

# Hand hygiene in nursing care for critical patients at the university hospital in Amazonas

## Higienização das mãos na assistência de enfermagem ao paciente crítico em hospital universitário do Amazonas

### Higiene de manos en cuidados de enfermería para pacientes críticos en el hospital universitario de Amazonas

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# REVISA

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#### RESUMO

**Objetivo:** descrever as práticas de higienização das mãos por profissionais de enfermagem na assistência ao paciente crítico no Centro de Terapia Intensiva de um Hospital Universitário. **Método:** trata-se de um estudo transversal, realizado em 2019, em um centro de terapia intensiva (CTI), na cidade de Manaus, Amazonas. A amostra foi composta por 25 profissionais. Aplicou-se um checklist, composto por variáveis demográficas, de higiene pessoal, e de assistência a procedimentos não invasivos e invasivos e técnica de lavagem das mãos, por equipe treinada, mediante observação. Realizou-se análises descritivas com auxílio de programa estatístico, calculou-se frequências absolutas e relativas para as variáveis qualitativas e medidas de tendência central e de dispersão para as variáveis quantitativas. **Resultados:** participaram 10 enfermeiros e 15 técnicos de enfermagem, sendo 76% do sexo feminino e 24% do masculino, a média de idade correspondeu 39,7 anos. Em relação ao emprego da técnica de higienização das mãos, observou-se que 80% dos profissionais não executavam corretamente. Quando considerado a HM antes e após a execução de procedimentos não invasivos, em média 43% realizavam e 22% não, para procedimentos invasivos, em média 21% realizavam e apenas 1,8% não. **Conclusão:** verifica-se que a higienização das mãos entre os profissionais observados é insuficiente.

**Descritores:** Assistência à saúde; Cuidados de enfermagem; Segurança do paciente.

#### ABSTRACT

**Objective:** to describe the practices of hand hygiene by nursing professionals in the care of critical patients in the Intensive Care Center of a University Hospital. **Method:** this is a cross-sectional study, carried out in 2019, in an intensive care center (CTI), in the city of Manaus, Amazonas. The sample consisted of 25 professionals. A checklist was applied, composed of demographic variables, personal hygiene, and assistance with non-invasive and invasive procedures and hand washing technique, by trained staff, through observation. Descriptive analyzes were carried out with the aid of a statistical program, absolute and relative frequencies were calculated for qualitative variables and measures of central tendency and dispersion for quantitative variables. **Results:** 10 nurses and 15 nursing technicians participated, 76% female and 24% male, the average age was 39.7 years. Regarding the use of hand hygiene techniques, he observed that 80% of professionals did not perform correctly. When considering MH before and after performing non-invasive procedures, on average 43% performed it and 22% did not, for invasive procedures, on average 21% performed it and only 1.8% did not. **Conclusion:** it appears that hand hygiene among the professionals observed is insufficient.

**Descriptors:** Health care; Nursing care; Patient safety.

#### RESUMEN

**Objetivo:** describir las prácticas de higiene de manos de los profesionales de enfermería en el cuidado de pacientes críticos en el Centro de Cuidados Intensivos de un Hospital Universitario. **Método:** este es un estudio transversal, realizado en 2019, en un centro de cuidados intensivos (CTI), en la ciudad de Manaus, Amazonas. La muestra estuvo compuesta por 25 profesionales. Se aplicó una lista de verificación, compuesta por variables demográficas, higiene personal y asistencia con procedimientos no invasivos e invasivos y técnicas de lavado de manos, por personal capacitado, a través de la observación. Se realizaron análisis descriptivos con la ayuda de un programa estadístico, se calcularon frecuencias absolutas y relativas para variables cualitativas y medidas de tendencia central y dispersión para variables cuantitativas. **Resultados:** participaron 10 enfermeras y 15 técnicos de enfermería, 76% mujeres y 24% hombres, la edad promedio fue de 39.7 años. Con respecto al uso de técnicas de higiene de manos, observó que el 80% de los profesionales no se desempeñaban correctamente. Al considerar la HM antes y después de realizar procedimientos no invasivos, en promedio el 43% lo realizó y el 22% no, para los procedimientos invasivos, en promedio el 21% lo realizó y solo el 1.8% no lo hizo. **Conclusión:** parece que la higiene de manos entre los profesionales observados es insuficiente.

**Descritores:** Cuidado de la salud; Cuidado de enfermera; Seguridad del paciente.

## Introduction

Health Care Associated Infections (HAIs) are considered the main causes of morbidity and mortality in the world, affecting between 7 and 10% of hospitalized patients, and may manifest themselves during the hospitalization period or up to 72 hours after discharge, attributing the nursing team longer care time, to ensure good evolution and recovery of the individual. In addition, HAIs have an impact on prolonging hospital stay, thus increasing treatment costs and overloading the health system.<sup>1-2</sup>

Intensive Care Units (ICUs) are conducive environments for the development of HAIs. In the European continent, the prevalence of HAIs in patients hospitalized in the intensive care unit (ICU) corresponds to 19.5%, a percentage higher than 5.2% of HAIs diagnosed in other sectors. The authors point out that due to the increase in infections, 56.5% of drug interventions performed in the ICU used antibiotics.<sup>3</sup>

In Brazil, the rates of HAIs in health services still remain high, 15.5%, corresponding to 1.18 episodes of infection by hospitalized individuals and a prevalence of 18.4%.<sup>4</sup> Among the factors associated with the development of HAIs, incorrect hand hygiene can contribute up to 70% in the risks of contamination, considering that these constitute vectors for the transmission of bacteria and other microorganisms.<sup>5</sup> In this sense, the practice of hand hygiene (HH) has a significant impact in terms of preventing, controlling and combating HAIs.<sup>6</sup>

Given the severity of HAIs and their potential consequences, the World Health Organization (WHO) prioritized their coping, by inserting hand hygiene (HH) in its political agenda among practices related to safety in the care provided by the health team.<sup>7</sup> In this context, the National Health Surveillance Agency (ANVISA) suggests the qualification of the workforce, as well as the development of prevention and control programs, to significantly reduce the most frequent HAIs in health services.<sup>8</sup>

The nursing professional considered the protagonist in relation to care, acts directly in the prevention and control of these infections. Thus, the adoption of practices such as HH play an essential role in the prevention of diseases and injuries in and outside the hospital.<sup>9</sup> In the current scenario of 2020, marked by the pandemic of the new Coronavirus (COVID-19), HH with water and soap or 70% gel alcohol, stands out as one of the factors for the prevention of contagion and transmission of the virus.<sup>10</sup>

This study aimed to describe the practices of hand hygiene (HH) by nursing professionals in the care of critical patients at the Intensive Care Center (ICU) of a University Hospital.

## Method

This is a cross-sectional descriptive study, carried out between April and May 2019, at a University Hospital in the city of Manaus, Amazonas. The sample consisted of 25 nursing professionals who worked at the Intensive Care Center (CTI). All nursing professionals, permanent staff, contractors and nursing residents present in the hospital unit during the data collection period were considered eligible. Nursing professionals relocated from another sector were not included.

Data collection was performed by a trained team (undergraduate nursing students), upon observation, with prior authorization from the participant, after signing the Informed Consent Form (ICF). Preceded by the application of a pilot test, which enabled the qualification of the instrument used.

A checklist elaborated by the authors was applied, using the Protocol for the practice of hand hygiene in health services, organized in thematic blocks with demographic information, personal hygiene, assistance to non-invasive and invasive procedures and hygiene technique of hands.<sup>11</sup>

For the analyzes, a database was built in the statistical program Excel®, version 2013. Subsequently, descriptive analyzes were performed, using the statistical program Stata® (College Station, TX, USA), version 13.0, through absolute (n) and relative (%) frequencies for qualitative variables and measures of central tendency and dispersion for quantitative variables.

The research was carried out in accordance with all necessary ethical procedures, in accordance with Resolution No. 466/2012 of the National Health Council and approval by the Ethics Committee of the Federal University of Amazonas, under CAAE No. 09949319.000.5020.<sup>12</sup>

## Results and Discussion

25 professionals participated in the study, of these 10 were nurses and 15 were nursing technicians, belonging to the staff of CTI, corresponding to 83% of the total of nursing professionals who worked at the ICU in 2019. Of which, 19 (76%) they were female and 6 (24%) were male, on average they were 39.7 years old, with standard deviation (SD) 8.4 years, the average length of service as a nursing professional was 150.7 months.

Regarding MH for the execution of non-invasive procedures, 8% (n = 02) did not perform when entering the ICU, while 100% (n = 25) did not perform when leaving, the data set is shown in Table 1. A MH should be performed before and after any procedure, as gram positive HAIs such as *Staphylococcus aureus* Methicillin Resistant (MRSA) and gram negative ones such as carbapenemase resistant *Klebsiella pneumoniae* (KPC) and multiresistant *Pseudomonas aeruginosa* stand out as the higher risk for ICU patients.<sup>13</sup> Thus, care for hospitalized patients is increasingly rigorous, mediated by the implementation of a standard of control and criteria for inspection, aiming to reduce risks as much as possible and ensure the integrity of patients.<sup>14</sup>

**Table 1** - Hand Hygiene in the assistance to non-invasive procedures, performed by the nursing team (n = 25) at a University Hospital, in the city of Manaus. Amazon, 2019.

Variables			Variables		
Before	n	%	After	n	%
<b>Preparation of medication</b>					
Yes	18	72	Yes	11	44
No	0	0	No	7	28
Proc. Not performed	7	28	Proc. Not performed	7	28
<b>Cleaning and changing the patient's clothes</b>					
Yes	11	44	Yes	9	36
No	0	0	No	5	20
Proc. Not performed	14	56	Proc. Not performed	11	44
<b>Material and equipment handling</b>					
Yes	8	32	Yes	7	28
No	10	40	No	11	44
Proc. Not performed	7	28	Proc. Not performed	7	28
<b>Different activity on the same patient</b>					
Yes	9	36	Yes	9	36
No	4	16	No	4	16
Proc. Not performed	12	48	Proc. Not performed	12	48
<b>Bed storage</b>					
Yes	11	44	Yes	11	44
No	3	12	No	4	16
Proc. Not performed	11	44	Proc. Not performed	10	40

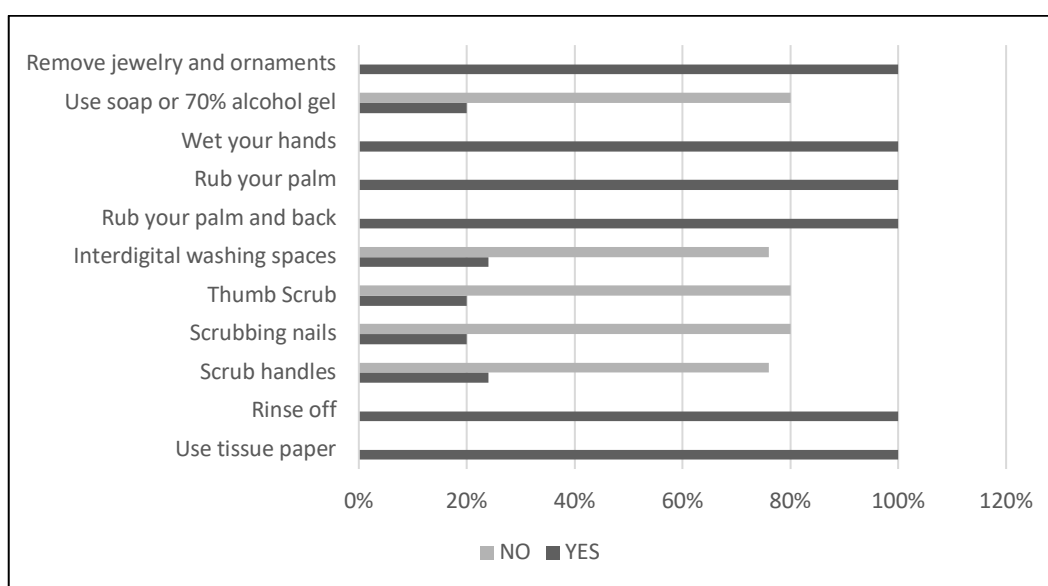
When considering the practices of MH in the execution of invasive procedures observed in the ICU, the participants demonstrated greater care in all stages. Although inattentions were observed in the act of administering drugs via parenteral, in which 8% (n = 02) did not perform MH, as well as after performing the administration of drugs via parenteral 8% (n = 02) and before performing dressings 4% (n = 01) (Table 2).

**Table 2** - Hand hygiene in assisting invasive procedures, performed by the nursing team (n = 25) at a University Hospital in the city of Manaus. Amazon, 2019.

Variables/Before	n	%	Variables/After	N	%
<b>Venous, intramuscular or parenteral puncture</b>					
Yes	2	8	Yes	2	8
No	0	0	No	0	0
Proc. Not performed	23	92	Proc. Not performed	23	92
<b>Administration of parenteral medications</b>					
Yes	16	64	Yes	16	64
No	2	8	No	2	8
Proc. Not performed	7	28	Proc. Not performed	7	28
<b>Bladder catheterization</b>					
Yes	0	0	Yes	0	0
No	0	0	No	0	0
Proc. Not performed	0	0	Proc. Not performed	0	0

Dressing					
Yes	10	40	Yes	11	44
No	1	4	No	0	0
Proc. Not performed	14	56	Proc. Not performed	14	56
Tracheal aspiration					
Yes	1	4	Yes	1	4
No	0	0	No	0	0
Proc. Not performed	24	96	Proc. Not performed	24	96

100% of participants performed the following steps in HH, removed jewelry and adornments, rinsed properly, rubbed the palms and back and used paper towels to dry. While 70% did not use soap or gel alcohol and steps such as rubbing interdigital spaces, wrists, thumbs and nails reached percentages below 25%, the results are shown in Figure 1.



**Figure 1** - Description of the steps in the practice of hand hygiene by nursing professionals (N = 25) at a University Hospital in the city of Manaus. Amazon, 2019.

We found that only 20% of nursing professionals performed the correct hand hygiene. A similar study showed a percentage of 33% referring to the fulfillment of the stages of the HM technique, higher than that found. However, this result is worrying, considering that the hospital recommends the prevention of HAIs and has a specific team to promote patient safety practices.<sup>15</sup>

It should be noted that the study site has materials such as water, soap, 70% alcohol and paper towels located near the sink. The CTI has pedal bins and sinks with presence sensors, located at the entrance of the CTI and ICU, in the changing rooms and close to the beds and sinks, the steps for HH are posted according to the Protocol for Hand Hygiene Practice in Services of health.<sup>11</sup> Thus, apparently, the health unit has been making efforts to promote good HH practices, through the availability of materials, physical structure and technical qualification, there is a need for educational interventions to adhere to the practice of HH correctly and continuously.

A study in an ICU evaluated the adherence of professionals working in the health area, on the HH technique, in the first moment it was observed that

only 5% of the professionals turned off the tap without contaminating their hands, in a total of 525 observations. After interventions such as educational training programs, there was an eradication (100%) of contamination in a total of 355 observations.<sup>16</sup> Thus, all health professionals must act as educators in their daily lives, positively influencing the team's performance, reinforcing the patient safety culture.<sup>17</sup>

It must be considered that about 30% of the cases of HAIs are predictable and totally preventable through the use of basic measures, such as the correct HM, such a procedure can be performed with water and soap or 70% alcohol (gel or glycerin), this procedure is considered the most simple and effective, besides requiring lower cost for the prevention and not aggravation of HAIs.<sup>15</sup>

The main limitation of this study is related to the time of the study, since it was not possible to include participants such as the 12-hour work shift and factors associated with HH. Therefore, it is understood that these gaps may be investigated at another time. On the other hand, it is a pioneering study, until now there are no investigations of this nature in Amazonas, and this is where the innovative character of this study resides.

## Conclusion

The results revealed problems related to the practices of HH on the part of the professionals who provide nursing care, which in the future may constitute risk factors for the development of HAIs or higher rates in the hospital.

In this context, evaluations of practices are essential for the improvement of health services, thus, it is possible to identify the flaws and correct them, considering the standards recommended by national and international bodies. In addition, there is a need for continuous actions to promote adherence to HH in nursing care. Using different strategies, such as training professionals, encouraging the use of 70% gel alcohol and establishing a plan of goals to be achieved, with the involvement of leaders of each team.

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