






Adhesion to the hand hygienization of health professionals in a neonatal intensive care unit

Adesão à higienização das mãos dos profissionais da saúde em unidade de terapia intensiva neonatal

Kátia dos Santos Contreiro¹ 
Leonardo Bigolin Jantsch² 
Andrea Moreira Arrué³ 
Diúlia Calegari de Oliveira⁴ 
Danieli Bandeira⁵ 

¹Faculdade Integrada de Santa Maria (Santa Maria). Rio Grande do Sul, Brazil. katyaslg@hotmail.com

²Corresponding author. Universidade Federal de Santa Maria (Palmeira da Missões). Rio Grande do Sul, Brazil. leo_jantsch@hotmail.com

³Universidade Federal do Paraná (Curitiba). Paraná, Brazil. andrea.ensp@gmail.com

⁴Universidade Federal de Santa Maria (Santa Maria). Rio Grande do Sul, Brazil. diuliacoliveira@gmail.com, danielibandeira22@gmail.com

ABSTRACT | OBJECTIVE: To evaluate the adherence of health professionals regarding hand hygiene in a Neonatal Intensive Care service. **METHOD:** This is a sectional survey, carried out through a checklist used by the Hospital Infection Control Service to verify the adherence of multidisciplinary teams to hand hygiene. The collection took place in the Neonatal Intensive Care Unit, in all work shifts. 1096 observations were recorded, analyzed using descriptive statistics. **RESULTS:** The adherence rate was 55.4%, of which 83% with soap and water and 17% through rubbing with alcohol. The moment of greatest adherence with soap and water was before and after contact with the patient; and the action with alcohol, before contact with the patient. Speech therapists obtained the highest rate of hand hygiene (93.7%). **CONCLUSION:** There was a low rate of adherence by health professionals to MH, except for speech therapists, especially after risk of exposure to body fluids.

DESCRIPTORS: Multiprofessional team. Hand hygiene. Hospital infection. Health professionals. Neonatal Intensive Care Unit.

RESUMO | OBJETIVO: Avaliar a adesão dos profissionais de saúde quanto à higienização das mãos em um serviço de Terapia Intensiva Neonatal. **MÉTODO:** Trata-se de uma pesquisa seccional, realizada por meio de um *checklist* utilizado pelo Serviço de Controle de Infecções Hospitalares para verificar a adesão das equipes multidisciplinares à higienização das mãos. A coleta ocorreu na unidade de Terapia Intensiva Neonatal, em todos os turnos de trabalho. Foram contabilizadas 1096 observações, analisadas sob estatística descritiva. **RESULTADOS:** A taxa de adesão foi de 55,4%, destas 83% com água e sabão e 17% por fricção com álcool. O momento de maior adesão com água e sabão foi antes e após o contato com o paciente; e a ação com álcool, antes do contato com o paciente. Os fonoaudiólogos obtiveram a taxa mais elevada de higienização das mãos (93,7%). **CONCLUSÃO:** Verificou-se baixa taxa de adesão pelos profissionais de saúde à HM, exceto os fonoaudiólogos, especialmente após risco de exposição a fluidos corporais.

DESCRITORES: Equipe multiprofissional. Higiene das mãos. Infecção hospitalar. Profissionais de saúde. Unidade de terapia Intensiva Neonatal.

Introduction

Healthcare-related infections (HRI) are infections caused by microorganisms that come from several body sites of a patient, among patients and even between them and the scope of care, in which the hands of health professionals constitute a source and vehicle of transmission of these germs¹. According to the World Health Organization (WHO), currently the HRI represent an international concern, as they involve the performance of health professionals, quality of everyday materials and hospital physical facilities².

These infections grow every day in Brazil, representing a public health problem, due to the high incidence of infection in hospitalized patients. In addition, they prolong the patient's stay at the time of hospitalization, resulting in a financial burden for both the patient and the health services, as well as the need for drug treatment, numerous procedures, social and psychological damages to the actors involved³.

Patients who are hospitalized in the Intensive Care Unit (ICU), depending on the severity of their disease, are exposed to invasive procedures and prolongation of hospitalization, thus have a high risk of acquiring infections⁴. In Neonatal Intensive Care, the reality does not differ, severe newborns, in addition to physiological immaturity, present environmental exposure to various risk factors for such infections⁵.

In Brazil, neonatal mortality represents about 60% of infant mortality rates, and neonatal sepsis is one of the main causes. Healthcare-associated infections affect more than 30% of neonates, when faced with the older pediatric population, their rates may be up to five times higher. The main risk factors for the development of late neonatal infections in neonates are due to the use of a central venous catheter, birth weight and mechanical ventilation⁵.

As strategies for the prevention and minimization of HRI, simple practices of hand hygiene (HH) can

be adopted as a proposal to reduce these indices. From this perspective, it is necessary to sensitize the professional health team in adopting this practice as a prophylaxis method for the control of these infections. The control of HRI is a multicausal event, which not only represents an isolated action, but involves all individuals of the team, as they are in direct and continuous contact with the patient⁶.

Hand hygiene is considered a safe practice and has been consolidated since the end of the 19th century in which hand washing with chlorinated water and soap would prevent the transmission of puerperal fever, at the hands of professionals who provided care to patients in health services. At the time, this practice drastically reduced mortality rates from 33% to 2%⁷. Currently, designated as hand washing and defined by any action of hand sanitizing (simple hygiene, antiseptic hygiene, and antiseptic friction of the hands). To prevent the transmission of microorganisms to patients and health professionals, consequently, avoiding infections⁵.

Hand hygiene should be performed before and after contact with the patient, before performing procedures, before putting on the gloves and after removing them⁸. Hands are means of transmission, and even if the technique is widely recognized as the most effective means to prevent these infections, unfortunately it is perceived that the support falls far below⁹.

Scientifically, the reduction in the infection rate is related to increased hand hygiene, even with this evidence, its support has the average rate of 40%. In this sense, who developed a multimodal strategy "clean care is safe care", instigating health services and leading them to prioritize hand hygiene in institutions¹⁰. The strategies include the education of professionals, monitoring of hand hygiene practices, fixing reminders and performance feedback. This theme in Brazil is discussed, however, it is necessary to verify the impact of multimodal promotion strategies, related to hand hygiene regarding the rate of support.

Thus, to reduce the rates of infection in the ICU, hand hygiene seeks the prevention of these infections. In addition, evaluating the rates of add-on opportunities and processes that involve hand hygiene by health professionals in a neonatal ICU, drives new studies, training, and strategies to promote and prevent health.

In view of the above, the present study aims to evaluate the support of health professionals regarding hand hygiene in a Neonatal Intensive Care service.

Method

This is a descriptive cross-sectional study conducted in a Neonatal Intensive Care Unit of a high complexity university hospital, a reference for two health regions in the interior of Rio Grande do Sul. The service consists of 18 intensive and semi-intensive care beds.

The data were extracted from a database that contained the information collected by the Hospital Infection Control Service (HICS) of that hospital, study scenario. Data were collected by routine service, as a strategy to identify the rates of support and construction of indicators of HH's support in ICU services. Participants were observed through an instrument in the form of Checklist, prepared by HICS, used to assess the health professionals' support for HH¹¹. In the investigation, the following concepts were considered:

Indication: It corresponds to precise moments during patient care. ("My five moments for HH"). Moment 1- before contact with the patient; 2- before performing aseptic procedure; 3- after risk of exposure to bodily fluids; 4- after contact with the patient; 5- after contact with areas close to the patient¹¹.

Action: This is considered necessary if it matches at least one indication. This action can be performed in two ways: rubbing hands with an alcoholic preparation or sanitizing the hands with water and soap¹¹.

Opportunity: Thus there may be several simultaneous reasons for HH, because the opportunity is a unit that responds to the action, it determines the need to sanitize the hands, for the simple or multiple ratio (the indication that leads to the action). Where it constitutes the denominator to assess the rate of HH by health professionals¹¹.

The Checklist was prepared by the HICS team from the Manual of the Ministry of Health (MH)¹², through which the professionals observed and recorded the number of opportunities performed with indication in the 5 moments. The action was observed and classified as: friction with alcohol, washing with soap and water, and if the action was not performed.

The observation and completion of the Checklist were carried out by the HICS team, previously trained and followed a pre-established script. Data collection in the NICU occurred from June to August 2016, covering 60 days of consecutive observations, totaling three hours of observations, completing one hour in each work shift (morning, afternoon, and night). It is worth mentioning that there were ten days of observation in the month of June, 25 days in July and 25 days of observation in August 2016.

The health professionals present in the NICU, in the period mentioned, in direct patient care were: nurses (32), physiotherapists (5), speech therapists (2), pediatricians/neonatologists (15), resident physicians (20), nursing technicians and auxiliaries (50), radiology technicians (3) and others (social worker, physicians (other specialties), psychologists) (10).

The analysis was performed through descriptive statistics with absolute and relative frequency. The program used Epiinfo version 6.0.

The study had institutional approval and the Research Ethics Committee of the Federal University of Santa Maria, through the Brazil platform, under the number of CAAE: 61165116.4.0000.5346e registration 1,860,437 in December 2016.

Results

According to the results, during the months of July to August, in the Neonatal Intensive Care Unit, 1096 opportunities for hand hygiene were observed. Of this total, in 607 (55.4%) health professionals performed hand washing with soap and water or rubbing with alcohol, and in 489 (44.6%) opportunities the hand hygiene was not carried out. Table 1 shows that there was a greater supply to hand hygiene with soap and water than rubbing with alcohol in the three months evaluated.

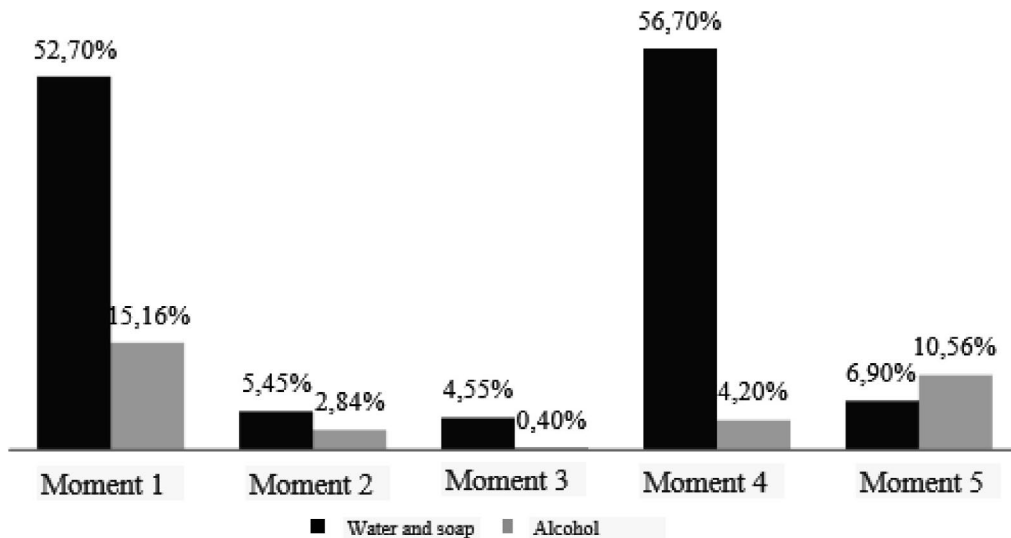
Table 1. Rate of hand hygiene by health professionals of the Neonatal Intensive Care Unit, regarding the use of soap and water, and friction with alcohol Brazil, 2016

Month of the collection	Accession		Water and soap		Alcohol	
	N	%	N	%	N	%
June 2016	32	44.4	20	62.5	12	37.5
July 2016	313	50.7	243	77.6	70	22.4
August 2016	262	64.4	241	92.0	21	8.0
Total	607	55.4	504	83.0	103	17.0

Source: Author Data, 2016.

The moments with the highest rate of HH were: Moment 1 (before contact with the patient) with 67.8% and Moment 4 (after contact with the patient) with 60.9%. Hygiene practices with soap and water were always the most frequent, except for the moment 5 when alcohol was most used. The lowest rate of hand hygiene adhering is currently 3 (after risk of exposure to bodily fluids) representing 4.95% of the occasions. These results are shown in Graph 1.

Graph 1. Relationship of the medication to the hygiene of the hands, in the moments/indication, by the health professionals of the Neonatal Intensive Care Unit, Santa Maria, Rio Grande do Sul, Brazil, 2016



Source: Author Data, 2016.

Table 2 highlights the rates of the following, by the opportunity of the professional categories that work within the study scenario. As professional categories with better rates of adding are speech therapists (93.8%). It is also worth mentioning that hygiene with soap and water was the most used action by all professional categories.

Table 2. Hand hygiene, by professional category in the Neonatal Intensive Care Unit. Santa Maria, Rio Grande do Sul, Brazil, 2016

Professional category	Opportunity (N)	Action	Accession	
			N	%
Nursing Technicians	451	Water and soap	176	39.0
		Friction with alcohol	47	10.4
		Not performed	228	50.6
Nurses	371	Water and soap	172	46.4
		Friction with alcohol	42	11.3
		Not performed	158	42.6
Physiotherapists	101	Water and soap	62	61.4
		Friction with alcohol	6	5.9
		Not performed	33	32.7
Doctors	49	Water and soap	32	65.3
		Friction with alcohol	2	4.1
		Not performed	15	30.6
Resident Physicians	23	Water and soap	15	65.2
		Friction with alcohol	0	0.0
		Not performed	8	34.8
Audiologists	16	Water and soap	15	93.8
		Friction with alcohol	0	0.0
		Not performed	1	6.3
Radiology Technicians	3	Water and soap	0	0.0
		Friction with alcohol	0	0.0
		Not performed	3	100.0
Other	76	Water and soap	39	51.3
		Friction with alcohol	6	7.9
		Not performed	43	56.6

Source: Author Data, 2016.

Discussion

Hand hygiene plays a central role in controlling HRI, however, the rates of access in this study reached a maximum of 64% of the opportunities in August. The overall rate of hand hygiene in the NICU was 55.4% among 1096 opportunities observed. A study conducted in an ICU, from a hospital in Porto Alegre, performed 793 observations and the participation rate was 43.7%¹³. According to the authors, it is a question of a low cost, easy access, and efficient strategy for preventing the transmission of bacteria and HRI, but compliance with the guidelines are still deficient.

HH and alcohol friction was 83% in the observed months, while alcohol friction was 17%. Result analogous to conducting a neonatal ICU and in a maternity hospital on HH revealing that 504 (83%) were with soap and water and 103 (17%) friction with alcohol¹⁴.

In recent decades, outbreaks have been elevated in the ICU due to gram-negative multidrug-resistant microorganisms, generating infections and thus causing a worldwide threat to patient safety and public health. It is pertinent to discuss the low rates of mH adhering, as this is considered as a support for patient safety and tool against infection¹⁵⁻¹⁶.

It is observed that the support was higher with soap and water, basically, always, except at moment 5 (after contact with areas close to the patient) that friction with alcohol was performed. Regarding the general add-on of the moments, the study was characterized on a larger scale at moment 1 (before contact with the patient) with 67.86% and moment 4 (after contact with the patient) with 60.9%. In a study conducted in Neonatal Intensive Care Unit, the professionals' participation at five moments was: moment 1 (95.1%), moment 2 (75.4%), moment 3 (67.2%), moment 4 (73.8%) and moment 5 (21.3%)¹³.

Some of the factors that make it difficult to take the five moments for HH in health services involve the odor of alcohol, sometimes unpleasant, and the sensation of sticky hands. In addition, alcoholic preparations containing aromas may not be tolerated by some of the professionals and may cause contact dermatitis due to hypersensitivity to alcohol or other additives present in its formula. Furthermore, the use of powdered procedure gloves is another factor that implies the non-use of alcohol gel, since the powder when meeting the alcoholic preparation forms an undesirable residue on the hands¹⁷.

Another study, in a university hospital in the state of Paraná, Brazil, pointed out that in the concerning the five moments of HH for nurses and nursing technicians, 158 (24.3%) moments before contact with the patient, 35 (5.4%) before performing aseptic procedures, 49 (7.5%) after risk of exposure to body fluids, 247 (38.0%) after contact with the patient and 161 (24.8%) after contact with the patient's vicinity, totaling 650 indications¹⁸. It is known that the practice of HH can compromise the safety of the patient, professionals, and the environment nearby. To develop the correct mH technique, who recommends that campaigns bring the correct execution of the procedure in the 5 moments of HH and the use of alcoholic solution as a gold standard¹¹.

It is known of the importance of correct HH, before and after contact with the patient to prevent infections¹⁷. In view of this statement, it is verified that the observed professionals are concerned with patient safety, because they perform HH before contact. A study also highlights that the spontaneous participation of professionals regarding the practice of HH in the moments after contact with the patient or fluids, are aggregated with self-protection¹⁹.

Disturbing the low adhering to the practice of HH, before aseptic procedures, which did not occur in 95.05% of the opportunities. The use of gloves, when performing aseptic procedures, seems to replace HH, which may be related to a lack of knowledge about the theme or to the non-recognition of the importance of its practice¹⁸.

It is noteworthy that HH is an individual measure, simple and less costly for the prevention of HRI. For HH to be carried out, it is essential that health institutions have adequate infrastructure. In addition, professionals need to be aware of their responsibility, being positive influencers in the practice of HH²⁰. Thus, this study shows us the suiting by professional category, these results are relevant, because the professional classes with greater discrepancy in the data can be analyzed.

Regarding the mean non-participation in HH, of the multidisciplinary team, radiology technicians (100%), nursing technicians (48.7%), nurses (45%) can be highlighted. and resident physicians (35.4%). One study showed that HH was sometimes ignored between 27% of physicians and 51.8% among nursing technicians¹⁵. Speech therapists with the highest rate 93.75 stood out, diverging from other studies that indicate physiotherapists, such as professionals with better rates of participation^{14,21}.

The nursing team is closer to patients due to the care provided, adverse of other professional classes. It is worth mentioning that the rates of low participation to nursing professionals may be associated with the highest number of professionals being evaluated, and thus tend to a lower rate of membership, as well as the number of times these professionals are exposed to mH moments.

It is necessary that professionals are protagonists in quality and safety care for newborns, because they have great influences in the care provided, they should understand the importance of HH in the prevention and control of HRI in the scope of work.

Conclusion

This research showed low support for HH of the hospital professionals under study. The overall rate of participation was 55.4%, the most frequent mH moment was in the opportunities before and after contact with the patient, especially the speech therapists with greater support among the team.

HH surveillance is essential to verify the adhering to this technique and the results provide a moment of reflection on managers, leaders, and health professionals regarding patient safety practices. Nursing management and management are fundamental in the face of low support rates.

Discuss hand hygiene, if necessary and thus, using training strategies, feedback, encouragement of the team and HICS are necessary. Health services should work together to provide the safety of both newborns and professionals. The importance of the five moments for hand hygiene in HRI control.

Author contributions

Contreiro KS, Jantsch LB participated in the conception, design, search and statistical analysis of the research data, interpretation of results, writing of the scientific article. Arrué AM, participated in the conception, design, statistical analysis of research data, interpretation of results and writing. Oliveira DC, participated in the design and writing. Bandeira D, participated in the design, interpretation of results and writing.

Competing interests

No financial, legal or political conflict involving third parties (government, companies and private foundations, etc.) has been declared for any aspect of the work submitted (including, but not limited to grants and financing, participation in advisory board, study design, manuscript preparation, statistical analysis, etc.).

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