Objective: to describe an experience report about the conduction of a recreational activity, used as a strategy, to improve adherence to hand hygiene among health professionals. Method: a play strategy was conducted, using a set of data, where each side of the data addressed topics recommended by the World Health Organization for the practice of hand hygiene, types and indications. Results: 104 professionals from the multiprofessional team of the adult and pediatric intensive care units, of a university hospital participated between January and March 2014. Conclusion: the use of such methodology favored the professional's motivation, providing the recognition of fragilities on the subject, without provoking a sensation of fatigue arising from the repetition of training focused on the transmission of knowledge. Descriptors: Hand Hygiene; Cross Infection; Patient Safety.
INTRODUCTION

Health care-related infections (IRAS) are those acquired by the individual during the period of professional care. The main causes of morbidity and mortality are considered, in addition to prolonging the patient’s hospitalization time, raising the cost of treatment to health institutions.¹

IRAS is characterized as a worldwide problem. In Europe, approximately 6.8% of hospitalized patients acquire, at least, one IRAS.² It is estimated that in the United States, more than two million cases of health-care-related infections occur annually.³ In Brazil, there is no data however, the Ministry of Health considers that the global infection rate is around 14%, a worrying number in the face of the consequences of infections.⁴

Hand hygiene (HH) is recognized as one of the main ways of controlling health care-related infections. It stands out as a simple and economic measure, but of great impact and importance, and is proven to be effective in preventing and reducing infections, since it prevents and / or reduces the transmission of microorganisms from one patient to another.⁵

Even though studies assure the importance of hands in the process of transmission of IRAS and the effectiveness of hygiene in the face of the reduction of infection rates, the adherence of health professionals to this practice is low, generally, not exceeding 50%.⁶ Non-compliance of hand hygiene practices by health professionals is a worldwide concern. National and international health agencies, such as the World Health Organization (WHO), the Center for Disease Control and Prevention (CDC) and the National Health Surveillance Agency (NHSA), have been campaigning for propose strategies that aim to influence the improvement of adherence to hand hygiene among health professionals.

An example of this, is the multimodal strategy to improve adherence to hand hygiene, which is composed of five fundamental axes; to make professionals aware of the importance of greater adherence to hand hygiene: system change; training/instruction; observation and feedback; workplace reminders and an institutional safety climate.⁷ Among these components, training is highlighted, since it allows the updating and the improvement of professionals’ knowledge.

Educational programs should be continuous, using frequent training, periodic campaigns and education in service, with the objective of increasing the motivation of the workers to perform and improve their care practices. In addition, they should favor a participatory attitude of those involved, in order to enable a change of behavior.⁸⁹

To maximize the results of educational activities, it is known that these should use, as a basis, the information previously acquired by health professionals, in the sense of qualifying them, in order to reinforce the development of their abilities, combining the experience acquired by these workers, in their life, and the transmission of scientific knowledge.¹⁰

The use of play, as a way of learning, stands out for spreading knowledge in a dynamic and understandable way for the participants. It is a method that can generate a motivating and pleasant environment, enabling the learning, besides reinforcing pre-established ideas. In addition, the use of a game, as a pedagogical tool can encourage interaction and arouse the interest of the participants, as well as foster pleasure and curiosity about a given theme, facilitating necessary reinforcements and filling gaps between this and its application in clinical practice.¹¹

Given this context, and considering the importance of HH, the low rates of adherence of health professionals to this practice and the need to develop an effective educational program, a playful strategy was developed, aiming at the involvement of health professionals in the discussion, updating and learning theoretical and practical aspects about HH, thus contributing, to the improvement of patient safety.

OBJECTIVE

- Describe an experience report about the conduction of a recreational activity used as a strategy to improve adherence to hand hygiene among health professionals.

METHOD

Study based on the doctoral thesis << Impact of the multimodal strategy on adherence to hand hygiene among the multiprofessional team >>. Presented to the Postgraduate Program of the Nursing School of the Federal University of Minas Gerais.

This is an experience report about the use of a recreational strategy aimed at improving the practices of HH between the health professionals of two adult and pediatric, intensive care units (ICUs), of a university, tertiary, public and of great size of Belo Horizonte.

This strategy was developed as part of a doctoral thesis entitled “Impact of the
multimodal strategy on adherence to hand hygiene among the multiprofessional team“, approved by the Research Ethics Committee of the Federal University of Minas Gerais (COEP/UFMG), opinion num. 184779313.1.0000.5149, from the Graduate Program of the Nursing School of UFMG.

The execution of the proposed activity was also authorized by the coordination of each of the units selected for the study. All the research subjects, that participated in the study, signed the Free and Informed Consent Form, thus composing the requirements of Resolution 466/2012, of the National Health Council, for research involving human beings.

The use of play in an educational action, to seek the improvement of HH practices, was proposed by its inherent characteristic of minimizing the formal character of activities, opening space for freedom and spontaneity of action and expression, being free of pressures and evaluations, thus, allowing a greater participation of the professionals in the training and more effective results during the learning.11

The play activity developed took the form of a game of dice, made up of six sides, with reference, to the didactic material “Patient Safety: Hand Hygiene”, published by the National Sanitary Surveillance Agency12 in reference to the main topics recommended by the WHO for the training of professionals on HH, as follows: global challenge for patient safety (data on morbidity, mortality and costs related to IRAS); transmission of microorganisms (transmission routes and consequences for the patient and the professional health); a strategy for prevention of transmission of microorganisms (standard precautions, HH and care-related precautions) and indications for HH (five times for HH, hand hygiene products and procedures: hand care and use of gloves).7

During the working day, the medical professionals and/or the Nursing team were invited to participate in the activity, with a minimum of two and a maximum of six being agreed upon, and the professional categories were combined per round, each lasting the duration 30 to 40 minutes.

Throughout the process, after presenting the objectives of the activity, the active participation of the whole group was stimulated, since, while a professional played the dice and developed the activity requested, the others should observe it and could assist him, in case of difficulty in accomplishing the task drawn.

The accomplishment of the activity with all the team, in both units selected for the study, comprised a period of three months, from January to March of 2014. All the practice of the game of dice was given in the premises of the ICUs, in a pre-defined place, in the same sector, in order to facilitate the displacement of professionals.

The data set was conducted by the principal investigator and assisted by a student of scientific initiation who had, as responsibilities, to make notes pertinent to the speeches of the participants, the use of adornments during practical activities and the category that represented the participants, thus, performing field registration.

RESULTS

Participating, in the activity, were all professionals working in the units selected for the study, who provided direct assistance to patients and who belonged to the medical or Nursing categories, due to their greater contact with the patients and to the larger number of professionals in these areas.

In all, 17 play sessions were developed in the Adult ICU and 19 in the Pediatric ICU, with the participation of 104 employees. Table 1 shows the number of professionals who participated in the study, divided by the sector in which they worked and the professional category to which they belonged.

At the beginning of the play intervention, some professionals behaved defensively, resisting the activity of playing the dice, possibly, afraid of what their performance would be in the drawn-out activity. Thus, from the motivation strategies adopted in the conduct of the game, highlighting the importance of participation and the posture that it was a relaxed way of knowing the practice and skewing knowledge, during the workshops, the interest was progressive. It was verified that the incentive to the participation of the other professionals was observed, mainly, by those that finished the

Table 1. Quantitative of professionals who participated in the study, divided by sector and professional category. Belo Horizonte (BH), Brazil, 2014.

<table>
<thead>
<tr>
<th>Professional Category</th>
<th>Adult ICU</th>
<th>Pediatric ICU</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Technicians</td>
<td>44</td>
<td>36</td>
<td>80</td>
</tr>
<tr>
<td>Nurses</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Doctors</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>57</td>
<td>47</td>
<td>104</td>
</tr>
</tbody>
</table>
activities, being verified that, even professionals of other categories, and that were not subjects of the research (for example, psychologists and odontologists), participate in the play activity.

The data elaborated consisted of six activities, which are entitled: 1- "Gouache with paint"; 2- "Test with ultraviolet light"; 3- Types of HH; 4- My five moments for HH; 5- Reasons that influence the adhesion to HH and 6 - Feedback of the adhesion rates to HH in the sector.

The activities performed on each side of the die are described below.

**Side 1** - "Gouache with gouache paint": when raffling this side of the dice, the professional should fulfill the task of performing the simple HH technique adopted in his care practice. For this, the professional was prepared with a sale of tissue in his eyes, to ensure that he would not see what was being developed. However, since it was a playful and simulated moment, a strategy adopted, without the professional's previous knowledge, was the substitution of the soap with the vial of the multipurpose gouache paint (Acrilux® brand, non-toxic and washable), as well as the timing of the time spent to perform the hand hygiene procedure. At the conclusion of the HH technique by the professional, the sale of the eyes was withdrawn and the same was encouraged to check his procedure, whose use of the ink allowed the visualization of the parts of the hand in which friction movements were not performed, or were partially. After evaluating the technique's own performer, the person responsible for conducting the proposed activity, together with the participants, evaluated the performance of the professional in relation to the technique performed, emphasizing the positive points and reinforcing the need for improvements.

**Side 2** - "Test with ultraviolet light": on this side of the dice, the emphasis was on the technique of antiseptic friction of hands with alcohol preparation. As a substitute for the alcoholic preparation, a cream with a fluorescent characteristic was used which, when applied ultraviolet light, called by the manufacturer, by a microorganism simulant cream, makes it possible to evaluate the distribution of the cream as well as places in which it had not reached. Thus, the professional was asked to perform the antiseptic friction technique of the hands using the cream, but without knowledge of its fluorescent purpose. After the friction with the cream, the lights were switched off and, with the aid of ultraviolet flashlight light, the worker's hands were analyzed to verify that the cream had been applied to all points of the hands, or some place had been forgotten. After the analysis of the friction, the professional was asked to sanitize the hands with soap and water. The lights were then switched off again and, with the help of ultraviolet light, the removal of the cream was observed after the simple HH technique. Finally, it was emphasized the importance of using the correct technique for antiseptic friction, reaffirming the most forgotten places, evidenced in the dynamics performed in coherence with those reported in the literature.

**Side 3** - "HH types": This side of the data was used to remind the professional of the four types of hand hygiene: simple hygiene, with soap and water; antiseptic hygiene; antiseptic friction, with alcoholic preparation, and surgical management. Initially, they questioned what types of HH the professional knew, which they performed more frequently and which they believed to be more effective. Based on the professional's knowledge, the participants, were discussing effectiveness, reduction of microbial load, removal of soil, time spent and specific indications for each type of MH.

**Side 4** - "Five moments for hand hygiene": The goal of this stage was to address the "My 5 moments for hand hygiene" of WHO, which represent the most frequent opportunities, in the care context, for HH: before contact with patient; before aseptic procedure; after risk of exposure to body fluids; after contact with patient, and after contact with environment close to the patient. The image proposed by the WHO of the five moments was used, however, this one was presented to the professionals, without the description of the indication of each moment (Figure 1). First, it was asked if the professional knew the figure. Then, he was asked to recognize each of the moments, according to his practice of care, with the help of his colleagues. At the end of the approach, emphasis was placed on the minimum moments of HH, performed during direct patient care, as well as unnecessary contacts, mainly with the surface, and reinforcing the indications of MH types for each moment.
Figure 1. My Five Moments for Hand Hygiene from WHO (2009). Belo Horizonte (BH), Brazil, 2014.

Side 5 - The purpose of this side of the data was to provide a space for the professional to describe the reasons he considered to influence his adherence to HH, positive and negative factors, seeking to understand the particularities of the institution and of each worker. After all the professionals present expressed their opinions on the practice of HH, the person in charge of the intervention addressed the main reasons for not doing HH found in the literature, and for the practice of HH, opening space for the discussion and the reflection among professionals, among them, the lack of skin irritation/dryness, cultural and behavioral aspects, the lack of continuing education and the co-responsibility for the control of infections and incentives.\textsuperscript{13-14}

Side 6 - “Feedback”: the last side of the data, was to determine if the professionals had knowledge about HH membership rates in the sector in which they worked and, if not, give them a return of these rates. The person responsible for conducting the intervention presented graphs with the global HH rates, by category, by shift and by procedure performed, measured by direct observation of a previous work performed in the units.

Figure 2 depicts the hands of a healthcare professional after performing the simple HH technique, with replacement of liquid soap by gouache paint. It was observed that the points in yellow correspond to the places that the professional correctly cleaned the hands, and the places without the presence of the ink, attentive to the areas forgotten by the employee during the execution of the technique. The image, also shows the presence of large nails and peeled enamel, serving as potential reservoirs of microorganisms, beyond the dark color of the nails make it impossible to see dirt.
Figure 3 shows the hands of a health professional with the aid of ultraviolet light, after using the microorganism simulant cream, highlighting the correctly sanitized areas by the employee (whitish areas) and the places where there were failures in the antiseptic friction technique (non-fluorescent areas). Next, it portrays the moment in which the professional sanitized the hands, with soap and water, to remove the cream, referring to the technique of simple HH and evidencing places commonly forgotten during MH and easily contaminated by accumulation of microorganisms (mainly, nail bed and subungual), places symbolized, in the figure, by the luminous points.

Figure 3. Visualization of the hands of two health professionals, participating in the study, using ultraviolet light after use of the microorganism simulant cream (a) and after removal of the cream, using simple HH (b). Belo Horizonte (BH), Brazil, 2015.

**DISCUSSION**

The side one of the data, developed for the verification of the technique of simple hand hygiene, allowed all those present to identify areas where the friction had not been performed, thus, becoming, a moment for the step-by-step review of HH, with soap and water, between the staff.

Before starting the technique, it was highlighted that 16 (28.1%) professionals of the Adult ICU used adornments and none of them remembered to remove them before performing the HH technique. In the Pediatric ICU, the reality found was differentiated, since no professional was seen carrying any type of accessory. This was due to greater supervision and guidance from the unit coordination that even before the employees went to the ICU, they were approached and reminded, when necessary, reminding them of the importance of removing the ornaments and performing hand hygiene, in addition to the posters, at the entrance of the unit, located over the sink for HH, that served as reminders at strategic locations.

It is worth mentioning that the use of rings or alliances, by health professionals, in the performance of care activities, can act as reservoir, favoring the permanence of the transient flora under these props and allowing the dissemination of pathogenic microorganisms.\(^{15}\)

It was also noted, that professionals forget to perform the friction between the interdigital spaces, the thumbs, the digital pulps, the nails and the wrists, according to the literature, on the areas most overlooked by health professionals.\(^{16}\)

When dealing with the antiseptic friction technique of the hands with alcoholic preparation using the simulant cream of microorganisms, side two of the data, allowed the observation of the places where the professional would have correctly performed the friction with the product, since these exposed places the ultraviolet light, would correspond to the area of the whitish hands. The accomplishment of such activity served to emphasize the importance of using the correct technique for the antiseptic friction, reaffirming the most forgotten places, evidenced in the dynamics performed and also consistent with those reported in the literature.\(^{16}\)

During the activities that addressed the types of HH, it was pointed out that there should be prioritization by the use of alcoholic preparations, except in specific indications for simple HH, such as visibly dirty hands or after assistance to a patient with spore-forming microorganisms. The reasons for the technical realization of antiseptic friction, over the simple HH technique, refer to the reduced time spent, less skin irritation and greater effectiveness in the elimination of microorganisms.\(^{12}\)

It was pointed out that the professional should not use alcohol more than ten consecutive times without a simple HH, due to the possibility of sweat accumulation and microparticles that may influence the effectiveness of the process.\(^{17}\) In addition, one must take into account the quality of the product alcoholic. Alcoholic solutions for hand
hygiene, in the liquid form of alcohol, should be in the final concentration of 60% to 80%. In the forms of gel, foam and others, the minimum concentration of alcohol must comply with 70%. Higher concentrations are less potent as proteins do not easily denature in the absence of water. In addition to adequate concentrations, it is recommended that all preparations contain emollients in their formulation, to prevent skin dryness and antibacterial activity as demonstrated by in vitro laboratory tests (suspension test) or in vivo to reduce the number of microorganisms.

Note the preference, of most of the employees participating in the research, by the traditional method of simple HH, with soap and water, since they report a better perception of hand cleaning using this method. This preference faces divergences in the literature, varying according to the location, type of study and interventions.

Health professionals, in general, have a greater tendency to use soap and water over alcohol use. For example, it was found in Brazil, a rate of simple HH greater than 90% .6,18. Despite this, studies show that, after being submitted to interventions of the multimodal strategy to improve HH, professionals tend to present better adhesions to the antiseptic friction with alcohol preparation.19-20

When addressing the "My five moments of hand hygiene", fourth side of the data, it was noticed a lack of knowledge of health professionals about the figure, emphasizing that the use of this should be encouraged, because it is a practical method, easy and compatible with the perceived risk of infection.6 It should be noted, however, that although they did not know the figure, the professionals, knew the main moments in which they should perform HH, and were able to relate them to the WHO figure.

In relation to the reasons that lead professionals to adhere to the practice of HH, the main reasons they emphasized were mainly, individual protection and infection control. In contrast, the reasons for non-adherence to HH, cited by professionals were, forgetting, distance from the sink, lack of time, skin irritation and lack of materials, all of them corroborated by the literature on the subject.5-6

The feedback from the HH membership rates, addressed on the sixth side of the data, showed that the team was not aware of these rates. Studies indicate that the professionals consider the lack of feedback with return of service infection rates and research results, as an obstacle to adherence to HH.21-2 Therefore, it is noted that the return to professionals on the rates of adherence to HH, in their workplace can influence the behavior change of the unit employees, in the constant search for an increase in these rates, qualifying their assistance.

CONCLUSION

In spite of the recognized importance of the practice of hand hygiene in the transmission of infections related to health care, there are obstacles to be overcome, regarding the adherence of professionals and strategies, to encourage the institutions, to practice this.

The active participation in the game and the involvement of professionals with the reported activity showed that the use of playfulness becomes an effective teaching tool to arouse interest, without provoking, in the professionals a feeling of tiredness resulting from the repetition of training focused exclusively on the transmission of knowledge in a traditional way.

The use of such methodology favored the motivation of the professional, providing the recognition of fragilities on the subject, reviewing concepts, and strengthened their commitment to the assistance rendered, which could directly impact on their greater adherence to HH.

Finally, the need to invest in HH training strategies that are innovative and attractive to professionals is emphasized, aiming at improving adherence to aspects related to their practices, emphasizing the importance of the act in front of the reduction of IRAS.

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