

**Professionals' adherence to the practice of hand hygiene at a health center of the federal district - evaluation of the correct technique**

Adesão dos profissionais a prática de higiene das mãos em um centro de saúde do distrito federal - avaliação da técnica correta

Adhesión de los profesionales a la práctica de higiene de las manos en un centro de salud del distrito federal: evaluación de la técnica correcta

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ABSTRACT

Objective: To evaluate the adherence rate to the hand hygiene practice and the application of the technique among the professionals at a Health Center. **Method:** This is an exploratory study of a quantitative character made from a questionnaire that evaluates technique, time, solutions used, and professionals' adherence to the hand hygiene practice. **Results:** 44 health professionals were evaluated in 90 hand hygiene opportunities, with $P=0.026$, showing low adherence of professionals. The nurses were the professionals who most adhered to the practice without considering the correct technique (64%). The average time for hand hygiene was 20-30 seconds, and in 13 times the hands were sanitized using only water. **Conclusion:** Professionals did not adhere to hand hygiene in a satisfactory way, thus, health education, based on the results found and considering the difficulties of the place, can become a solution strategy.

Descriptors: Hand hygiene; Health personnel; Patient safety; Primary health care.

RESUMO

Objetivo: Avaliar a taxa de adesão a prática de higiene das mãos e a aplicação da técnica entre os profissionais em um Centro de Saúde. **Método:** Consiste em um estudo exploratório de caráter quantitativo realizado a partir de um questionário que avalia técnica, tempo, soluções utilizadas, momentos preconizados e a aderência dos profissionais à prática de higiene das mãos. **Resultados:** Foram avaliados 44 profissionais de saúde em 90 oportunidades de higiene das mãos, com $P=0,026$ mostrando baixa aderência dos profissionais. Os enfermeiros foram os profissionais que mais aderiram a prática sem considerar a técnica correta (64%). O tempo médio para higiene das mãos foi de 20-30 segundos, e em 13 vezes higienizadas as mãos, utilizaram apenas água. **Conclusão:** Os profissionais não aderiram a higiene das mãos de maneira satisfatória, por isso educar em saúde com base nos resultados encontrados, levando em consideração as dificuldades do local, pode vir a ser uma estratégia resolutiva.

Descritores: Higiene das mãos; Pessoal da saúde; Segurança do Paciente; Atenção primária a saúde.

RESUMEN

Objetivo: Evaluar la tasa de adhesión a la práctica de higiene de las manos y la aplicación de la técnica entre los profesionales en un Centro de Salud. **Método:** Consiste en un estudio exploratorio de carácter cuantitativo realizado a partir de un cuestionario que evalúa técnica, tiempo, soluciones utilizados, momentos preconizados y la adherencia de los profesionales a la práctica de higiene de las manos. **Resultados:** Se evaluaron 44 profesionales de salud en 90 oportunidades de higiene de las manos, con $P = 0,026$ mostrando baja adherencia de los profesionales. Los enfermeros fueron los profesionales que más se adherieron a la práctica sin considerar la técnica correcta (64%). El tiempo medio para la higiene de las manos fue de 20-30 segundos, y en 13 veces higienizadas las manos, utilizaron sólo agua. **Conclusión:** Los profesionales no se han adherido a la higiene de las manos de manera satisfactoria, por eso educar en salud con base en los resultados encontrados, teniendo en cuenta las dificultades del local, puede ser una estrategia resolutiva.

Descriptores: Higiene de las Manos; Personal de Salud; Seguridad del Paciente; Atención Primaria de Salud.

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INTRODUCTION

In 1954, Florence Nightingale, responsible for reorganizing the basic concepts of hospital hygiene, established norms and routines for organizing the healthcare setting. Her changes decreased the incidence of death from infection in the healthcare setting and brought a differentiated vision for the hospital organization and management. Some practices established by Florence include organization of beds, cleaning and sterilization of materials, and especially hand hygiene of health attendants. Since then, hand hygiene has been recognized worldwide as a primary measure, very important in the control of infections related to health care¹⁻³.

Studies related to adhesion to the hand hygiene practice are common in hospital environments, and finding articles related to primary care and other healthcare settings that do not include hospitals is more difficult. Therefore, the research on hand hygiene practice at health centers/Basic Health Units is necessary, because these environments are important for preventing disease and promoting health, in addition to possessing high movement of people with different pathologies, which may represent an important role in the emergence of infections⁴⁻⁵.

Most cases of infections in healthcare environments occur through the contact of the hands of the professionals who perform the service. According to studies carried out in the area, already established in the present moment, bacteria residing on the professional's skin is the main reason for cross-infection at healthcare places. A study performed in the

emergency room of a University Hospital in the central region of Rio Grande do Sul found that the average overall adhesion to hand hygiene is 54.2%, i.e., a little more than half of the professionals adhered to the practice. Also in accordance with the Guideline for Hand Hygiene in Health-Care Settings, produced from the union of several data from studies on the theme, health professionals' adhesion to hand hygiene has been low, with an average rate of 40%, which shows that less than half of the professionals from several comparative studies adhered to the hand hygiene practice at least. Thinking about it, hand hygiene must be stimulated and made aware among the professionals of health services. Therefore, the restoration of this practice in care is inevitable in an attempt to modify health professionals' risk habits, especially health education as a strategy for modifying professional teams, contributing to the increased adhesion to hand hygiene practices and reducing the incidence of infections in healthcare settings⁶⁻⁹.

METHODS

This is an exploratory study with a quantitative approach, performed at a health center located in the city of Ceilândia in Distrito Federal (Federal District). The research health center was chosen due to the relationship between the university and the institution, where most researches of the Research Group on Aging (GPesEn - *Grupo de Pesquisa em Envelhecimento*) occur, to which the present study is linked. The choice of the basic attention as the research focus based on the perception of

the low number of studies on hand hygiene in low complexity, and the professionals' behavior observed during the care analysis in other meetings of the research group. The chosen health center is a public institution governed by the Health Secretariat of the Federal District, composed by six family health strategy teams, in which each team meets approximately four thousand inhabitants, and 70 employees, with only 50 employees, including 13 nurses, 18 nursing technicians, 7 doctors, 10 dentists (auxiliary and dental surgeon), 1 dietician and 1 social worker, are responsible for direct care service.

The study sample included professionals who should compose the institution staff, perform direct care service to patients and their families, and be present in the service in the period of application of the questionnaire. Only 44 professionals were observed due to legal rights of workers such as medical leaves and holidays in the study period. The sample (n=44) includes 11 nurses, 16 nursing technicians, 7 doctors, 8 dentists (auxiliary and dental surgeon), 1 dietician and 1 social worker.

A team of researchers, which included a scholar student from the University Foundation of Brasília of the Scientific Initiation Program (ProIC) of the University of Brasilia (UnB), and a nursing graduation advising professor, performed the collection. The development of this study respected the ethical precepts, with the approval of the Research Ethics Committee of the UnB (Opinion: 1.355.211) linked to an aging research group of the College of Ceilândia, University of Brasilia.

From the interview/observation with questions and steps previously constructed by the researchers of this study, data were collected during eight days in February 2018, in six shifts that varied between mornings and afternoons, respecting the scale of professionals who had not been interviewed yet. The observation aims to evaluate adhesion and the technique of hand hygiene of the professionals who work in the Health Center. It takes into account the professional category, the act length, the steps of hand hygiene, which include removing jewelry, opening the tap without contacting the sink, rubbing palms, rubbing the dorsum of hands and interdigital spaces, rubbing closed fingers, thumb nails and fists, as well as rinsing the hands to remove all soap residue and the correct technique for closing the tap and drying both hands². The use of inputs, such as alcohol or soap and water, was evaluated, as well as the moments recommended to sanitize the hands that include Before contact with the patient, Before the completion of the aseptic procedure, After the risk of exposure to bodily fluids, After contact with the patient, and After contact with areas close to the patient. All these data were obtained while the professional attended to a single patient. The questionnaire construction based on instructions from Anvisa that characterize the correct method of hand hygiene, as well as the moments, time and all the technique².

Thinking about it, the following study was constructed with the objective of evaluating the adhesion rate to hand hygiene and the application of the technique among health professionals at a health assistance public

institution, during the care to a patient at an institution that provided basic healthcare services to the population. The results were generated from the junction of the information collected with the interviews through the software Package for the Social Sciences (SPSS®) version 18.0 and the Odds Ratio (OR) was calculated with 95% confidence intervals (CI).

Table 1: Adhesion of professionals from different categories to hand hygiene according to the opportunities, assessing only the practice of the technique as variable in a first moment of February 2018.

Professionals	Total of professionals	Opportunities of hand hygiene	Hand hygiene according to the opportunities		P (all categories)
			Yes n/%	No n/%	
Nurses	11 (25%)	25	16(64%)	9(36%)	0.026
Nursing technicians	16 (36.36%)	30	6 (20%)	4 (80%)	
Doctors	7(15.9%)	17	9 (52.94%)	8(47.05%)	
Dentistry	8(18.18%)	14	9 (64.28%)	5(35.71%)	
Nutrition	1 (2.27%)	2	0 (0%)	2(100%)	
Social worker	1 (2.27%)	2	0 (0%)	2(100%)	
Total	44	90	40	50	

The data show that the working time in years varies between 1.4 - 10.3. The nursing technicians have more time working in the institution, also being the professional category that showed the lowest adhesion rate to the hand hygiene practice (n=6) according to the amount of professionals when compared to other categories (Table 1).

The assessment was divided per professional category in relation to adhesion to

RESULTS

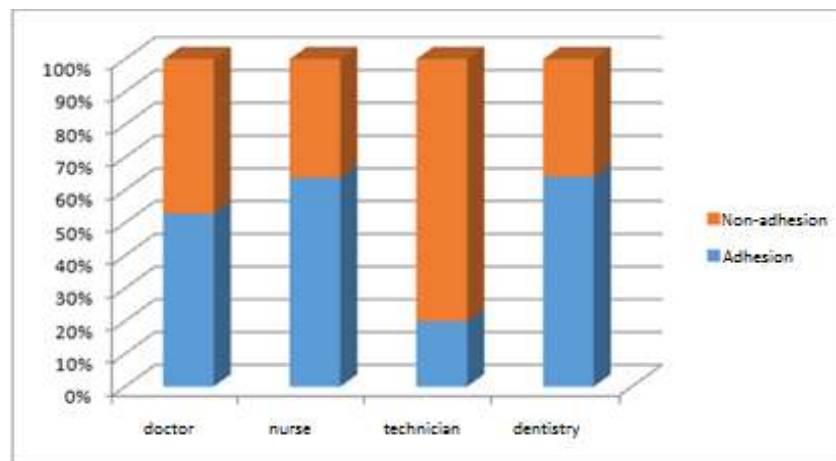
During data collection, the observed professionals had 90 opportunities to perform hand hygiene while attending, but they did not seize all opportunities, performing only 40 hand hygiene practices in the observed period.

hand hygiene. Nurses obtained the largest number of professionals adhering to the practice without considering the correct technique (64% of nurses), also being the majority among the observed professionals (25% of the sample). Dentistry professionals and doctors also had high rates of adhesion to the practice. Among dentistry professionals, 9 out of 14 hand hygiene opportunities were performed (adhesion of 64.28%), regarding doctors, the adhesion was

slightly lower (52.94%), with 9 hand washing in 17 opportunities. Within the hand hygiene opportunities, nursing technicians obtained greater number of hand hygiene chances (n=30), but the category little seized the practice,

because during 30 opportunities only 6 hand hygiene practices were performed. Figure 1 highlights each professional category's adhesion to the hand hygiene practice according to the opportunities.

Figure 1: Representation of the adhesion to hand hygiene practice according to professional category.



The low adhesion to the simple practice of hand hygiene by all occupational categories was observed from $p=0.026$ (Table 1).

Regarding the moments recommended for hand hygiene, according to ANVISA, among the 90 hygiene opportunities, the questionnaire application showed that the moment of greatest adhesion was before contact with the patient (16.6%) performed mainly by nurses, and that the lowest adhesion was before the completion of the aseptic procedure, performed by no professional².

Regarding the evaluation of the correct technique of hand hygiene by professionals, the most neglected step according to Table 2 was Rubbing thumb, in which, only 3 out of 44 professionals observed performed the step. Rubbing underneath the nails also follows the

high degree of neglect while washing the hands (4 of 44 professionals performed). Opening the

tap without contacting the sink, rubbing the palms of the hands and rubbing the fingers closed follow the steps with greater adhesion (19 of 44 professionals), in addition to rinsing the hands (20 professionals performed), but does not represent half of the professionals observed. In relation to the correct technique, when related to adherence to hand hygiene practice regardless of the technique, which includes almost half of the opportunities (n=40), only 7 professionals performed it correctly, and 37 did not use the correct technique or simply did not perform hand hygiene.

Table 2: Steps performed according to the correct technique, observing whether the professionals performed, or not, the steps required in the technique.

Steps	Yes	No
Removed jewels	14	31
Opened without contacting the sink	19	25
Applied soap/alcohol	16	28
Rubbed palms	19	25
Rubbed dorsum	5	39
Rubbed interdigital spaces	7	37
Rubbed closed fingers	19	25
Rubbed the thumb	3	41
Rubbed nails	4	40
Rubbed fist	5	39
Rinsed the hands	20	24
Removed all soap residue	14	30
Used paper towel to close	8	36
Sloughed off paper towel used for opening	7	37
Paper to dry and not close	13	31
Dry with new paper	7	37

In relation to the use of inputs for hand hygiene, the indications for the professionals that work at health services are water and soap, antiseptic and alcoholic preparations. In the study, only 27 out of 90 opportunities to sanitize the hands used alcohol or soap and water, and 13 opportunities did not use any type of substance for the hand hygiene practice, only water. For professionals who did not use adequate solutions for hand hygiene, the rinsing

step them was also neglected (n=24), because, once their hands were wet, the rinse was not considered.

Regarding the average time that the hand hygiene practice should last, 62.5% of the times that the technique was performed, the professionals used an average of 20-30 seconds, 35% of the times, the practice lasted from 30-40 seconds, and 2.5%, 40-60 seconds. According to ANVISA, for an effective hand hygiene practice,

professionals must rub the hands, including all steps, an average of 40 through 60 seconds, thus eliminating bacteria capable of causing diseases^{2,6}.

DISCUSSION

The choice of not performing hand hygiene seems to have been a problem since before the professional exercise in healthcare settings, such as health graduation. A study carried out in 2013/2014 with medicine and nursing students after attending a lecture on hand hygiene showed that they did not perform it as recommended by ANVISA. In this study, in both hands, the practice was only appropriate in 50.2% of the students. Considering the division between hand hygiene appropriately, in both hands, the sanitizing was very good in 24.7% of the students, good in 29.8%, regular in 25.1% and poor in 20.3%, showing a balance, tending to be good, but showing that, even after an orientation on the technique, only half of the students can perform the technique of hand hygiene in a satisfactory way. This information reflects the data of the current health professionals, showing the importance of intervening in the education of future professionals to modify those habits¹⁰.

When relating health students' difficulty to adhere to the practice, this picture remains in the professionals already active. Thinking about it, low adhesion to hand hygiene practices found in the survey ($p=0.026$) may relate to the work demand required. A study conducted in three public general hospitals in the Southern region of Brazil in 2015 found that professionals'

difficulties might relate to work overload and routine assistance to several patients. In the research health center, each family health strategy team attends to an average of four thousand inhabitants, according to the data shown by the institution manager, but the Family Health Coverage History recommends that each team attend to 2,400 through 4,500 inhabitants as ceiling. Thinking about it, the institution professionals attend to a number very close to the maximum demand, which can lead to an overload, and influence on the low adhesion to hand hygiene during consultations. Other problems that may also relate to low adhesion include skin irritation caused by antiseptics, inaccessible supplies, such as sinks and antiseptics, using gloves, forgetting due to lack of practice, and lack of scientific information indicating a definite impact of improving hand hygiene in infection rates associated to health care¹⁰⁻¹⁵.

Few professionals from the surveyed health center performed hand hygiene in the mean time of 40 through 60 seconds as recommended by ANVISA. According to a study carried out at basic health units in the Southern region of Santa Catarina in 2008, the decreased time of hand hygiene, as well as the low adhesion, may relate to the haste in performing other services, lack of professionals in relation to the required demand, and the high number of opportunities that require hand hygiene during these professionals' routine because of the various procedures performed, compromising the practice due to lack of time to rub all parts of both hands^{2,4,6}.

Few studies have been conducted regarding the time working in the institution and adhesion to hand hygiene practice; however, the same study performed at Basic Health Units in 2008 showed that the higher the professional's age, the greater the adhesion to hand hygiene, which may relate to the health condition due to age and the high risk of acquiring an infection. This finding differs from that observed at the research health center, once the results show that the greater the time working in the institution (which often relates to professional's age), the greater the negligence of hand hygiene, which may be due to aesthetic problems with dryness and irritation of the skin of the hands, but there are not enough data in studies already performed to establish a comparative between adhesion to the hand hygiene practice and working time⁴.

Despite the different number of professionals among teams, the nursing team experienced more opportunities for hand hygiene in general. Nurses well seized the practice, whereas technicians did not, since some categories, such as nutrition and social assistance, did not sanitize hands in the observed period. Considering that the nurse has high responsibility of leadership within health teams as care manager, this responsibility can justify the greater degree of adhesion to hand washing, but nursing technicians little adhered to the practice, which affects the nurse's task, who is responsible for the result, once he/she is directly related to and involved with the supervision of his/her nursing team. Regarding the categories that did not wash their hands in the period, the minimum direct contact of these

professionals with the patients and the few opportunities as the moments of hand hygiene, can compose reasons to believe they did not need to wash their hands. Nevertheless, these professionals work indirectly with manipulation of medicines, food, materials and areas near to patients, thus, they all should adopt as a professional practice the correct technique of hand hygiene during the service, in addition to all relatives and companions, because they can also act as a focus for incidence of infections^{5,17}.

Even considering that the adhesion to the hand hygiene practice was high, the procedure may become ineffective if some steps of the process are not performed. In the observation made, the professionals from the health center little remembered the steps Rubbing the thumb and Rubbing underneath the nails, but it does not necessarily need to be related to a specific reason, but rather that steps can be forgotten randomly, because there was no high adhesion to the other steps of the technique, configuring a problem for the whole hand hygiene practice that should be modified¹⁰.

The basic care setting can be a reason for low adhesion to hand hygiene, because the primary-care worker may believe that the environment offers no risk of infection and contamination by its low-complexity services, which may reveal a lack of caution regarding patient safety and professional neglecting the practice. Thus, the professionals who work at health centers need received guidance regarding the importance of hand washing in correct moments, time and steps, for its important role in disease prevention and health promotion. If the workers follow the protocol recommended,

they will not only be doing their work as assistance to the population, as well as by ensuring their own health^{2,4}.

Of the professionals observed, many did not use any product to perform hand hygiene, which can invalidate the practice. A study conducted in 1960 by the National Health Institute and by the General Surgeon Office demonstrated that, when nurses attended to children and did not sanitize their hands using antiseptic, the colonization by *S. aureus* increased more rapidly than in babies whose attendants used products to sanitize their hands between consultations, providing evidence that hand washing with an antiseptic agent reduces the transmission of microorganisms associated with infection. The soap should be used for apparent dirt, while alcohols are not appropriate when hands are visibly dirty; however, they both have the ability to reduce the colonization of microorganisms in the hands, and can modify all the validity of sanitizing the hands. Despite the benefits of antiseptics, they can cause injuries in the hands, and burning sensation in the previously injured site if the friction is performed several times a day, which is a common factor for the non-use of sanitizers and antiseptics by professionals^{7,16-17}.

Education is the focus of hand hygiene practices. Health professionals who receive constant information on studies and articles evolve within the institution with safe practices; however, bad habits do not relate only to each health professional, but also to the institution as a whole. The easy access to supplies for hand hygiene, whether sink and solution to rub hands or appropriate structure to reduce the path

travelled and, consequently, the time for implementing the practice, is essential for an ideal adhesion to hand hygiene recommendations, considering the barriers encountered by professionals. Thinking about it, the institutional dynamics and the team need to be considered when implementing strategies for changing habits⁷.

CONCLUSION

There is no strong adhesion of the health center professionals to the hand hygiene practice. Most professionals still do not allow the opening for evaluating inappropriate practices, creating barriers as an apology for missing their failures, and, therefore, interventions to improve patient and professional safety. The professionals still fail in simple steps, such as not using antiseptics and sanitizers, inadequate time and forgetfulness of the technique steps. To change the habits observed, there should be permanent health education for professionals with discussion of written guidelines, change of the administrative leadership, with sanctions, support and reward systems, in addition to developing similar studies at other health centers to know the reality of primary-care working conditions, and other more specific interventions based on problem diagnosis of each institution.

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Guedes JS, Volpe CR, Stival MM, Pinho DLM and Lima LR collaborated in the stages of conception and work design, data collection, Analysis and interpretation of results, writing of the manuscript and critical review of the material. All authors have approved the version to be published and assume responsibility for all aspects of the work, including ensuring its accuracy and integrity.

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No conflicts of interest to declare.

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