EVALUATION OF HOSPITAL INFRASTRUCTURE FOR HYGIENIZATION OF HANDS

AVALIAÇÃO DA INFRAESTRUTURA HOSPITALAR PARA A HIGIENIZAÇÃO DAS MÃOS EVALUACIÓN DE LA INFRAESTRUTURA HOSPITALARIA PARA LA HIGIENIZACIÓN DE LAS MANOS

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ABSTRACT

Objective: to evaluate the infrastructure of a Brazilian public hospital for Hand Hygiene. **Method:** this is a quantitative, descriptive, exploratory, cross-sectional study performed in a Brazilian public hospital. Seven hospitalization units were evaluated. Also, 43 nurses were interviewed through questionnaires, 37 of them were assistants and six of them were managers. **Results:** in three of the units, there were no lavatories inside the wards, and in seven units, there were no dispensers of antiseptic. Regarding the care nurses, 15 (40.5%) reported the presence of lavatories in the wards, and 5 (13.5%) of them reported the presence of antiseptic dispensers at the place. As for the nurse managers, two reported that there were lavatories in the wards of all units, and four had antiseptic dispensers in those places. **Conclusion:** none of the units fully contemplated the Hand Hygiene recommendations, and not all nurses recognized the lack of infrastructure. **Descriptors:** Hand Hygiene; Hospital Design and Construction; Nursing.

RESUMO

Objetivo: avaliar a infraestrutura de um hospital público brasileiro para a Higienização das Mãos. **Método:** estudo quantitativo, descritivo, exploratório, transversal, realizado em um hospital público brasileiro. Foram avaliadas sete unidades de internação. Além disso, 43 enfermeiros foram entrevistados por meio de questionários, sendo 37 assistenciais e seis gestores. **Resultados:** em três das unidades não havia lavatórios dentro das enfermarias e nas sete não havia dispensadores de antisséptico. Em relação aos enfermeiros assistenciais, 15 (40,5%) referiram a presença de lavatórios nas enfermarias e 5 (13,5%) a presença de dispensadores de antisséptico no local. Quanto aos enfermeiros gestores, dois referiram que havia lavatórios nas enfermarias de todas as unidades e quatro que havia dispensadores de antissépticos nesses locais. **Conclusão:** nenhuma das unidades contemplou totalmente as recomendações para a Higienização das Mãos, nem todos os enfermeiros reconheceram a falta de infraestrutura. **Descritores:** Higiene das Mãos; Arquitetura Hospitalar; Enfermagem.

RESUMEN

Objetivo: evaluar la infraestructura de un hospital público brasileño para la Higienización de las Manos. **Método:** estudio cuantitativo, descriptivo, exploratorio, transversal, realizado en un hospital público brasileño. Fueron evaluadas siete unidades de internación. Además, 43 enfermeros fueron entrevistados por medio de cuestionarios, siendo 37 asistenciales y seis gestores. **Resultados:** en tres de las unidades no había lavatorios dentro de las enfermerías, y en las siete no había dispensadores de antiséptico. En relación a los enfermeros asistenciales, 15 (40,5%) relataron la presencia de lavatorios en las enfermerías, y 5 (13,5%) relataron la presencia de dispensadores de antiséptico en el local. Sobre los enfermeros gestores, dos dijeron que había lavatorios en las enfermerías de todas las unidades, y cuatro que había dispensadores de antisépticos en esos lugares. **Conclusión:** ninguna de las unidades contempló totalmente las recomendaciones para la Higienización de las Manos y ni todos los enfermeros reconocieron la falta de infraestructura. **Descriptores:** Higiene de las Manos; Arquitectura y Construcción de Hospitales; Enfermería.

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INTRODUCTION

Health Care-Related Infections (IRAS) are defined as those infections acquired up to 72 hours after hospital admission.¹ IRAS affects 1.4 million people worldwide and in Brazil, they affect 15% all hospitalized patients.¹⁻²

As a consequence, IRAS increase patient hospitalization time and demand the use of broad-spectrum antimicrobial agents, which contributes to the emergence of antimicrobial resistance and increased costs for the public health system.³⁻⁴

Therefore, Hand Hygiene (HH) is the main measure of IRAS blockade, considered a low-cost practice and easy to apply to professionals who provide health care.⁵ However, it has been indicated in studies that practice of HH still has low adherence rates among health professionals or even no adherence.⁵⁻⁶

The low adherence of professionals to HH may be due to the following issues: absence of necessary equipment (sinks, washbasins, soap dispensers in an appropriate place), lack of supplies such as water, soap, paper towel; lack of motivation due to excessive work hours; disinterest and negligence by some professionals and lack of incentives of the health services for this practice.⁷ In this sense, it is verified that the insufficient conditions of infrastructure for the practice of HH in the hospital environment are important barriers to adherence to this practice.

OBJECTIVE

- To evaluate the infrastructure of a Brazilian public hospital for Hand Hygiene.

METHOD

This is a quantitative, descriptive, exploratory, cross-sectional study carried out in a public teaching hospital located in the southern region of Brazil. The research participants were 37 nurses, out of a total of 79, who worked in the seven hospitalization units of their hospital: Medical Clinic, Surgical Clinic, Emergency Network I, Emergency Network II, Emergency Network III, Pediatrics and Gynecological and Obstetric Clinic. The Intensive Care Units were not included because the infrastructure parameters for HH differed from the other units. Besides to the nurses, six managers of the institution selected by intentional sampling participated in the study, who performed functions consistent with the objectives of this research, with a total of 43 nurses.

Data collection took place from December 2015 to March 2016, through participant

observation, using a checklist containing items to identify the structure of hospitalization units for HH and semi-structured interviews with nursing assistants and managers to know the perception related to the infrastructure of the hospitalization units for HH.

The instrument of the checklist to evaluate the units constructed by the researcher, there were national (Ministry of Health and National Health Surveillance Agency of Brazil) and international (World Health Organization) recommendations considered for the adequacy of the hospital infrastructure for HH. For the interviews, semi-structured questionnaires were used, including items referring to the sociodemographic aspects of the participants, as well as questions such as “Is there a washbasin available inside the ward?”; “Are there antiseptic dispensers on the patient's bedside?”, among others, to know the reality observed by the different professionals, nurses and managers.

The data were treated with the Statistical Package for Social Science, version 22.0, with descriptive analysis. The quantitative variables were presented through measures of central tendency and variability and qualitative variables with simple frequency tables.

All the ethical precepts were respected, and the study was approved in the Brazil Platform under the opinion 1,392,798 of the Ethics and Research Committee of the Faculty of Nursing of the Federal University of Pelotas/UFPel, under the number 51687915.6.0000.5316 of the Presentation Certificate for Ethical Appreciation (CAAE).

RESULTS

The results will be presented according to the steps of the data collection of the research: Observation through the checklist infrastructure of its units for Hand Hygiene; Perception of the nurse's infrastructure of their units for the Hand Hygiene and Perception of the managers on the infrastructure of their units for the Hand Hygiene.

◆ Observation through the checklist infrastructure of its units for Hand Hygiene

The seven units observed showed differences among them, mainly in the number of wards and beds: Medical Clinic - six wards, two isolation rooms and 26 beds; Surgical Clinic - three wards and 15 beds; Emergency Network I - four wards, one isolation room and 21 beds; Emergency Network II - four wards, one isolation room and 20 beds; Emergency Network III - three

wards, one isolation room and 12 beds; Pediatrics - three wards, one isolation room and 16 beds; and Obstetrical and Gynecological Clinic - eight wards, a pre-delivery room, a delivery room, a newborn care room and 30 beds.

Regarding the infrastructure of these units for Hand Hygiene, there were also differences

between them, as shown in Figure 1. The units are presented, respectively, as follows: Clinical Medical (A), Clinical Surgery (B), Emergency Network I (C), Emergency Network II (D), Emergency Network III (E), Pediatrics (F) and Gynecological and Obstetric Clinic (G).

In the nursing health unit	A	B	C	D	E	F	G
Washbasin with faucet and running water							
Soap Dispenser next to sink with stocked supplies							
Paper towel dispenser with stocked supplies							
Explanatory poster for hand hygiene technique							
In the wards	A	B	C	D	E	F	G
Washbasin with faucet and running water (independent of the bathroom)							
Washbasin is easy to see and access							
Soap Dispenser with stocked supplies							
Paper towel dispenser, with stocked supplies							
Dispenser for antiseptic (alcohol gel) at the bedside of each patient							
Explanatory poster for hand hygiene technique							
Explanatory poster for the friction technique of the hands with antiseptic							
<div></div> Equipment/Present supplies <div></div> Equipment/Not present supplies <div></div> Not evaluated because there is no washbasin in the ward							

Figure 1. Evaluation of the units according to the checklist to identify the institutional structure for Hand Hygiene. Pelotas (RS), Brazil, 2016.

Upon completing the checklist, it was possible to observe that the equipment and supplies required for HM were available within the units' nursing stations. However, in none of the wards of the seven units did the infrastructure appear to be completely adequate, mostly lacking lavatories and antiseptic dispensers.

◆ Perception of the nurse's infrastructure of their units for the Hand Hygiene

The study participants were predominantly female, 33 (89.2%). Most of the work in the hospitalization unit was less than five years, in which 17 (45.9%) professionals were less than one year, 13 (35.1%) between one and five years and seven from two to 20 years (19%). Regarding the nurse managers, six were female, between 21 and 30 years old (50%) and acting as manager in the institution, four

were between 1 and 5 years (66.7%) and two less than one year (33.3%).

Regarding the nurses' perception (Table 1), it is important to note that in nine aspects evaluated, the presence of lavatories and antiseptic dispensers presented low rates. Also, it is important to highlight the different perceptions of the nurses of the hospitalization units and the managers.

The units were presented as follows: Medical Clinic (A), Clinical Surgery (B), Emergency Network I (C), Emergency Network II (D), Emergency Network III (E), Pediatrics (F) and Gynecological and Obstetric Clinic (G). The 37 nursing assistants were distributed as follows: A (6), B (4), C (4), D (4), E (4), F (5), G (10) ; being the number of professionals that affirmed the presence of the infrastructure items for HH described in Table 1.

Table 1. Number of nurses who affirmed the presence of the items of infrastructure for the Hand Hygiene according to the hospitalization unit. Pelotas (RS), Brazil, 2016.

Variables									n	%
	A	B	C	D	E	F	G			
Washbasin in all wards	0	4	1	2	4	0	4	14	40.5	
Running water always available	5	3	4	4	4	3	8	31	83.8	
Pleasant water temperature on cold days	4	1	1	2	1	3	3	15	40.5	
Soap dispenser next to washbasins	5	4	4	3	4	5	10	35	94.6	
Soap sufficient for the working day in the units	3	4	2	1	4	2	5	21	56.8	
Paper towel dispenser next to washbasins	6	4	4	4	4	5	10	37	100	
Paper towel sufficient for the work day	2	4	2	2	4	3	6	23	62.2	
Antiseptic (alcohol) dispensers where care is provided	0	0	1	0	2	0	2	5	13.5	
Information materials for hand hygiene and antiseptic friction available	2	4	3	3	3	4	9	28	75.7	

As far as managers' perceptions are concerned, all of them stated that there was “running water available”, as well as “soap dispensers” and “paper towels”. Five managers affirmed the presence of the items “enough soap for the workday of the professionals”, “paper towel in sufficient quantity” and “availability of information materials for HH”. Concerning the “availability of antiseptic dispensers”, four stated that they were available; for the item “water temperature is adequate”, three affirm that yes; and for the item “washbasin in all wards”, only two stated that these were available.

DISCUSSION

In the infrastructure of the hospitalization units, there were inadequacies regarding the quantity of equipment, their distribution in the units, supplies, such as liquid soap and paper towels, not always stored in their respective places. This observed reality is in line with other scientific evidence showing the lack of equipment and the non-replacement of the supplies on a constant basis as main barriers of hospital infrastructure for the practice of HH.⁸

Among the inadequacies identified in this research, it is important to point out the lack of washbasins in all wards of three units (Medical Clinic, Surgical Clinic and Obstetrical and Gynecological Clinic), and only four of the units contemplated this requirement. This represents an important infrastructure problem for the practice of Hand Hygiene (HH), considering that the washbasin is the basic equipment, being obligatory that there is at least one washbasin inside each ward.

Another inadequacy found in the infrastructure of the units observed was the lack of dispensers of antiseptic (alcohol) at the bedside of the patients. In none of the seven units there were dispensers in the wards, which is an obligatory item in these spaces, aiming at ensuring that health professionals can clean their hands at times when washing with soap and water is dispensable, for example when the hands are not dirty, when a professional stops touching a contaminated region of the patient to touch a clean region, or after touching objects near the patient.⁷ The absence of these items represents an important fragility (both the lack and of antiseptic dispensers), representing a barrier to the adherence of professionals to HH.

In a study conducted at a general tertiary hospital in Canada, aimed to assess the impact of location of washbasins on HH compliance, the authors identified a relationship between lack of access to washbasins and decreased hands washing after performing procedures. They concluded that the greater the distance between the sink and the professional, the lower the adherence to HH.⁹

In the same line of research interest, researchers have found greater adherence to HH through friction with antiseptic in the proportion in which the substance is offered to professionals. In a study carried out in a maternal-infant hospital located in the city of Brasília, Brazil, there was a higher adherence to HH by rubbing the hands with antiseptic after alcohol dispensers were available for the 304 hospital beds. It was found that adherence increased from 12% to 42%.¹⁰ The

availability and increase of the supply of alcohol dispensers also increased the adherence of professionals to the practice of HH in hospitals in Germany¹¹ and Kuwait¹², as other studies indicate carried out.

Therefore, it is important to consider the infrastructure conditions for HH presented by the Gynecological and Obstetric Clinic unit, which was the largest observed unit and, at the same time, presented failures in the infrastructure, without washbasins and dispensers of antiseptic in the wards. The inferred concern regarding the infrastructure conditions of this unit does not diminish the interest of the other units. However, it is due to the reason that the Health Care Related Infections (IRAS) is an important health problem in neonates in Brazil, with high rates of mortality.¹³ Also, there are numerous cases of postpartum-related infections, such as maternal fever and urinary tract infection at birth, and therefore the caveat for this unit is justified.¹⁴

Regarding the nurses' perception, all of them identified problems in the infrastructure of their respective units of action. Some aspects perceived by them were in agreement with the results obtained through previous observation such as the lack of washbasins and antiseptic dispensers.

However, it could be observed that some nurses were unaware of the infrastructure of their units regarding equipment and supplies for HH, and declared in the questionnaire that there were no washbasins in the wards, while the equipment was available locally. Such evidence was observed in the responses of five nurses (three from EN I and two from EN II). These professionals realized the lack of washbasins in the wards. However, the equipment was available in these places, as it was verified at the time of observation. However, it should be noted that the location of these washbasins was, in fact, difficult to access, being located behind walls, hindering their view. Therefore, it is important to note that the washbasins should be placed in strategic locations, which are easy to see since this is also a factor that interferes with the adherence of professionals to HH.⁹

Another aspect evidenced by the nurses was not noticed during the observation phase: the occurrence of lack of water. As answered by six nurses, water is a supply not always available in these places, distributed in the units of Clinical Surgery (1), Clinical Medicine (1), Pediatrics (2) and Gynecological and Obstetric Clinic (2). It should be noted that the lack of this supplies represents an important weakness in the infrastructure for

HH, because it is through water, associated with soap, that the main microorganisms are eliminated and the chain of transmission of infections is interrupted.⁶

Still, in terms of nurses' perception, most of them (n=32) perceived the lack of antiseptic dispensers in the places where care is provided, that is, at the patient's bedside. As a result, it has been verified, in a general way, that professionals are aware of the reality of the infrastructure conditions for HH in their workplaces. In view of this reality, the concern for the quality of healthcare in this institution is highlighted, since one of the main ways of fighting infections recommended for the hospital environment - hand rubbing with antiseptic - has been weakened by the insufficiency infrastructure.

In this sense, it is interesting to note that nurses are important actors in the maintenance and replacement of these materials for HH, acting in this way as active managers of their respective units. Among the activities inherent in the nurses' work process, it should be emphasized that this professional exercises supervision and management of materials, maintenance control, as well as actions aimed at continuing education for his/her team, as well as other management dimensions that can be exercised according to the particularities of each workplace.

Regarding the perception of the managers, the results pointed to an important gap between their perception and the perception of nurses, as well as the observed reality. The two main divergences were related to the two main problems found in the institution's infrastructure for HH practice: the lack of washbasins and the unavailability of antiseptic dispensers. Two managers (one from the CCIH and another from Hospital hospitality) answered that there were washbasins in all the wards of the seven units studied. On the other hand, only two managers recognized the lack of alcohol dispensers in the wards.

It is imperative to reflect on the need for risk managers in hospitals, as this type of professional can contribute in a way to avoid that the lack of supplies and equipment for HH happens and remain in the units. According to Lima et al., risk management contributes to the early identification of risks, which, if considering the increased risks to HHs due to a lack of infrastructure, it would mean that risk management would, in this sense, help intervene before the supplies were missing or the equipment was damaged. The author also presents the commitment to ensure that there is prevention, detection, recording, and correction of deficiencies as a

characteristic of a risk of managers, being this type of manager, therefore, a professional of paramount importance for the quality in through HH.¹⁵

Also, it is highlighted the importance of effective and resolute communication between nurses and managers, so the hospital infrastructure for HH is guaranteed, since many times the managers are not aware of the infrastructure needs of each unit because they are not on a daily basis inserted in nurses' routines. Therefore, communication is an important skill for the management of hospital infrastructure, and interdisciplinary work is the best way to implement, evaluate, and renew communicative processes among nurses and the management of institutions.¹⁶

In view of this, it is possible to reflect that other barriers are added to the lack of infrastructure of this institution, such as the lack of knowledge by the important members of the management, as one of the managers who was unaware of the lack of washbasins in the hospitalization units. This factor needs attention since nursing professionals who work in the control of infections need to be familiar and updated in relation to the reality of the hospital infrastructure for HH, since they exert an important influence on the stimulation of health professionals to HH, of nursing, which constitute the largest contingent of health professionals working in the hospital environment.¹⁷

The importance of knowing the infrastructure of the hospital units for HH is to identify the fragilities that exist and what are the priorities and strategies to be adopted to solve the problems. From the situational diagnosis of the existing conditions, it is possible to plan the adaptations to be implemented.

CONCLUSION

Inadequacies referring to the recommendations for the hospital infrastructure for Hand Hygiene were found in all units. These inadequacies were observed by most nurses who provide assistance, but some managers are unknown in relation to the reality of the units. There is a management problem, since these managers, by not identifying the existing problems, also have no way of solving them.

It should be noted that the observation of the infrastructure analyzed together with the nurses' and managers' perceptions indicate the need for adaptations both in the infrastructure for HH and in the quality management for the control of hospital infections. In this way, the importance of

management and assistance work together in a shared way, because through this the local reality can be better discussed, the problems can be better evidenced and, with this, the strategies of solution can be implemented to improve the hospital infrastructure for HH and the quality of health care provided in a safe and responsible way to combat hospital infections.

Also, without adequate infrastructure conditions, it is impossible to expect health professionals, especially nurses, who are the largest contingent of professionals in the area, to sanitize their hands.

It is concluded that the lack of hospital infrastructure for hand hygiene is an important barrier to the performance of the procedure in the hospital environment. However, this study is limited to the Brazilian reality, new studies are needed that survey the infrastructure conditions, as well as the perceptions of other health professionals about the reality experienced, so in this way, institutions recognize the needs for improvement and how to implement them.

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