Development of a support system for clinical decisions in intensive nursing care

ABSTRACT
Objectives: to identify the necessary requisites to build a system to support the nursing process in cardiac intensive care units. Method: applied research of technological production to be developed in two stages. The first stage consists of the identification of the necessary requisites to build a support system for the nursing process in cardiac intensive care units, using an association of methods, namely: integrative review, systematic observation and the Delphi method. In the second stage, with the collaboration of professionals from the area of Information Systems, the researchers will develop a support system for the nursing process, based on the requisites identified and selected in the previous stage. Expected results: the researchers aim to provide a decision-making support system to assist nurses in the development of the nursing process stages, as well as to contribute to strengthen nursing as a scientific discipline, since specific knowledge from this profession will be used in the construction of the software. Descriptors: Clinical Decision Support Systems; Nursing; Intensive Care.

RESUMO
Objetivos: identificar os requisitos necessários para a construção de um software de apoio ao processo de enfermagem em Unidade de Terapia Intensiva Cardiológica. Método: pesquisa aplicada de produção tecnológica, a ser desenvolvida em duas etapas. Na primeira, serão identificados os requisitos necessários para a construção de um software de apoio ao processo de enfermagem em Unidade de Terapia Intensiva Cardiológica utilizando uma associação de métodos, a saber: revisão integrativa, observação sistemática e Método Delphi. Na segunda etapa, em colaboração com profissionais da área de Sistema de Informação, será desenvolvido um software de apoio ao processo de enfermagem, a partir dos requisitos identificados e eleitos na etapa anterior. Resultados esperados: pretende-se disponibilizar um sistema de apoio à tomada de decisão que auxilie o enfermeiro a desenvolver as etapas do processo de enfermagem, assim como contribuir para o fortalecimento da enfermagem enquanto disciplina científica, uma vez que se utilizará dos conhecimentos específicos desta profissão para a construção do software. Descriptores: Sistemas de Apoio a Decisões Clínicas; Enfermagem; Terapia Intensiva.

RESUMEN
Objetivos: identificar los requisitos necesarios para programar un software de apoyo al proceso de enfermería en Unidad de Terapia Intensiva Cardiológica. Método: investigación aplicada de producción tecnológica desarrollada en dos etapas. La primera identificará los requisitos necesarios para programar un software de apoyo al proceso de enfermería en Unidad de Terapia Intensiva Cardiológica utilizando una asociación de métodos: revisión integrativa, observación sistemática y Método Delphi. La segunda etapa, en colaboración con profesionales del área de Sistemas Informáticos, desarrollará un software de apoyo al proceso de enfermería partiendo de los requisitos identificados y elegidos en la etapa previa. Resultados esperados: se pretende obtener un sistema de apoyo a la toma de decisiones que ayude al enfermero a desarrollar las etapas del proceso de enfermería, así como contribuir al fortalecimiento de la enfermería como disciplina científica, toda vez que se utilizarán los conocimientos específicos de la profesión para programar el software. Descriptores: Sistemas de Apoyo a Decisiones Clínicas; Enfermería; Cuidados Intensivos.

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INTRODUCTION

Clinical decision support systems (CDSS) are interactive systems designed to assist health professionals in the resolution of complex clinical problems.¹ These systems, which are based on electronic health records, provide professionals with specific knowledge, intelligently filtered information that is presented in real time, with the objective of improving individual performance in the delivery of care to patients and the population health in general.²

In the nursing area, the use of a system to assist the decision-making process appears as the foundation to improve the quality of care, management, teaching and research, making each stage of the nursing process interactive and dynamic. Moreover, it offers paths to organize and categorize the nursing work, providing more visibility to this professional before the team and the institution.³⁴

Intensive care units (ICU) benefit especially with the use of CDSS, given that the patients hospitalized in these units have potentially critical conditions or instability of one or more organic systems, which generates the need for making decisions rapidly by part of the health team. The arrival of such systems provides greater efficiency, efficacy and effectiveness to the decision-making process.⁵

Studies show that, despite the benefits described as for the use of CDSS, these systems are still underused by part of the users.⁶ In the nursing area, such underuse has been related to the fact that these systems are based on data deriving from the medical practice, rather than the area of nursing intervention. This fact explains the importance of involving nurses in the developmental process of such systems, so that the nursing knowledge, in its genesis, is made available to these professionals through the use of CDSS.⁷

In the light of this setting and the considerations presented, there is an urgent need to learn the necessary requisites for a clinical decision support system in the nursing care of patients in cardiac ICUs.

For the purpose of this study, requisites are understood as declarations of need, aimed to transmit knowledge regarding an expected result, regardless of their effective execution, reflecting the needs of the clients and users of a given system.⁸

OBJECTIVES

- Identify the necessary requisites to build a system to support the nursing process in cardiac intensive care units.
- Develop a support system for the nursing process, based on the previously identified requisites.

METHOD

This project involves the development of an applied study of technological production, in two stages. The first stage consists of the identification of the necessary requisites to build a support system for the nursing process in cardiac intensive care units, using an association of methods, namely: integrative review, systematic observation and the Delphi method.

In the second stage, with the collaboration of professionals from the area of Information Systems, the researchers will develop a support system for the nursing process, based on the requisites identified and selected in the previous stage.

The surveying of data by means of the integrative review will allow to identify support systems to the nursing process described in the literature and the modules composing them, as well as the functionalities already positively assessed by users. These data will be later listed in the form of requisites to the development of a new system.

Scientific productions in this area will be searched for in the Scielo, Lilacs, Medline and PubMed databases, based on search strategies comprehending the following controlled descriptors: Nursing Informatics, Nursing Process, Health Information Systems and Clinical Decision Support Systems; and assisted by the use of Boolean operators. The objective of this method is to broaden the research range, minimizing possible biases in this stage of the review.

Data from the articles included in this stage will be collected using a questionnaire, which will be submitted to face and content validation by three experts, comprising the following items: identification of the original article, methodological characteristics of the study, identification of the system described and characterization of the software modular structures.

The non-participant systematic observation of the nursing process in the cardiac ICU will be carried out after data collection through the integrative review and will allow to identify the specificities of the nursing process described by the requisites.
Development of a support system for clinical decision making during care of patients hospitalized in the cardiac ICU, as well as to support decision making during this care, such as reports, forms and scores.

Data collection through systematic observation will take place in the cardiac ICU of a private hospital in the Brazilian city of Maceió, state of Alagoas, and will be guided by a semi-structured script. The data obtained will be recorded in a field diary and later categorized in the form of requisites.

The data obtained by means of the integrative review and the systematic observation will be grouped in a questionnaire and then evaluated by experts, using the Delphi method. This questionnaire will also provide a space for the suggestion of requisites that have not been raised so far.

The experts will be selected based on a broad perspective of the concept of expert, ranging from academic expertise to professionals whose experiences are meaningful to the subject in question.

Once the experts are selected, they will receive the list of requisites identified, with the aim to obtain a consensus as for the pertinence and importance of such requisites to the development of a support system for the nursing process in the cardiac ICU.

The sequence of execution of an electronic Delphi search will be respected, namely: elaboration of a questionnaire and selection of experts, first round of answers through the Internet, tabulation and analysis of the questionnaires received, evaluation of satisfaction regarding the convergence of answers, reformulation of the questionnaire and remaining rounds (as many as necessary to reach a consensus as for the answers) and production of the final report.

The data obtained in this stage will serve as requisites to support the production of a support system to the nursing process in the cardiac ICU, in collaboration with professionals from the area of Information Systems.

**EXPECTED RESULTS**

The aim of this study is to develop a clinical decision support system to assist nurses in the development of the nursing process stages in the cardiac ICU, as well as to contribute to improve their diagnostic efficacy, since the use of such systems allows for “better and faster access to the patient’s information and more complete records”.

Hence, the authors hope to contribute to improve the quality of the nursing care and to strengthen nursing as a scientific discipline, since specific knowledge from this profession will be used in the construction of the software that will assist nurses in the development of their functions.

**REFERENCES**


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