

Prevention and Control of Infection: An Advanced Nursing Practice

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Abstract

Introduction: The infection associated to health care, assume a worrying dimension with repercussions at several levels. The prevention and control of infections are structural components of quality, determinants in the security context of the patient, however, it is recognized that the beliefs, skills and work dynamics of health professionals, especially nurses, influences the adherence to the recommended practices. **Objective:** The aim of this study is to clarify the importance of the prevention and control of infection in nursing practice. **Material and Methods:** A systematic review of the literature by mobilising the descriptors "Hospital Infection", "Prevention and Control" and "Nurs"; using the method peak. Were selected ten databases imaginable, between 2008-2016, included for analysis ten articles. **Results and Discussion:** It was found that the nurses assume a major responsibility in the implementation of good practices. Many are the factors that influence the accession procedures to implement. The great majority of professionals takes a positive attitude toward the guidelines for a given intervention. **Conclusion:** It can be concluded that the way each professional understands the guidelines should be analyzed, which justifies the implementation of audits to practices, to optimize and achieve the desired objective, promoting a quality care practice.

Keywords: Hospital Infection. Prevention and Control. Nursing care.

1. Introduction

Currently the infection associated to Health Care (IAHC), assume a worrying dimension with repercussions at several levels. Designate the infection acquired by patients during the provision of health care, either in hospitals or in outpatient clinic, which were not present or incubated at the moment of admission and it can manifest after the patient been discharged from the hospital and that can affect the health professionals during their professional activity (World Health Organization (WHO), 2011; General Direction of Health (GDH), 2009 and Klevens et al., 2007).

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Florence Nightingale was the first to be concerned about hospital infections, stating for the first time the direct relationship between poor hygiene conditions and the risk of infection, describing care and strategies regarding both, the customer and the environment, having in mind a way to tackling and reducing the risks of infection (Haddad and Santos, 2011; Sayers, 2015). In the decade of the seventies, the Commissions of Hospital Infection Control started, where the nurse was a professional determinant not only by improving methods for epidemiological surveillance, but also by the development of educational actions that granted greater awareness from the part of health professionals (Pereira, 2005).

In Portugal prevalence studies have been conducted that point to a hospital infection rate of 10.6%, which is above the prevalence of European Union, which is 6.1%. The male gender is the most affected, with a prevalence rate of 12.4%. Instead, this rate appears to the feminine gender with a rate of 8.8% (Pina et al., 2013). On the other hand there are international studies that show that about one third of infections acquired in the provision of health care are surely avoidable (Silva, 2008). The prevention and control of infection are structural components of quality, determinants in the security context of the sick. The IAHC are the largest adverse effect arising from the provision of health care and may be considered security incidents, because are events that can result or cause unnecessary damage to the patient by decreasing the quality of care (Silva, 2008). Assuming the nurse, in particular, a determinant role in promoting health and well-being, in all the activities that develop for and with the sick, while the health professional must respect and comply with the emanated by good practices recommendations. This implies that health professionals are familiar with the guidelines and are able to accomplish them and that he or she has always present in his or her practice the prevention and control of infection.

It is known that today the key points of the prevention and control of IAHC are the asepsis, hand hygiene, epidemiological surveillance and the isolation of sick. In this sense, was developed and disseminated a set of recommendations on good practice, among which the standard precautions. However, it is known that the beliefs, skills and work dynamics of health professionals, especially nurses, influence in definitive adherence to these best practices (General Direction of Health, 2009). Face to the panorama of infection, one should highlight that the IAHC are a public health problem that are of great importance since as the average life expectancy increases, newer technologies increasingly invasive, plus a greater number of patients under immunosuppressive therapy leading to a greater the risk of infection. There are international studies that show that about one third of infections acquired in the provision of health care are surely avoidable (Silva, 2008).

2. Material And Methods

A systematic review of the literature is one of the methods of research used in the practice of evidence-based and its purpose is to gather and summarize results of research on a given topic in a systematic and orderly manner, contributing to the knowledge of the theme (Mendes et al., 2008; Benfield, 2003). The method used was based on PICO strategy (acronym for patient, intervention, comparison and "outcomes"). This way it maximizes the inclusion of relevant information in different databases, focusing on the research object and avoiding unnecessary lookups (Santos, Pimenta e Nobre, 2007).

Observing with rigor all steps required in the use of this method, the time interval between January and March of 2016, a protocol was developed for the identification of studies of interest to this work and that consisted of a search in the search engines: Ebsco and B-online, and on the following databases: CINAHL Plus, PubMed/MEDLINE, LILACS, Scielo, Web of Science, ScienceDirect, Cengage Learning, Academia Search Complete, Psychology and Behavioral Sciences Collection, John Wiley & Sons, SportDiscus, The Joanna Briggs Institut, U.S. National Library of Medicine, Directory of Open Access Journals, Springer Science & Business Media and Repository of Scientific Open Access of Portugal. For the identification of relevant studies a search strategy was used, using the following descriptors Hospital Infection AND Prevention and Control AND Nurs. After meting all these protocol assumptions, some articles, that did not meet the requirements, were phased out, developing methodically a reductive process.

3. Results

It was selected for the study ten articles that follow in Table 1.

Table 1: Description of selected studies and main results of investigations

Study	Author(s)/ Year	Main Results
<p>E1: "Adherencia del personal de enfermería a las medidas de prevención y control de infecciones intrahospitalarias en três unidades de cuidados intensivos." / "Adherence of the nursing staff to the prevention measures and control of nosocomial infections in three intensive care units".</p>	<p>Reyes at al., 2008</p>	<p>-The hospital infection is a problem that has become increasingly significant due to its prevalence, fatal consequences and the high cost of treatment. -Were included 33 wards and it was possible to conclude that the health professionals had little knowledge about prevention and control measures of IAHC. -The washing of hands by the health team was incomplete and protection equipment were used improperly and insufficient in number.</p>
<p>E2: "As representações sociais da infecção hospitalar elaboradas por profissionais de enfermagem." / "The social representations of hospital infection drawn up by nursing professionals."</p>	<p>Santos et al., 2008</p>	<p>-The control and prevention of nosocomial infections constitute a challenge for nursing professionals. - Nurses of urgency and emergency services were observed. -There was technical knowledge, with scientific reasoning about hospital infection, however the nurses recognized that do not normally adopt the measures for the prevention and control, thus exposing themselves to the risk. -The provision of care was closely correlated with the individual subjectivities of each professional and profoundly dependent of their moral values, ethical, ideological and subjective, involving interpretation and personal decision in application of scientific knowledge.</p>
<p>E3: "Infeção Hospitalar no Olhar de Enfermeiros Portugueses: Representações Sociais" / "Hospital infection in the gaze of Portuguese nurses: Social Representations".</p>	<p>Moura et al., 2008</p>	<p>-We studied 35 nurses that exercise their activity in a hospital environment. -The nurses described the concept of hospital infection correctly emphasized their practices face the prevention of nosocomial infection and of the importance of the participation of nurses links of health institutions in the prevention and control of hospital infection. -It was noted, also, a concern of nurses with aspects related to institutional and functional policy adopted in the prevention and treatment of hospital infections, referencing sometimes lack the resources to avoid completely the IAHC.</p>
<p>E4: "Validação de conteúdo de indicadores de qualidade para avaliação do cuidado de enfermagem" / "Content Validation of quality indicators for evaluation of nursing care".</p>	<p>Vituri, D. e Matsuda, L.; 2009</p>	<p>-The assessment of the quality of nursing care by means of indicators can be used to strengthen the natural desire of health professionals in improving the care, directing the necessary changes to the work processes of the team. However, these assessment processes have to be subject to validation. -It is known that the indicators proposed in this study did not cover all relevant aspects of prevention of adverse events, by which stresses the importance of further studies to determine the</p>

		reliability of the instrument.
E5: "Patient Safety and Healthcare-Associated Infection"	Cole, M.; 2011	<p>-The concern of a health system with the safety of the patient is reflected in the daily experience of patients in the clinical practice of health professionals and the importance that managers and organizational leaders assign to the prevention and control of IAHC.</p> <p>-There has been a progressive development in the concern and actions against the IAHC's, with greater investment in this area and recognition that this is a shared responsibility; however, it is still not possible to say that we are dealing with the cultural change required.</p>
E6: "Attitudes towards the Infection Prevention and Control Nurse: an interview study"	Ward, D.; 2012	<p>-This study allowed the application of an intervention program which focused on the periodic training, ongoing supervision and feedback.</p> <p>-It is concluded that with these measures the level of knowledge of hospital personnel have improved significantly in relation to health practices, as well as adherence to biosafety measures.</p> <p>-It is verified that the nurse who is responsible for the control of infection, such as effective in the subject, could contribute more actively to ensure security and good clinical practice, through education sessions, clinical audits and exchange of advice and support, thus contributing to a more positive attitude toward the control and prevention of IAHC's.</p> <p>-It is noted that the attitude of hospital personnel face to the control measures and prevention of IAHC were generally positive in its performance.</p>
E7: "Um desafio para o controlador de infecção: falta de adesão da enfermagem às medidas de prevenção e controle" / "A challenge to the controller of infection: lack of accession of nursing to measures for the prevention and control".	Silva et al., 2013	<p>-The investigation has concluded that continuous education with the use of critical-reflexive pedagogy favors the transformation of a human being as a professional in the health environment, encouraging them to reflect and to modify its performance when taking care of the patient, with the purpose to interrupt the chain of transmission of hospital infection.</p> <p>-Despite the knowledge about the concept of hospital infection and, mainly of general measures for the prevention and control of IAHC's. there is a low adherence of nursing professionals towards preventive measures. This study has no suggestions or implications for practice.</p> <p>-It suggest a work process, in which the integration between the commission of the infection and the nursing team has to be articulated with change in attitudes, so that there is a reduction of the rates of infection.</p> <p>-It refer that only with the permanent education, with the use of critical-reflexive pedagogy can be achieved to the transformation of the professionals in the environment health, encouraging them to reflect and modify their actuation in assistance to the sick.</p>
E8: "Crisis prevention and management by infection control nurses during the Middle East respiratory coronavirus outbreak in Korea"	Choi, J. e Kim, K.; 2015	<p>-It was verified the impact of IACS in 186 patients and out of those 186 patients 36 died.</p> <p>-It was noted that only after a rigorous control of hospital infection and the implementation of specific guidelines for trace and treat, health professionals, have had a significant decrease of the IAHC.</p> <p>- It was also verified as it is necessary to reinforce the need for insulation of some patients and encourage a variety of activities of</p>

		the infection control to prevent the IAHC.
E9: "As infecções associadas aos cuidados de saúde" / "The infection associated to health care".	Cardoso, R.; 2015	<p>-The research sought to study the IAHC in a sample of patients interned in services of medicine and surgery, in 4 hospitals in central Portugal, describing and analyzing the relationship between the occurrence of IAHC and the time that the patients remained in the emergency service.</p> <p>- It was verified that 19.1% of patients had an IAHC as one of the diagnostics, the IAHC was the most common respiratory infection, on average the sick with IAHC remained hospitalized 2 days more than those who did not have this complication and the sick who spent more time in Urgency presented more IAHC.</p> <p>-In the study it was suggested the implementation of prevention strategies that would decrease the values of infection above, and the control of IAHC, such as: epidemiological surveillance programs, which include the training of health professionals, as well as the elaboration and dissemination of a guide to good practice through the committees of control of hospital infection; as well as the appropriation of services with more and better resources and the decrease of time of permanence of the sick in emergency services.</p>
E10: " International Nosocomial Infection Control Consortium (INICC) resources: INICC multidimensional approach and INICC surveillance online system".	Rosenthal, V.; 2016	<p>-Through the development of a multidimensional approach to the prevention of the IAHC, with multiple levels of intervention, it was verified that the application of bundles and of an online system of surveillance has allowed the decrease of IAHC.</p> <p>-This way the resources adapted (monitoring and auditing of the implementation process of the bundles) were positive to avoid the IAHC, allowed the significant improvement of the level of knowledge of hospital personnel about the health practices, as well as adherence to biosafety measures.</p>

4. Discussion Of Results

The studies found on this theme that the prevention and control of infection are structural components of quality in the context of the safety of the patient. Some governmental institutions such as the World Health Organization and the General Direction of Health have developed and disseminated recommendations of good practices, always with the objective to decrease the rates of IAHC. Not all infections are avoidable, however some can be prevented if we involve health professionals in the adoption of good practice, facts that corroborate with the studies E2, E3, E6 and E10. However, the accession to the recommended practices is still a challenge, as referred studies E1, E6, E7, E8 and E9, despite the scientific evidence that its use is fundamental (Oliveira, 2009).

In accordance with Caran (2015) and Oliveira (2009), in the hospital environment, the IAHC may be developed by contact, essentially by the sick, visits and health professionals, as also by environment unanimated that has been contaminated and even by own endogenous flora of patients and for this reason we speak of intrinsic and extrinsic factors. There are several factors related to the host (age, underlying disease, medication, anesthesia, presence of catheters), with the micro-organism (pathogenicity, virulence), with the dose infecciosa, with production mechanisms of the disease and with the exposure influence both the occurrence, such as the severity of the infection and the outcome of the situation itself, as referenced in the study E9.

This is shown, also with more frequency in patients with accentuated severity indexes, overcrowding in hospital units and invasive procedures or in the presence of immunosuppressive therapy (Bottaro et al., 2016 and Pereira, 2005).

The IAHC's have epidemiological chain that includes the steps involved in transmission of a stabilization agent from the reservoir to the host likely and health institutions are environments with great potential sources of infection for both patients and health professionals alike (Oliveira, 2009 and Azambuja, 2004). As the studies have shown E1, E5, E9 and E10 a large part of these infections take place due to bad clinical practices. Hand hygiene, stands out as being the most important measure, however, is not often met or when it is, is not performed correctly. This situation has led to the implementation of programs for the prevention and control of IAHC, in which political will and the presence of a multidisciplinary team are essential (E4). It is important that the entire multidisciplinary team participate in these programs, update their knowledge, alter their practices and attitudes and ensure that the educational programs are consistent with the roles and responsibilities of each group of professionals and technicians who are part of the health team (Rivera, 2005; Gordts, 2005). These aspects are consistent with the findings of the studies E1, E4, E5, E8, E9 and E10.

The prevention and control of IAHC constitute one of the parameters to ensure the quality of care provided and appears as a consequence of the evolution of care practices founded on a model in which predominate invasive procedures. The control of IAHC 's is inherent to the care process, being the nurse trained to provide care free of risks of infection (Bottaro et al., 2016; Pereira, 2005). Currently, and in accordance with the studies E6, E9 and E10, nurses recognize these challenges and assume a change in behavior, in order to rationalise procedures and improve standards and routines, as the essential condition in this control, being necessary the motivation of the professionals, promoted through debates, training sessions and disclosure of information (Bottaro et al., 2016; Pereira, 2005), because these infections are of great important, raising the hope of living at the expense of ever more advanced technologies and invasive. International studies show that approximately one third of the infection acquired during the provision of health care are certainly avoidable, facts that corroborate with the studies E3 and E9 (GDH, 2007).

The IAHC are an indicator of the quality of health services, forcing the institutions to promote and implement effective strategies, forwarded to its decline. The nurse by its proximity with the patient seen as a reference element in this process. In spite of this, various studies have shown that there is still an important gap, as mentioned in the study E1, in knowledge on the part of health professionals, revealing in some practices that are not appropriate. There is evidence of an inadequate adherence by nursing professionals to measures for the prevention and control of IAHC (E1, E2 and E9). This is in some cases due to little knowledge on the subject and the other to the lack of resources, as stated in the study E5, which is necessary for their achievement. Whatever the reason, the lack of compliance with these measures, considerably increases the risk of infection (Bottaro et al., 2016; Meneguetti et al., 2015; Caran, 2015; Oliveira, 2009).

With regards to working conditions (E5), health professionals mention interference of the organizational structure and functional in nursing activities. When there is a shortage of resources, control of the IAHC is also a socio-economic problem, since there is the cost of hospitalization of the patient. Reigns the need to raise awareness among health professionals for a change in behavior, as it is evidenced in the studies E5 and E7, because some professionals neglect the measures for the prevention and control of infection as the simple washing and washing of hands (Bottaro et al., 2016; Oliveira, 2009; Azambuja, 2004). In agreement with the studies E1, E6, E8 and E10, the teaching should encourage the practice of correct ducts, aimed at the prevention and control of infection. In practice, it is concluded that professionals who participate in educational actions know the term IAHC, know the importance to sanitize the hands and, although, do not adhere to the techniques and modifications of the health service (Meneguetti et al., 2015).

The control and prevention of IAHC also passes through a positive leadership that is absolutely necessary for the provision of effective care, since this leadership can inculcate a policy of excellence. Nursing professionals with leadership qualities are capable of overcoming challenges and directly dealing with obstacles to the implementation of good practices of care (Sanhudo, 2013).

The WHO recognizes that the IAHC hamper the proper treatment of the sick, being also considered important causes of morbidity and mortality, as well as of increased consumption of resources, facts that meet the referenced in the studies E1, E8, E9 and E10.

Constitute a current problem, which affects not only the quality of the care provided, but also the quality of life and safety of patients and professionals, increasing the direct and indirect costs of the health system, because the quality in health has become an essential, however, for this to be achieved there is a need to be a systematization of all its practices and processes (Sanhudo, 2013; Oliveira, 2009).

5. Conclusion

In relation to the results of the studies analyzed, it can be noticed that the impact of IAHC can be seen at several levels, aggravating the functional disability, the suffering, the emotional stress of the sick, the quality of life, being even one of the main causes of death. To implement preventive measures of IAHC constitutes an indispensable strategy to minimize the dissemination of microorganisms among the professionals of the health area, since their daily professional practice requires direct contact with the sick, handling material and implementation of invasive procedures.

The great majority of professionals takes a positive attitude toward the guidelines for a given intervention, however, how each perceives the guidelines provided should be analyzed, which justifies the implementation of audits of care, in order to increase the quality of the care provided. Not all are preventable infections, however, some may be prevented if it involves health professionals in the adoption of good practice in the context of the prevention and control of infection therefore nurses assumes a particular responsibility in education and awareness of their peers, implementing and mobilizing good practices influencing and teaching their peers and assuming a positive attitude toward the guidelines for a given intervention. Although not all the IACS are avoidable, many can be prevented if it involves health professionals in the adoption of good practice in the context of the prevention and control of infection.

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