NOTE PREVIEW ARTICLE

PEDIATRIC CHILD CARE MANAGEMENT SOFTWARE* SOFTWARE PARA GESTÃO DO CUIDADO A CRIANÇAS EM PEDIATRIA SOFTWARE DE GESTIÓN DE CUIDADO INFANTIL PEDIÁTRICO

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ABSTRACT

Objective: to validate software for the management of child care in pediatrics. **Method:** this is a methodological study focused on the validation of a software. It is noteworthy that the composition of participants will include expert judges from the pediatric area and information technology. As data collection instruments, two questionnaires with questions regarding professional characterization, content evaluation and technical aspects of the software will be applied. Statistical Package for Social Sciences (SPSS) version 20.0 shall be used for information analysis. **Expected outcomes:** the software is presented as an intelligent system, that assists in clinical decision making and facilitates the provision of quality and efficient assistance to service professionals, providing humane care, comfort and safety. It is an instrument of assistance to health professionals in the planning and implementation of care programs that best meet their needs. It becomes, by enabling the identification of care required by patients, an ally for the management of health services and subsidy for the management processes of institutions. It is also characterized as a tool that provides improvements in the use of physical area and human resources. **Descriptors:** Technology; Child; Patient Safety; Pediatrics; Nursing; Child Care.

RESUMO

Objetivo: validar *software* para a gestão do cuidado à criança em Pediatria. **Método:** trata-se de estudo metodológico com enfoque na validação de um *software*. Destaca-se que a composição de participantes contará com juízes *expertises* da área pediátrica e de tecnologia de informação. Aplicar-se-ão, como instrumentos de coleta de dados, dois questionários com questões referentes à caracterização profissional, avaliação do conteúdo e aspectos técnicos do *software*. Utilizar-se-ão, para a análise das informações, o *software* Statistical Package for Social Sciences (SPSS), versão 20.0. **Resultados esperados:** apresenta-se o *software* como sistema inteligente que auxilia na tomada de decisões clínicas e facilita a prestação de assistência de qualidade e eficiente para os profissionais do serviço, proporcionando cuidados humanizados, conforto e segurança. Manifesta-se como instrumento de auxílio ao profissional de saúde no planejamento e implementação de programas assistenciais que melhor atendam às suas necessidades. Torna-se, ao viabilizar a identificação dos cuidados requeridos pelos pacientes, um aliado para a gestão dos serviços de saúde e subsídio para os processos de gestão das instituições. Caracteriza-se, além disso, como ferramenta que proporciona melhoras no aproveitamento da área física e dos recursos humanos. **Descritores:** Tecnologia; Criança; Segurança do Paciente; Pediatria; Enfermagem; Cuidado da Criança.

RESUMEN

Objetivo: validar *software* para la gestión del cuidado infantil en Pediatría. **Método:** este es un estudio metodológico centrado en la validación de un *software*. Es de destacar que la composición de los participantes incluirá jueces expertos del área pediátrica y tecnología de la información. Como instrumentos de recolección de datos, se aplicarán dos cuestionarios con preguntas sobre caracterización profesional, evaluación de contenido y aspectos técnicos del *software*. Se utilizará para el análisis de las informaciones, *software* Statistical Package for Social Sciences (SPSS) versión 20.0. **Resultados esperados:** el *software* se presenta como un sistema inteligente que ayuda en la toma de decisiones clínicas y facilita la prestación de atención de calidad y eficiente a los profesionales de servicios, brindando atención humana, comodidad y seguridad. Es un instrumento de asistencia a los profesionales de la salud en la planificación e implementación de los programas de atención que mejor satisfagan sus necesidades. Se convierte, al permitir la identificación de la atención requerida por los pacientes, un aliado para la gestión de los servicios de salud y un subsidio para los procesos de gestión de las instituciones. También se caracteriza por ser una herramienta que proporciona mejoras en el uso del área física y los recursos humanos. **Descriptores:** Tecnología; Niño; Seguridad del Paciente; Pediatría; Enfermería; Cuidado del Niño.

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INTRODUCTION

The attention to child health is presented as a priority field of the public sector, as it is an age group susceptible to illness and illness due to the frailty of the extreme age.¹

Among the excuses that require assistance in pediatric units, respiratory diseases are highlighted, especially pneumonia and asthma, followed by infectious and parasitic diseases and, in the third group, perinatal diseases.²

Thus, considering the presence of pathology and the hospitalization of children in the hospital unit, the production of care by professionals for health promotion, disease prevention and rehabilitation stands out, in the development of technical and scientific care competences and, above all, continuous and integral, with a view to meeting the patients' needs and singularities.

With regard to the Nursing team, it is verified that the care process comprises the development of health interventions in order to favor the potential of patients to maintain or improve their human condition during life.³

The application of child care varies according to growth and development, the morphological, anatomical and physiological differences of the organism, the cognitive development of each age group, the process of communication between caregivers and caregivers, as well as relationships and interrelationships between child, health team and family.

However, the management of nursing care for hospitalized children is a complex phenomenon that requires nurses to establish multiple interactions and a thought that values multidimensionality, uniqueness and the social context of children. It is informed that, for this reason, meeting their needs demands, from nurses and their staff, the adoption of strategies that enable care in a dynamic, interdisciplinary and multidirectional way.⁴

The use of health technologies by the nursing staff is a reality that has intensified in recent years, after the information age, and has become an essential practice for the development of clinical care not only in relation to care, but also to care management.

It is possible, during the work process of nurses in health services, to integrate and use data for health care and research; transfer of patient information for continuity of care and safety; reduction of medication administration errors; innovation of professional practice; qualification of care, promotion of bonding and reciprocity of values and emotions; systematization of care information for decision making; projection of nursing staff; improvement of occupational health of professionals; exchange of experiences and

interlocution of information at national and international levels; ease in communication and time management of nurses; better treatment direction; technical and scientific training of nurses; evaluation of clinically relevant parameters and improvement of efficient clinical decision.⁵

It is analyzed that the materials are in rapid transformation and Nursing, involved in the models of the process of training, planning, visual programming, building and validating new technologies that meet your needs and improve the performance of your practice, helping to exchange information at record speed and the possibility of longer patient dedication.

The study demonstrated the development of several technological innovations for nursing care practice, namely: Handoff technology via Web for the transfer of patient information; Bar Code Drug Administration System (BCMA); state-of-the-art infusion pumps; Nursing Information Sharing System (SPIE); Computational Nursing Professional Design Program (DIPE); Computerized Management System; Neonatal Care Technology; Intensive Care Unit Computerization (ICU); Open source network information system; virtual learning environment on cardiopulmonary resuscitation care in the newborn and Electronic health record (EHR).⁶

It is identified, however, despite the development of large and distinct technological devices for the management of the work process, that the management of inpatient units coexists with the absence or little global planning; difficulty in coordinating all assistance and administrative processes; lack of daily practices to classify users' care needs and the related indication of the size of the necessary nursing professionals; little or no systematic measurement of care and administrative performance; communication problems and lack of participatory management tools.⁷

Therefore, it was developed, considering the responsibility of Nursing in the set of work performed in the pediatric inpatient unit and verifying the absence of a standard technology appropriate to management, a computerized and integrated proposal for the management of pediatric inpatient units that allows advances through using an innovative and participatory tool. It was made possible, by the effort of union between theory and practice, the production of the software as a standard tool for the dimensioning of care in inpatient units focused on a humanized, integral, safe and quality nursing care.

Given the above, the following questions are asked: "What is the validity of the software for the management of child care in a pediatric inpatient unit?"

OBJECTIVE

♦ To validate child care management software in Pediatrics.

METHOD

This is a methodological study, focusing on the validation of software, which will be developed from October to December 2019.

The population of this investigation will be expert judges, defined as those who have a large capacity acquired by a high degree of knowledge,

skill and extensive experience in a particular area of knowledge, and also have the particularity of being identified and recognized by others.⁸

For the selection of participants, intentional non-probabilistic sampling will be used. The following criteria were chosen for judges: a score of at least four points and participation in at least two of the criteria presented in Figure 1.

Criteria	Score
Specialization / dissertation / thesis in the area of interest*	2
Participation in research groups / projects in the area of interest*	1
Professional practice in the area of interest*	2
Works published in the area of interest*	2
Experience in building and validating educational materials*	2

*Area of interest: Pediatrics and Information Technology.
Figure 1. Criteria for selection of judges. Sobral (EC), Brazil, 2019.

With regard to the number of expert judges in the software validation study, the recommendation proposing the following

mathematical formula for the calculation of the minimum number of participants will be adopted: ⁹

$$n = \frac{Z\alpha^2 \times P \times (1 - P)}{E^2} = \frac{1,96^2 \times 0,85 \times 0,15}{0,15^2} = 22$$

Refers to "Zα" the confidence level adopted; "P" represents the expected proportion of proficient, indicating the adequacy of each item (85%) and "E", the acceptable proportional difference from what would be expected (15%), considering Zα = 1.96 (range 95% confidence).

Thus, according to mathematical calculation, the minimum number of participants should be 22 expert judges. It is believed, however, that not all judges will return within the estimated timeframe, with significant loss of materials, therefore, ten additional judges will be selected and submitted for evaluation.

second one contains spaces with criteria to evaluate the application performances, ie ergonomics, functionality, usability and efficiency.

For each criterion, the Likert scale will apply with the following concepts: 1) Totally inadequate; 2) Considerably inadequate; 3) Pretty adequate and 4) Totally adequate.

For data collection, two semi-structured instruments will be used, divided into two parts, namely: instrument for the validation of software content directed to judges in the pediatric area, which, in its first section, contains objective questions regarding the characterization. professional, while the second consists of tables with criteria for the evaluation of scientific accuracy, quality of information, presentation, specific and comprehensive technology, readability and visual electronic characteristics and degree of relevance of content.

Initially, a search of expert judges will be performed through keywords in the Lattes Curriculum platform of the National Council for Scientific and Technological Development (CNPq) and the evaluation of participants regarding the criteria established in this investigation. Subsequently, the selected judges will be invited to participate voluntarily in the study by sending an invitation letter by e-mail with information regarding the objectives, the purpose of the research and the importance of participation for the purpose and, After acceptance, the Free and Informed Consent Term (FICT) will be sent by e-mail, establishing 30 days for the return of the signed and scanned document to the researcher's e-mail.

The instrument will be composed for the evaluation of the technical aspects of the software by the judges of the area of information technology, in its first part, by objective questions about the professional characterization, while the

Therefore, the prototype of the software and the semi-structured instrument for the validation process will be sent to the specialists by e-mail, stipulating a maximum of 90 days for the return of the document to the e-mail of the researcher.

Each judge judge will be asked to describe and justify why when ticking the options (1 - Totally

Inappropriate and 2 - Considerably Inadequate) next to the score in a designated space, as well as at the end of the instrument, and space will be available for opinions and suggestions regarding the material.

At the end of this stage, the adjustments suggested by the judges and considered pertinent to the application will be incorporated.

Quantitative data will be stored, organized in Microsoft Excel, and later converted to Statistical Package for Social Sciences (SPSS) version 20.0 software to assist in data analysis. The results will be presented through figures, tables and tables by the possibility of summarizing aspects and facilitating readers' understanding.

Relevant inferences will be made to the study data and descriptive analyzes (mean, standard deviation and frequencies), as it allows to say if there is a negative or positive correlation between the variables, if they are associated and to what extent the variation of them explains the variation of another.

Validated items that obtain answers with agreement rates between expert judges greater than or equal to 80%, serving as a decision criterion on the relevance and / or acceptance of the item to which it theoretically refers.¹⁰

The research will respect the ethical principles in their stages, according to Resolution 466 of December 12, 2012, of the National Health Council, which regulates research involving human beings.¹¹

To ensure the confidentiality and anonymity of the participants, the expert judges of the pediatric area will be identified by the letters "JP" followed by an alphanumeric code, according to the sequence of receipt of the documents (Ex: JP01, ... JP11), while information technology expert judges will be identified by the letters "JT" followed by an alphanumeric code, depending on the sequence of receipt of the documents (Ex: JT01, ... JT11).

It is noted that this research integrates a broader research called: "Implementation of a technology for patient safety in a pediatric unit" and submitted to the Research Ethics Committee of the INTA University Center for the ethical appreciation of the scientific committee, obtaining favorable opinion n. 2,213,633, CAAE 71389717.6.0000.8133.

EXPECTED RESULTS

The software will be presented as an intelligent system that helps in clinical decision making, facilitating information management, collaborating in the improvement of the processes for the pursuit of excellence in care and favoring the accreditation of the quality of care and the hospital institution.

It is known the care and management difficulties resulting from the lack of specific instruments in the hospital environment and the great demand for activities to be performed by nursing professionals in the field. The elaborated technology behaves because it is a lightweight, easily accessible and electronic resource, as an instrument that will facilitate service professionals to provide quality and efficient assistance, providing humane care, comfort and safety, as well as as minimizing / eradicating discomfort, accidents and adverse events resulting from hospital stay.

When investigating the patient's situation in the hospital unit, it will be manifested as an instrument that can assist the health professional in the planning and implementation of care programs that best meet their needs, assisting in the daily distribution of care to each patient, as well as as presenting relevant information for the service organization and staff sizing for the Nursing staff.

It will become, by enabling the identification of the care required by patients, an ally for the management of health services and subsidy for the management processes of the institutions, helping in the management of costs.

It will also be characterized as a tool that provides improvements in the use of physical area and human resources, ensuring greater productivity and effectiveness of the Nursing team, which results in a more qualified and safer care for patients by professionals.

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