



PATIENT SAFETY: A REFLECTIVE ANALYSIS

SEGURANÇA DO PACIENTE: ANÁLISE REFLEXIVA

SEGURIDAD DEL PACIENTE: ANÁLISIS REFLEXIVO

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ABSTRACT

Objective: to incite theoretical reflections on patient safety in the context of health services. **Method:** this descriptive, narrative literature review enabled a comprehensive and contextualized reflective approach to the research topic. The results of the analysis and reflections are presented in four thematic axes. **Results:** we identified four key analytical axes: << Axis I: Patient Safety x hygiene practices and the cleanliness of the hospital environment >>, << Axis II: Patient Safety x hand hygiene >>, << Axis III: Patient Safety x nutritional risk >>, and << Axis IV: Patient Safety x >> risk management. **Conclusion:** we conclude that risks always exist, but could be largely avoided if health professionals adhered to prevention and control strategies, thus ensuring patient safety. **Descriptors:** Cross Infection; Patient Safety; Nursing.

RESUMO

Objetivo: provocar reflexões teóricas acerca da segurança do paciente no contexto das instituições de saúde. **Método:** estudo descritivo, a partir de revisão narrativa da literatura, possibilitando a abordagem reflexiva ampliada e contextualizada. Após análise e reflexões apresentam-se os resultados em quatro eixos temáticos. **Resultados:** foram identificados quatro eixos analíticos fundamentais: << Eixo I: Segurança do paciente x práticas de higiene e limpeza do ambiente hospitalar >>, << Eixo II: Segurança do paciente x Higienização das mãos >>, << Eixo III: Segurança do paciente x risco nutricional >>, << Eixo IV: Segurança do paciente x gerenciamento de risco >>. **Conclusão:** conclui-se que os riscos sempre existem e que em grande parte poderiam ser evitados por meio da adesão dos profissionais da saúde às medidas de prevenção e controle, garantindo assim a segurança do paciente. **Descritores:** Infecção Hospitalar; Segurança do Paciente; Enfermagem.

RESUMEN

Objetivo: provocar reflexiones teóricas sobre la seguridad del paciente en el contexto de las instituciones de salud. **Métodos:** este estudio descriptivo, a partir de una revisión narrativa de la literatura, posibilitó un análisis reflexivo amplio y contextualizado sobre el tema. Los resultados del análisis y de las reflexiones se presentan en cuatro ejes temáticos. **Resultados:** se identificaron cuatro ejes analíticos fundamentales: << Eje I: Seguridad del paciente x prácticas de higiene y limpieza del ambiente hospitalario >>, << Eje II: Seguridad del paciente x lavado de manos >>, << Eje III: Seguridad del paciente x riesgo nutricional >>, << Eje IV: Seguridad del paciente x gestión de riesgos >>. **Conclusión:** se concluye que los riesgos siempre existen, y que en gran medida podrían evitarse a través de la adherencia de los profesionales sanitarios a las estrategias de prevención y control, garantizando así la seguridad del paciente. **Descriptor:** Infección Hospitalaria; Seguridad del Paciente; Enfermería.

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INTRODUCTION

Patient safety is defined as “the reduction of risk of unnecessary harm associated with health care to an acceptable minimum.” The term ““acceptable minimum” refers to the collective notions of given current knowledge, resources available and the context in which care was delivered weighed against the risk of non-treatment or other treatment”. Thus, patient safety is to reduce unsafe practices in health care and to use best practices in order to achieve the best possible results for the patient.¹

The focus of patient safety is on the magnitude of occurrence of adverse events (AE), i.e., injuries or harm to the patient that are caused by health care.² Incidents are events or circumstances that could cause or have caused unnecessary harm to the patient. The use of the term “unnecessary” in this definition recognizes that errors, violations, patient abuse and deliberately unsafe acts occur in healthcare.¹

An error is a failure to carry out a planned action as intended or application of an incorrect plan. According to the World Health Organization (WHO), errors are, by definition, unintentional, whereas violations are usually intentional, though rarely malicious, and may become routine and automatic in certain contexts.^{1,2}

A violation is a deliberate deviation from a procedure, standard or norm. Both errors and violations increase risk, even if an incident does not actually occur. The most important thing is to know that risk is the probability that an incident will occur. Patient safety, however, is closely related to AE, and, in some situations, nosocomial infections are the result of such events.^{1,2}

The term nosocomial infection has been largely replaced in recent years by the term healthcare-associated infections (HAIs), and all sites that provide health care services are viewed as having primary responsibility for the prevention and control of these infections. Thus, hospitals are not the only place where infections can be acquired. This risk also exists in outpatient settings, dialysis services, nursing homes for the elderly, institutions for the chronically ill, home care settings and in dental clinics.³

Healthcare-associated infections (HAIs) are defined as infections that develop after hospital admission, and which can manifest themselves either during hospitalization or after discharge, provided they are associated with hospitalization or with procedures

performed during hospitalization. They may be associated with procedures performed in outpatient clinics, medical offices or other healthcare units.³

An infection is the invasion and multiplication of microorganisms in body tissue that produce signs and symptoms as well as an immunologic response. The proliferation of these agents causes injury, either because they compete with the metabolism or because they cause cell damage due to the toxins produced by these microorganisms.⁴

Recognizing the magnitude of the problem and the need to promote patient safety worldwide, the World Health Organization (WHO) has launched the World Alliance for Patient Safety. The purpose of this initiative was to define and identify priorities in this area in various parts of the world and to contribute to a global research agenda.⁵

The WHO Patient Safety Program, in which several countries participate, has sought to define priority issues for research on patient safety, seen as highly relevant to all developing countries. Among these issues is the fragile safety culture, focusing on error accountability, AE and HAIs.⁶

In 2013, the Brazilian Ministry of Health (MOH) launched the National Program for Patient Safety, through the publication of Ordinance No. 529 (01.04.2013). Shortly after, the National Health Surveillance Agency (ANVISA) published Resolution #36, establishing actions for promoting patient safety and improving the quality of healthcare services.⁷

ANVISA is a governmental agency responsible for patient safety, whose aim is to promote and ensure public health. Actions for promoting patient safety and improving the quality of healthcare services, as prescribed by the WHO and the ANVISA General Technology Management in Healthcare Services (GGTES / ANVISA), include: 1) hand hygiene; 2) safe clinical procedures; 3) the safety of blood and blood products; 4) safe administration of injectables and biopharmaceuticals; and 5) water safety and safe waste handling.⁷

The compendium of strategies to prevent HAI is the result of a collaboration among professional societies, including the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), the Association for Professionals in Infection Control and Epidemiology, and other organizations engaged in improving patients' safety and quality of care, including the Joint

Commission and the American Hospital Association.^{8,9}

Recognizing the importance of HAI prevention, these organizations worked in partnership to provide acute care hospitals with concise, practical, and evidence-based strategies to enhance their HAI prevention programs.^{8,9}

Even so, HAI remains a major threat to patients' safety, especially to those patients who find themselves in life-threatening situations. Besides contributing to increased morbidity and mortality rates, HAIs are responsible for increased costs due to prolonged hospital stays, diagnosis and treatment costs, and work absence (in the case of economically active individuals).¹⁰

In addition, the nursing staff monitors the patient 24 hours a day and provides nursing care as prescribed by nurses or physicians. In order to ensure safe care provision, with the prevention and avoidance of disease complications, permanent surveillance is needed, as well as the strict implementation of routines and institutional protocols, with technical guidance from the Hospital Infection Control Commission.¹¹

HAI prevention in hospitals is in part associated with the quality of the nursing care provided, because nurses lead care provision by implementing and supervising actions, albeit in partnership with the interdisciplinary team. This partnership and commitment may result in satisfactory rates of HAIs.¹¹

Prominent among the decisive actions for patient safety is hand hygiene, a constant practice among health professionals, worldwide known as one of the most efficient and cost-effective ways to prevent infections. Hands are the main vehicle for the transmission of infections, and should be cleaned before and after every patient care activity.¹²

All public and private healthcare services in the county should report the following on a monthly basis (by the 15th day of the month following the month of surveillance): (clinical and laboratory) Primary Bloodstream infection (PBSI) in patients using central venous catheter (CVC) and admitted to the (adult, pediatric or neonatal) Intensive Care Unit (ICU); microbial resistance markers detected in Laboratory Primary Bloodstream infection (LPBSI) and cesarean Surgical Site Infection (SSI) using the 27 new electronic forms by State - 2014 (Formsus/Datasus).¹³

OBJECTIVE

- To incite theoretical reflections on patient safety in the context of health services.

METHODS

This study reflects on patient safety in the context of healthcare services, as well as on the participation of health professionals involved in the process. To conduct this study, we decided to carry out a narrative literature review, which allows for a comprehensive and contextualized approach to the research topic.

The results of the analysis and reflections are presented in four thematic axes. Axis I - Patient Safety x Hygiene Practices and the Cleanliness of the Hospital Environment; Axis II - Patient Safety x Hand hygiene; Axis III - Patient safety x Nutritional risk; and axis IV - Patient Safety x Risk Management.

RESULTS AND DISCUSSION

After the analysis of, and theoretical reflection on the topic of patient safety, we found that it is indeed associated with the occurrence of adverse events (AE), particularly HAIs, inadequate hygiene practices and cleanliness of the hospital environment as well as of health facilities, hand hygiene, nutritional risks and risk management.

Aiming to demonstrate the association of factors in the emergence of HAIs and compromise of patient safety, we identified the following four key analytical axes:

♦ **AXIS I: Patient Safety x hygiene practices and the cleanliness of the hospital environment**

Failures in the disinfection technique alert us to the possible presence of biofilms on the surfaces. Biofilm microorganisms are not necessarily visible, but are viable and can be detected by: Adenosine triphosphate (ATP) bioluminescence.¹⁴

If a health environment, product or device is not thoroughly cleaned, disinfection and sterilization are unfeasible. Organic matter prevents the sterilizing or disinfectant solution from coming into contact with the instruments. Efficient cleaning reduces microorganism load by 99.99%, thereby reducing the bioburden of the contaminant microorganism by four logarithms, and ensuring patient safety.¹⁵

Cleaning should always precede disinfection and sterilization of health care

products and equipments. It is the removal of all visible organic and inorganic dirt from an article, in order to remove the microbial load. This step is therefore essential and indispensable for the processing of all critical, semi-critical and non-critical products and equipment.¹⁶

The concept of environmental hygiene was developed by the nurse Florence Nightingale, who became well-known due to her dedication to patient care during the Crimean War (XXIX century). By observing clinical evidence, Nightingale found that patients progressed better in clean, airy rooms with sunlight and when they were spatially separated according to their type of disease.¹⁷⁻⁸

Disinfection is the destruction of vegetative microorganisms present on inert surfaces through the application of chemicals such as aldehydes, alcohols, chlorine, among others; and the use of physical agents, such as thermal washer-disinfectors. Regarding its range of action, disinfection is further classified into high-level disinfection, intermediate-level disinfection, and low-level disinfection. High-level disinfection is recommended for articles that come into contact with intact colonized mucosa.¹⁶⁻⁹

In health care units, the mattress is the article with which patients remain in contact for the longest time or for the entire hospitalization time. Thus, daily hospital mattress disinfection was found to be a widespread activity among Nursing training programs. Initial cleaning and subsequent disinfection of the mattress begins from the place farthest away from the body of the person carrying out the procedure to the place nearest him/her, using simple, spacious and unidirectional movements, from the place considered to be the cleanest to the place considered to be the most contaminated.²⁰

A study whose objective was to analyze the surfaces of mattresses has found that they had lower ATP results. The technique reveals the presence of biofilm microorganisms, which correspond to relatively cleaner areas. Two points should be considered in this finding. First, the integrity of the waterproof material surface that covers the mattress has not been tested. The foam and interior part of mattresses which have this protective cover damaged may be contaminated, even though this is not reflected in the mattress exterior.^{21,45}

Second, risk adjustment - which takes into account the underlying differences between populations of patients in healthcare settings - is essential for comparisons that make sense.

Nevertheless, so far, little is known about the optimal risk adjustment for the development of HAIs. Since 1970 action initiatives have been presented as prevention measures.²²

HAI definitions, for example, can be interpreted and used in a variable way, even when utilizing standardized definitions of the National Healthcare Safety Network. Thus, HAI surveillance has been typically focusing on infections associated with procedures or devices.²³

These infections occur relatively frequently among hospitalized patients because they are associated with potentially modifiable risk factors, such as the timely removal of central lines that are no longer needed for patient care. The most used definitions are those of the *National Healthcare Safety Network* and of the *Centers for Diseases Control and Prevention*.²⁴

The variability of methods and available data sources used can have great impact on the reliability of HAI surveillance. There is growing evidence that HAI surveillance methods that use readily accessible automated data (eg, claims, microbiology, or pharmacy data) for screening can provide a more resource-efficient approach.²⁵

HAIs represent a major social and financial burden. Yet it is essential to demonstrate its importance to hospital managers, in order to justify the expansion of infection control programs. HAIs represent a significant risk to patient safety, and social funds should not be spared when implementing HAI control interventions.²⁵

Given the risks to patient safety and the economic costs associated with HAI, the Centers for Medicare and Medicaid Services have implemented a strategy to limit the reimbursement of specific HAI complications, including ICU, catheter-associated vascular infections, and mediastinitis after coronary artery bypass grafting. In an effort to motivate improvement. This alteration in reimbursement will provide additional financial incentive for healthcare facilities to prevent infectious complications.²⁶

♦ **AXIS II: Patient Safety x hand hygiene**

The scientific papers reviewed here indicate that suboptimal adherence of health professionals to hand hygiene (HH) recommendations is unfortunately common, despite all the theoretical and scientific knowledge available. This interferes with patient safety. The need for proper HH is also recognized in the recommendations made in Annex IV of Ordinance 2616/98 of the Brazilian Ministry of Health, which reports on

the Infection Control Program in healthcare facilities.²⁷

One study assessed the hands of healthcare professionals by culture and found that the contamination of the hands with skin lesions was higher than the contamination of hands with no lesions. There was a higher number of *S. haemolyticus*, *S. aureus* and antibiotic-resistant gram-negative bacilli, showing that hygiene was effective in the group of students from the health-related occupations.²⁸

Hand hygiene is an important component of any global health promotion strategy and effectively contributes to patient and occupational safety. In 2007 the WHO launched the "Clean Care is Safe Care" initiative, where it recommends, among other strategies, proper adherence to hand hygiene and the observance of structural conditions for hand hygiene.^{29,30}

The program emphasizes five moments that represent the most frequent opportunities for HH in the health care context. These are as follows: opportunity 1): before patient contact; opportunity 2): before an aseptic task; opportunity 3): after body fluid exposure; opportunity 4): after patient contact; and opportunity 5): after contact with patient surroundings. For hand hygiene, we must always consider not only the indication, but also every opportunity to perform it. Thus, the adherence is expressed by the rate of actions and opportunities.²⁹

The ANVISA recommends (for proper HH) the use of an amount of liquid soap which is sufficient to cover the entire surface of the hands and wrists (ANVISA, 2008)).³¹ The WHO recommends the use of alcoholic solutions as the gold standard for HH, due to its effectiveness, low infrastructure demand requirement, little application time and good skin tolerance.³²⁻³

Although these solutions were also referred to by participants as their preferred choice, they have only been used in 6% of the opportunities. Thus, the use of alcoholic solutions should be encouraged in the unit, since it is supported even by national guidelines for HH promotion.³³

Although these prevention activities are supervised, HAIs still represent a growing international problem. This can be largely attributed to the fact that there is an increasing number of technologies that allow the survival of critically ill patients, or even to the low adherence of the healthcare team to biosafety recommendations such as hand hygiene and the use of aseptic techniques, particularly during placement of invasive

devices. Thus, technical non-compliance allows for the spread of resistant microorganisms in the healthcare environment, further increasing the incidence of HAIs.³⁴⁻⁵

♦ **AXIS III: Patient Safety x nutritional risk**

Nutritional risk is a predictor of malnutrition and negative outcomes. Its use aims at providing adequate nutritional care, such as better nutritional monitoring of patients. Thus, nutritional risk prevention depends on early detection and special attention to the nutritional care provided to patients within 72 hours of hospital admission. Nutritional screening in this period makes it possible to detect nutritional risk.³⁶

Nutritional screening is defined as the process of identifying characteristics known to be associated with dietary or nutritional problems in order to identify an individual who is malnourished or who is at risk of malnutrition, and thus assess the probability of a better or worse response to treatment.³⁷

Previous studies indicate that malnutrition in newly hospitalized patients is as high as 50%. Hospital malnutrition is an important risk factor for the occurrence of septic events, wound infection, abscess formation and the development of osteomyelitis and bronchopneumonia. Thus, the resolution of these events can be costly in regard to the duration of hospitalization.³⁸⁻⁴⁰

Malnutrition in hospitalized patients is related to infection-associated diseases and factors; diseases of the gastrointestinal tract; kidney disease, liver disease, lung and heart disease; surgical complications; wound healing deficiency; musculoskeletal weakness; or inadequate food intake during hospital stay.³⁶

In Brazil, about 48% of patients admitted to the Public Health System are malnourished (IBRANUTRI). Some patients have some degree of malnutrition on admission, some become malnourished during hospitalization. Studies have shown that after hospitalization, about 70% of initially malnourished patients experience a gradual deterioration of their nutritional status, which contributes to increased morbidity and mortality in up to 65% of patients.⁴¹

♦ **AXIS IV: Patient Safety x risk management.**

Risk management is defined as the complex of analysis and judgments which aims to reduce the probability of unacceptable risks. It aspires the identification of actions required to manage risk, including, if necessary, regulatory actions. According to the ANVISA,

risk is the combination of the probability of occurrence of a particular harm and the severity of that harm to a person or object. Risk Management, in turn, is making decisions concerning risks or taking action to reduce their consequences or probability of occurrence.⁴²

Considering the magnitude of the problem, the WHO warns about the results of the report made by the Institute of Medicine (USA), which evidences unacceptable HAI rates (considered as adverse events). According to it, 1.4 million people are infected annually, and in developing countries the risk can be four times higher; of these, 4% suffer some kind of damage during hospitalization; 70% of AE lead to temporary disability and 14% of these incidents are fatal.⁴³

Thus, in 2004 the WHO launched the World Alliance for Patient Safety, which established six international goals: accuracy of patient identification; effective communication; high-risk medication safety; right surgery in the right location and to the right patient; reduction of injuries from falls; and reduction of healthcare-associated infections.⁴³

This set of goals aims at improving patient safety, regardless of the procedure to be performed, from patient identification for drug administration to surgery and the reporting of adverse events such as falls and healthcare-associated infections, in order to identify the causes of these events and minimize the occurrence of errors.⁴³

Errors are classified into two types: commission or active errors are made when someone do something wrong; omission or passive errors are made when someone fails to do the right thing, both in the planning and in the execution phase.⁴⁴

As an example we may cite colon cancer screening, which begins via home fecal occult blood testing (FOBT), followed by colonoscopy if the results are negative. If colonoscopy is performed before FOBT, such conduct would be classified as a commission error. The same case would be classified as an omission error in case the FOBT was not performed. According to current evidence, this screening is recommended for certain patients as it might help in the early diagnosis of colon cancer.⁴⁴

Risk Management has become a requirement of the ANVISA for healthcare facilities. The latter are expected to perform a systematic risk monitoring and management of health technologies, aimed at reducing and minimizing the occurrence of adverse events. In addition, they are to notify the national

health surveillance system in case of the occurrence of risks as well as in the case of occurrence of technical complaints involving health technologies. Risks will, however, always exist, but could be minimized by educating the healthcare team.⁴⁵

CONCLUSION

We conclude that risks exist and will always exist in the hospital environment and in all healthcare services, but could be largely avoided if health professionals adhered to safe practices. Hence, the monitoring of infection control activities in healthcare services allows for the global assessment of quality of care, and thus becomes an important tool for ensuring patient safety.

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