

Knowledge of Hand Hygiene in the Perspective of Nursing Professionals from an Emergency Service

Conhecimento Sobre Higienização das Mãos na Perspectiva de Profissionais de Enfermagem em um Pronto Atendimento

Conocimiento Acerca de la Higiene de las Manos Desde la Perspectiva de los Profesionales de Enfermería en un Servicio de Emergencia

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ABSTRACT

Objective: The study's purpose has been to assess the knowledge of the nursing team regarding hand hygiene in an emergency service, and also identify the sociodemographic and occupational profile of those professionals. **Methods:** It is a cross-sectional, descriptive and quantitative survey performed in a municipality located in the Northwest of the *Rio Grande do Sul* State with nursing professionals who work in an emergency service from a private hospital. Data were collected through the "Hand Hygiene Knowledge Questionnaire for Health Care Workers". **Results:** Professionals are unaware of the minimum time required for elimination of hand microorganisms with use of an alcoholic solution. Concerning the items that must be avoided because of their association to the possibility of microorganism proliferation, most participants met the expectations by choosing the correct answers. **Conclusion:** The staff's knowledge is satisfactory, however, there are gaps to be addressed. Continuing education programs should be established to keep these practices in accordance with the guidelines recommended by the Ministry of Health.

Descriptors: Hand Hygiene, Nursing Care, Nosocomial Infection, Patient Safety.

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RESUMO

Objetivo: Avaliar o conhecimento da equipe de enfermagem em relação à Higienização das mãos em uma unidade de pronto atendimento e, identificar o perfil sociodemográfico e laboral destes. **Método:** estudo transversal, descritivo, quantitativo realizado em município do Noroeste do Estado do Rio Grande do Sul, com profissionais de enfermagem atuantes em um pronto atendimento de um hospital privado. Dados coletados pelo “Teste de Conhecimento a respeito da Higienização das Mãos para profissionais da Saúde”. **Resultados:** profissionais desconhecem tempo mínimo para que a preparação alcoólica destrua os microrganismos nas mãos. Com relação aos itens que devem ser evitados por associarem-se à possibilidade de colonização, a maioria correspondeu às expectativas ao assinalarem as respostas corretas. **Conclusão:** o conhecimento da equipe é satisfatório, todavia, existem lacunas a serem trabalhadas. Necessário que programas de educação permanente sejam instituídos para que essas práticas mantenham a conformidade com as diretrizes preconizadas pelo Ministério da Saúde.

Descritores: Higiene das Mãos, Cuidados de Enfermagem, Infecção Hospitalar, Segurança do Paciente.

RESUMEN

Objetivo: Evaluar el conocimiento del equipo de enfermería acerca de la higiene de las manos en una unidad de emergencia e identificar el perfil sociodemográfico y ocupacional de estos profesionales. **Método:** estudio descriptivo, transversal y cuantitativo llevado a cabo en un municipio ubicado en la región noroeste del estado de Rio Grande do Sul, con los profesionales de enfermería que trabajan en un servicio de emergencia en un hospital privado. Los datos fueron recogidos por el ‘Cuestionario acerca de los conocimientos sobre la higiene de las manos destinado a los profesionales sanitarios’. **Resultados:** los profesionales no saben acerca del tiempo mínimo necesario para la preparación alcohólica destruir los gérmenes en las manos. En cuanto a los elementos que deben ser evitados ya que están asociados con la posibilidad de la colonización, la mayoría de los participantes estuvo a la altura de las expectativas al señalar las respuestas correctas. **Conclusión:** el conocimiento del equipo de enfermería es satisfactorio, sin embargo, hay lagunas que deben abordarse. Los programas de educación continua deben estar establecidos para que estas prácticas se mantengan de acuerdo con las directrices recomendadas por el Ministerio de Salud.

Descriptores: Higiene de las Manos, Cuidados de Enfermería, Infeción Nosocomial, Seguridad del Paciente.

INTRODUCTION

In the caring process, nursing professionals use their hands as a tool to work and contact the user and their family members. On the other hand, the hands serve as a reservoir and vehicle for transmission of various microorganisms, many of them pathogenic, which can cause risks to both professionals and clients.¹ Contamination of the hands of nursing professionals can occur through direct contact with the patient or indirect contact, be it with products and equipment around them, such as infusion pumps,

bedsheets, stethoscope, among others.²

Infections related to health care affect 1.4 million per year of users globally.³ Faced with this data are higher rates of morbidity and mortality, prolongation of hospitalization time, long-term incapacitations, greater resistance of microorganisms to existing antimicrobials and high costs for the user, family, and the health system. Due to the problematic of patient safety, vigilance and preventive actions are important, which should be considered a priority in institutions and services committed to safer care.⁴

Hand hygiene is not an unknown issue, and since 1846 hand hygiene has been recognized as an obligatory practice among health professionals, due to its effectiveness in reducing infections and mortality of users and in the transmission of pathogens and the incidence of cross-transmission.⁵

The hand hygiene measure is a simpler and less costly individual action to prevent the spread of hospital infections. In Brazilian institutions, it is estimated that 3% to 15% of hospitalized patients acquire some infection during health care and that of these, 5% to 12% die as a consequence of the same.⁶

At the meeting, approximately 30% of the cases of health-care-related infections may be preventable by simple measures, since hand hygiene with soap and water or 70% alcohol are basic, effective and least cost actions.⁷ The control of these infections through the proper hygiene of the hands promotes the safety and quality of the attention given to the user.

Nowadays, there is an increase in the incidence of multiresistant germs in the intra- and extra-hospital environment, and sometimes the lack of short- and medium-term therapeutic means for the effective treatment of conditions caused by these bacteria. Thus, it is necessary for health professionals to observe the biosafety measures against the proliferation of these microorganisms.⁸

Considering these aspects, the World Health Organization (WHO), with a view to establishing global strategies to promote hand hygiene and consequently contribute to patient and worker safety, established in 2005 the program named “Clean Care is Safe Care”, which recommends the observation of compliance and structural conditions for hand hygiene, emphasizing five moments that point to the frequent opportunities for hand hygiene: before contact with patient (opportunity 1), before performing aseptic procedure (opportunity 2), after exposure to body fluids (opportunity 3), after contact with patient (opportunity 4), and after contact with environment close to the patient (opportunity 5).⁹

Bearing in mind the aforesaid, hand hygiene is a key strategy in the prevention of infections, contributing to patient safety. The aim of this study was to evaluate the knowledge of the nursing team in relation to hand

hygiene in an emergency service unit and to identify the sociodemographic and occupational profile of nursing professionals. The research interest in this sector is due to the fact that there are few publications on the subject in an emergency service since this is the gateway of the hospital service, in which the characteristic is to provide assistance to a diversified clientele, who may present pathologies as yet unidentified, and sometimes from other health institutions with infectious status yet unknown.

METHODS

A cross-sectional, descriptive study of a quantitative nature carried out in a city from the Northwest of the *Rio Grande do Sul* State, with nursing professionals working in an emergency service of a private hospital.

The nursing team, in the period was composed of 25 nurse technicians and three nurses.

The inclusion criteria were: to be a nurse, a nurse technician; to have been working for at least three months in the care sector and to have at least 36 hours a week worked in said sector. The exclusion criteria were: Nursing professionals who were on health leave during the data collection period and to work for less than a few months in the emergency service unit. Five nurse technicians were excluded, since one was on vacation, one on union leave and three under medical assessment.

Data were collected over the period from September to November 2015, by appropriately trained nursing undergraduates.

After receiving the instructions and signing the Informed Consent Form (ICF), they received the questionnaire known as the Knowledge Test on hand hygiene for health professionals, which is self-applicable, composed of 26 objective multiple choice questions, with questions that measure the technical and scientific knowledge about the aspects of hand hygiene. Those are 12 sociodemographic and occupational characterization questions that include: personal identity, date, age, gender, working unit, working time in the institution, the degree of instruction (nurse, nurse technician), overtime, employment, work shift, nature of the hospital. In order to assess the professionals' knowledge regarding hand hygiene, they comprise 14 questions of multiple choices, true or false, yes or no (ANVISA [Agência Nacional de Vigilância Sanitária], Opas 2008).¹⁰

The data inclusion and analysis were performed by the PASW Statistics® program (Predictive Analytics Software, SPSS Inc., Chicago - USA) 18.0 for Windows, using descriptive statistics.

The research was approved by the Research Ethics Committee from the *Universidade Regional do Noroeste do Estado do Rio Grande do Sul (UNIJUÍ)*, in Ijuí city, *Rio Grande do Sul* State, under the protocol No. 1.209.075 on September 1st, 2015, and carried out according to the ethical principles involving human beings.

RESULTS AND DISCUSSION

Twenty-three nursing professionals have participated of this survey. Among them, 3 registered nurses and 20 nurse technicians, 19 (82.6%) female, 14 (60.9%) are in the age group from 20 to 30 years old. In relation to the time, they work in the institution 10 (43.5%) are from 1 to 3 years. In relation to having another job, 11 (47.8%) stated that they have other work activity. Observing the work shift, 8 (34.8%) worked night and 17 (73.9%) did not have additional working hours, as shown in **Table 1**.

Table 1 – Sociodemographic and occupational profile of nursing professionals who work in an emergency service of a private hospital from the Northwest of the *Rio Grande do Sul* State, Brazil, 2015.

Variable	n	%
Age		
20-30 years old	14	60.9
31-40 years old	7	30.4
41-50 years old	2	8.7
Gender		
Female	19	82.6
Male	4	17.4
Occupation		
Registered nurse	3	13
Nurse technician	20	87
Schooling		
High school	20	87
Graduated and specialists	3	13
Working time in the institution		
Less than 1 year	3	13.0
1-3 years	10	43.5
3 years and 1 month-5 years	5	21.7
5 years and 1 month or more	5	21.7
Additional job		
Yes	11	47.8
No	12	52.2
Work shift		
Morning	6	26.1
Afternoon	7	30.4
Night	8	34.8
Changing shifts	2	8.7
Additional working hours		
Yes	17	73.9
No	6	26.1
Total	23	100

Source: Research data.

In regards to the time required for the alcoholic solution to act on the skin and to destroy most of the microorganisms found in the hand, 9 (39.1%) stated that the time required is

10 seconds, 6 (26.1%) one minute, 5 (21.7%) three seconds, and 3 (3.0%) corresponded to 20 seconds.

All respondents stated that alcoholic solution should cover the entire surface of both hands and 20 (87%) understand that they should not dry their hands after rubbing them with alcoholic solution.

Concerning the items that should be avoided because they were associated with the possibility of colonization, 21 (91.3%) responded that wearing jewelry, 20 (87%) damaged skin and all related artificial and/or false nails to colonization of microorganisms. Regarding the regular use of cream in the hands of the participants, they do not address it.

For 21 people (91.3%), hand rubbing with alcoholic solution is faster than sanitizing them with soap and water. On the other hand, 15 (65.2%) believe that friction with alcoholic solution makes the hands more dry, and 17 (73.9%) say that rubbing them with alcoholic solution is no more effective against microorganisms than sanitizing them, wash them with soap and water.

As for the actions that prevent the transmission of cross-infection, all said that they should clean their hands before contact with the patient. Furthermore, 18 (78.3%) reported that hygiene should occur prior to contact with the patient, and 15 (65.2%) after hygiene actions of the hands that avoid the infection of the patient by their own microorganisms. Still, 21 (91.3%) confirmed that hand hygiene should occur after contact with body fluids and 20 (87%) before performing an aseptic procedure.

Considering the infection of the health professional, 22 (95.7%) state that hygiene should occur after contact with the patient and exposure to body fluids. In relation to surfaces that have potential to contaminate the hands of the professional, if not properly sanitized, the door handle of the patient's room was cited by all the participants.

With regards to the type of hand hygiene, alcohol rubbing was the most cited, at the following moments: before opening the door of the patient's room, 18 (78.3%), before writing on the chart and applying an injection 14 (60.9%). On the other hand, water and soap were given priority: when arriving at the unit after lunch, emptying the urinal, taking off the gloves and exposing the blood to 21 (91.3%), as evidenced in **Table 2**.

Table 2 – Distribution of the type of hand hygiene performed by nursing professionals who work in an emergency service of a private hospital from the Northwest of the *Rio Grande do Sul* State, Brazil, 2015.

		Answers, n (%)		
		Friction with alcohol	Water and soap	None
Before	Writing on the patient record	14 (60.9)	8 (34.8)	1 (4.3)
	Contacting with the patient	12 (52.2)	11 (47.8)	-

After	Arriving at the unit after lunch	2 (8.7)	21 (91.3)	-	
	Before giving an injection	14 (60.9)	9 (39.1)	-	
	Before emptying the urinal	12 (52.2)	6 (26.1)	5 (21.7)	
	Before opening the patient's bedroom door	18 (78.3)	1 (4.3)	4 (17.4)	
	Giving an injection	7(30.4)	16(69.9)	-	
	Emptying the urinal	2(8.7)	21(91.3)	-	
	Removing the procedure gloves	2(8.7)	21(91.3)	-	
	Organizing the patient bed	9(39.1)	14(60.9)	-	
	Being exposed to blood	2(8.7)	21(91.3)	-	
	Contacting with a patient with diarrhea	3(13)	20(87)	-	
	Performing disinfection of the bed after patient discharge	9(39.1)	13(56.5)	1(4.3)	
	Leaving the patient*	11(47.8)	12(52.2)	-	
	Total		23 (100)	23 (100)	23 (100)

Source: Research data.

* 1 (one) person did not answer a question.

When asked about training on hand hygiene techniques, 100% stated positively. Concerning the main route of cross-transmission of pathogenic microorganisms among patients in health services, 22 (95.7%) stated that they are the hands of the professional when they are not sanitized.

In relation to the most frequent source of microorganisms responsible for infections, 12 (52.2%) stated that the microorganisms were present in or near the patient.

The hand hygiene process is directly related to the significant reduction of hospital infections. Evidence from experimental and non-experimental studies indicates that the act of hand hygiene in the proper technique is the main responsible for the reduction of the risk of infection.¹¹

In a study that analyzed the microbial load in the hands of nursing professionals of a private hospital in the city of *Itumbiara*, *Goiás* State, the presence of coagulase-negative *Staphylococcus* (44.5%), the most isolated microorganisms, followed by *Staphylococcus aureus* (40.0%), and *Enterococcus* (13.33%) and *Bacillus spp.* (2.22%), which are considered

pathogenic bacteria, which meets the pressing need for correct hand hygiene in health services.¹²

Sociodemographic data show that 60.9% of the professionals are in the young age group from 20 to 30 years old, and most of them are female, which is in agreement with the literature that reveals to be the prevalent sex in the nursing team. Nevertheless, among the category of nurses, all sought to qualify themselves through *latu sensu* specialization. Yet, the participants are in the most productive age group of their professional trajectory.

In regards to the occupational profile, it is noteworthy that 47.8%, they develop in reverse shift another occupational activity and 34.8% worked in the night period. Still, 43.4% were in the unit for one to three years.

A study that sought to understand the factors related to hand hygiene practice in a neonatal intensive care unit, with the participation of 24 auxiliaries, 11 technicians and 5 nurses, with 47% working at night, with a predominance of females 97.5%. The time spent in health services ranged from less than one month to twenty-two years.¹ Another study carried out in a private hospital in the Serra Gaúcha revealed that 17.1% of nursing professionals have a double working day. They also report that working in more than one hospital institution can generate overloading of tasks, which increases responsibilities and occupational stress.¹³

Acting in an emergency service unit alone causes stress to the health professional. Ability to act under tension and high psychomotor ability attending to an excessive number of patients, of the most varied levels of complexity, are considered as stress-triggering factors.¹⁴ The workload can be a factor that leads workers in emergencies and emergencies not to give due importance to basic routine procedures, such as proper hand hygiene.

These practices have been a challenge for the Hospital Infection Control Commissions, since low adherence is closely linked to the incidence of infections.¹⁵ Contributing factors are numerous, among them, skin irritation due to frequent hand washing, overwork, overuse of gloves and, especially, incipient knowledge of health professionals regarding hand hygiene.¹⁶

Nevertheless, data from this study indicate that the professionals working in the unit studied are familiar with the routine of the same and have professional experience, as well as in relation to hand hygiene practices.

Considering the formal training regarding hand hygiene, all professionals interviewed stated that they received instructions on the subject. It is the responsibility of the health institutions to provide periodic training to all health professionals on the importance and use of the “My 5 Moments for Hand Hygiene” approach, as well as adequate techniques.¹⁷

In this framework, through Ordinance No. 485 on November 11th, 2005, Regulatory Norm No. 32 was created, which describes the guidelines of health and safety at work in health services, with a view to the implementation of protective

measures health and safety of health workers, including aspects of biosafety, which includes hand hygiene.¹⁸

A study conducted by ANVISA showed that nursing professionals working in the emergency service unit are unaware of the minimum time required for alcohol solution to destroy the microorganisms present in the hands, inasmuch as 73.8% stated as a necessary time less than 60 seconds. Moreover, the study shows that the time spent in this practice has a direct influence on the reduction of the transient microbial load on the skin of the hands and that the friction with the alcoholic solution is more effective when performed in a time greater than or equal to 60 seconds.¹⁹

Another study infers that for the hand hygiene technique to be effective and remove the transient microbiota from the skin, it needs to be performed in a period of 20 to 40 seconds, in average and 60 seconds at the most when performed with soap and water.²⁰

With regards to the items that should be avoided during health care because they are associated with the possibility of colonization, the interviewees are unanimous vis-à-vis the use of false nails. Regarding the use of jewelry and damaged skin, most have knowledge about it.

According to the recommendations of the Ministry of Health,¹⁷ the use of jewelry and artificial nails should be avoided because it represents a site of colonization of microorganisms. Moreover, the Ministerial Ordinance No. 3214/78, in its Regulatory Norm No. 32, legislates on the prohibition of the use of ornaments.¹⁷

Skin care is paramount in relation to the effectiveness of hand hygiene techniques. The friction thereof with an alcoholic solution containing a wetting agent lessen the skin less than the hygiene with liquid soap and water. It is still necessary to avoid wearing gloves with both alcoholic products and the regular use of hand cream to prevent skin lesions.¹⁷

Hand sanitization with soap and water should be performed when hands are visibly soiled, contaminated with blood and other body fluids, at the beginning of the work shift, before going to the bathroom, before and after meals, before preparing food and preparation and manipulation of drugs.²¹

Friction with an alcoholic solution should occur when hands are not visually soiled before and after contact with the patient before performing care procedures and manipulating invasive devices after exposure to body fluids, contact with inanimate objects, surfaces close to the patient and before and after removal of gloves.²¹

A study developed shows that there are health professionals who do not observe the guidelines recommended by ANVISA and WHO, preferring to use gloves to be performed on hand hygiene. These considerations reveal the incipient knowledge vis-à-vis the recommendations.⁵

It can be inferred that the use of gloves may be considered, for some professionals, as an obstacle to adherence to hand hygiene recommendations, giving a false impression that their use eliminates the need to sanitize them. The use of gloves does not replace hand hygiene practices.¹⁹

Concerning the main route of cross-transmission, among the institutionalized patients, 95.7% stated that they were the hands of the health professional when not sanitized and/or sanitized incorrectly. Cross-infection occurs through the transmission of pathogenic microorganisms within a clinical environment that can occur through contact from person to person, through the air or through contaminated surfaces and objects.²²

The hygiene of the hands exerts a preponderant factor in the prevention and control of infections in health services. Hence, it should be performed as a daily practice by professionals, especially as it is one of the most effective resources for prophylaxis against hospital infections, which has a positive impact on the reduction of infection rates.

CONCLUSIONS

The control of nosocomial infections through prophylaxis methods, such as hand hygiene, is directly related to the conscientization and instrumentalization of health professionals.

The adherence and the knowledge of the nursing team about the correct practices of hand hygiene are important, especially in an emergency service unit, since this is the entrance door of the hospital service, in which the characteristic is to assist a diversified clientele, who may present pathologies as yet unidentified, and sometimes from other health institutions with infectious status yet unknown.

Nonetheless, there are obstacles to be overcome, as far as the adherence of professionals, as well as the encouragement of health institutions. It is necessary to carry out the correct sequence of all steps of the recommended technique so that the chain of transmission of pathogens through the hands is broken, thus making this prophylaxis of low cost, furthermore, it is constituted as a primordial method for infection control.

The understanding of the nursing professionals from the research institution was considered satisfactory. However, there are gaps and shortages that need to be addressed and worked with the team, so that the practice of hand hygiene is appropriate and, consequently, qualifies the assistance provided to the user.

Considering that several studies in the world literature emphasize their urgency in the control and prevention to intra-hospital infections. There is a need to institute training programs and continuing education in the sector, aiming to widely address the correct hand hygiene.

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