.

To ensure the quality of the collected sample, visual supervision of the procedure was carried out, aiming at adjustments in the professionals' technique in order to contribute to diagnostic accuracy and compensate for the progressive reduction, over time, of the number of swabs used in the collection (initially 3 swabs up to the number of 1). The training of nursing professionals, through permanent education, also contributed to the reduction of the team's level of anxiety.

Finally, attention was paid to the exclusive use of the storage space only for respiratory samples due to the risk of contamination of other refrigerated inputs unrelated to the samples.

CONCLUSION

In the lived experience, it was possible to identify the best practices to guarantee the quality of the material collected, in addition to the fundamental aspects for the safety of professionals and those with suspicion of the disease.

Continuing education, along with the nurse's supervision of technical procedures, contributed to improving the sample handling process, in addition to reducing the professionals' anxiety and insecurity, generated, in part, by the risk of contamination and lack of knowledge of the pathology.

Some of the difficulties encountered were recurrent registration failures, frequent registration changes and, mainly, the need for constant monitoring of updates regarding technical guidelines. The key strategy used to overcome this difficulty was researching guidelines and documents from competent health bodies, and then continuing education for workers.

From this experience, it was possible to verify that the nursing team is an integral and responsible part of this process, with a certain diversification of its performance, given that the tasks listed here are not commonly performed by the category. Recognition of the importance of nursing in facing this pandemic, and the contribution of its workforce in all stages of its legal competence, allowed for an enriching experience.

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