REME • Rev Min Enferm. 2021;25:e-1353 DOI: 10.5935/1415.2762.20210001

# RESEARCH

# DIFFERENT TYPES OF BATH IN CRITICAL PATIENTS AND FACTORS ASSOCIATED WITH BED BATHING

DIFERENTES TIPOS DE BANHO EM PACIENTES CRÍTICOS E FATORES ASSOCIADOS AO BANHO NO LEITO DIFERENTES TIPOS DE BAÑO EN PACIENTES CRÍTICOS Y LOS FACTORES ASOCIADOS AL BAÑO EN CAMA

- Luana Vieira Toledo¹
- D Nádia Vaz Sampaio<sup>2</sup>
- Lídia Miranda Brinati<sup>3</sup>
- D Camila Santana Domingos
- Patrícia de Oliveira Salgado¹
- D Flávia Falci Ercole⁴

<sup>1</sup>Universidade Federal de Viçosa - UFV, Departamento de Medicina e Enfermagem - DEM. Viçosa, MG - Brazil. <sup>2</sup>Universidade Federal de Minas Gerais - UFMG, Hospital das Clínicas. Belo Horizonte, MG - Brazil. <sup>3</sup>Hospital São Sebastião - HSS, Unidade de Terapia Intensiva – UTI. Viçosa, MG - Brazil.

<sup>4</sup>UFMG, Escola de Enfermagem, Departamento de Enfermagem Básica. Belo Horizonte, MG - Brazil.

Corresponding Author: Luana Vieira Toledo E-mail: luana.toledo@ufv.br

#### Authors' Contribution:

Conceptualization: Luana V. Toledo, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Data collection: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Investigaion: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Methodology: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Project Management: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Resources Management: Luana V. Toledo, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Statistical Analysis: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Supervision: Luana V. Toledo, Flávia F. Ercole; Writing – Original Draft Preparation: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole; Writing – Review and Edition: Luana V. Toledo, Nádia V. Sampaio, Lídia M. Brinati, Camila S. Domingos, Patrícia O. Salgado, Flávia F. Ercole.

Funding: No funding.

**Submitted on:** 2020/03/18 **Approved on:** 2020/11/25

#### Responsible Editors:

- Allana dos Reis Corrêa
- 📵 Luciana Regina Ferreira Pereira da Mata

#### **ABSTRACT**

Objective: to identify the type of bath done in critically ill patients on admission and when leaving the intensive care unit and to evaluate the factors associated with bathing in the bed of these patients in these two moments. Method: observational, quantitative, longitudinal, retrospective study, carried out with information from 85 medical records of critically ill patients admitted to an intensive care unit. The Mc Nemar test assessed the difference in the types of baths performed with critically ill patients, at admission and when leaving the unit. Logistic regression assessed the factors associated with bathing in the bed in these two moments. Results: male patients predominated (56.50%), with a mean age of 65.4 years old. The bed bath was the most performed, both on admission (88.2%) and when leaving the unit (78.8%). Among the patients discharged, there was a difference in the types of bath performed at the beginning and end of hospitalization (p = 0.013). Patients who died only received the bed bath. Upon admission to the intensive care unit, the chance that a patient undergoing oxygen therapy indicated bed bathing was higher (Odds Ratio = 6.24). When leaving this sector, this chance was greater in patients using oxygen therapy (Odds Ratio = 13.81) and Indwelling bladder catheter (Odds Ratio = 5.56). Conclusion: in critically ill patients the bed bath was the most frequently performed and its indication was associated with the use of oxygen supply and urinary control devices.

Keywords: Baths; Critical Care; Nursing; Intensive Care Units.

#### **RESUMO**

Objetivo: identificar o tipo de banho realizado em pacientes críticos à admissão e na saída da unidade de terapia intensiva e avaliar os fatores associados ao banho no leito desses pacientes nesses dois momentos. Método: estudo observacional, quantitativo, longitudinal, retrospectivo, realizado com informações de 85 prontuários de pacientes críticos internados em uma unidade de terapia intensiva. Avaliou-se a diferença dos tipos de banho realizados com os pacientes críticos,à admissão e na saída da unidade, a partir do teste de Mc Nemar. Utilizou-se a regressão logística para avaliar os fatores associados à realização do banho no leito nesses dois momentos. Resultados: predominaram os pacientes do sexo masculino (56,50%), com média de idade de 65,4 anos. O banho no leito foi o mais realizado, tanto à admissão (88,2%) quanto na saída da unidade (78,8%).Entre os pacientes que receberam alta, houve diferença dos tipos de banho realizados no início e fim da internação (p= 0,013). Os pacientes que vieram a óbito receberam apenas o banho no leito. À admissão na unidade de terapia intensiva, a chance de um paciente em oxigenoterapia ter indicação de banho no leito foi maior (OddsRatio = 6,24). Por sua vez, na saída desse setor, essa chance foi maior nos pacientes em uso de oxigenoterapia (OddsRatio = 13,81) e cateter vesical de demora (OddsRatio = 5,56). **Conclusão:** em pacientes críticos o banho no leito foi o mais realizado e sua indicação esteve associada à utilização de dispositivos de oferta de oxigênio e controle urinário.

Palavras-chave: Banhos; Cuidados Críticos; Enfermagem; Unidades de Terapia Intensiva.

#### **RESUMEN**

Objetivo: identificar el tipo de baño realizado en pacientes críticos al ingreso y egreso de la Unidad de Cuidados Intensivos y evaluar los factores asociados al baño en cama de esos pacientes en esos dos momentos. Método: estudio observacional, cuantitativo, longitudinal, retrospectivo, realizado con información de 85 historias clínicas de pacientes críticos ingresados en una Unidad de Cuidados Intensivos. Se evaluó la diferencia dos tipos de baño realizados con los pacientes críticos, en el ingreso y egreso de la unidad, a partir de lo test de Mc Nemar. Se utilizó la regresión logística para evaluar los factores asociados a la realización del baño en cama en esos dos momentos. Resultados: predominaron los pacientes del sexo masculino (56,50%), con media de edad de 65,4 años. El baño en cama fue lo más realizado, tanto al ingreso (88,2%), como al egreso de la unidad (78,8%). Entre los pacientes que recibieron el alta, hubo diferencia en los tipos de baño realizados al inicio y al final de la hospitalización (p=0,013). Los pacientes que murieron solo recibieron el baño en cama. Al ingresar en la Unidad de Cuidados Intensivos, la probabilidad de que un paciente de oxigenoterapia tuviera una indicación para el baño en cama fue mayor (OddsRatio = 6,24). A su vez, al egreso de ese sector, esa posibilidad fue mayor en los pacientes en uso de oxigenoterapia (OddsRatio = 13,81) y catéter vesical de demora (OddsRatio = 5,56). Conclusión: en los pacientes críticos el baño en cama fue el más realizado y su indicación se asoció con el uso de dispositivos de suministro de oxígeno y control urinario.

Palabras clave: Baños; Cuidados Críticos; Enfermería; Unidades de Cuidados.

## How to cite this article:

#### INTRODUCTION

Intensive care units (ICUs) are places for the care of critically ill patients, who require continuous assistance and monitoring.<sup>1</sup> These patients are often diagnosed with a "deficit in self-care for bathing" due to the performance limitations of body hygiene activities, becoming dependent on the Nursing team.<sup>2,3</sup>

The bath stands out among the Nursing interventions implemented in assisting patients to solve or minimize this problem. The Classification of Nursing Interventions (NIC) defines this intervention as cleaning the body for relaxation, cleanliness, and recovery, and can be performed in a bed, shower aspersion, on a seat, or in the bath, depending on the need and/or preference of those involved since they provide clinical conditions to choose the procedure.<sup>4</sup>

Bed bathing in the ICU is often the only intervention option for maintaining the body hygiene of patients with a high level of dependence, mainly due to the severity of the clinical condition and the environmental barriers imposed by the multiple invasive devices.<sup>5,6</sup> These patients benefit from this type of bath, promoting hygiene since skin friction can be a great stimulator of circulation and a substitute for physical exercises, even if less effective.<sup>7</sup> However, the execution of bed bathing demands a high time and physical effort from the Nursing team, which directly impacts work overload and, consequently, the quality of care and patient safety.<sup>8-10</sup>

Critically and hemodynamically stable patients with improvement of the clinical picture and without restrictions on mobilization can be referred to the shower aspersion. In this type of bath, the Nursing team is responsible for guiding the patient to the bathroom, whether or not using the help of a bath chair, placing him under the water and monitoring the activity, paying attention to stability, safety and comfort.<sup>11</sup>

In clinical practice, Nursing professionals must be trained to carry out interventions aimed at maintaining patients' body hygiene in different situations, defining the most appropriate way according to the level of dependence and deficiency for self-care. Before the intervention, the nurses must evaluate the patient, identifying conditions associated with a deficiency in the capacity for self-care such as cognitive alterations, musculoskeletal and neuromuscular damage. Such conditions, added to the evolution of the disease and the environmental barriers imposed by the ICU admission, can hinder and even be contraindicated to move the patients to the bathroom.

Considering that most critically ill patients are dependent on the Nursing team, we believe that in this scenario, more bed baths are carried out than the shower aspersion. However, the Nursing care directed to these patients should seek to restore the health condition, so that they can become less dependent and have more autonomy for self-care. The greater autonomy of patients can contribute not to only their development, but also reduce the workload of Nursing professionals.

Considering that bathing is a routine Nursing intervention in ICUs with a significant influence on the workload of the Nursing team and that it is up to the nurse to define the most appropriate way to perform it, it is essential to recognize the different types of bathing that have been performed on critically ill patients, and the factors associated with the choice of bathing type.

There is a lack in the literature on this information so this study is important to support the practice of intensive care nurses during the evaluation of patients and the equal dimensioning of professionals for the performance of bathing activities. Despite the complexity of care in the ICUs, patients who initially receive the bed bath will be able to regain their self-care capacity, and, at the end of their hospitalization in this sector, they will have clinical conditions to receive the shower aspersion.

Therefore, this investigation was carried out to identify the type of bath performed in critical patients during the admission and leave the ICU and to evaluate the factors associated with the bed bath of these patients in these two moments.

# **METHOD**

This is an observational, quantitative, longitudinal, retrospective study, in which we evaluated the medical records of 85 critical patients regarding the first and last bath performed in the ICU. The referred ICU had six beds, it is inserted in a teaching hospital of a federal public institution and assists critical patients due to clinical or surgical conditions.

We evaluated the medical records of 85 patients hospitalized over six months and selected by a convenience sample that included all those patients who were hospitalized in the ICU for at least 24 hours, who underwent at least two bathing interventions by the Nursing team, and 18 years old or over. We excluded patients who were discharged from the ICU or died before receiving the second bath.

The researchers developed an instrument to collect data from patients' medical records, obtaining sociode-

mographic and clinical characteristics, types of baths performed, invasive devices, and medications used. To characterize the patients, we registered the variables age (years old), gender (female/male), date of admission to the ICU (recorded in days, months, and years), date of leaving the ICU (recorded in days, months and years) and outcome of ICU admission (discharge or death).

The dependent variable, related to the types of baths performed with patients at admission (first bath) and when leaving the ICU (last bath before discharge or death from the ICU), was registered nominally and later dichotomized in bed bathing and shower aspersion.

Variables related to the use of invasive devices included central venous access (CVA), peripheral venous access (PVA), nasoenteric catheter (NEC), urinary bladder catheter (UBC), drains, oxygen therapy, orotracheal tube (OTT), and tracheostomy (TC). We also evaluated the use of medications (pain relievers, sedatives, vasodilators). These variables were extracted from the patients' medical records at two times: on admission (first day of the ICU) and on leaving the ICU (last day of the ICU). They were recorded in a dichotomous way (yes/no) and used to characterize patients at the time of bathing and to verify their association with the different types of baths performed at each moment.

We performed double data entry in the Microsoft® Excel program. The analysis was performed using the software Stata version 13.0. We used descriptive statistics with the presentation of frequencies (relative and absolute), measures of central tendency (mean/median), and dispersion (standard deviation [SD]/interquartile range [IIQ]), according to the assessment of the normal distribution of the data. Inferential statistics were performed using the Mc Nemar test to compare the different types of baths at the time of admission and leaving the ICU.

To assess the association of age, use of invasive devices, and medications with different types of baths on admission and on leaving the ICU, binary logistic regression was performed at different times. We categorized the outcome variable with the shower aspersion = 0 and the bed bath = 1. We included the variables with an association with the bed bath at the 20% significance level (p <0.20) in the final multiple logistic regression model. The backward method was used, and the variables with less significance (p> 0.05) were removed one by one by the Wald test. We repeated the procedure until all variables in the model had statistical significance (p <0.05). This analysis enabledus to determine the adjusted OR,

the precision (95% CI), and the significance of the estimate (Wald test). The Hosmer & Lemeshow test verified the adjustment of the final model.

This study followed all the ethical precepts of Resolution 466, of December 12, 2012, of the National Health Council, approved by the Research Ethics Committee (Opinion 2,259,675). We instructed the patients enrolled in the study on the objectives of the research and invited them to participate by signing the Informed Consent Form (ICF). In cases where patients were unable to sign the informed consent form, we requested the signature of their guardian. We ensured the confidentiality and anonymity of all patients and professionals involved.

### RESULTS

Of the 85 hospitalized patients, 48 (56.50%) were male and 37 (43.50%) female. Their age ranged from 18 to 94 years old, with a mean of 65.4 years old (± 17.7 years old). The length of stay of patients in the ICU ranged from two to 49 days, with a median of five days (IIQ = 5). Most patients, 69 (81.2%), recovered and were discharged from the ICU; however, 16 (18.8%) patients died.

During the admission to the ICU, all patients were diagnosed with a "deficit in self-care for bathing". Therefore, the Nursing team performed their body hygiene. The bed bath and the shower aspersion were the types of interventions for maintaining body hygiene by the Nursing team.

When admitted to the ICU, 77 (88.2%) patients underwent bed bathing, while eight (11.8%) had shower aspersion. At the time of leaving the ICU, there was also a predominance of bed bathing - 67 (78.8%). However, there was an increase of patients who received the shower as personas the last bath in the ICU, representing 18 (21.2%) patients.

When evaluating the types of bath and the outcomes of hospitalization (discharge or death) of the patients, we observed that among the 69 (81.2%) who were discharged from the ICU, there was a difference in the proportion of the types of bath performed at the beginning and the end of hospitalization in this sector. However, all 16 (18.8%) patients who died only had bed bathing, both on admission and on leaving the ICU (Table 1).

Regarding the characteristics of the patients at the time of each bath, there was a higher frequency of bed bathing in elderly patients and those using invasive devices, both on admission and leaving the ICU (Table 2).

Table 1 - Bath types in critically ill patients in the different outcomes of ICU admission (discharge or death). *Viçosa, Minas Gerais*, MG, Brazil, 2018 (n=85)

	Outcomes of ICU stay							
	Dis	charge (n = 69)		Death (n = 16)				
Type of Bath at ICU Admission	Bed Bath	Shower aspersion	p-value	Bed Bath	Shower aspersion	p-value		
Bed Bath	49	12		16	-	-		
Shower aspersion	02	06	0.013*	-	-	-		

ICU: intensive care unit; p-value: the result of the analysis of the statistical significance of the Mc Nemar test. BB: bed bath; SA: shower aspersion; \*statistically significant (p < 0.05).

Table 2 -Characteristics of critical patients submitted to bed bath and shower aspersion, during admission and when leaving the ICU. *Viçosa, Minas Gerais*, MG, Brazil, 2018 (n=85)

Characterization of	ICU admiss	sion (n=85)	Leaving the ICU (n=85)		
patients	BB (n=77)	SA (n=08)	BB (n=67)	SA (n=18)	
Age n (%)					
<60 years old	24 (31.2)	03 (37.5)	17 (25.4)	10 (55.5)	
≥60 years old	53 (68.8)	05 (62.5)	50 (74.6)	08 (44.4)	
Gender n (%)					
Female	35 (45.5)	02 (25.0)	31 (46.3)	06 (33.3)	
Male	42 (54.5)	06 (75.0)	36 (53.7)	12 (66.7)	
Length of stay n (%)					
≤05 days	42 (54.5)	07 (87.5)	36 (53.7)	13 (72.2)	
>05 days	35 (45.5)	01 (12.5)	31 (46.3)	05 (27.8)	
Invasive Devices n (%)					
Central venous access	18 (23.4)	01 (12.5)	20 (29.9)	01 (5.5)	
Peripheral venous access	67 (87.0)	07 (87.5)	50 (74.6)	17 (94.4)	
Nasoenteric catheter	29 (37.7)	-	25 (37.3)	-	
Indwelling bladder catheter	44 (57.1)	02 (25.0)	30 (44.8)	02 (11.1)	
Drains	05 (6.5)	-	05 (7.46)	-	
Oxygen therapy	52 (67.5)	02 (25.0)	32 (47.8)	01 (5.5)	
Tracheostomy	01 (1.3)	-	09 (13.4)	-	
Orotracheal tube	23 (29.9)	-	08 (11.9)	-	
Prescription of medicationn (%)					
Pain relievers	20 (30.0)	02 (25.0)	15 (22.4)	02 (11.1)	
Sedatives	21 (27.3)	-	10 (14.9)	-	
Vasoactive	33 (42.9)	03 (37.5)	15 (22.4)	-	

ICU: intensive care unit; BB: bed bath; SA: shower aspersion.

From the bivariate analysis, we found that, during admission to the ICU, the chance of a patient undergoing oxygen therapy to indicate bed bathing was higher (OR 6.24 - 95% CI 1.17-33.14) than those who did not use this device (Table 3).

At that moment, observing the variables associated with the last bath in the ICU, bed bathing was performed more often in elderly patients (OR 3.40 –95% CI 1.61–9.97), using CVA (OR 6, 48 - 95% CI 1.38–30.46) and supplemental oxygen (OR 13.78 95% CI 1.73–109.61), as shown in Table 4.

From the result of the final model of the multivariate logistic regression analysis, shown in Table 5, we noticed that, on admission, the chance of a patient undergoing

oxygen therapy having a bed bath indication was higher (adjusted OR 6.24 - 95 % 1.17–33.14). When leaving the ICU, this chance was greater in those patients who were using oxygen therapy (adjusted OR 13.81 - 95% CI 1.70–112.13) and CVA (adjusted OR 5.56 - 95% CI 1.12 –27.47). The quality of the adjustment of the final model was assessed by the Hosmer & Lermeshow test, considered as well adjusted (X2 = 0.243; p = 0.886).

#### DISCUSSION

In this study, elderly critical patients, male, who underwent bed bathing to maintain their body hygiene predominated. The greater number of critical el-

Table 3 - Bivariate association between age, use of invasive devices, and medications with the performance of different types of baths in critical patients to ICU admission. *Viçosa, Minas Gerais, MG*, Brazil, 2018 (n=85)

	ICU admission (n =85)						
Variables	BB (n=77)	SA (n=08)	Gross OR	CI 95%	p-value		
Age≥60 years old (n)							
Yes	53	05	1.25	0.28-5.64	0.774		
No	24	03	1				
Central venous access (n)							
Present	18	01	2.13	0.25-18.53	0.491		
Absent	59	07	1				
Peripheral venous access (n)							
Present	67	07	0.96	0.11-8.62	0.969		
Absent	10	01	1				
Indwelling bladder catheter (n)							
Present	44	02	4.00	0.76-21.09	0.102		
Absent	33	06	1				
Oxygen therapy (n)							
Present	52	02	6.24	1.17-33.14	0.032*		
Absent	25	06	1				
Pain relievers (n)							
Present	20	02	1.05	0.20-5.64	0.952		
Absent	57	06	1				
Vasoactive Medicines (n)							
Present	33	03	1.25	0.28-5.61	0.771		
Absent	44	05	1				

ICU: intensive care unit; BB: bed bath; SA: shower aspersion; OR: Odds Ratio; 95% CI: 95% confidence interval; p-value: the result of the analysis of the statistical significance of the Wald test; \*statistically significant (p <0.05).

Table 4 - Association between age, use of invasive devices, and medications with the performance of different types of baths in critically ill patients when leaving the ICU. *Viçosa, Minas Gerais*, MG, Brazil, 2018 (n=85)

J 1	Leaving the ICU (n = 85)						
Variables	BB (n = 67)	SA (n = 18)	Gross OR	CI 95%	p-value		
Age ≥60years old							
Yes	50	08	3.40	1.61-9.97	0.026*		
No	17	10	1				
Central venous access							
Present	20	01	7.23	0.90-58.11	0.063		
Absent	47	07	1				
Peripheral venous access							
Present	50	17	0.17	0.02-1.40	0.100		
Absent	17	01	1				
Indwelling bladder catheter							
Present	30	02	6.48	1.38-30.46	0.018*		
Absent	37	16	1				
Oxygen therapy							
Present	30	01	13.78	1.73-109.61	0.013*		
Absent	37	17	1				
Pain relievers							
Present	15	02	2.30	0.48-11.18	0.299		
Absent	52	16	1				

ICU: intensive care unit; BB: bed bath; SA: shower aspersion; OR: Odds Ratio; 95% CI: 95% confidence interval; p-value: the result of the analysis of the statistical significance of the Wald test; \*statistically significant (p < 0.05).

derly and male patients was also evidenced in a documentary study developed in an ICU in Rio de Janeiro. Among the 573 medical records evaluated, 420 (73.0%) belonged to patients 60 years old and over and 305 (53.0%) were male patients. Naturally, the aging process is marked by the appearance of conditions of organic destabilization of individuals, which lead to marked impairments and even the inability to self-care. In this context, the health professionals need to understand the peculiarities related to this vital stage to achieve the essence of care.

When evaluating the first and last bath, we sought to identify how is the ability to perform this basic selfcare activity in critical patients in two moments: right after being admitted to the ICU and at the end of their hospitalization in this sector. The predominance of bed bathing at both times indicates more care dependence, which is already expected due to the severity of the clinical condition. Also, the patients who died received, exclusively, the bed bath. It is expected that patients in the ICU will be more serious, considering that hospitalization in this sector is, in most cases, due to significant organic changes.<sup>17</sup> The greater severity of patients directly impacts the required care demand, especially for activities related to body care.18 For some, this demand for care can remain after discharge from the ICU and continues at their home, requiring continuous professional care, especially the elderly population.<sup>19</sup>

Throughout the dynamics of hygiene care, the patient can participate in two different ways, being an active member in the care or just as a recipient of it.<sup>20</sup> In this study, most patients did not actively participate in their body hygiene but received it from the Nursing team with bed bathing, which may be related to the ICU routine, where there is a culture of bed bathing due to the severity of the patients. A study in an ICU in Paraná had

similar results, whose prevalence of bed bathing was 99.6% among hospitalized patients.<sup>21</sup> However, the increase of patients who received the shower aspersion at the end of the ICU (21.2%) and the higher occurrence of discharge (81.2%) can show the quality of the assistance offered, aimed at restoring the main needs affected. Stimulating patients to the maximum potential of self-care can reduce hospitalization time from an early rehabilitation and directed to human needs.<sup>22</sup> Such findings reinforce the idea that the ICU, despite being a complex environment, is also a caring environment lively and dynamic to achieve the best possible recovery of the patients hospitalized there.<sup>23</sup>

The practice of body hygiene is an intrinsic knowledge of the science of Nursing.<sup>22</sup> Performing it by bed bath or shower aspersion should be a decision mainly on the health conditions, level of independence, and preference of the patients.12 In this study, there was a greater chance that a patient undergoing oxygen therapy would have an indication for bed bathing for the first bath in the ICU (adjusted OR 6.24 - 95% CI 1.17-33.14). This fact may be associated with the need to preserve the oxygen consumption of these patients, keeping them restricted to the bed, including during their body hygiene, among others. However, bed bathing with soap and water can cause significant increases in the respiratory rate of critically ill patients, as evidenced in a clinical study.24 For nurses, dry bathing, performed using pre-moistened wipes, can be considered a promising alternative for the execution of baths with fewer changes in respiratory parameters.<sup>24</sup>

The final logistic regression model found that the chance of indicating the last bed bath performed in the ICU was greater in patients using devices for oxygen supplementation (adjusted OR 13.81 - 95% CI 1.70–112.13) and CVA (adjusted OR 5.56 - 95% CI 1.12–27.47). In gen-

Table 5 - Variables associated with bed bathing in critical patients of admission and leaving from the ICU. *Viçosa, Minas Gerais*, MG, Brazil, 2018 (n=85)

Variables	ICU admission (n = 85)			Leavingthe ICU (n = 85)			
	Adjusted OR	CI 95%	p-value	Adjusted OR	CI 95%	p-value	
Oxygen therapy							
Present	6.24	1.17-33.14	0.032*	13.81	1.70-112.13	0.014*	
Absent	1	-	-	1	-	-	
Cateter vesical de demora							
Present	-	-	-	5.56	1.12-27.47	0.035*	
Absent	-	-	-	1	-	-	

ICU: intensive care unit; BB: bed bath; SA: shower aspersion; OR: Odds Ratio; 95% CI: 95% confidence interval; p-value: the result of the analysis of the statistical significance of the Wald test; \*statistically significant (p < 0.05).

eral, immediately after the patients are admitted to the ICU, urinary catheterization is performed for controlling urinary output and water balance. However, the need to maintain the CVA seems to be related to the greater severity of the patient and it is a possible justification for the association found in this study. Invasive devices can be a barrier to performing the shower aspersion, as they often prevent patients from moving. Hurthermore, the mobilization of these patients during bed bathing must be done carefully to prevent incidents such as catheter traction and disconnection of the oxygen therapy device and the urine collection bag. Such complications can be associated mainly with work overload and staff unavailability, which generates negative consequences for the work team and the patients.

In addition to the influence of bed bathing on work overload and, consequently, patient safety, we must consider that this procedure exposes patients to multiple risks such as falls, displacement of invasive devices, infections, and changes in physiological parameters.<sup>8,27,28</sup> Therefore, when assisting patients with a "deficit in selfcare for bathing", they should intervene effectively and safely to maintain their body hygiene.<sup>29</sup> For bedbathing, one of the great challenges is the exclusion of automated and unsystematic conducts, which are against the security and management of care.<sup>12</sup> Regardless of the method used, the bath should be carefulthat provides a space directed to the person, in which there should be an incentive for patients to actively participate in this procedure.<sup>20</sup>

This study has limitations because it took place in a single ICU, located in a hospital that does not have a semi-intensive care unit and that admits patients with different levels of complexity and not just those with high severity. Thus, the results found must be interpreted with caution and its generalization must be limited. Also, obtaining the data from the patients' medical records conditions the researchers to reproduce the recorded information, not allowing them to live in loco and monitor the baths. However, the medical records showed complete information, allowing the associated analysis of the baths and the use of invasive devices and medications. We suggest carrying out further studies that compare the types of bath with indicators of patient severity and Nursing workload. From these studies, we could identify the existence of differences between bathing interventions and the severity of patients, and the workload required in each context.

# **CONCLUSION**

In this study, bed bathing was the predominantly adopted Nursing intervention, both on admission and when leaving the ICU. However, there was an increase in the proportion of shower aspersion as the last bath in this sector. We found that the use of supplemental oxygen both at admission and when leaving the ICU and the control of urine output when leaving is associated with a greater chance of a patient indicating bed bathing.

The identification of the frequency of the different types of baths and the characteristics of the patients at the time of these baths allow intensive care nurses to better plan human and material resources. Thus, the results of this research will assist nurses in the initial assessment of patients to define the type of bath to be performed. They will also be able to support the professionals in the more equitable dimensioning for the performance of the bathing intervention, considering the important factor in the workload of the Nursing team.

#### REFERENCES

- Alcantara LS, Sant'anna JL, Souza MGN. Illness and finitude: considerations about the interdisciplinary approach in the oncological Intensive Care Unit. Ciênc Saúde Colet. 2013[cited 2019 Sept 10];18(9):2507-14. Available from: http://www.scielo.br/scielo.php?pid=S1413-81232013000900004&script=sci\_abstract
- Okuma SM, Paula AFM, Carmo GP, Pandolfi MM. Characterization of patients assisted by occupational therapy in adult intenvise care unit. Rev Interinst Bras Ter Ocup. 2017[cited 2019 Sept 20];1(5):574-88. Available from: https://revistas.ufrj.br/index.php/ribto/article/ view/8311
- Herdman TH, KamitsuruS. NANDA International Nursing diagnoses: definitions and classification, 2018-2020. 11<sup>th</sup> ed. New York: Thieme Publishers; 2018. 512 p.
- Bulechek GM, Butcher HK, Doehterman JM, Wagner CM. Classificação das Intervenções de Enfermagem – NIC. 6<sup>a</sup> ed. Rio de Janeiro: Elsevier; 2016. 640p.
- Noddeskou LH, Hemmingsen LE, Hordam B. Elderly patients 'and nurses' assessment of traditional bed bath compared to prepacked single units - randomized controlled trial. Scand J Caring Sci. 2015[cited 2019 Nov 20];29:347-52. Available from: https://doi. org/10.1111/scs.12170
- Toledo LV, Sampaio NV, Salgado PO, Brinati LM, Domingos CS, Souza CC, Ercole FF. Déficit no autocuidado para banho: caracterização do diagnóstico de Enfermagem em pacientes críticos. Rev Eletrônica Acervo Saúde. 2020[cited 2020 July 29];(supl.43):e3284. Available from: https://acervomais.com.br/index.php/saude/article/ view/3284. doi: https://doi.org/10.25248/reas.e3284.2020

- Lôbo CR, Saraiva TLA. Importância do procedimento banho no leito para atendimento em Enfermagem. Rev Recien. 2017[cited 2020 Aug 01];7(20):82-90. Available from: https://www.recien.com.br/ index.php/Recien/article/view/228
- Moller G, Magalhães AMM.Bed baths: Nursing staff workload and patient safety. Texto & Contexto Enferm. 2015[cited 2019 Oct 10];24(4):1044-52. Available from: http://dx.doi.org/10.1590/0104-0707201500003110014
- Ferreira PC, Machado RC, Martins QCS, Sampaio SF. Classification of patients and Nursing workload in intensive care: comparison between instruments Rev Gaúcha Enferm. 2017[cited 2019 Nov 26];38(2):1-7. Available from: http://dx.doi. org/10.1590/1983-1447.2017.02.62782
- Kraljic S. Zuvic M, Desa K, Blagaic A, Sotosek V, Antoncic D, Robert Likic R. Evaluation of nurses' workload in intensive care unit of a tertiary care university hospital in relation to the patients' severity of illness: A prospective study. Int J Nurs Stud. 2017[cited 2020 Jan 08];76:100-106. Available from: https://doi.org/10.1016/j.ijnurstu.2017.09.004
- Dutra FCM, Gouvinhas RP. Desenvolvimento de protótipo de cadeira de banho para indivíduos com paralisia cerebral tetraparética espástica. Production [online]. 2010[cited 2020 July. 29];20(3):491-501. Available from: https://www.scielo.br/scielo.php?pid=S0103-65132010000300016&script=sci\_abstract&tlng=pt.doi:https://doi.org/10.1590/S0103-65132010005000048
- Prado ARA, Ramos RL, Ribeiro OMPL, Figueiredo NMA, Martins MM, Machado WCA. Bath for dependent patients: theorizing aspects of Nursing care in rehabilitation. Rev Bras Enferm. [Internet]. 2017[cited 2019 Nov 28];70(6):1337-42. Available from: http://dx.doi.org/10.1590/0034-7167-2016-0258
- 13. Bastos SRB, Gonçalves FAF, Bueno BRM, Silva GS, Ribeiro KRA, Brasil VV. Bed-Bath: The Care-omitting Behavior of the Nursing Team. Rev Pesq: Cuidado é Fundamental Online [Internet]. 2020 Feb 14; [cited 2019 Nov 12];11(3):627-33. Available from: http://www.seer. unirio.br/index.php/cuidadofundamental/article/view/6634
- Albuquerque JM, Silva RFA, Souza RFF. Epidemiological profile and monitoring after discharge of patients hospitalized at an intensive care unit.Cogitare Enferm. 2017[cited 2020 July 30];(22)3:e50609.
  Available from: https://revistas.ufpr.br/cogitare/article/view/50609.
  DOI: http://dx.doi.org/10.5380/ce.v22i3.50609
- Melo ACL, Menegueti MG, Laus AM. Profile of patients in intensive care: considerations for the Nursing team. Rev Enferm UFPE Online. 2014[cited 2019 June 10];8(9):3142-8. Available from: https://doi. org/10.5205/reuol.5960-55386-1-ED.0809201424
- Veras RP, Oliveira M. Envelhecer no Brasil: a construção de um modelo de cuidado. Ciênc Saúde Colet. 2018 [cited 2019 Dec 11];23(6):1929-36. Available from: https://doi.org/10.1590/1413-81232018236.04722018
- 17. Ferreti-Reustini REL, Bispo NS, Alves WS, Dias TN, Santoro CM, Padilha KG. Level of acuity, severity and intensity of care of adults and older adults admitted to the Intensive Care Unit. Rev Esc Enferm USP. 2019[cited 2020 Aug 02];53:e03416. Available from: https://www.scielo.br/pdf/reeusp/v53/pt\_1980-220X-reeusp-53-e03416. pdf. DOI: http://dx.doi.org/10.1590/S1980-220X2017051403416

- Silva KS, Echer IC, Magalhães AMM. Patients dependency degree in relation to the Nursing team: a management tool. Esc Anna Nery Rev Enferm. 2016[cited 2020 Jan 24];20(3):e20160060. Available from: https://doi.org./10.5935/1414-8145.20160060.
- 19. Lino VTS, Rodrigues NCP, Camacho LAB, O'Dwyer G, Lima IS, Andrade MKN. *et al.* Prevalence of overburden in caregivers of dependent elderly and associated factors in a poor area of Rio de Janeiro, Brazil. Cad Saúde Pública. 2016[cited 2020 Aug 02];32(6):e00060115. Available from: https://www.scielo.br/scielo.php?script=sci\_abstract&pid=S0102-311X2016000605001&l ng=pt&nrm=iso&tlng=en. doi: http://dx.doi.org/10.1590/0102-311X00060115
- Fonseca EF, Penaforte MHO, Martins MMFPS. Hygiene care bath: meanings and perspectives of nurses. Referência. 2015[cited 2020 Jan 12];4(5):37-45. Available from: http://dx.doi.org/10.12707/ RIV14066
- 21. Inoue KC, Matsuda LM. Dimensionamento da equipe de Enfermagem da UTI-adulto de um hospital ensino. Rev Eletrônica Enferm. 2009[cited 2019 Dec 12];11(1):55-63. Available from: http://www.fen.ufg.br/revista/v11/n1/v11n1a07.htm
- 22. Fonseca EF, Martins MMPS, Cardoso MFPT, Riberio MIB. Rehabilitation Nursing in hygiene care: an intervention for autonomy. Rev Ibero-Am Saúde Envelhecimento. 2020[cited 2020 Aug 01];6(1):2165-74. Available from: http://www.revistas.uevora.pt/index.php/saude\_envelhecimento/article/view/429. DOI: http://dx.doi.org/10.24902/r.riase.2020.6(1).429.2165-2174
- Backes MTS, Erdmann AL, Büscher A. The Living, Dynamic and Complex Environment Care in Intensive Care Unit. Rev Latino-Am Enferm. 2015[cited 2020 Jan 10];23(3):411-8. Available from: https://doi.org/10.1590/0104-1169.0568.2570
- Toledo LV, Salgado PO, Souza CC, Brinati LM, Januário CF, Ercole FF. Effects of dry and traditional bed bathing on respiratory parameters: a randomized pilot study. Rev Latino-Am Enferm. 2020[cited 2020 Aug 01];28:e3264. Available from: https://www.scielo.br/pdf/rlae/v28/pt\_0104-1169-rlae-28-e3264.pdf. DOI: http://dx.doi.org/10.1590/1518-8345.3668.3264
- Miranda AL, Oliveira ALL, Nacer DT, Aguiar CAM. Results after implementation of a protocol on the incidence of urinary tract infection in an intensive care unit. Rev Latino-Am Enferm. 2016[cited 2020 Aug 02];24:e2804. Available from: https://www.scielo.br/scielo.php?script=sci\_arttext&pid=S0104-11692016000100415&lng=pt&nrm=iso. DOI: 10.1590/1518-8345.0866.2804
- Wiethan JRV, Soares JC, Souza JÁ. Evaluation of functionality and quality of life in critical patients: case series report. Acta Fisiátrica. 2017[cited 2019 Oct 10];124(1):7-12. Available from: https://doi. org/10.5935/0104-7795.20170002
- 27. Costa GS, Souza CC, Diaz FBBS, Toledo IV. Bed bath in critical care patients: an integrative review Rev Baiana Enferm. 2018[cited 2019 Dec 04];32:e20483. Available from: https://portalseer.ufba.br/index.php/enfermagem/article/view/20483 doi: http://dx.doi.org/10.18471/ rbe.v32.20483

Different types of bath in critically ill patients and factors associated with bed bathing

- 28. Toledo IV, Santos BX, Salgado PO, Souza CC, Brinati LM, Ercole FF. Efeitos oxi-hemodinâmicos de diferentes tipos de banho no leito em pacientes críticos: revisão sistemática. In: Sombra ICN. O conhecimento na competência da teoria e da prática em Enfermagem 3[Internet]. Ponta Grossa-PR: Atena Editora; 2019[cited 2020 Jan 10].cap. 6. Available from: https://www.atenaeditora.com.br/postebook/2184.
- 29. Mendes VLPS. Gerenciando qualidade em serviços de saúde. Rev Bras Enferm. 1993[cited 2020 Jan 20];46(3/4):211-25. Available from: https://doi.org/10.1590/S0034-71671993000300004