Integrative Review

Patient safety in the care of hospitalised children: evidence for paediatric nursing

Segurança do paciente no cuidado à criança hospitalizada: evidências para enfermagem pediátrica

Seguridad del paciente en la atención al niño hospitalizado: evidencia para la enfermería pediátrica

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ABSTRACT

Objectives: To describe evidence of international literature on the safe care of the hospitalised child after the World Alliance for Patient Safety and list contributions of the general theoretical framework of patient safety for paediatric nursing.

Method: An integrative literature review between 2004 and 2015 using the databases PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science and Wiley Online Library, and the descriptors Safety or Patient safety, Hospitalised child, Paediatric nursing, and Nursing care.

Results: Thirty-two articles were analysed, most of which were from North American, with a descriptive approach. The quality of the recorded information in the medical records, the use of checklists, and the training of health workers contribute to safe care in paediatric nursing and improve the medication process and partnerships with parents.

Conclusion: General information available on patient safety should be incorporated in paediatric nursing care.

Keywords: Patient safety. Child, hospitalised. Nursing care. Paediatric nursing.

RESUMO

Objetivos: Descrever evidências na literatura internacional para o cuidado seguro da criança hospitalizada após a criação da Aliança Mundial para a Segurança do Paciente e elencar contribuições do referencial teórico geral da segurança do paciente para a enfermagem pediátrica.

Método: Revisão integrativa da literatura entre 2004 e 2015 nas bases de dados *PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science* e *Wiley Online Library,* utilizando os descritores *Safety or Patient safety, Hospitalized child, Pediatric nursing* e *Nursing care.*

Resultados: Foram analisados 32 artigos, a maioria norte-americanos, com delineamento descritivo. A qualidade do registro das informações no prontuário, o emprego de *checklists* e a formação profissional contribuem para o cuidado seguro na enfermagem pediátrica, bem como para melhorias no processo medicamentoso e na parceria com os pais.

Conclusão: As informações gerais disponíveis sobre a segurança do paciente devem ser incorporadas no cuidado de enfermagem pediátrica.

Palavras-chave: Segurança do paciente. Criança hospitalizada. Cuidados de enfermagem. Enfermagem pediátrica.

RESUMEN

Objetivos: Describir la evidencia de la literatura internacional para el cuidado seguro de los niños hospitalizados después de la creación de la Alianza Mundial para la Seguridad del Paciente y listar las contribuciones del marco teórico general de la seguridad del paciente para la enfermería pediátrica.

Método: Una revisión integradora de la literatura entre 2004 y 2015 fue realizada en las bases de datos PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science y Wiley Online Library, utilizando los descriptores Seguridad o Seguridad del paciente, Niño hospitalizado, Enfermería pediátrica y cuidado de enfermería.

Resultados: Se analizaron 32 artículos, la mayoría de América, con diseño descriptivo. La calidad de los registros de la información en la historia clínica, el uso de listas de control y la formación profesional contribuyen a la atención segura en enfermería pediátrica, así como mejoras en el proceso de la medicación y la asociación con los padres.

Conclusión: La información general disponible sobre la seguridad del paciente debe ser incorporada en la atención de enfermería pediátrica.

Palabras clave: Seguridad del paciente. Niño hospitalizado. Atención de enfermería. Enfermería pediátrica.

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INTRODUCTION

Healthcare organisations and workers have been discussing the errors of healthcare for more than a decade, since the publication of the "To Err is Human" report that triggered a worldwide mobilisation to promote safety and prevent adverse events in healthcare[1]. In 2004, the World Health Organisation presented the World Alliance for Patient Safety with guidelines for the provision of safe and quality care for the population[2]. In 2008, in Brazil, the Brazilian Network of Nursing and Patient Safety ("REBRAENSP") pioneered the discussion on the subject, brought visibility to nursing, and promoted this subject in care, teaching, research, extension, and management as essential in the field[3]. In 2013, the Ministry of Health launched the National Programme of Patient Safety through Ordinance No. 529 to establish the subject as a health policy in the Brazilian scenario[4].

Understanding the theoretical framework is based on an exclusive taxonomy that aims to standardise a few key concepts. The term patient safety is understood as the reduction, to a minimum acceptable level, of the risk of unnecessary harm associated with healthcare[5] or, in a more recent definition, as the absence of avoidable harm to the patient during the process of healthcare[6]. Incidents are the events or circumstances that could result or resulted in unnecessary harm to patient health, while an adverse event is an incident that results in harm to patient health [5]. Patient safety is a concern in healthcare, and an international mobilisation in favour of this concern can support specialties in healthcare, especially in paediatrics.

Paediatric nursing has been the object of studies on patient safety in hospitals in the national and international scenario. Studies have investigated the following circumstances of care that promote adverse events: the importance of hand hygiene in the academic training of nurses for paediatric patient safety; the implementation of a paediatric surgical checklist and the improvement of family satisfaction; weaknesses in the identification of children and standardisation for the preparation and administration of medication; the prevalence of adverse events recorded in inpatient units; and the use of intelligent infusion pumps by paediatric nurses to reduce medication errors and prevent risks[7-12]. In this context, we can identify breakthroughs in the culture of patient safety in the care of hospitalised children, and the recommendation of strategies to promote safe care in paediatric nursing. Based on this context, the research questions were, "What is the available evidence in international literature on the safe care of hospitalised children after the World Alliance for Patient Safety?" and, "What advancements did the alliance bring for paediatric nursing?"

In spite of the advancements and recommendations in international literature, it is important to synthesise the available evidence of issues that question patient safety in paediatric nursing to transfer the produced scientific knowledge to care. The incorporation of good practices promotes the effectiveness and safe management of nursing, and supports the identification of risks and dissemination of evidence-based practices[13].

The aim of this paper was to describe evidence of international literature on the safe care of hospitalised children after the creation of the World Alliance for Patient Safety and list of theoretical contributions of the theoretical framework of patient safety for paediatric nursing.

METHOD

This is an integrative review of literature[14]. The review consists of five stages: problem identification, searching the literature, data evaluation, data analysis, and presentation of the review.

The search of the studies responded the following guiding questions: what is the available evidence in international literature on the safe care of hospitalised children after the World Alliance for Patient Safety? What advancements did the alliance bring for paediatric nursing? The inclusion criteria were: original papers of primary studies; in English/Spanish/Portuguese; specifically address patient safety in the context of the hospitalised child; and published from 2004.

The period proposed for the search was between 2004 and 2015, considering that in 2004, the World Health Organization (WHO) launched the ground-breaking World Alliance for Patient Safety.

The exclusion criteria were: review, editorial papers, event abstracts, books, thesis/dissertation; related to external causes/accidents; studies related to neonatology/obstetrics; and absence of a relationship with the object of study in the title.

The keywords/descriptors for the searches were *Safety; Patient safety; Hospitalized child; Paediatric nursing; Nursing care* used in combination with the Boolean operators *AND* and *OR*, according to the search system of each database.

The databases consulted between May 2015 and February 2016 were: *PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science* and *Wiley Online Library*.

Figure 1 is the flowchart of the cross-referencing_and results, according to the PRISMA recommendation[15].

The data were analysed and interpreted by synthesising the information extracted from the selected papers, and identifying the available evidence on safe care and advancements in paediatric nursing based on international mobilisation in favour of patient safety. For this step we used the instrument, consisting of the following items: (1) title of article; (2) authors; (3) journal and database in which the article was indexed; (4) country and year; (5) method; (6) evidence of safe care; (7) contributions to paediatric nursing; and (8) level of evidence[16]. For presentation purposes, the data extracted and summarised in the previous step are divided into two charts containing the characterisation of the studies and the synthesis of knowledge on the subject.

RESULTS

We identified 1,530 papers on patient safety and the hospitalised child, of which 107 were selected to be read in full and 32 were selected for analysis to obtain evidence of safe care and detect the contributions of this theoretical framework to paediatric nursing. Chart 1 shows the characterisation of the analysed studies.

The authorship of the papers was split into 129 authors and co-authors. Of these authors, only 3 had more than one paper published, all of Brazilian origin.

The papers were published in 23 different journals and, among these, only six had more than one publication on the subject. The Journal for Healthcare Quality published five of the papers analysed in this research. From 2004 to

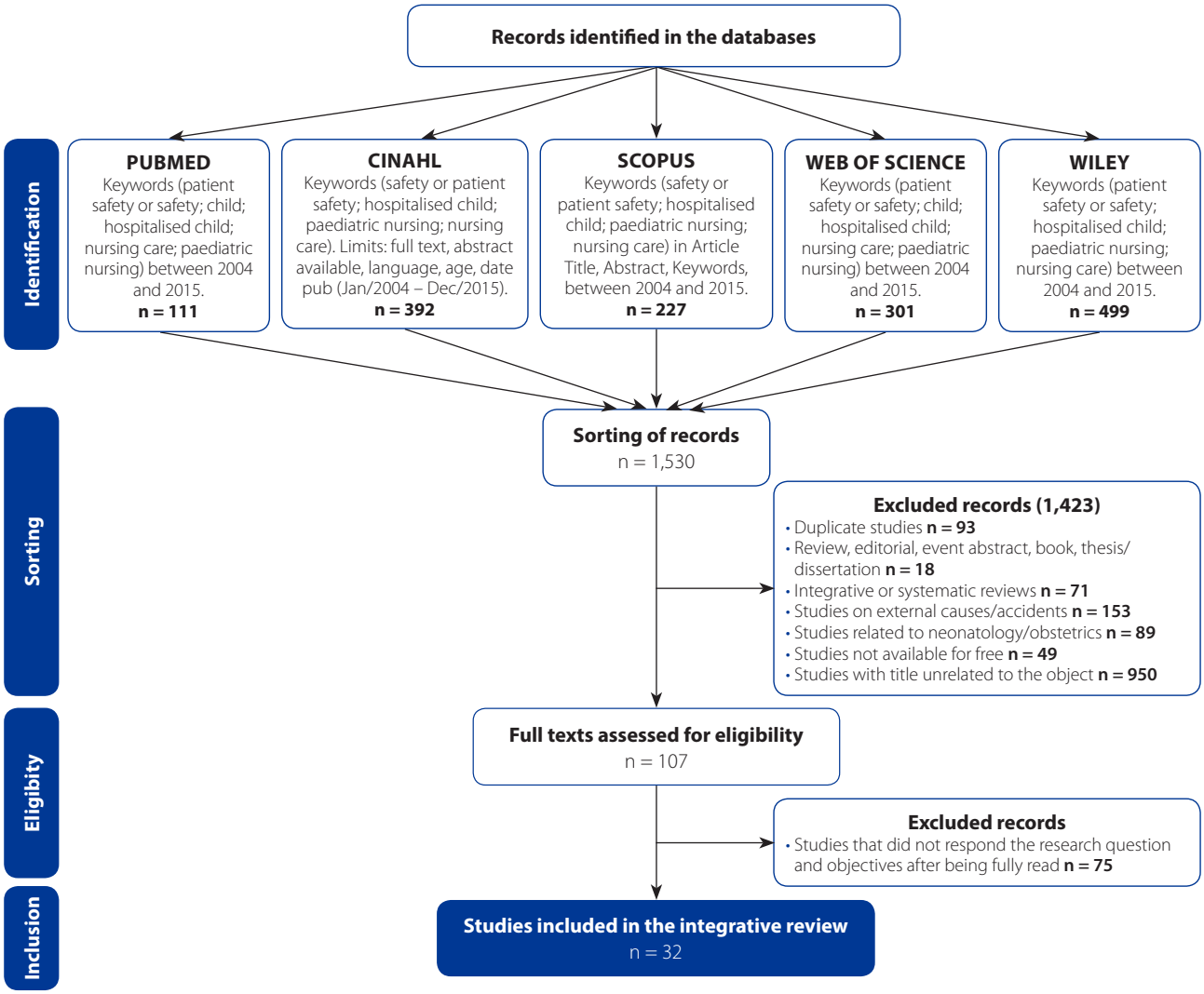

Figure 1 – Flow chart of the cross referencing and search results.

Source: Research data, 2016.

Variables	n (%)
Data Analysis	
PubMed	03 (9.4)
CINAHL	**16** (50.0)
Scopus	08 (25.0)
Web of Science	01 (3.1)
Wiley	04 (12.5)
Continent of publication	
North America (USA)	**17** (53.1)
South America (Argentina, Brazil)	07 (21.9)
Europe (Holland, UK, Sweden)	08 (25.0)
Method	
Quantitative	**24** (75.0)
Qualitative	04 (12.5)
Mixed (Quantitative/Qualitative)	01 (3.1)
Methodological (validation)	03 (9.4)
Level of evidence[16]	
1 (systematic reviews of randomised trials)	00 (0.0)
2 (randomised individual clinical trial)	01 (3.1)
3 (cohort studies, quasi-experimental)	02 (6.2)
4 (case series, case-control, longitudinal, prospective, retrospective, validation methodology)	**18** (59.4)
5 (qualitative, case study, exploratory, descriptive quantitative)	11 (34.3)

Chart 1 – Characterisation of studies on patient safety in the care of hospitalised children between 2004 and 2015.

Source: Research data, 2016.

2015, there was a linear growth in the number of papers published per year. In 2014, we found seven papers on the subject, indicating an increase of 75% compared with the previous year (2013 – 4 papers) and a growing interest in the subject in comparison with 2004 (1 paper).

Chart 2 shows the evidence for safe care and the contributions of research on paediatric nursing. Several studies bring more than one contribution to patient safety in the care of hospitalised children.

DISCUSSION

The production of knowledge about patient safety intensified from 2004 with the publication of the World Alliance for Patient Safety, and these studies provided several contributions to paediatric nursing for the implementation of safe care for hospitalised children. The studies indexed in the Cinahl® database from the United States of America, with a quantitative approach and level 4 evidence, found in 23 journals with the participation of 129 different authors characterise the profile of the contributions of patient safety in the care of hospitalised children. The studies selected in this review show that this subject is gaining prominence and importance in all healthcare contexts, and that there is a worldwide mobilisation in favour of patient safety. In order to synthesise the available evidence for the safe care of hospitalised children, the studies examined in this review were grouped according to the addressed theme.

A single article discussed the inadequacy of human resources in hospitals, especially the nursing staff. Nursing resources varied significantly in the different types of hospitals. However, most studies showed inadequacies in the nursing staff that can generate risks for patient safety and affect the quality of paediatric healthcare[17].

The most frequent topic in the papers was the importance of keeping records on charts – especially the electronic patient record (EPR)[18] – and assessing care using specific instruments from checklists[19-23]. Two of these tools were Failure Mode Effects Analysis (FMEA) to assess care and detect events[20-23] and the Adverse Events (AE) reports in real time[24]. Both tools are used to analyse incidents and promote safe care.

It should be noted that nursing reports are important sources of information to identify AE; if they are incomplete, it becomes difficult to analyse events and their causes[19]. It is important to qualify the records, mainly through guidelines, and improve the verification of patient documentation[25].

One study reports the creation of two algorithms to guide nurses who provide care to children undergoing peripheral intravenous chemotherapy[26]. Checklists are a potentially viable, safe, inexpensive, and simple method to reduce the rate of medication errors in a paediatric oncology clinic[27].

The assessment of care has also been highlighted as evidence for childcare in a surgical situation. It is believed that the Paediatric Checklist for Safe Surgery ("CPCS") can contribute to the systematisation of care insofar as everyone involved understands the need to perform care-related activities. Consequently, the material can support changes related to the culture of paediatric patient safety[28].

Two other studies report the implementation of measures to improve the quality of patient care for children, such as the creation of an electronic form for skin evaluations, with records of placement and removal of elec-

Studies (references)	Evidence for safe care/Contributions to paediatric nursing
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30	Professional records and care assessments
19, 25, 31, 32, 33, 34, 35, 36, 37, 38	Education and training of professionals
25, 39, 40, 41, 42	Safety in relation to medication
25, 41, 43, 44	The culture shift in the approach of the incidents
38, 40, 45, 46	Effective communication between professional-patient-family
47, 48	The contributions of parents to safe care

Table 2 – Summary of knowledge on patient safety in the care of hospitalised children between 2004 and 2015.

Source: Research data, 2016.

trodes for EEG and a more standardised method of skin cleansing performed in neonatal and paediatric intensive care units[29], and the use of instruments to classify the risk of falls[30].

Another frequently addressed subject in the analysed papers was the acquisition of new knowledge in the training and education of professionals to ensure safe care during paediatric hospitalisations[19, 25, 31-38].

One study addressed the reduction of hospital-acquired infections by using strict aseptic techniques to perform invasive procedures, and intensifying hand washing and changing of gloves between each activity. In order to prevent infection, especially in children and adolescents, it is important to adopt measures, such as those mentioned above, and empower workers to fight this problem[32]. Many hospital infections are related to long stays and care that requires vascular devices. The use of a series of best practice in the care and maintenance of central venous access reduced primary bloodstream infections by 50% in three years[37].

Paediatric patients with critical clinical conditions in intensive care units were also the target of research on a new method to confirm the placement of gastric tubes. Placement was confirmed using guided electrocardiography, regarded as standard treatment for critical patients because it improves patient safety by preventing the incorrect placement of gastric probes and the subsequent complications[31]. Another study, also related to the placement of the gastric tube, used a method with a colorimetric carbon dioxide detector. The results demonstrated that the procedure can effectively detect the inadvertent placement of the probe in the lungs of paediatric patients[34].

New protocols, care goals and action plans are part of the routine of several nurses and are used to improve the quality of healthcare. Some examples of activities performed at the hospitals to improve the quality of care and patient safety are spreadsheets that must be completed every day with goals concerning the care and safety of patients[38]; action plans to eliminate/reduce distractions, improve software, standardise procedures, education/professional training, and test or inspect equipment[25]; and the definition of protocols to prevent the exposure of children and adolescents to unnecessary radiation or border situations while maintaining the accuracy of diagnoses[36].

New care protocols can also be used in paediatric emergencies. The Manchester staging system can efficiently and safely identify and support the assistance of patients with less urgent conditions[35]. Paediatric screening through risk classification and severity indexes often used in emergency units by trained nurses makes paediatric patients feel more confident[33].

In order to provide quality care, it is essential to review work processes, and train and qualify health workers. It is also important for institutions to provide technologies that can help in this improvement[19].

The papers that refer to safety in relation to medication brought new contributions to the promotion of safe childcare. The use of intelligent infusion pumps to administer medication was related to greater safety for the workers and the reduction of incidents. When the pump is programmed properly, the system alerts reduce errors and improve the outcomes of patient care[39].

Another technology mentioned in the papers is the medication administration system with barcode, which reduced the cases of adverse events and improved patient safety. Labelling and explanations to patients/guardians regarding treatments are also considered safety measures[40].

Patient identification during the dispensing and preparation of medication is another important stage that is included in the competencies of nursing. The identification of medication in the pharmacy with the patient

records is an important safety strategy. It was observed that the individual dispensing system is recommended when compared with the collective system; that prescription is an effective communication instrument between professionals; and that the medication tray should be kept organised during preparation when it contains medication for different patients[41].

There was an evident lack of skills with the use of equipment, accessories, and devices for dispensing medicines, and a lack of attention on the part of workers[42]. In these cases, cognitive aids, such as placing colour-coded stickers in enteral feeding lines, multiple automated checks of dosage intervals, and tools with alerts can help during the entire process[25].

The studies that question the cultural shift in the manner patient safety incidents are resolved show that an intervention for workers that specifically focuses on this problem significantly reduces medication errors[43]. Moreover, a shift in policies is needed in the institutions[25].

National and international policies are also important to promote a culture of patient safety. One study shows that, based on the new WHO guidelines, the identification of paediatric patients intensified during the dispensing and preparation of medication among the participants of a university hospital[41].

The notifications of safety incidents by health workers in most of the Brazilian institutions are voluntary. One study on the identification of adverse drug events in paediatric inpatients shows an increase in the effectiveness of a paediatric trigger tool in the "voluntary incident reports"[44].

Effective communication is another relevant factor to promote patient safety since it permeates all interpersonal relationships and is directly linked to the cause or contributing factor of most incidents. Adequate communication between professionals and patients/guardians regarding the administration of medicines had relevant and effective results, and prevented the occurrence of new incidents[40].

The use of charts improved communication between doctors and nurses, and between nurses from different shifts[38]. This is a simple and highly effective communication method that can be adopted in all hospitals.

A study on the quality and safety of hospital care for children from Spanish-speaking families and limited proficiency in English showed that language barriers and cultural differences have a significantly negative effect on the perception of quality and safety. Furthermore, the reliability of information provided to families is compromised since the language barrier prevents them from correctly understanding this information[45]. Therefore, improvements in communication generate more security, strengthen teamwork and collaboration, and increase the satisfaction of nurses, doctors, staff, and patients[46].

In this review, we found two studies that specifically report the contribution of parents to safe care. The first study presents the creation and validation of a checklist with preoperative interventions related to patient safety that is completed by the child and the family. It is considered a complement to the checklist proposed by the WHO for the safety of surgical procedures created in 2008. Both papers contain important considerations of the participation of patient/family for safe surgery, namely that double checking between patients and professionals increases safety; informed patients and families can promote their own safety; collaborative work among staff, patients, and families reduces the anxiety of children and favours patient/family satisfaction[47].

The second article addresses the perceptions of parents of the safety environment in paediatric hospitals. The perceptions were associated with the need to monitor the care of their children and prevent the occurrence of errors. On average, when the overall safety perceptions of the parents were high, the chances of needing to oversee care dropped 80%. The study concludes that parents can be highly encouraged to report on the safety of care and that they can provide valuable information[48].

The main limitations of this literature review are the methodological diversity of the analysed studies, which hinders comparisons, and the use of a descriptive design that restricts an in-depth analysis of the results. Another aspect that deserves attention is the identification of little evidence that specifically targets hospitalised children, as the results of the studies can be applied to any patient, regardless of age.

CONCLUSION

The findings of this review indicate that the qualification for patient safety in paediatric nursing is related to the various process interfaces, which range from quality of the data in the medical records, the use of checklists during procedures, and improvements in the process of medication, to the involvements of parents in the process of healthcare. It was observed that the evidence found in the studies was not exclusively related to the paediatric nursing care; instead, it covered a broader scope of care related to patient safety. This aspect, together with the methodological approaches used in most of your descriptive studies

with a lower level of evidence, are considered limitations of this study since they hindered a more detailed analysis and comparisons.

One of the contributions of this review to the practice of nursing is the chaperone's role in the safety of the paediatric patients and as a barrier for the occurrence of incidents. The use of intelligent technologies and the standardisation or use of protocols in practices can promote patient safety in hospitalised children and directly improve healthcare. We stress the importance of creating awareness among the multidisciplinary teams regarding the assumptions of patient safety, in particular, the culture of safety.

Analytical studies with levels 1 and 2 of evidence should be conducted to evaluate and compare results of best practices in the safe care of hospitalised children, and consequently support the construction/revision of protocols to guide clinical practices and the qualification of health professionals. We also stress the importance of exploring the inclusion and participation of children and their families in qualitative studies to shed further light on this interface.

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