

Original Article

Prevention and control of specialized healthcare infection: a study on guardians of children in the pediatric sector

Prevenção e controle de infecção relacionada à assistência à saúde: um estudo com responsáveis de crianças internadas no setor pediátrico

Prevención y control de infecciones relacionadas con la asistencia sanitaria: un estudio con tutores de niños hospitalizados en el sector pediátrico

Sheila Mara Bezerra de Oliveira¹ ORCID 0000-0002-3388-1428
Edna Ferreira Coelho Galvão² ORCID 0000-0003-3524-9909
Luan Gomes-Santos³ ORCID 0000-0002-5730-7578

¹Universidade do Estado do Pará (Uepa), Pará, Brazil.

²Universidade Federal Fluminense (UFF), Rio de Janeiro, Brazil.

³Centro Universitário da Amazônia (Unama), Amazonas, Brazil.

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E-mail: ccih@hrbaprosaude.org.br

Address: Travessa Dois de Junho, 88, Aldeia, Santarém, Pará, Brazil.

ABSTRACT

Background and Objectives: In child hospitalization, health education is applied with companions to control infections related to healthcare, since the achieved knowledge will assist in prevention, enabling family members and companions to understand preventive measures and put them into practice. We describe the knowledge and practices of the guardians of patients in the pediatric sector regarding the prevention and control of infections. **Methods:** The study was carried out in the pediatrics clinic at the Baixo Amazonas Regional Hospital (HRBA) in Santarém, Pará. We performed a quantitative-qualitative study. Twenty guardians responsible for pediatric patients participated in this study. The quantitative data were analyzed with descriptive statistics and transcriptions included only spelling and qualitative corrections using the application software Iramuteq. **Results:** all respondents were female, with predominance of the age group between 30 and 35 years, and complete high school. The qualitative data obtained by the software, which resulted in a dendrogram called the Guardian's Knowledge about Infection related to Healthcare, giving rise to two categories: one addresses the knowledge base of infection related to health care, and the other addresses Health Control Practices. **Conclusion:** Most guardians are unaware of the definition of hospital infection and do not know how to acquire it within the hospital environment, which is controversial, since most report having received guidance on the topic during the admission of their patient.

KEYWORDS: Hospital infection. Pediatrics. Health education.

RESUMO

Justificativa e Objetivos: Na hospitalização infantil, a educação em saúde é utilizada com acompanhantes, para controle das infecções relacionadas à assistência à saúde, uma vez que o conhecimento construído auxiliará na prevenção, possibilitando a familiares e acompanhantes compreenderem as medidas de prevenção e as colocarem em prática. Descrever os saberes e

práticas dos responsáveis de pacientes no setor pediátrico, no que concerne à prevenção e controle de infecção relacionada à assistência à saúde. **Métodos:** O estudo foi realizado na pediatria do Hospital Regional do Baixo Amazonas (HRBA) em Santarém – Pará. Realizou-se pesquisa quantitativa e qualitativa. Esta contou com a participação de vinte responsáveis de pacientes pediátricos. Os dados quantitativos foram analisados com estatística descritiva e transcritos em suas falas originais para a pesquisa, realizando apenas correção ortográfica e os qualitativos por meio do software Iramuteq. **Resultados:** todos os entrevistados eram do sexo feminino, com predomínio da faixa etária de 30 a 35 anos e ensino médio completo. Os dados qualitativos dos obtidos pelo software resultou no dendograma denominado Saberes dos Responsáveis sobre infecção relacionada à assistência à saúde, dando origem a duas categorias: uma aborda sobre o conhecimento de infecção relacionada à assistência à saúde e a outra aborda sobre as Práticas de Controle de Infecção. **Conclusão:** A maioria dos responsáveis desconhecem a definição de infecção hospitalar e não sabem como a adquire dentro do ambiente hospitalar, o que traz controvérsias, já que a maioria relata ter recebido orientação sobre o tema durante a admissão do seu paciente.

DESCRITORES: Infecção hospitalar. Pediatria. Educação em Saúde.

RESUMEN

Justificación y objetivos: En la hospitalización infantil, la educación en salud es una estrategia importante utilizada con acompañantes como método de control de las infecciones hospitalarias, ya que el conocimiento construido podrá auxiliar en la prevención, al posibilitar que familiares y acompañantes comprendan las medidas de prevención y las pongan en práctica. Conocer los saberes y prácticas de los responsables de pacientes en el sector pediátrico, en cuanto a la prevención y control de la infecciones relacionadas con la asistencia sanitaria.

Métodos: El estudio se realizó en el sector pediátrico del Hospital Regional de Baixo Amazonas, en la ciudad de Santarém (Pará, Brasil). Se hizo una investigación de campo, con un enfoque cuantitativo y cualitativo. El estudio incluyó la participación de 20 (veinte) tutores de pacientes pediátricos. Los datos cuantitativos se analizaron utilizando estadísticas descriptivas, y los datos cualitativos se trataron utilizando el software Iramuteq. Los autores analizaron los datos cualitativos y los transcribieron en sus declaraciones originales para la investigación, realizando solo la corrección ortográfica.

Resultados: Se entrevistó a veinte tutores de niños, todas mujeres, con predominio del grupo de edad de 30-35 años y el nivel de estudios la secundaria completa. A partir del análisis cualitativo de los datos realizado por el software, se obtuvo el dendograma denominado Conocimientos de los responsables sobre la infección relacionada con la asistencia sanitaria, dando lugar a dos categorías: el conocimiento de la infección relacionada con la asistencia sanitaria y las Prácticas de control de infecciones.

Conclusión: La mayoría de los tutores desconocen la definición de infección hospitalaria y no saben cómo se adquiere una infección dentro del entorno hospitalario, lo cual es controvertido, pues la mayoría informa haber recibido orientación sobre el tema durante el ingreso de su paciente.

PALABRAS CLAVE: Infecciones Relacionadas con la Asistencia Sanitaria. Pediatría. Educación en Salud.

INTRODUCTION

Infections related to health care (IRHC) are of great epidemiological relevance since they increase morbidity and mortality rates, extend the duration of stay in the hospital and, consequently, increase treatment costs. A period of 48-72 hours after admission to the hospital

is set to determine if the infection was acquired during a stay in the institution. In recent decades, IRHC rates have grown significantly, requiring more vigilance and measures to prevent their spread. Education, culture change, team engagement and effective management of the changes performed are necessary for the successful implementation of infection prevention strategies.¹⁻

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A number of factors result in the development of these infections in children, such as: the slow maturation of their immune system, whose development is less pronounced the younger they are, making the risk of acquiring communicable diseases higher; the sharing of objects among pediatric patients; acute malnutrition; the presence of congenital anomalies; the use of medications, particularly corticosteroids; and blood-oncological diseases.⁶

In child hospitalization, health education is an important strategy used for companions as a method of controlling IRHC, since the constructed knowledge may help in disease prevention, enabling family members and companions to understand the prevention measures and put them into practice, which may lead to reduction of IRHC indices, benefiting both patients and hospital. The professionals act as facilitators in the actions of promotion and healthcare, guide in the prevention and reduction of harm, allow to bring positive results both to the environment and to strengthen the bond between professionals and the users assisted by them.⁷⁻⁸

Hospital-acquired infections continue to be a significant source of potentially preventable morbidity and mortality in pediatric patients. By better understanding these conditions and the implementation of prevention strategies, healthcare centers can improve the results in this vulnerable population.⁹

Based on these premises, this study described the knowledge and practices on the prevention of IRHC of guardians of hospitalized children in the pediatric sector of a teaching hospital in the countryside of the Amazon.

METHODS

This is a descriptive-exploratory study, with a quantitative-qualitative approach conducted with interviews with guardians of children hospitalized in the infirmary and in the Pediatric Intensive Care Unit (PedICU) of the Regional Hospital of Baixo Amazonas do Pará "Dr. Waldemar Pena" (HRBA), with the authorization of the institution.

The infirmary and the PedICU have 21 and 10 beds, respectively, distributed for the surgical, onco-hematological and general specialties, in addition to meeting the demands of chronic, neuropathic and long-term patients.

Twenty guardians of children hospitalized in the aforementioned sectors participated in this study. We included companions aged 18 years or more, longer than six months accompanying the hospitalized child, with physical and psychological conditions favorable to participation in the research. Those who were discharged from the hospital during the study period were excluded.

Data collection was performed from September to November 2016 after institutional acceptance. The interview process took place in the multiprofessional report room from 16:00 to 17:00 hours, where each participant, one at a time, was invited to enter and participate in the research, and having been granted their authorization, each interview lasted approximately 20 to 30 minutes and their audio was recorded using an Apple *smartphone* of model 6s to ensure the full analysis of the statements. All interviews and statements were transcribed, and then archived after analysis to guarantee the ethical principles of secrecy.

For data collection, the following instrument was used: a form divided into two parts, authored by the researcher, namely: the 1st part containing socio-epidemiological data (age, sex, education, diagnosis of the child, hospitalization time, division of care) and the 2nd part containing subjective questions, consisting of six questions that contemplate the concepts of IRHC, in addition to the perception of the guardian on the prevention of hospital infections.

The quantitative data obtained by the questionnaire were tabulated in Microsoft Excel® 2010 and SPSS version 15.0 and analyzed using descriptive statistics using percentages and means. They were then presented in tables.

The quantitative and qualitative data obtained from the interviews were transcribed into a document in the Microsoft Word proprietary format (.doc) and, after transcription, they were analyzed in the free software Iramuteq 7.0. The qualitative data were analyzed by the authors and transcribed in their original statements for the program Iramuteq 7.0, with its only changes being spelling corrections. The interviewees were identified with the letter “P” followed by a sequential number.

The procedures adopted in this research met resolution 466/2012/CNS involving human beings. This study was approved by the Research Ethics Committee of Universidade do Estado do Pará (Uepa) – campus XII – Tapajós, according to Opinion No. 1.728.286 and CAAE: 59098516.6.0000.5168.

RESULTS

Socio-epidemiological profile of guardians and children hospitalized in the pediatric sector

The guardians of children hospitalized in the pediatric sector were mostly female (100%), aged between 30 to 35 years (50%) with complete high school (60%), with more than one child under their responsibility (60%), in addition to who was hospitalized (Table 1).

Table 1. Distribution of the socio-epidemiological profile of guardians of children hospitalized in the pediatrics sector of the regional hospital, 2016

VARIABLES	N	%
SEX		
Female	20	100
AGE GROUP		
18 to 23 years	2	10
24 to 29 years	3	15
30 to 35 years	10	50
36 to 40 years	5	25
EDUCATION		
Primary Incomplete	4	20
Primary Complete	1	5
Secondary Incomplete	1	5
Secondary Complete	12	60
Tertiary Complete	2	10
OTHER CHILDREN IN YOUR CARE		
None	1	5
1 child	12	60
2 children	3	15
3 children and/or more	4	20
CHILD DIAGNOSIS		
Neuropathic	13	65
Neoplasm	6	30
Congenital Disease	1	5
CHILD HOSPITALIZATION TIME		
6 months to 1 year	12	60
2 to 4 years	4	20
5 to 7 years	2	10
8 to 10 years	2	10
DIVISION OF CARE		
Yes	18	90
No	2	10
GUIDANCE RECEIVED BY MANAGERS ABOUT IRHC		
Yes	18	90
No	2	10

Knowledge and practices of guardians about healthcare-related infection

Iramuteq generated five classes that covered specific semantic contexts, each of which was assigned a title (Figure 1).

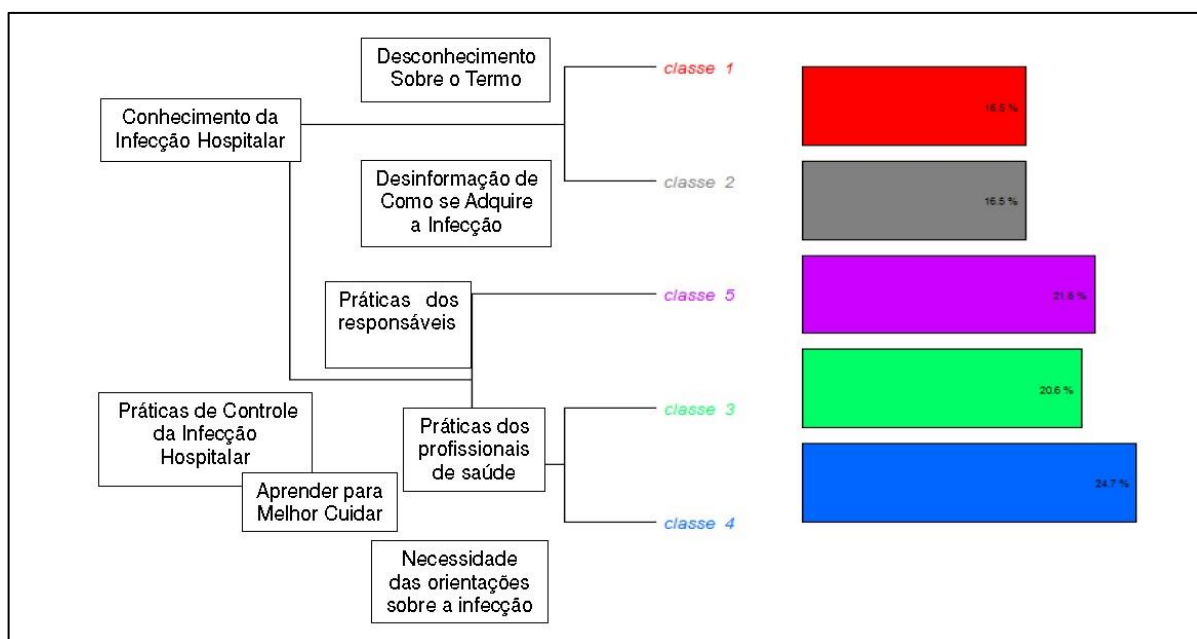


Figure 1. Dendrogram on knowledge and practices of guardians about hospital infection by the method of descending hierarchical classification (DHC), **Santarém, Pará, 2016**

In the thematic axis “Knowledge of hospital infections” that is present in 33% of the units identified by Iramutec, two classes (1 and 2) appeared, showing the importance of knowledge on the topic of prevention and control of IRHC.

Within this context, one of the participants considers that the infection occurs due to lack of cleanliness, although they did not have knowledge about the subject. Another considers that it is a bacterium that infects the patient's organism, as observed in the statements made by the guardian:

“(…) I don't know what is an infection related to healthcare, I know that I have to avoid getting infected, I wash my hands, I always pay attention to his procedure (…)” (P1).

“(…) Infection is when the bacteria that you have in the hospital causes an infection, I don't quite have a definition for that, no one has ever spoken to me so openly about this, I think it is a bacterium that one catches and that can infect that person (…)” (P2).

Starting from the class 2 axis, participants do not present the knowledge on how to acquire IRHC:

“(…) I don't know how patients get healthcare-related infections here in the regional hospital, for him to not get the infection, I wash my hands well, I use gel sanitizer, gloves and caps (…)” (P8).

“(…) I can't explain how one gets infection, I think it's due to a bad procedure, people end up acquiring a bacterium, but I think most of the time that can be it, an incorrect procedure (…)” (P2).

The second thematic axis that originated from the root of the dendogram was called "Hospital Infection Control Practices", which refers to the daily practices performed by participants and health professionals observed by guardians during their patient care activities. The information on the need for educational guidelines originated three classes that were grouped since they refer to content related to practices for preventing IRHC performed by health care managers and professionals, and the interrelationship of these practices to the importance of carrying out more effective educational guidelines.

Class 5 depicts the measures taken by participants to prevent and control IRHC:

“(…) I don't touch him without washing my hands, I always put my gloves on because I am already trying to prevent this, the more we get in contact with another patient, we are at risk because we don't know what we're taking to him (…)” (P3).

“(…) So I always wear gloves before his meal, I always take a look if there's anything on the skin and in the material he uses because it can create a bacterium and cause infection (…)” (P15).

Class 3 refers to the practices performed by health professionals, as observed by participants to prevent and control IRHC:

“(…) I realized the following when the doctor came in – the neurologist: he did not wash his hands, and we washed our hands straight, and at the moment I was leaving the washbasin I realized that the neurologist arrived, talked to me and left towards the room, he went straight to care for the child (…) ” (P9).

“(…) Nursing technicians, they carry out the protective measures here inside the pediatric intensive care unit, I always see this, always when they come to visit each patient, they use that to wash their hands, they wear a cap, they use sanitary gel, with me they have this concern (…)” (P7).

Class 4 represents most statements about the importance of guidance given to participants to prevent and control IRHC:

“(…) Giving a bath, you gotta clean the bed, change the sheets, clean the walls, put a mask on them, I can't tell you what orientation we are supposed to follow, but I can guess more chats with parents and more guidance on infection related to healthcare (…)” (P5).

“(…) We are not guided, on my side I do my part, I have to guide the guardians of the children better. I think that here at the Regional Hospital you have to instruct on how to wash your hands (…)” (P13).

DISCUSSION

The socio-epidemiological profile of the guardians consists of women aged 30 to 35 years, with complete secondary education and more than one child under their care. Similar data corroborate this study, showing that in Brazilian culture it is common for women to take care of children, especially when the child needs to be hospitalized. In one study, authors showed the socio-epidemiological profile of guardians of hospitalized children, individuals, mostly female, in the age group of 20 years, with secondary and tertiary education.¹⁰

The main causes of hospitalization in pediatric units are related to the morbidity and mortality profile. National epidemiological data indicate the reduction of infant morbidity and mortality as a challenge in Brazil. In the pediatric age group, many patients are admitted with an infectious process acquired in the community (known as community infection), and are an important factor of child readmission.¹⁰

For the control of IRHC, it is essential to maintain simple practices such as hand hygiene, the correct use of precautionary and isolation measures, and the knowledge of the health team about these measures combined with the guidance of patients' companions.¹¹

Health education is quite widespread in nursing, especially at the level of primary healthcare, and this practice must also include secondary and tertiary care. In the hospital environment, as a result of the routine demands and the numerous assignments of the nursing team, the guidelines to guardians of hospitalized patients are almost nonexistent, however, considering the risk of IRHC that children with longer hospitalization times are subjected to, it is necessary to maintain a process of guidelines so that the actions of guardians may add up with the therapy adopted by the health team.

Class 1 (16.5%) gives visibility to the lack of knowledge of participants on the subject. The participants of a survey also stressed the issue of hand washing, highlighting the importance of cleaning to avoid infection, as if the fact the site is clean and simple hand hygiene implies that there will be no germs to cause the infection.⁷

Hand hygiene is essential to control IRHC, however, the criteria and protocol for this procedure must be noted. As such, one study highlights the importance of hand washing in and

out of inpatient units, especially for pediatric patients, preventing the child from being infected and their guardians from taking germs out of the hospital.¹⁰

The lack of knowledge about IRHC is often observed among patients and their families, since most did not obtain sufficient information on the subject to express an informed opinion and a specific definition.

One study reported that most participants in their research are unaware of the diagnosis of IRHC and believe that it is a natural part of the disease or the hospitalization process.¹²

Studies show that lack of information on IRHC indicate a need for permanent education programs in health units, as well as better performance of professionals in the sector.⁷

Class 2 is observed in 16.5% of statements. The lack of knowledge about how to be infected in a hospital is constant in the statements provided by the interviewees and can also be observed in all conversations with patients and family members, since family members do not receive this information clearly in order to avoid hospital infection scenarios.

Participants in a certain study showed concern with invasive procedures, believing that they can cause infections, as well as routine hand hygiene and objects in the environment, as they are factors for the direct or indirect transmission of infection.¹⁰

Class 5, called "Guardian practices", represented 21.5% of the statements. Preventive measures should be carried out by all persons involved, not only health professionals, but also the guardians of hospitalized children. As the subjects report, one's hands must be washed, the person should wear gloves and inspect the objects that the child will have contact with.

A study reported that the research participants argue that hand hygiene is essential to avoid healthcare-related infections, as it is fundamental care that health professionals, family members, visitors and anyone who comes into direct or indirect contact with the patient, or even with the hospital environment, should have.¹⁰

Class 3, called "Practices of health professionals", represented 20.6% of statements. In the report of the first participant, lack of hygiene on the part of the doctor who came to perform the care could be observed, as they did not wash their hands at any moment. The second participant's report points out that nursing professionals maintain their hygiene and protection to avoid IRHC.

In another study, data were found that emphasized that doctors have greater difficulty in performing hand hygiene, a fact that is not perceived among nursing professionals, who are expected to perform the IRHC prevention measures.^{7,9,10}

Class 4 called "Need for guidance on infection" represented 24.7% of the sample. In the report of the first guardian, he considers that various kinds of care are needed for the patient,

such as the daily change of sheets, cleaning the bed and the walls, use of masks, stressing the importance of parents receiving more specific guidance. The second guardian reinforces the lack of guidance, arguing that they want to help prevent IRHC, but should receive more specific guidance.

One study reveals that its participants focused on the need for educational guidance in health involving the hospital community so that a safe environment for patients is achieved.¹⁰

The nurse in charge of a pediatric unit is essential for process of enabling infection prevention and control measures, and should develop a set of deliberate and systematic actions to reduce the incidence and severity of IRHC based on their management skills, their evaluation of the quality of services, and their care practices.¹³

It is of great importance to invest in the education and training of staff who work directly in the control of hospital infections, as it is considered the main link between the patient and/or their family members, so that, by improving their education, there can be a tendency to hone in on their skills, seeking to prevent and control infections and, consequently, leading to a reduction in morbidity and mortality rates due to hospital infections.

One of the limitations of this study was the non-validation of the educational material that was created and the proof of its effectiveness in educational programs, as it was not possible to work on them since it would require more time to be developed, wherein this and other demands are to be unfolded in future studies at the stricto sensu level in the graduate program (doctorate).

Lastly, by utilizing the instruments and the data collection technique, it was possible to achieve all the proposed objectives of this study and thus provide subsidies for the implementation of educational programs focused on the protagonists of the research on the topic of preventing IRHC.

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Authors' contributions:

Sheila Mara Bezerra de Oliveira, Edna Ferreira Coelho Galvão and Luan Gomes dos Santos contributed to the conception, design, analysis and writing of the article;

Sheila Mara Bezerra de Oliveira, Edna Ferreira Coelho Galvão and Luan Gomes dos Santos contributed to the planning, design, review and final approval of the article;

All authors have approved the final version to be published and are responsible for all aspects of the study, including ensuring its accuracy and integrity.