








## Evaluation of care technology applied to the nursing process in the light of best practices

Avaliação de tecnologia cuidativa aplicada ao processo de enfermagem à luz das melhores práticas

### How to cite this article:

Pendon R, Bitencourt JVOV, Haag FB, Parker AG, Maestri E, Adamy EK, et al. Evaluation of care technology applied to the nursing process in the light of best practices. Rev Rene. 2020;21:e44420. DOI: <https://doi.org/10.15253/2175-6783.20202144420>

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### ABSTRACT

**Objective:** to unveil nurses' perceptions about the development of care technology to operationalize the nursing process. **Methods:** qualitative study, developed with seven intensive care nurses, through a focus group, based on a semi-structured script. The content analysis technique was used to interpret the data, in the light of the Best Practices framework. **Results:** the content of the focus group was organized into two categories of a priori analysis: Applying resolute knowledge in the development of care technology for the nursing process and development of technology focused on the nursing process, based on the rational use of resources. **Conclusion:** nurses conceived care technology as best practice, considering that it was based on scientific evidence. It has developed collaboratively, with rational use of resources, based on a partnership with higher education institutions, and customized according to local context and needs.

**Descriptors:** Technology; Nursing Process; Nursing Care; Evidence-Based Nursing; Resources Management.

### RESUMO

**Objetivo:** desvelar as percepções de enfermeiros sobre o desenvolvimento de uma tecnologia cuidativa para operacionalização do processo de enfermagem. **Métodos:** estudo qualitativo, desenvolvido com sete enfermeiros de terapia intensiva, por meio de grupo focal, a partir de roteiro semi-estruturado. Utilizou-se da técnica de análise de conteúdo para interpretação dos dados, à luz do referencial das Melhores Práticas. **Resultados:** o conteúdo do grupo focal foi organizado em duas categorias de análise apriorísticas: Aplicando o conhecimento resolutivo na elaboração de uma tecnologia cuidativa para o processo de enfermagem e Desenvolvimento de tecnologia voltada ao processo de enfermagem, a partir do uso racional de recursos. **Conclusão:** os enfermeiros conceberam a tecnologia cuidativa como uma melhor prática, ao considerarem que estava assentada em evidências científicas. Desenvolveu-se colaborativamente, com uso racional de recursos, a partir da parceria com instituições de ensino superior, e personalizada conforme contexto e necessidades locais.

**Descritores:** Tecnologia; Processo de Enfermagem; Cuidados de Enfermagem; Enfermagem Baseada em Evidências; Gestão de Recursos.

EDITOR IN CHIEF: Ana Fatima Carvalho Fernandes  
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## Introduction

The structured methodology in the nursing process consists of a tool used, in order to systematize care and promote the qualification of care provided to the patient. When properly implemented, it strengthens the profession as a science that underlies clinical care, as this scientific and intellectual framework outlines performance improvement for effective clinical training, enabling professionals to make decisions based on the best available practice. However, the operationalization of the nursing process, in most Brazilian health services, is far below that regulated by the nursing legislation. Although the use of this process is mandatory, it is not yet part of the daily practice of many nurses, due to work overload, low staffing and lack of knowledge, which motivates these professionals to prioritize bureaucratic and administrative actions<sup>(1)</sup>.

With regard to conceptions of best practices, the discussion is relatively recent in the area of health, arising in the first decade of the 21st century. Thus, knowledge about effective practices, in particular circumstances and contexts, without the excessive use of resources to achieve the desired results, can be used for the development and implementation of appropriate solutions to similar health problems in other situations<sup>(2)</sup>.

Thus, the conceptual bases of this model of practice were conceived aiming at assistance qualification and, for the area of nursing, they direct praxis, through ethics and respect, based on the needs of patients and families, clinical excellence and scientific evidence, being supported by three pillars: better results from scientific studies, clinical expertise and patient needs<sup>(2-3)</sup>.

In order to support the development of best practices, in Australia, two important nursing entities, Australian Nursing and Midwifery Federation and Registered Nurses' Association of Ontario's, joined

efforts to implement a best practice program in the country. As a result, the program's strategic approach has since contributed to improving evidence-based nursing practice, improving patient care and strengthening multiprofessional health practice<sup>(4)</sup>.

In Brazil, the literature on the incorporation of best practices by nursing, especially applied to the nursing process, is still incipient. On the other hand, two international studies have produced famous advances, by introducing best practices in the systematization of care<sup>(5-6)</sup>. The first, carried out in an emergency service in Sydney, Australia, sought to validate a structured approach for emergency nursing assessment, based on best practices, based on a literature review, followed by an evaluation by experts and testing of the new protocol, using the clinical simulation<sup>(5)</sup>. The second, carried out at Humital River Hospital, in Canada, showed the development of an innovative approach that integrated best practices into the electronic records of nursing assessments<sup>(6)</sup>. The care technologies, developed in both studies, supported by best practices, allowed nurses to assess patients more quickly and consistently, with the potential to improve the quality and safety of the care provided.

In this sense, care technologies are structured based on scientific knowledge, aiming at the creation of health tools, ranging from the production of equipment to the development of care-relational strategies. These technologies are applied in the daily life of health services, in the assistance, managerial, educational and research dimensions<sup>(7)</sup>.

In view of the above, when considering the relevance of care technology for the implementation of the process steps, the question was asked: what is the conception of nurses about the development of a care technology to operationalize the nursing process, as a best practice? Thus, the objective was to unveil the nurses' perceptions about the development of a care technology for the operationalization of the nursing process.

## Methods

Research with a qualitative approach, with intensive care nurses, in a reference hospital in Western Santa Catarina, Brazil, in which the developed care technology was implemented. The apprehension of the information was based on the Best Practices framework, developed by the World Health Organization, which is appropriate for the present study, since when designing a best practice, professionals must respond to the attributes: resolute knowledge, prudent use of resources and adaptation to other situations or contexts. Thus, based on these attributes, the responses of the participants were analyzed<sup>(2)</sup>.

The care technology was developed based on a research project that aims to implant and implement the nursing process, in the daily performance of nursing activities, in a critical sector of the researched hospital institution. Through the participation of teachers and students from three local college institutions and nurses from the unit where the study was conducted, nursing diagnoses, interventions and results were linked, considering the clinical and epidemiological profile of patients assisted in the unit intensive care. This technology was developed over a period of two years, adopting the Nanda International Standardized Nursing Language System (NANDA-I), Nursing Interventions Classification (NIC) and Nursing Outcomes Classification (NOC) as a reference.

The sample composition was intentional, not probabilistic and composed of nurses working in the intensive care unit where the study was developed. The unit is formed by eight assisting nurses and a coordinating/assisting nurse, totaling nine professionals. The inclusion criteria were: nurses who performed the application of the nursing process, considering all work shifts, with more than three months of experience in the sector. Nurses who were on leave for any reason or who were on probation were excluded. Two nurses did not meet the criteria, and the final sample consisted of seven nurses.

After checking the eligibility criteria and ob-

taining the nurses' consent, they were approached in person or by telephone by the researchers to schedule the date of data collection. It was clarified to the participants that the collection would be carried out through recorded audio, using a semi-structured instrument, containing characterization data of the participants and guiding questions.

The focus group technique for data collection was adopted, which allows the researcher to gather, in the same place, people who are part of the same research, aiming to collect data through dialogue and debate between the participants and the researcher<sup>(8)</sup>. The two-hour focus group took place in September 2019, at the hospital's study center, after setting up the space. On the spot, the chairs were arranged in a circle, to facilitate the visual contact of the participants, and a chair in the center, where the recording device was. The session was conducted by the main researcher, in the role of moderator, being assisted by two observers, undergraduate nursing students, previously trained in the focus group technique, as they belong to groups of scientific initiation, who filled out a field diary.

The moderator used a semi-structured script, with questions about the characterization of nurses who joined the study and directed to group discussions. The questions were guided by the following aspects: the organization of collective work for the construction of technology, the work strategies proposed for the creation of technology, based on the attributes of best practices, and the monitoring of the structuring and operationalization of the nursing process in the unit. A single focus group was held, due to the theoretical saturation of the data, which was perceived by the mediator; from the repetition of the content of the participants' statements for each investigated aspect, which was included in the data collection script.

The textual corpus was composed of the discussions that emerged in the focus group session, which were collected through audio recording and, later, transcribed in full, enriched with notes from the field diaries. Content analysis<sup>(9)</sup> was the technique used to

survey the data, thus, pre-analysis and exploration of the material was carried out, whose debates were heard and transcribed, with the participants' identity being preserved by codenames. In the phase of treatment of results, inference and interpretation, a thorough reading of the analysis corpus was carried out, highlighting excerpts from the recorded conversations that made sense to answer the guiding research question. The data were categorized, according to the Best Practices attributes, into two a priori categories, which are presented in the results.

To guarantee the confidentiality and anonymity of the participants, the representation of names was expressed, throughout the text, by names of flowers. The study complied with national guidelines regarding the ethical requirements for studies with people, obtaining approval by the research ethics committee, according to opinion No. 3,559,186/2019 and Certificate of Presentation for Ethical Appreciation No. 11945519.6.0000.0118.

## Results

Regarding the seven study participants, they were all women, aged between 26 and 44 years. The working time in the intensive care unit ranged from three to 15 years, and all had complementary training, with lato sensu specialization, in areas related to the care of critical patients (intensive care, urgency and emergency and cardiology).

Based on the analysis of the focus group, the results were organized into a priori analysis categories, according to the three attributes of the Best Practices framework: resolute knowledge, prudent use of resources and adaptation to other situations or contexts. Then, two categories were created: Applying resolute knowledge in the elaboration of a care technology for the nursing process and Development of technology focused on the nursing process, based on the rational use of resources, the third attribute (adaptation to other situations or contexts) is implicit in the first and second categories.

## Applying resolute knowledge in the development of care technology for the nursing process

The research participants talked about the challenges for the construction of the new technology, on solid bases of scientific knowledge that were new to them, being necessary the immersion of them in this new area of knowledge, with the help of the teachers. This process demanded great effort from the group and brought satisfaction to those involved, as noted in the statements: *We left without a guide, handling the books, NANDA ... It started and took about three months to scrutinize, then we went to NIC, then we went for the NOC (Rose). For me, it was like Rose said; we started without knowing for sure what we would find. I graduated in 2004 and, at that time, I didn't have the NIC and the NOC, so, for me, everything was new and it was a very good novelty, pleasant to work with (Daisy). It was very tiring, it certainly demanded a lot, but it was something like this that we were building and today we are proud to look at the computer screen and look at all that, and to know that we built it, so it was very good (Daisy).*

From resolute knowledge, nurses were able to reinvent their own practices, applied to specific situations in the work scenarios. This practice has become even more qualified because it is based on the Standardized Language Systems, giving, at the same time, quality, safety and optimization of the time to apply the nursing process: *Build a tool aimed at the development of the phases of the nursing process, oriented by dividing NANDA domains it became easier, faster. Because it goes there to such a domain that we know it will have the diagnosis. It made it easier for us. And it was like that, with the division by domains that we saw, before seeing the interventions. In this way, we can see which interventions fit or not for that diagnosis (Azalea). Before, we didn't collect all the data we collect today. Now, doctors ask us (nurses) what medications the patient uses at home, because they know that we have this information recorded in the history (Lilly).*

The resolute knowledge was reached, since the professionals managed to make the intersection between the theoretical and scientific support available with the clinical practice, making adaptations to certain circumstances of care: *The idea that the commission had to develop the case studies with our patients, so that we had the opportunity to clear up our doubts, it was important (Azalea). And*

*it was with these case studies that we went even deeper!!!! That was when we started to expose our opinion more (Orchid).*

### **Development of technology focused on the nursing process, based on the rational use of resources**

The construction of the new technology was a gradual process, in which we used our own intellectual capital, available in the service, with space for professionals to develop activities in addition to direct assistance: *The intensive care unit is the sector in which we manage to be the pilot of an initiative, but we (nurses) had nothing, no reference (Rose). So, it was the efforts of several meetings, I think it was for two years these meetings, and I think that thanks to everyone's efforts, we managed to get to where we are (Orchid). I think the biggest difficulty in hospitals is to be able to produce what we produce. Because it is not possible for a nursing team, for nurses who work in the sector, to get together and do it alone; we need this involvement. All hospitals should have this opportunity, this set, and all the work was done in partnership (with universities) (Azalea).*

The teaching-service partnership, represented by the collective efforts of teachers, students and nurses in the intensive care sector, supports the prudent allocation of resources, which can be of a material, human and structural nature: *When I was there in the interior of São Paulo, in the hospital administration, I tried to implant the nursing history, but today seeing all of this here ... I was not going to make it. Because I was alone at the time, and I see the importance of the University behind this, because here if not for that, we would not have a foot, I think we would not be able to, there would be no time to get to the computer and write all that. Because it was the students of the project who put it there (Daisy). And the University wouldn't be able to do it without our help, our experience, and we wouldn't be able to implement it without their help, because we wouldn't have the availability to make everything happen (Lilly). The monitoring of the commission was very important and continues to be today; the commission is always present helping us and demanding better results (Daisy).*

Finally, nurses were able to point out reflexes of the work developed in the management of nursing care and in the effectiveness of actions, in the work contexts, by means of feedbacks received by the institution's audit team: *What makes us happy is to see the sta-*

*ff of the audit, giving feedback to us. They say they can close the chart better. Because this management, yes, because we are the care manager. And, in this management, we are recording what we are doing to the patient ... For the audit to work, and we also see this in the patient. You know, this is a nursing process! This is care management! (Rose).*

### **Discussion**

As a limitation in this study, data collection in a single intensive care setting was considered, thus not allowing the generalization of findings. Future investigations, with larger samples and more robust designs, can validate the results found in this research and advance the knowledge about the best practices performed by nurses to operationalize the nursing process.

The present study contributes to the visibility and qualification of the work developed by intensive care nurses, with a view to improving the care provided, based on the implementation of a care technology, based on the attributes of best practices. It is emphasized that the appropriation of the Standardized Language Systems in Nursing for the operationalization of the nursing process is possible to be accomplished, through the commitment of the professionals of the services and partnerships with higher education institutions.

The resolute knowledge attribute was conceived collectively, with the selection of strategies for structuring the care technology dialogically defined and based on contemporary scientific evidence, whose use refers to models of systematization of nursing practices. In this sense, results of an integrative literature review showed that, in the field of health, collective work is seen as a fundamental instrument to improve the provision of efficient care, especially in the area of nursing. It is reinforced that the performance of teamwork improves the results of the nursing team related to patients<sup>(10)</sup>.

Team organization consists of an improved method for forming work groups. The groups favor a more comprehensive view of a particular practice, allowing systematic, homogeneous and constant growth, in a synergistic manner, in addition to ensuring



greater job satisfaction and positive organizational results. In this way, synergy occurs when the production of a team exceeds the work done individually. Two important characteristics for a synergistic group include group cohesion and the search for a common goal<sup>(11)</sup>.

With regard to the organizational strategy of the care technology, properly speaking, the attribute resolute knowledge was sustained taking as reference the NANDA-I Standardized Language System. In this regard, it is stated that the division of nursing diagnoses by domains values the taxonomic strategies proposed by NANDA-I, as it enables data connection, facilitates the search for the correct diagnosis and favors reflection on care<sup>(12)</sup>.

In addition, it is relevant to highlight the fruitful nature of initiatives, whose purpose is to actually operate the process in clinical practice, which tends to reach the accuracy related to the health care provided. The literature on the Systematization of Nursing Assistance, referring to care management, shows that the execution of the nursing process enables a more complete filling of the patient's health history and evolution, guaranteeing legal support, in addition to enabling the improvement of cognitive skills to clinical assistance, through the integration of causal elements, clinical signs and results sensitive to nursing intervention<sup>(13)</sup>.

Therefore, the implementation of the nursing process is a work tool based on scientific knowledge, theory and nursing classifications. A study carried out in Iran identified that the main barriers to the implementation of the nursing process were related to managerial aspects, such as the high number of patients, under the responsibility of each nurse, lack of continuous monitoring of the implementation process, lack of systematic training and tools for facilitate the registration process<sup>(14)</sup>. In the present study, the expertise of the team that developed the technology stands out, composed of nurses who are specialists in the field of critical care and professors with PhDs in nursing, an important factor to circumvent the barriers of implementation of the nursing process and devise a best practice.

In the deepening of the attribute resolute knowledge, the elaboration of case studies stands out, which propitiate to examine a real life situation, allowing nurses to discuss the main cause of a problem, preventive and resolution measures. Also, it is useful in the field of research as a method, which can be applied in the most diverse situations, in order to provide a relationship between theory and practice, offer subsidies to enable the study and the solution of problems, and consider the needs of patients and family/caregiver. As it is a very important research method, its use by nursing is broadened, in the most different areas<sup>(15)</sup>.

When entering into the discussion related to the attribute use of rational resources for the development of a practice, the performance constituted from the integration between teaching and service is exalted. It is mentioned that this movement provides the opportunity for an innovative organization for health work, because, at the same time that it favors teaching and learning, it allows the sharing of knowledge, mediated by the dialogue among students, teachers and service professionals<sup>(16)</sup>.

Going further, in the perspective of strengthening the alliance established between teaching and service, in a study that describes the motivations that mobilize nursing teachers in the elaboration of a theoretical-methodological framework to support the teaching of the nursing process, the need was observed changes in the teaching and learning process, as guides to the best professional practices, as they need to respond to the ethical demands and the dignity of society and services<sup>(17)</sup>.

Next, it is argued that one of the main pillars of support for the model built at the institution was conceived by the Nursing Process Commission, which brings together representatives of teaching institutions and hospital professionals, with the foundation in 2014, at the time of the first initiatives related to the nursing process in the service. According to the Internal Regulation of the Nursing Assistance Commission, the Nursing Process Commission is an advisory body responsible for analyzing issues related to the im-

plant/implementation and monitoring of the nursing process methodology in the hospital<sup>(18)</sup>.

In view of this, it is reasoned that the formation of a committee for the nursing process allows the service to come into agreement with the duties of nurses and the organization of nursing care. Likewise, it enables the training of professionals regarding the realization of the nursing process, making it possible to affirm that the presence of commissions of this nature can contribute to the implementation and management of the nursing process<sup>(19)</sup>.

In view of the above, it is clear that the participants of this study highlighted the relevance of the monitoring of the commission, making the indication that it helps the professional nurses, in the face of doubts related to the development of the stages and the registration of the information obtained, from the nursing process.

It is also added, regarding the expected performance of the advisory commissions and attributions of the Nursing Assistance Systematization Commission, previously mentioned, the observance of important criteria by the members, such as being present at all meetings, assisting nurses with some difficulty in understanding and monitoring the nursing process, publishing studies, complying with the regulations, organizing service schedules, aiming to resolve any eventualities that may arise, during or after the implementation of the nursing process, in health services<sup>(18)</sup>.

In this regard, it is argued in the literature that the audit sector develops the work of verifying the quality of care provided by health professionals, competing with the auditors for guidance on the need to maintain nursing records, which may also have space in the analysis of hospital bills. One of the main means of investigation of nursing auditing is through a thorough analysis of the records made in the medical records of patients, through which it is possible to define their completeness<sup>(15)</sup>.

## Conclusion

The results showed that the care technology, developed to implement the nursing process, has attributes that characterize it as best practice, being perceived by the participating nurses as highly resolving. Structured strategies for the construct, oriented to collective work and grounded in the partnership of service and academia, supported by theoretical references recognized by the scientific nursing community, are considered to be decisive, including with regard to the human and financial resources dispensed, judging due to the low burden, in addition to the possibility of execution, through the active participation of professionals from the institution in which they work.

## Collaborations

Pendon R, Bitencourt JVOV and Haag FB contributed with conception and design, data interpretation, writing of the manuscript, relevant critical review of the intellectual content and final approval of the version to be published. Parker AG, Maestri E and Adamy EK collaborated with writing the article, relevant critical review of the intellectual content and final approval of the version to be published. Meschial WC participated in the interpretation of the data, writing of the manuscript, relevant critical review of the intellectual content and final approval of the version to be published.

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