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# Nurses' work in the aspiration of secretions from critically ill patients

# Labor de los enfermeros en la aspiración de secreciones de pacientes críticos

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**ABSTRACT**

The objective of the research is to analyze the work of nurses in the aspiration of secretions in critically ill patients. From a critical rationalism research approach. In addition, the knowledge of biosecurity measures, since in this procedure asepsis measures are used to avoid the risk of contracting hospital-acquired infections, all this if not fully complied with can generate serious damage for the recovery of the critical patient, which is why the nursing professional should be aware of the updated and continuous preparation, based on manuals, guides and protocols with the help of nursing taxonomies so that the nursing activities are performed sequentially and with scientific foundations, not as something repetitive.

**Descriptors**: nursing; health services; clinical medicine. (Source: UNESCO Thesaurus).

**RESUMEN**

Se tiene por objetivo de la investigación analizar la labor de los enfermeros en la aspiración de secreciones de pacientes críticos. Desde un enfoque de investigación del racionalismo crítico. Además el conocimiento de las medidas de bioseguridad ya que en dicho procedimiento se utiliza medidas de asepsia para evitar el riesgo de contraer infecciones adquiridas en el hospital, todo esto si no se cumple a cabalidad puede generar daños serios para la recuperación del paciente crítico, es por ello que el profesional de enfermería debe tomar conciencia en la preparación actualizada y continua, basándose en manuales, guías y protocolos con ayuda de las taxonomías de enfermería de manera que las actividades de enfermería lo realicen de forma secuencial y con fundamentos científicos, no como algo repetitivo.

**Descriptores**: servicio de enfermería; servicio de salud; medicina clínica. (Fuente: Tesauro UNESCO).

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**Research articles section**

## INTRODUCTION

Endotracheal suctioning (ETS) is a common invasive procedure performed to keep the airway patent by mechanically removing accumulated pulmonary secretions in patients with artificial airways, in this regard, most ICU nurses do not have the desirable knowledge and skills of ETS and currently do not follow current ETS recommendations. This study has shown that ICU skills training has a positive influence on recommended STD knowledge. We recommend ICU training, provision of clinical guidelines, and adequate support for nurses employed in ICUs. In addition, further studies using an analytic approach are crucial to identify other factors beyond the scope of this study and test the best approach to encourage adherence to evidence-based STD recommendations (Mwakanyanga, *et a*l. 2018).

When a patient is with orotracheal intubation accumulates large secretion in both mouth and tube, this obstructs the passage of oxygen and desaturates the patient that can lead to death, to avoid these problems there are two indispensable suctioning methods in the intensive care area, the closed and open suctioning system the latter can be disconnected from the ventilator, While the closed one, there is no disconnection, it is highly recommended for the probe attached to the ventilator, very useful for patients with positive COVID diagnoses, thus avoiding the risk of contracting nosocomial infection, obtaining adequate oxygenation for the stability of the patient (López-Martín, 2021).

Studies indicate that repeated suctioning of secretions by mouth and endotracheal tube increases the possibility of contracting nosocomial diseases by accumulating strains of bacteria, thus generating diseases such as hospital-acquired pneumonia, once contracted this disease is accompanied by serious situations such as oxygen desaturation, low blood pressure, low heart rate, complete collapse of the lung, epistaxis thus raising the cranial pressure, for this the level of consciousness should be assessed, the Glasgow through sedoanalgesia both fentanyl and midazolam that are at doses response and adjusted to the patient's need to perform an adequate secretion aspiration of patients on ventilator (Fernandez, & Corona, 2018).

Nursing care is considered as arts in that it reflects a set of specific skills, nursing scientists with a holistic critical judgment, adopting the nursing professional in disciplining innovative knowledge thus facing current challenges that occur in the health branch. Leadership and creation are the main functions that nurses must possess for the assessment, planning and care of patients. In the intensive care area, nursing professionals must have a wide series of documented procedures and techniques to obtain skills in the correct management of critical patients in the intensive care area (Negro, *et al*. 2014).

Based on the above, the objective of the research is to analyze the work of nurses in the aspiration of secretions from critical patients.

## METHOD

From a critical rationalism research approach, we worked with a descriptive documentary methodology with a non-bibliographic design, with the intention of processing a theoretical corpus from the application of the analytical-synthetic method in a population of 13 scientific articles.

This review includes scientific articles published in the following databases: Scielo, PubMed, Scopus, WOS, Redalyc. These papers should be related to techniques, models, guidelines, procedures, comprehensive care and nursing techniques in secretion aspiration in critically ill patients.

## ANALYSIS OF THE RESULTS

The nursing staff with their skills, abilities and knowledge improve the technique in the intensive care unit procedures, acquiring a safer impact on the health system, for all their dedication and sacrifice. Among the frequent functions of nurses, the most relevant activity in the critical area is the aspiration of secretion through the endotracheal tube, which is usually found in the critical area, interpreted in a technical manner, taking into account the practical theoretical knowledge within the steps of secretion aspiration, when performing the procedure should be taken into account that prioritizing the proper management of biosafety standards to avoid contracting

nosocomial infections. Since it is a nursing activity that requires technique and skill without leaving scientific knowledge, it is recommended to check the tube to avoid its occlusion and thus avoid the accumulation of secretions that leads to the risk of death in the patient (Sepúlveda, *et al*. 2021).

In the critical intensive care area we receive all patients with complex health conditions with very reserved diagnoses who undergo various invasive procedures such as placement of nasogastric tube, bladder catheter, central line, aspiration of secretions, measurement of the central line, which are important for the control of diuresis, vital signs, water and electrolyte balance, and hemodynamics of the patient, tracheostom placement and orotracheal intubation are highly complex procedures and should be placed by highly experienced professionals to safeguard the patient's life, also the nursing staff is involved in these procedures in conjunction with the physician, as it helps to circulate and observe that the patient is with stable vital signs to act with the procedure, that is why the need to have updated knowledge in the different procedures and techniques (Chen, *et al*. 2021).

Nurses who do not have this training are not eligible to intervene in invasive procedures of the critically ill patient, for these nursing activities must have a high scientific knowledge, skill, good judgment in decision making, it is for this reason that the intensive care area must have trained professionals competent in the branch of complexity, currently there are already academic institutions that offer various specialties in critical care that are very important to have nurses with fourth level degree in the area of adult intensive care (Diaz-Mass, & Soto-Lesmes, 2020).

According to the diagnosis of the patient with biosafety measures for the protection of both the nurse and the patient, due to the scarce antisepsis in the different procedures, it has been observed that a large number of nosocomial infections of respiratory origin can be contracted and develop, which leads to high mortality in the critical area, either due to pulmonary destruction or tamponade, for this reason it is recommended to carefully study the protective measures and the steps of the technique to determine the suction times and avoid pulmonary lesions, With current ventilators it is possible to identify the accumulation of secretions since they have a sensor to identify it and there the procedure can be performed according to the patient's need, in an investigation carried out with current ventilators that have this sensor obtained that more than forty percent can clearly detect the accumulation of secretions in patients adapted to this ventilator (Cortes-Telles, 2019).

The technique of secretion aspiration must be performed with biosafety standards with the intervention of two nurses, the first nurse must be sterile with gloves to introduce the probe into the tube and the second nurse uses handling gloves to disconnect the tube, this is also responsible for oxygenating the patient with the ambu before and after each aspiration, She is also in charge of placing the patient in a semi-fowler position to help mobilize secretions, avoiding endotracheal tube obstruction and thus preventing the oxygen saturation from dropping, the patient from turning bluish, and the total collapse of the lung. To maintain stable hemodynamics in the patient, with vital signs within normal parameters, each suction should be performed for scheduled times no longer than ten seconds, only when strictly necessary and with medical indication (Kotfis, *et al.* 2017).

In pediatric critical patients it was found that the number of patients with mechanical ventilation varies more than sixty percent with duration of the endotracheal tube more than ten days, which caused irritation to the airway and clogging of the tube, likewise the sedoanalgesia was not according to the patient's settings, since it could be observed that the patient bit the tube and felt anxious, causing accumulation of secretions, obstructing the passage of oxygen to the patient's lungs (Lema-Zuluaga, *et al*. 2018).

To perform a correct technique of secretion aspiration, the purpose is to keep the airway clean, patients with mechanical ventilation have the endotracheal tube that aims to provide oxygen and be a support in respiratory diseases, there is another technique to remove secretions as the opening of the neck to the trachea (Faraji, *et a*l. 2015). The knowledge of secretion aspiration was detailed that more than sixty percent of respondents are unaware of aspiration technique guides implemented in their work, more than seventy percent have an average knowledge of the technique, and twenty percent have a low knowledge. Another outstanding point of the research could be evidenced, that almost all the population studied performs the technique of secretion

aspiration with poor knowledge, without all the biosafety barriers, hand washing, auscultation of lung fields, scientific ignorance, purpose, principles of aspiration direction (Rad, *et al*. 2021).

It can be identified that several researchers agree on similar criteria for scientific knowledge and technique of secretion aspiration, based on the information which was a research, whose purpose is to correlate the knowledge and practice on the technique of secretion aspiration in patients with orotracheal tube in intensive care, using qualitative approach methods, through instruments such as observation and questionnaires obtaining results such as knowledge deficit when performing the technique, following important sequential steps when performing the technique (O'Shea, *et al*. 2017).

## CONCLUSION

The secretion aspiration procedure is a nursing staff activity that must go hand in hand with scientific knowledge, good technique with the experience, ability and skills acquired in the intensive care unit, since it requires a prepared staff with fourth level studies related to critical care, for the performance of such procedures since they are invasive, they also require knowledge of biosecurity measures since in such procedure asepsis measures are used to avoid the risk of contracting hospital-acquired infections, All this, if not fully complied with, can cause serious damage to the recovery of the critical patient, which is why the nursing professional should be aware of the updated and continuous preparation, based on manuals, guides and protocols with the help of nursing taxonomies so that the nursing activities are performed sequentially and with scientific foundations, not as something repetitive.

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## CONFLICT OF INTEREST

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