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THE PROMOTION OF HYGIENE OF THE HANDS AS A STRATEGY FOR SAFE CARE[1]

Gabriela de Souza dos Santos*
Fernanda Leticia Frates Cauduro**
Elaine Drehmer de Almeida Cruz***

ABSTRACT
Intervention research that applied the Guide to the implementation of the OMS to improve Multimodal Strategy of hand Hygiene in Pediatric intensive care unit, operated in diagnosis, intervention, assessment and maintenance of 2011 to 2013. The number of participants varied in each phase and the physical structure, perception and adherence to the hygiene of the hands through questionnaires and direct observation; introduced and evaluated intervention strategies and elaborate maintenance plan for the actions implemented. Data analyzed by descriptive statistics. The results showed improvement in adherence to the hygiene of the hands (46.5% to 64%) and use of alcohol solution (27.56% to 57.81%); better perception of the negative impact of infection and effectiveness of prevention strategies. Composed of maintenance measures: quarterly observations of membership, disclosure of results, week commemorative institution, providing educational material and training annually. It concluded that the guide helped assess and promote hygiene hands on assistive patient context critical, adds security to the care.
Keywords: Hand hygiene. Hand Disinfection. Patient Safety.

INTRODUCTION

The health Assistance-related Infections (IRAS), also known as hospital-acquired infections, are one of the main problems of the medical and hospital sector once constitute an indicator of quality of care offered; your reduction is dependent on the improvement of the legal processes and the engagement of managers and health workers. These infections impact on clinical evolution of the patient, the cost to the institution, provide increased morbidity and mortality and has close relationship with patient safety, because they classified as adverse events[1].

What compels the incidence of IRAS, the intensive care unit (ICU) adult, Pediatrics, neonatology, or concentrate the highest rates of infection, this fact justified by the clinical characteristics of the patients, high demand care they spent, high number of invasive devices, long periods of hospitalization and use of antimicrobial agents and immunosuppressant's[1-3].

Among the measures for the prevention and reduction of IRAS, hygiene of the hands (HM) is widely recognized as the most efficient and effective strategy; and the accession of this practice by health workers is the challenge faced and is the focus of several actions disclosed to the international and national levels. The World Health Organization (who), to launch the World Alliance for patient safety, proposed the program Careful clean is Safe Care, which provides for the *Guide to the implementation of the Multimodal Strategy of who to improve the Hygiene of Hands*, with the purpose of guide the strategies of promotion to HM, which includes the steps of diagnosis, intervention and evaluation , where the improvement actions must be constructed so as participatory and built a plan of action for the unit or institution[4-5].

This Guide proves to be a management tool, whereas proposes the involvement of leaders and workers to which, in this way, membership of the HM will be regarded as the responsibility and goal of the own team, and not only from hospital infection control Service, traditionally responsible for this prevention strategy.

In 2013, in Brazil was launched the National Program of patient safety and the *patient safety goals*. The practice of HM contemplated as the fifth goal, noting the relevance of the theme itself, as well as encouraging the use of the Guide and application of tools for he provided[6].

By the negative impact of IRAS to health services, the high incidence of these infections in ICU and international and national guidelines which provide the stimulus for accession of HM, this research had as objective to promote hygiene of

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*Nurse. Master in nursing, Secretaria da Saúde do Estado do Paraná. Curitiba, PR, Brasil. E-mail: souza.s.gabriela@gmail.com
**Nurse. Master in nursing, Universidade de Brasília. Brasília, DF, Brasil. E-mail: fernandacauduro@usp.br
***Nurse. Doctor in nursing, Universidade Federal do Paraná. Curitiba, PR, Brasil. E-mail: elainedrehmercruz@gmail.com

hands among health workers of a Pediatric intensive care unit, from the methodology presented in the *Guide to the implementation of the Multimodal Strategy of who to improve the Hygiene of Hands*.

METHODOLOGY

Intervention research, performed with the multidisciplinary team of a pediatric teaching hospital INTENSIVE CARE UNIT in southern Brazil. Medical and nursing Manager of the unit, as well as the totality of health professionals (4 doctors, 4 nurses, 5 nursing assistants, 11 nursing technicians, 2 physiotherapists, 1 nutritionist, 1 social worker and 2 administrative assistants) constituted the target population. All of the professionals invited to participate and 29 accepted, having non-uniform participation in steps of research.

The interventions performed on the stage of research guided by the Guide to the implementation of the *Multimodal Strategy of who to improve the Hygiene of Hands* and the tools for it listed tools for change of system, training and education, assessment and feedback, reminders in the workplace and institutional safety climate[5]. These were adapted to reality and organized, by researchers like **diagnosis** (stages 1 and 2), **intervention** (step 3), **evaluation** (step 4), and **maintenance** (step 5).

In this context, the **diagnosis** consisted in checking the structural conditions and importance given by the team at UM, and was conducted during the period of 08 August to 13 October 2011. In step 1 was the physical structure, distribution of supplies, educational activities and internal audits. Step 2 included the investigation of the importance attributed to HM for Pediatric ICU staff, through the application of a questionnaire, and verification of adherence to this practice, with the direct observation of 200 opportunities for UM, being guided by the Observer who's Manual[5]. Considered opportunities for UM moments: before contact with patient/environment and aseptic procedure, after risk of contact with bodily fluids, with the patient and with the environment.

The results from steps 1 and 2 created a 3 step, called **intervention**, with elaboration and implementation of strategies to promote the knowledge and adherence to HM, held from 15 July to 15 December 2012.

The **evaluation**, which corresponds to the step 4, dealt with in the reapplication of the questionnaires and in new opportunities for 200 observation MH, which held from 06 February to 28 March 2013. Before the results, step 5, **maintenance**, executed in partnership with local managers in the period from 22 April to 14 July 2013.

The data of the steps 1 and 4 fed worksheet Excel program and analyzed using descriptive statistics, using *Epi-info* version 3.5.2. The other, obtain in steps 2, 3 and 5, recorded and analyzed descriptively.

This research approved by the Research Ethics Committee of the Hospital study headquarters, under the opinion No. 1167.092.11.06, and observed the ethical and legal principles for research with human beings. The participants who have agreed to participate in the study were clear about the steps of the study and signed the FICS.

RESULTS AND DISCUSSION

The results are presented in comparative form in steps 1 and 2 (**diagnosis**) and 4 (**evaluation**), and descriptive form in 3 steps (**intervention**) and 5 (**maintenance**).

Due to the timeline for the implementation of this research, it found changes relating to human resources in the unit, which influenced the final quantitative of participants at each stage. In this way, the sample of participants was 22 in diagnosis, 40 in intervention, 23 on evaluation and 28 in maintenance. The high number of participants in the intervention phase is due to the participation of hygiene team, which did not participate in the other stages of the study.

Structural conditions and importance attached to the cleaning of hands

In relation to structural conditions, the Pediatric INTENSIVE CARE UNIT had six in-patient beds, a nurses ' station, and an area of circulation, all beds with availability of washbasins and alcoholic solution; 75% contained operating soap dispensers and 25% with educational material for MH.

Of the 23 participants discussed in this step, all reported having received training on HM through meetings, classes, however, were not located records of the frequency of these activities, and there were no guidelines on HM accessible to staff.

The structure of the unit in accordance with who recommendations[4-5], considered a positive aspect, since the lack of inputs and adequate structure interfere

with the accession to the HM[7]; on the other hand, is more easily modifiable.

The results of the investigation, carried out by means of questionnaire on importance attributed to HM, in the context of IRAS, presented in table 1. Highlights that the questions used are those indicated by the Guide[5].

Table 1. Importance attributed to sanitize hands for patient safety before and after intervention. Curitiba, PR, Brazil, 2011-2013.

Variables	Emphasis	Before		After	
		N (22)	%	N (23)	%
Perception on the impact of nosocomial infection on the clinical evolution of the patient	Too high	13	9.0	16	69.56
	High	5	23.0	6	26.9
	Low	4	18.0	1	4.35
Perception of the effectiveness of the cleaning of hands in the prevention of these infections	Very high	11	50.0	21	91.3
	High	10	45.0	1	4.35
	Low	1	5.0	1	4.35
Importance attached to the cleaning of hands on management priorities of the unit	Very high	12	55.0	12	52.17
	High	20	45.0	9	39.13
	Low	0	0	2	8.7

It was evidenced that the perception of professionals on the impact of IRAS in the clinical evolution of the patient, as well as on the effectiveness of HM in the prevention of these diseases, showed improvement after the intervention, being this a result regarded as positive by reflect greater value assigned to this practice. In Brazil, study in Pediatric INTENSIVE CARE UNIT investigated patients with IRAS and found that 71.1 percent of the children had acquired infection in the study, demonstrating high incidence[8]. In addition, a study conducted in NICU in Mexico City showed that low adhesion to the HM is a risk factor for neonatal intestinal colonization by multidrug-resistant Enterobacteria[9], while another study showed the HM as a strategy for preventing the occurrence of these microorganisms[10].

Table 2. Effectiveness attributed to interventions to promote the cleaning of hands before and after intervention. Curitiba, PR, Brazil, 2011-2013.

Variables	Very much Effective (%)	Often Effective (%)	Moderately Effective (%)	Effective (%)	Reasonably Effective (%)	Little effective (%)	Not effective (%)
Support and promotion of leadership to hand hygiene							
Before	59.0	27.0	5.0	9.0	-	-	-
After	61.0	17.4	4.3	13.4	4.3	-	-
Provision of alcoholic solution for cleaning of hands service points							
Before	91.0	4.0	5.0	-	-	-	-
After	78.3	4.3	17.4	-	-	-	-
Exhibition of posters about hand hygiene assistance points							
Before	55.0	18.0	14	9.0	-	-	-
After	43.5	30.4	4.3	17.4	4.3	-	-
Each professional training in hand hygiene							
Before	68.0	18.0	-	9.0	5.0	-	-
After	56.5	17.4	17.4	8.7	-	-	-
Exhibition of clear and simple instructions on cleaning							
Before	64.0	18.0	9.0	9.0	-	-	-
After	56.5	17.4	8.7	17.4	-	-	-
Information for professionals the results of your performance in cleaning of hands							
Before	59.0	18.0	-	9.0	9.0	-	5.0
After	30.5	8.7	8.7	13.0	4.35	30.4	4.35

HM promotion strategies were reevaluated, and effectiveness attributed suffered changes in period; the pros came to judge the support of the chiefs, alcoholic solutions for HM on drive, UM training and explanatory instructions clear and visible in the workplace as the most effective strategies to promote the HM. Studies conducted in Spain and Belgium were the exhibition of posters , distribution of educational materials and training to promote the HM, obtaining significant increase in membership and demonstrating the effectiveness of these strategies[11-12]. The effectiveness of interventions for the promotion of HM, according to the perception of the team, presented in table 2.

Three other issues aimed at the perception on the importance attributed to HM by leadership and by co-workers, and defendant for suitable HM during patient care (table 3). There is change in the perception of little or no importance previously assigned by the leadership and colleagues, as well as changes in the perception of effort to accomplish the HM for assistance.

Table 3. Importance and self-assessment on sanitizing of hands before and after intervention. Curitiba, PR, Brazil, 2011-2013.

	Before		After	
	N (22)	%	N (23)	%
Importance that the boss gives to the fact of excellent hand hygiene				
Very important	15	68.18	13	56.52
Moderately important	3	13.64	9	39.13
Little important	4	18.18	1	4.35
(I)*importance that colleagues give the fact of excellent hand hygiene*				
Very important	10	45.45	10	43.48
Important	9	40.91	0	0
Moderately important	0	0	12	52.17
Little important	1	4.55	1	4.35
No importance	2	9.09	0	0
Auto evaluation of efforts to perform adequate cleaning of hands during the assistance				
Great effort	9	40.91	5	21.74
Some effort	7	31.82	7	30.43
Little or no effort	6	27.27	11	47.83

Adherence to the hygiene of the hands

Considering the opportunities for 400 HM observed, joining the UM performed better when compared the moments before and after the intervention, being of 46.5% (93) and 64% (128), respectively. This result is very positive and shows the importance educational activities and to raise awareness of this practice to patient safety and health care professional. Greater accession to UM after using the Guide also was observed in and multicenter study conducted in eight hospitals in the United States verified membership of the HM of 47.5% in pre-intervention and 81% moment at the time post[13]; at another Brazilian study found that 28.6% adhesion to 38.9%, respectively[14].

Stresses the importance of the continuity of the investigation; a hospital in Taiwan showed that, after a year of operations and program development, HM membership rose from 62.3% to 73.3%, and at the same time, the rate of hospital-acquired infections suffered a significant fall (3.7% to 3.1%)[15]. Studies show that increasing the membership of the UM has an effect on the incidence of these reducer harms to health[15-19].

In relation to work shifts, the membership was, before and after the intervention, 33.33% respectively and 72.84% on day shift; of 51.06% and 54.55% in the evening; and 77.27% and 70.97% nightly. The greatest impact, therefore, observed on the day shift, which may reflect greater interference of leadership and general, leadership in the mornings and on which are present, when compared to the evening and night periods. A similar result obtained by researchers from Hong Kong when using multi-modal strategy, these observed increased 27% to 60.6% on day shift in a group of institutions, and from 22.2% to 48.6% in another group[20].

In regards to membership, by professional category, the results are shown in table 4 , where notes that increased the number of professionals in all categories, with the exception of nursing technicians and the worst result was observed between the doctors and the best among physiotherapists and nursing technicians.

Table 4. Compliance with opportunities for sanitizing hands, by professional category, before and after the intervention. Curitiba, PR, Brazil, 2011-2013.

Professional category	Before N (%)	After N (%)
Nursing Assistant	5 (71.24)	21 (70.00)
Nursing technician	63 (40.12)	56 (67.47)
Nurse	18 (64.28)	20 (66.67)
Physical therapist	-	14 (77.78)

Doctor	7 (87.50)	18 (46.15)

In the national context, study that evaluated the adherence to the HM before and after implementation of educative actions, through direct observation, identified the General increase in adherence to this practice, especially among physiotherapists[14].

The recommends the opportunities for moments of HM, in order to promote patient safety and health professional[5]. Observe that there was greater adherence to the HM "after contact with the patient in the first step and" before the patient contact/environment "in the second stage (table 5). These indicate greater attention to worker safety.

Table 5. Accession to the opportunities for hand hygiene before and after the intervention. Curitiba, PR, Brazil, 2011-2013.

Opportunities for sanitizing hands	Membership	
	Before N (%)	After N (%)
Before contact with patient/environment	34 (57.60)	49 (59.00)
Before aseptic procedure	9 (18.40)	13 (48.10)
After risk of exposure to bodily fluids	4 (23.50)	13 (81.20)
After contact with patient	31 (72.10)	33 (67.30)
After contact with environment	15 (46.90)	19 (76.00)

During the training period also emphasized the importance of HM before aseptic procedures, as well as what are these procedures; the membership fee was $18.36%, increasing to 48.15% after the intervention, which contributes to the protection of the patient in moments of greater vulnerability due to invasive procedures, such as parenteral medication. In line with this, on an urgent and emergency unit of southwestern Brazil, joining the UM, after significantly higher was educational strategies, especially before aseptic procedures[14].

Surprisingly the membership right now "after the risk of exposure to bodily fluids" was low (23.52%); after the implementation of the strategies passed to 81.25%. There is no denying the importance of this practice in the face of the risk of contamination of the professional to have contact with blood, secretions and other potentially contaminated body fluids. Study conducted in 2012[17] demonstrated 61.4% change to 82.9% after the fourth sequence of interventions; other researchers[7] show that in these moments is no greater adherence to the HM, when compared to other directions, reflecting greater preoccupation with self-protection among workers.

The method used for HM before and after the intervention was, respectively, 72.0% and 42.19% for washing hands with SOAP and water and 27.56% and 57.81% for washing hands with antiseptic solution in alcohol. The classifies alcoholic solutions as gold standard for HM (5); in this research, at the time prior to the implementation of the strategies, the most used method was to wash hands with SOAP and water (72.04%) and, after the intervention, the use of alcoholic solution was the most employee (57.81%).

Studies that report the research professionals to HM, without realization of strategies for promoting this practice, demonstrated that the use of SOAP and water overcame alcoholic Solutions[7]; and study in Hong Kong has highlighted the increased use of alcoholic solutions after a campaign[18] corroborating the results of this research. In this way, the multimodal strategy also contributed to encourage professionals to the use of alcoholic solutions, contributing to the effectiveness of HM. However, in practice there is still need for more outreach conceit of professionals about the supremacy of alcoholic solutions in reducing the resident and transient microbiota.

The use of gloves evidenced during the observations, as a factor intervening in accession to HM by health professionals. Many of these were not the HM before putting on the gloves and, especially, after your withdrawal, with improvement after the intervention period. Points out that the use of gloves does not suppress or replace the practice of HM, both under the protection of the patient's vision.

Interventions to promote the cleaning of hands

Intervention actions based on the results of diagnostic phase. It developed a schedule of educational activities organized through the distribution of educational materials, discussion in small groups associated with the playful activity.

With regard to materials, the strategies included fixing of posters with the 5 times for HM in patient care; creation and provision of posters with impactful images in access to unit; distribution of posters with information on the effectiveness of the products used for the realization of HM; availability of scientific

literature in digital format and printed; preparation and distribution of brand-pages about the topic by the invitation to the training. The educational material used designed and produced by the researchers. On all computers of the unit were inserted screensavers (screen savers) and wallpapers on HM, besides the availability of literature on the topic.

The results of the diagnostic phase presented and discussed at meetings in small groups to promote the reflection of fragile points; these opportunities the scientific fundamentals of HM, cross-stream and information about the correct use of gloves presented and discussed with the professionals. These activities took place during four days, on all work shifts with the participation of 30 workers.

In addition to the theoretical content, playful activity developed, using the product Glo-Germ®. This comes in cream form and, when applied on the hands, simulates the presence of microorganisms in the stricken areas. After applying the lotion on my hands, an ultraviolet lamp so you can observe the luminosity generated by the product, then the HM with water and SOAP and skin again observed under UV light, making it possible to identify regions that not sanitized properly and allowing the professional self-evaluation.

Actions to maintain the hygiene of the hands promotion

The plan of actions for the continuous promotion of HM in the unit built, participative, by exposing the results in the murals of unity, individual and small group conversations with professionals, and suggestions of collection actions. The actions of promotion should continued so that the improvement of adhesion is progressive, as a study in Belgium: the development of four campaigns resulted in an increase in the membership of the HM of 49.6% to 68.6%, from 53.2% to 69.5%, 58% to 69.1% and 62.3% to 72.9 %[15].

The results and the suggestions were registered and constituted the plan of action with eight strategies (chart 1).

Chart 1. The action plan suggested by the professionals of the unit. Curitiba, PR, Brazil, 2011-2013.

1. Institution of the week of HM in week 05 of mayday (world day of Cleansing of the hands), with educational activities, trainings, materials distribution and exhibition of posters by the unit.
2. Annual Trainings, with updated content about UM, use of Glo-Germ ®, debates and realization of crosswords on HM.
3. Distribution of educational materials about HM & current events.
4. Fixing posters with instructions on HM next to washbasins and poster with image affecting input of the unit.
5. Fixing posters in A4 format on HM within the boxes where they carried out with the patient and care on blood gas room.
6. Use of wallpapers and screensavers with the theme on the computers of the unit during the entire week of HM.
7. Achievement of quarterly observations of HM membership by professionals.
8. Presentation of the results of quarterly observations for the unit to professionals and offers them in the murals of the unit.

FINAL CONSIDERATIONS

Through the application of strategies recommended by who inserted in the Guide, this research there has been greater adherence to the HM, better understanding of the importance your patient care and prevention of IRAS, and greater self-criticism. Stresses greater adherence to the use of alcoholic solution as the product of choice, the gold standard for this technique and of relevant importance in your operation and efficiency in removing microorganisms from the skin. The insertion of the participants in planning strategies for the continuity of actions contributed to the engagement and increased possibility of continuity to HM promotion measures in daily life assistance. Search of the participantssuggestions, and continuous evaluation of the actions carried out by these, show your interest in the subject, as well as the need of continuous update.

The limitations of the study related to the timeline, variable number of participating professionals in each of the stages of research and statistical analysis.

HM promotion strategy, as recommended by the guidelines, well accepted, with results that point to increased membership. However, due to the reduced number of workers in the ICU and variability among research participants during the steps due to vacation, transfers and retirements, was not considered suitable for applying statistical tests to test the significance, or not, of accession after the interventions.

A PROMOÇÃO DA HIGIENIZAÇÃO DAS MÃOS COMO ESTRATÉGIA PARA O CUIDADO SEGURO

RESUMO

Pesquisa de intervenção que aplicou o Guia para a Implementação da Estratégia Multimodal da OMS para melhoria da Higiene de Mãos em Unidade de Terapia Intensiva Pediátrica, operacionalizado nas fases diagnóstico, intervenção, avaliação e manutenção, de 2011 a 2013. O número de participantes variou em cada fase e avaliou-se a estrutura física, percepção e adesão à higienização das mãos por meio de questionários e observação direta; foram instituídas e avaliadas estratégias de intervenção e elaborado plano de manutenção para as ações implementadas. Os dados foram analisados por estatística descritiva. Os resultados evidenciaram melhoria na adesão à higienização das mãos (de 46,5% para 64%) e no uso de solução alcoólica (de 27,56% para 57,81%); melhor percepção do impacto negativo das infecções e eficácia das estratégias de prevenção. Compuseram as medidas de manutenção: observações quadrimestrais da adesão, divulgação dos resultados, instituição de semana comemorativa, disponibilização de material educativo e treinamentos anuais. Conclui-se que o Guia contribuiu para valorar e promover a higienização das mãos no contexto assistencial ao paciente crítico e agrega segurança ao cuidado.

Palavras-chave: Higiene das mãos. Desinfecção das mãos. Segurança do paciente.

LA PROMOCIÓN DE LA HIGIENIZACIÓN DE LAS MANOS COMO ESTRATEGIA PARA EL CUIDADO SEGURO

RESUMEN

Investigación de intervención que aplicó el Guía para la Implementación de la Estrategia Multimodal de la OMS para mejoría de la Higiene de Manos en Unidad de Cuidados Intensivos Pediátrica, hecho en las fases diagnóstico, intervención, evaluación y mantenimiento, de 2011 a 2013. El número de participantes varió en cada fase y se evaluó la estructura física, percepción y adhesión a la higienización de las manos por medio de cuestionarios y observación directa; fueron instituidas y evaluadas estrategias de intervención y elaborado plan de mantenimiento para las acciones implementadas. Los datos fueron analizados por estadística descriptiva. Los resultados evidenciaron mejoría en la adhesión a la higienización de las manos (de 46,5% para 64%) y en el uso de solución alcohólica (de 27,56% para 57,81%); mejor percepción del impacto negativo de las infecciones y eficacia de las estrategias de prevención. Compusieron las medidas de mantenimiento: observaciones cuatrimestrales de la adhesión, divulgación de los resultados, institución de semana conmemorativa, disposición de material educativo y entrenamientos anuales. Se concluye que el Guía contribuyó para valorar y fomentar la higienización de las manos en el contexto asistencial al paciente crítico y agrega seguridad al cuidado.

Palabras clave: Higiene de las manos. Desinfección de las manos. Seguridad del paciente.

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Corresponding author: Gabriela de Souza dos Santos. Av. Prefeito Lothário Meissner, 632 - Jardim Botânico, Curitiba - PR, 80210-170. Tel: (41) 3361-3752.

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