

VALUATION AND RECORDS OF ORAL HYGIENE OF INTUBATED PATIENTS IN INTENSIVE CARE UNITS

VALORAÇÃO E REGISTROS SOBRE HIGIENE ORAL DE PACIENTES INTUBADOS NAS UNIDADES DE TERAPIA INTENSIVA

VALORACIÓN Y REGISTROS DE LA HIGIENE BUCAL DE PACIENTES ENTUBADOS EN UNIDADES DE CUIDADOS INTENSIVOS

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Submitted on: 2015/11/13

Approved on: 2016/06/13

ABSTRACT

The aims of this study were to measure the valuation of oral hygiene of intubated adult patients among nurses, verify if they identify and record nursing diagnoses and prescription concerning to changes in the oral cavity; checking the records and interventions of nursing staff related to oral hygiene. Exploratory study conducted in the Intensive Care Units in a university hospital through questionnaire and analysis of records. The sample consisted of 47 (72.3%) nurses, 65 nurses and 53 medical records analyzed. The results revealed that the average score assigned by nurses according to the valuation of oral hygiene was 83. Most nurses reported that they had assessed the conditions of the oral cavity and prescribed the oral hygiene. Records were not found in the related nursing diagnoses. In 67% of the records evaluated there were annotations on the implementation of the oral hygiene by nursing technicians. The average score appointed by nurses is consistent with the recognition of the importance of procedure, but the records are flawed or nonexistent.

Keywords: Oral Hygiene; Pneumonia, Ventilator-Associated; Nursing; Intensive Care Units.

RESUMO

Os objetivos do estudo foram mensurar entre os enfermeiros a valoração da higiene bucal de pacientes adultos intubados, verificar a identificação e registros dos diagnósticos e prescrições de enfermagem pertinentes às alterações da cavidade bucal e avaliar os registros e as ações dos técnicos de enfermagem relacionados à higienização bucal. Estudo descritivo realizado em unidades de terapia intensiva de um hospital universitário por meio de questionário e análise de registros. A amostra foi constituída de 47 (72,3%) entre 65 enfermeiros e foram analisados 53 prontuários. Os resultados revelaram que o escore médio atribuído pelos enfermeiros relacionado à valoração do procedimento foi de 83. A maioria relata avaliar as condições da cavidade bucal e prescreve o procedimento de higienização. Nos prontuários não foram encontrados os diagnósticos de enfermagem relacionados. Em 67% dos prontuários havia registros sobre a realização da higiene pelos técnicos. O escore médio indicado pelos enfermeiros condiz com o reconhecimento sobre a importância da higiene bucal, mas os registros são falhos ou inexistentes.

Palavras-chave: Higiene Bucal; Pneumonia Associada à Ventilação Mecânica; Enfermagem; Unidades de Terapia Intensiva.

How to cite this article:

Zanei SSV, Kawamura MM, Mori S, Whitaker IY, Cohrs CR. Valuation and records of oral hygiene of intubated patients in intensive care units. REME – Rev Min Enferm. 2016; [cited ____ _]; 20:e965. Available from: _____ DOI: 10.5935/1415-2762.20160035

RESUMEN

El presente estudio buscó medir entre los enfermeros la valoración de la higiene bucal de pacientes adultos entubados, comprobar la identificación y registros de los diagnósticos y prescripciones de enfermería relacionados con las alteraciones de la cavidad bucal y evaluar los registros y las acciones de los técnicos de enfermería relacionados con la higiene bucal. Estudio exploratorio descriptivo realizado en la unidad de cuidados intensivos de un hospital universitario a través de un cuestionario y del análisis de los registros. La muestra consistió en 47 (72,3%) entre 65 enfermeros y fueron analizados 53 registros médicos. Los resultados revelaron que la puntuación media atribuida por los enfermeros en relación con la valoración del procedimiento fue 83. La mayoría informa que evalúa las condiciones de la cavidad bucal y que prescribe su higienización. En los registros médicos analizados no se encontraron los diagnósticos de enfermería pertinentes. En 67% de los registros médicos estaba registrada la higiene bucal realizada por los técnicos de enfermería. La puntuación media designada por los enfermeros está de acuerdo con el reconocimiento de la importancia del procedimiento, pero los registros son deficientes o inexistentes.

Palabras clave: Higiene Bucal; Neumonía Asociada al Ventilador; Enfermería; Unidades de Cuidados Intensivos.

INTRODUCTION

Control of infections acquired in intensive care units (ICUs) is currently one of the health professionals' challenges working in the area. Among these, there is infection related to invasive mechanical ventilation (IMV), which requires the insertion of an orotracheal tube or tracheostomy.¹ In situations of severe respiratory dysfunction, the fastest and easiest access to the respiratory system occurs by orotracheal intubation, which is most used procedure in the units.²

In ICUs, respiratory infections, mostly ventilator-associated pneumonia (VAP), is a serious condition for patients in critical condition, because it results in prolonged hospitalization, with increased costs and mortality in ICUs.³

Facing the relevance of respiratory infections related to the use of IMV, the *Institute for Healthcare Improvement* (IHI) recommends interventions considered as level one care of scientific evidence (strongly recommended) to eradicate or minimize the problem. It stands out the elevation of the headboard between 30 and 45°, interruption of sedation/daily wake and daily oral hygiene (OH) with chlorhexidine solution.⁴

Despite evidence favorable to the practice of strict hygiene of the oral cavity in intubated patients, its value, the way and the strategies of how it is held are not well known and, in recent years, studies have sought to understand such a reality.^{5,6}

Thus, given that little is known about the valuation of the procedure by nurses and how and what methods are employed, some questions were outlined: do the nurses working in ICUs recognize the importance of OH? Do they identify nursing diagnosis (ND) related to changes in the oral cavity? What is the valuation attributed to the procedure in patients with orotracheal intubation (OTI)? How is OH prescribed and performed on a daily basis? Regarding the implementation of care, how often and what are the conditions for implementing OH recorded by the nursing technician (NT)?

It is noteworthy that the oral hygiene procedure is understood as a care to maintain good oral health, which can be performed by the individual or a caregiver, in the case of dis-

abled or handicapped people,⁷ as often occurs with patients with orotracheal intubation.

Thus, the objectives of this study were to measure the valuation of oral hygiene of intubated patients among nurses; check for records of diagnoses and nursing prescriptions relevant to changes in the oral cavity; and verify the actions and records of NTs related to oral hygiene of intubated patients.

It is believed that the knowledge on the valuation given by nurses to the procedure and the actual situation in the environments and contexts in which it should take place is the first step in the implementation of effective measures for its accomplishment, in order to minimize the VAP issue in ICUs.

METHODS

This is an exploratory and descriptive study with a quantitative approach, performed with nurses in seven ICUs in a public, large, university hospital, in the city of São Paulo. ICUs admit adult, clinical, surgical and specialty patients, totaling 62 beds. The study population was composed of a non-probability sample involving employed nurses. In ICUs scales, there were 65 nurses, not including resident, in training period, on vacation or sick leave nurses. Nurses of all shifts were approached by one of the researchers and after the formal invitation to participate in the study and obtaining the free and clarified consent term a date was booked for returning the questionnaires. In general, returning the questionnaires occurred three days after delivery them, and the deadline could be extended for night shift nurses. The study was approved by the Ethics Research Committee of the institution (CEP 728/11).

As for the records related to the hygiene of oral cavity performed by nurses and NT, we opted for data collection of medical records defined by drawing. We included medical records of intubated patients, regardless of their medical condition or day of hospitalization, considering that the OH should be performed daily in all patients. For best operationalization, we grouped the units according to the number of beds. In the

first month of the study, we performed data collection in two ICUs, totaling 21 beds (general and medical clinic). In the second month, ICUs of health insurance, Neurology and Pulmonology were grouped (23 beds). In addition, in the third month the Postoperative Unit of Cardiac Surgery and the ICU of Emergency Room were grouped (18 beds). After the settings, two days a week, not consecutive, were established for the drawing and medical records consultation. This procedure was thought to favor the inclusion of different patients and prevent the recurrence of patients given the greater possibility of rotation between them every other day. In the pre-established days of the week for each ICU, 30% of intubated patients were randomly selected on the day of collection. The quantitative was defined due to the approach to the arithmetic mean of patients with OTI in the units (34.28%) seen in previous survey in the month before the start of data collection. If the patient had already been drawn in previous days, it was decided that the OH-related data would be collected again because the procedure could have been performed differently and by another professional. In addition, it was decided that the collection period would be three consecutive months, from June to August 2011. Thus, convenience sampling totalized 53 medical records.

USED TOOLS

NURSES' DATA

The nurses completed a three-part questionnaire; the first was related to data collection regarding gender, age, time since graduation, time of performance and experience in ICU, specialization course completed or in progress in the intensive care or other area.

The second part related to issues regarding the evaluation procedure of the oral cavity, the frequently observed abnormalities and the frequency, solution and prescribed device for OH. One of the questions was about the supervision on OH when performed by NT or nursing assistant.

In the latter part of the collection instrument, to objectively assess the procedure, we used a simple linear visual scale with increasing score of 100, meaning that the higher the value assigned, the greater the value of the procedure by the nurse. The use of a simple scale, such as a measure ruler for valuation of OH was used in an American study⁵ that served as a model for carrying out the present study.

MEDICAL RECORDS DATA

A spreadsheet was elaborated for data collection of medical records related to randomly selected patients, in which were recorded gender, age, number of days of hospitalization and intubation, frequency, solution and device prescribed for OH, report of conditions of the patient's oral cavity in the evolution of

nursing, record of NDs related to oral conditions, nursing notes relevant to OH and device and solution used at every shift.

Records related to the hygiene of oral cavity in the last 24 hours were considered.

The data were entered into spreadsheets (*Excel 2007*) for descriptive statistics (mean, standard deviation, minimum and maximum) and the results were presented in tables and figure.

RESULTS

IMPORTANCE OF ORAL HYGIENE FOR NURSES

Questionnaires were given to nurses of the ICUs who were working during the collection period (total 65), and 47 (72.3%) questionnaires were returned. Table 1 presents the main demographic and professional features.

Table 1 - Demographic and professional characterization of nurses – São Paulo, 2011

Variable (total 47)	n	%	Average (years)	SD	Min	Max
Female gender	41	87.2				
Age (average, SD, max, min)			28.9	5.9	22	45
Time of professional experience			3.6	3.6	<1	15
Time of ICU experience			2.8	2.7	<1	10
Specialization course in ICU finished	12	25.5				
Specialization course in ICU ongoing	10	21.3				
Specialization course in other area	17	36.2				
Only undergraduate	8	17				

Regarding the question about how much they believed to be the value of oral care to intubated patient, considering all nursing interventions directed to the critical patient in a scale of one to 100, the average score was 83 (SD 12.1), and 75.5% gave values between 80-100 points (Figure 1).

Regarding the assessment of the conditions of the oral cavity during the physical examination, 32 nurses (68.0%) said they did it, 13 (27.5%) mentioned occasionally and two nurses (4.5%) did not perform it. As for the supervision of the procedure, if it was held by the NTs, 35 nurses (75%) reported receiving it at times; nine did not perform it (18.5%) and three performed it (6.5%).

Nurses have identified several changes or abnormalities of the oral cavity that are likely to occur in intubated patients; table 2 shows the most common of them. As the majority reported the items more than once and at the same time, we considered only the absolute numbers.

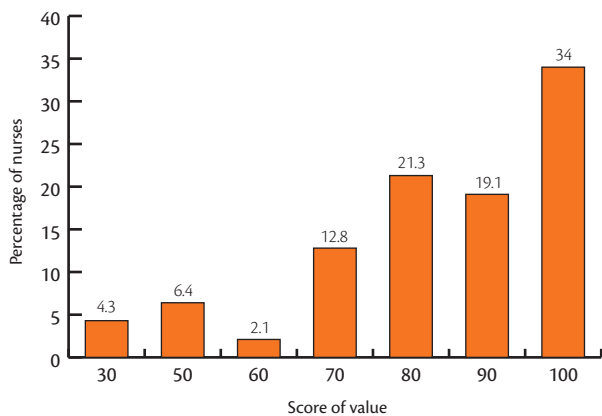


Figure 1 - Score of value of the oral hygiene of intubated patients according to the nurses of the ICUs – São Paulo, 2011.

Table 2 - Abnormalities identified by nurses in the oral cavity of intubated patients – São Paulo, 2011

Main groups and findings in the assessment of the oral cavity	n
Signs of inadequate hygiene:	
Tongue with coating	23
Crusts	16
Halitosis	10
Total	49
Signs of poor dentition:	
Tooth cavities	8
Lack of dentition	9
Total	17
Changes in the mucosa:	
Lesions	9
Dried oral mucosa	7
Cracks	5
Whitish plates	7
Total	28
Ulcers due to inadequate tube fixing	14
Bleeding	9
Accumulation of secretion/drooling	6
Total	29

Regarding frequency of OH, 38 nurses (81%) responded to prescribe three times a day and nine nurses (19%) reported to prescribe it four times/day. As for products and devices, the most cited were oral solution of chlorhexidine 0.12% (34.04%), mouthwash based on cetylpyridinium chloride (17.02%), mouthwash produced in the hospital with thymol (29.78%) and others (19.15%) (toothpaste and tooth brush or spatula with gauze, sodium bicarbonate solution and other mouthwashes).

RECORD OF ORAL HYGIENE BY NURSES AND TECHNICIANS

Medical records data of 53 patients were obtained. Table 3 presents the demographic characteristics and intubation-related data.

Table 3 - Sociodemographic characteristics and related to intubation of patients in ICUs – São Paulo, 2011

Characteristics	n (%)
Age (years) Average (SD; minimum – maximum)	59 (14.7)
Female	25 (47.2)
Male	28 (52.8)
Length of hospitalization (days) Mean (SD; minimum – maximum)	7 (49; 1-39)
Length of intubation (days) Mean (SD; minimum – maximum)	4.7 (3.5; 1-18)

On the data related to the nursing assessment, at 100% of the medical records the nurses did not record the conditions of the oral cavity in the evolution of nursing and did not define the NDs related to their conditions, as “risk for” or “impaired oral mucosa” “dentition and/or impaired swallowing”⁸. The prescription of OH was found in 51 medical records (96.2%). In relation to the used solutions, 51 records were obtained, and Table 4 describes the most used products.

Table 4 - Products prescribed for oral hygiene of intubated patients – São Paulo, 2011

Product	n	%
Oral solution of chlorhexidine 0.12%	16	31.4
Hospital mouthwash	15	29.4
Mouthwash – cetylpyridinium chloride	8	15.6
Toothpaste	8	15.6
Sodium bicarbonate loneliness (with no dilution specification)	2	4
With no product specialization	2	4

Among the records, in 45 (88.2%), there was no specification of the material or device and in six (11.8%), toothbrush was prescribed.

Table 5 shows the data relating to the records held by the NTs as well as the solutions used.

In any of the registers found on OH, there was specification about device used (e.g., gauze or spatula and toothbrush).

DISCUSSION

Currently, in the ICUs, pulmonary infection is a threat to patients undergoing IMV, which considerably increases the morbimortality and costs of intensive care.^{4,9}

The responsibility of the nurse and the health team is to effectively contributing to its prevention. In this context, oral care

is a nursing procedure that assists in reducing the incidence of VAP.¹⁰ OH with antiseptics, such as chlorhexidine, is associated with low risk of VAP and has been strongly recommended.^{4,9}

Table 5 - Distribution of records conducted by nursing technicians, according to the period and the solution used São Paulo, 2011

Record	Morning (n =53)		Evening (n =53)		Night (n =53)	
	n	%	n	%	n	%
Absent	14	26.4	15	28.3	23	43.4
Present	39	73.6	38	71.7	30	56.6
Total	53	100	53	100	53	100

Solution	Present (n = 39)		Present (n = 38)		Present (n = 30)	
	n	%	n	%	n	%
Clorex*	11	28.2	6	15.8	5	16.5
Cetilp [†]	1	2.6	2	5.3	1	3.5
Enx-ti [‡]	–	–	1	2.6	–	–
Not esp [§]	27	69.2	29	76.3	24	80.0
Total	39	100	38	100	30	100

* Clorex: chlorhexidine solution 0.12%; [†] Cetilp: cetylpyridinium chloride solution; [‡] Enx-ti: mouthwash produced in the hospital with Thymol; [§] Not specif: Product not specified.

The mismatch between what is valued and what is done was reported in a study conducted in three American ICUs with 77 nurses. The study evaluated the frequency and the record of OH in intubated and non-intubated patients, as well as their relevance in care. The procedure was recognized as a priority for approximately 50% of the respondents. The average OH was three to five times/day for intubated patients, but the average documented was only 1.2 times daily. The authors of the study used a scale to value the priority of intervention whose score ranged from one to 100 (1 being the lowest and 100 the highest), and obtained a mean score of 53.9. However, about 20% of nurses assigned scores between 71 and 80 points, 10% gave a score between 81 and 90 and scored as the highest priority (score between 91 and 100) approximately 8% of the participants. The sum of the percentage of nurses who gave values above 70 points corresponded to approximately 40%, showing that the minority considers hygiene of the oral cavity as high priority⁵. It is noteworthy that the study was conducted over 10 years ago (2003), during which the studies related to the theme, despite frequent in healthcare databases, mainly in English, a significant quantity had not yet reached. In the last decade, the number of related studies more than doubled, given the relevance of the subject.

In this research, 47 nurses participated. We used the same scale of value and the same criterion, and the average score was 83 points, which indicates recognition of the OH importance for the prevention of VAP. The difference between the values of the American study⁵ and this research may be due to the in-

crease and dissemination of research related to the theme on the importance of OH in intubated patients. Another factor that may have contributed to the high score of valuation is the availability of the chlorhexidine oral solution 0.12% for the procedure in most ICUs. In addition, the fact that approximately half (46.0%) of nurses already have or are attending graduate studies in the area, which would allow access to information and updates on relevant issues in the area. This result may represent a reality that is beginning to be delineated, resulting from more and dissemination of related research and its close relationship with VAP. In the Brazilian context, research related to prevention of nosocomial pneumonia and oral hygiene as one of the protective measures is already in the literature. In a study conducted in a general ICU, in the south of the country, with 14 beds, with 18 nurses, oral hygiene with chlorhexidine 0.12% was the item that showed more compliance in the package of preventive measures related to VAP.¹¹

American nurses also mentioned that although the procedure is critical, other nursing care may be priority in the presence of hemodynamic instability of the patient.⁵ In fact, such a situation has more priority, for putting the patient at risk of imminent death. However, as soon as conditions stabilize, care must be taken up, which should be a concern of nurses.

Of the total of nurses in this study, 68% reported to assess the oral cavity of the intubated patient and 27.5% pointed out that sometimes they assess it. However, it was found that the nurses do not report what they observe, because among the analyzed medical records there was no record related to the patients' oral cavity conditions either in the development or in the nursing records, as well as NDs were not performed. Among the diagnosis, it was expected that at least one be recorded, considering the existence of some factors related to NDs "impaired oral mucosa", "dentition or impaired swallowing." According to the NANDA-I taxonomy, they are factors related to the tube in the oral cavity, impossibility of swallowing, decreased salivation and difficulty of oral hygiene.⁸ Furthermore, it should be noted that the orotracheal tube is a risk factor for abnormalities because the mouth is kept permanently open or semi-open. This condition causes various changes, such as dental plaques, xerostomia, adhesion of organic materials in the tongue (coating), or in mucosal and tooth surfaces (debris), lip dryness, among others.^{12,13} Considering that in the ICUs of the study using the SNA is a reality with several years of implementation, it is clear that there is gap between theoretical and practical aspects and what is actually done and recorded. The absence of possible NDs related to the oral cavity conditions may be due to the lack of related diagnoses, automation to only prescribe the most frequent NDs, lack of updating or training in the systematization of care or work overload, which lead to devaluation the general records.

It is noteworthy that the absence of records was also observed in the American study, which revealed that nurses reported frequent interventions in relation to oral care, but the procedure was poorly documented. The predominant reason for over half of the participants was that the lack of assessment of the oral cavity conditions of the intubated patient was caused by lack of time and work overload.⁵ Similarly, another study showed low adherence to the records, although the procedure be generally performed three times a day in intubated patients.¹⁴

Several changes or abnormalities were mentioned by the nurses of this study, the most frequent was about resected mucosa, lesions, cracks or ulcerations on the skin, lesions due to orotracheal cannula, coating whitish plates adhered on oral mucosa, bleeding, dirtiness, lack of teeth, tooth cavity and halitosis. The quotations show that nurses recognize most of the changes that can affect the oral cavity; however, they do not register the information in the note, in the evolution, or nursing prescription. The lack of records on the abnormalities may explain the absence of specific guidelines on the prescription. It is also noteworthy that the record in the patient's medical records on the information related to the care process is the responsibility and duty of nursing professionals. The absence or omission of records may be interpreted as non-performing or non-compliance with certain action and can be considered as negligence in relation to the care provision.¹⁵

In general, the solutions for OH on the prescriptions vary, in which it was found from chlorhexidine solution 0.12% (most cited) until sodium bicarbonate solution. This situation may be due to availability of products in the hospital or, in other situations, the provision by family members.

The oral solution of chlorhexidine is a dental antiplaque agent that has strong antimicrobial activity that, without causing increased resistance of bacteria in the oral cavity, is effective at low concentration.¹⁶ The effectiveness of OH with chlorhexidine 0.12% is already known and was included in the VAP prevention guide of the *Institute for Healthcare Improvement*.⁴

Regarding the prescribed device for OH, toothbrush was the indicated device only in six prescriptions (11.8%). Toothbrushing the patient with OTI has been the object of numerous research.^{16,17} Studies have shown that the use of chlorhexidine is more important than brushing¹⁷. However, it is known that the action of mouthwashes may be compromised before oral biofilm plates that are better removed by tooth brush.¹⁸

It is worth mentioning that some authors recommend rigorous brushing for at least two minutes¹⁸ or use of child brushes with soft bristles, which would facilitate their introduction and handling in the oral cavity of patients with OTI.^{16,17}

Regarding nursing records on the OH in the morning and afternoon, it was found that in over 70% of the analyzed medical records (73.6 and 71.7%, respectively) there was some kind

of note, while in the night period records were 56.6%. In a retrospective study of documentation of oral care practices in a ICU, the highest incidence of OH records was on the evening and night periods.¹⁴ According to the author, during these periods the nursing staff has more time to give direct care to patients, including oral hygiene. The average of OH records in this study during the three shifts was 67.3%, lower than the average of 89% of OH documentation in the American study. Contrary to what was obtained in the aforementioned research, the most current records occurred in the morning and the afternoon periods. The likely explanation for this fact is that in these periods, in addition to care nurses, the nurse in charge and nursing manager are present, and therefore the supervision and collection for records are more evident.

At night, the record was about 15% lower, probably due to fewer collaborators, nurses and NT, or also due to other unidentified factors. In the medical records in which there was documentation of the procedure, more than 60% had no specification on the product used, and there was none registration of device specification (e.g., tooth brush or spatula with gauze).

It is noteworthy that in assessment of knowledge, attitudes and behavior of clinical care nurses, the authors found that professionals who have more resources for learning about oral care acquire more knowledge on the subject and promote care for intubated patients more frequently.¹⁹ However, in the reality of the surveyed ICUs, although most nurses are experts, assigning high valuation to the procedure and demonstrate to know the benefits of care on a daily basis, little information is recorded. This can be interpreted as not implemented or unsupervised, and the most important, as neglected, which may have consequences for services, managers and nurse professionals from the legal and administrative point of view.

One way to minimize the omission of records and provide quality care is the systematic assessment of oral conditions¹⁶ incorporated into the daily physical examination, a practice that is part of the undergraduate nursing training, but that seems to be less valued in the hospital context. In addition, implementing specific protocols is required, as well as extensive training of nursing professionals on the importance of oral care, its respective record, and possible techniques for their performance.¹⁶

The use of specific scales on the conditions of the oral cavity by the nurse would be a facilitator for their achievement. Such instruments should be used not only for measuring results in research, but also to classify risk patients, facilitating the daily practice and improving the quality of nursing care.^{16,20}

Although the results draw attention to the importance of OH to intubated patients, the limitations of this study may be related to the short data collection time, the sample size and achievement in a single center, which may not portray faithfully the reality of the ICUs in Brazil.

FINAL REMARKS

This research found that, compared to the objective valuation of the OH by nurses in the care of intubated patients, the mean score of 83 points indicated recognition of the importance of the procedure. However, despite the high valuation of the procedure, the nurses did not relate NDs and, in general, did not make relevant records. NTs records were unspecific or absent.

Despite some controversies, most current literature evidence states the importance of oral hygiene procedure in decreasing rates of VAP. Therefore, it is recommended that nurses assess and record systematically the conditions of the patients' oral cavity, mainly intubated patients, and perform or supervise the procedure so it could happen according to institutional protocols or recommendations based on the best evidence.

Given the importance of the VAP prevention and the role of nurses as the main responsible for the procedure, it is still recommended that the issue be widely studied and disseminated among professionals working in critical areas.

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