Chapter 03 / Capítulo 03

Health and Professional Practice in Argentina: Applied Research in Patient Care, Workforce Training, and Health Interventions (English Version)
ISBN: 978-9915-704-19-7
DOI: 10.62486/978-9915-704-19-7.ch03
Pages: 21-29

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Continuing nursing education and quality of care in paediatric intensive care in Rosario, Argentina / Formación permanente de enfermería y calidad del cuidado en terapia intensiva pediátrica en Rosario, Argentina

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ABSTRACT

The purpose of the study was to establish the basis for and design an intervention project aimed at strengthening the continuous training and development of research skills among nursing staff in a paediatric intensive care unit (PICU) at a high-complexity hospital in the city of Rosario. First, it described nursing training as a lifelong educational process linked to professional practice and human development, which allowed for a reinterpretation of self-training as a central axis of healthcare and the social role of the discipline. Subsequently, she analysed the challenges posed by the growing complexity of healthcare systems, the increase in invasive procedures and cardiovascular surgeries, and the need for timely and safe clinical responses. She highlighted the main theoretical contributions on human talent management and continuing education, emphasising training as a strategic investment to enhance leadership, decision-making and innovation in nursing teams. He also integrated the research dimension as an inherent function of the profession, pointing out its relevance for generating and applying evidence in clinical practice, despite the institutional barriers identified, such as lack of time, limited support, and the absence of formal teaching and research structures. Finally, the intervention project was proposed as a concrete opportunity to reduce performance gaps, empower the UTIP nursing team, and contribute to improving the quality and safety of care provided to critically ill paediatric patients.

Keywords: Nursing Training; Nursing Research; Continuing Education; Paediatric Intensive Care; Skills Development.

RESUMEN

El trabajo tuvo como propósito fundamentar y diseñar un proyecto de intervención orientado a fortalecer la capacitación continua y el desarrollo de competencias investigativas del personal de enfermería en una unidad de terapia intensiva pediátrica (UTIP) de un sanatorio de alta complejidad de la ciudad de Rosario. En primer lugar, describió la formación de enfermería como un proceso educativo permanente, vinculado al ejercicio profesional y al desarrollo humano, que permitió resignificar la autoformación como eje central del cuidado de la salud y del rol social de la disciplina. Posteriormente, analizó los desafíos que impusieron la complejidad creciente de los sistemas sanitarios, el incremento de procedimientos invasivos y cirugías cardiovasculares, y la necesidad de respuestas clínicas oportunas y seguras. Los principales aportes teóricos sobre gestión del talento humano y educación continua, destacando la capacitación como inversión estratégica para potenciar el liderazgo, la toma de decisiones y la innovación en los equipos de enfermería. Asimismo, integró la dimensión investigativa como función inherente al profesional, señalando su relevancia para generar y aplicar evidencia en la práctica clínica, a pesar de las

barreras institucionales identificadas, tales como falta de tiempo, escaso apoyo y ausencia de estructuras formales de docencia e investigación. Finalmente, el proyecto de intervención se planteó como una oportunidad concreta para reducir brechas de desempeño, empoderar al colectivo enfermero de la UTIP y contribuir a mejorar la calidad y seguridad del cuidado brindado a pacientes pediátricos críticos.

Palabras clave: Capacitación en Enfermería; Investigación en Enfermería; Educación Continua; Terapia Intensiva Pediátrica; Desarrollo de Competencias.

INTRODUCTION

The educational process accompanies human beings from their origins and is therefore considered a continuous and permanent action throughout life, as well as an integral part of work. In this way, nursing training constitutes the socialization of knowledge, principles, values, and techniques in a complex field: health care. This training, in its broadest sense, is conceived as an opportunity for autonomy in creating projects that foster the development of the human dimension. For this reason, the occupation of these professionals and their training are a universal concern.[1]

In this sense, nursing education faces enormous challenges in finding new and innovative ways to fulfill the profession, with health education among the most critical functions of nursing staff. This achieves favorable results in lifestyles, behaviors, adequate family-community support, and awareness of one's own health status. Therefore, self-training and training are tools for effective action in health prevention, promotion, and preservation.[2]

On the other hand, this need for self-training is compounded by the need for research by nursing staff, due to the addition of new paradigms that empower this action, positioning nursing in a place of professional empowerment in the development and well-being of individuals and work teams, which constitutes a capacity for leadership and management of new styles of skilled action, which can be acquired through continuous training.[3]

Added to this is the fact that research is an unavoidable and inseparable part of the nursing professional's role. That is why it is described in the duties of the nursing code of ethics and should be in the consciousness of every nurse.

In this regard, research has several objectives, among which the generation of knowledge aimed at improving the effectiveness, efficiency, and safety of patient care management and delivery stands out. According to a study, teaching, care, management, and research activities are specific contexts that enable the construction of knowledge in nursing. That is why promoting disciplinary research and teaching nursing staff to use scientific information will not only strengthen the quality of care but also empower them.[2]

In light of this, in January 2017, a debate was held at the Madrid Society of Family and Community Nursing, during which various professionals discussed the barriers to the development of nursing research.

Based on this, Mar Rocha (secretary general of SATSE, the nursing union in Spain) argued

that nursing is eager to conduct research but lacks support from institutions, both public and private, and from universities. She added that knowledge must transcend the university barrier and reach the healthcare sector so that nurses can grow in knowledge that will be applied for the benefit of patients, as they are the central actors in nursing.

For her part, Ana García Pozo (Coordinator of the nursing research group at the Biomedical Research Institute of the Gregorio Maraño Hospital, Madrid, Spain) reported that in her interviews with nurses, they cited a lack of time during the working day and outside the workplace.

She therefore asserts that when it comes to distributing economic and financial resources, these are allocated to teaching practice, leaving research aside, as this area is still not taken into account in management policies and therefore lacks institutional support.

Meanwhile, María Gálvez (a specialist in Family and Community Nursing and vice president of SEMAP) argued that the problem is that research support is available. Still, it is insufficient, and research consumption is significant as well. Many nurses do not venture into research because they consider it too complicated due to a lack of training in this field, but consumption is within everyone's reach.

The level attained in the degree program should enable students to read an article and assess its methodological rigor critically; however, there is a lack of educational resources for conducting research, which is why it is essential to promote continuous training in this field.

During the debate, Dolores Latugaye, director of the nursing program at the Faculty of Biomedical Sciences in Buenos Aires, joined the discussion and argued that research has shown that the higher the level of training of nursing professionals, the better the patient outcomes. The healthcare system worldwide, not only in our country, is becoming increasingly complex and dynamic.[4]

This requires professionals with more and better training to detect complications in patients early and reverse them. In this regard, it is essential to support nurses' continuing education, as it enables and facilitates behavioral change. It is therefore a key factor in the acquisition of research skills that would not only allow nurses to cope with the current healthcare system but also to modify the structural elements that hinder their practice.

DEVELOPMENT

The intervention project will be carried out at a pediatric hospital in the city of Rosario, inaugurated in 1960 by a group of doctors and other healthcare professionals who took the initiative to create an institute dedicated to the care of children with acute or chronic pathologies.

In this sense, the hospital's mission is to preserve and restore health within a general framework of scientific excellence and professional ethics. Its infrastructure covers more than 2500 m2 spread over five floors, which house the general wards, outpatient clinics, intensive care unit, and operating rooms, in addition to various other facilities located at strategic points throughout the city.

In addition to providing medical care, the clinic serves as a teaching center for pediatric residents in the medical residency program. All of the establishment's locations are accredited

by the Technical Institute for the Accreditation of Health Establishments (ITAES). Mg leads the nursing department. FC, three heads who are in charge of each inpatient area, and fifty nursing professionals who perform care functions, of whom forty-four are professional nurses, and six are licensed nurses. Notably, there are no nursing assistants.

On the other hand, the nursing department has a patient quality and safety committee and an infectious disease committee. It is noteworthy that there is no dedicated area for nursing education and research. For the intervention, the pediatric intensive care unit (PICU) will be selected, with a staff of 23 nursing assistants, 17 of whom are professional nurses and six are licensed nurses, ranging in age from 26 to 60. The most prevalent pathologies are detailed in table 1.

Table 1. Most recurrent pathologies in the Pediatric Intensive Care Unit

Pathologies	**Treatment Invasive mechanical or drug-based**
Hemolytic uremic syndrome	Peritoneal dialysis Hemodialysis
Intestinal Retransitation	Hemodynamic management
Respiratory failure: Bronchiolitis; Lung abscess, Necrotizing pneumonia	Mechanical Ventilation (MV)
Trauma surgery: Immediate postoperative period for scoliosis, tenotomy; postoperative period for tethered cord	Pain management treatment
Cardiorespiratory shock	Extracorporeal membrane oxygenation (ECMO) - AMR
Liver failure	Liver transplant
Traumatic brain injury (TBI)	Cranioplasty - AMR
Diabetic Onset	Peripheral Venous Catheterization

Table 2. Total number of cardiovascular surgeries

Year	**Percentage of open surgery**	**Percentage of closed surgery**	**Annual**
2013	3	61	2218
2014	40	60	2549
2015	12	88	2506
2016	25	75	2763
2017	13	87	2850
2018	15	85	2901
2019	17	83	2910
2020	17	83	3226
2021	22	78	3135
2022	15	85	3243

Table 2 shows the total number of cardiovascular surgeries performed in the department from 2013 to 2022, showing a gradual increase over the years.

Nursing training and skills development are part of the broader framework of lifelong learning, understood as a continuous, systematic process linked to professional practice. In this sense, nursing training is not limited to the undergraduate stage. Still, it is projected as an individual and institutional responsibility aimed at sustaining the quality of care and responding to changes in the epidemiological, technological, and organizational profiles of health services.[1]

From a human talent management perspective, authors such as Chiavenato[3] and Siliceo Aguilar[5] view training as a strategic investment in developing "talent" within organizations. In this approach, continuous training not only updates technical knowledge but also strengthens leadership skills, teamwork, critical thinking, and innovation capacity. Applied to the field of nursing, this paradigm places training as a connecting link between daily performance in highly complex clinical settings and the construction of more autonomous and reflective professional trajectories.

In the specific context of nursing, Andrade Pizarro et al.[2] note that the profession faces challenges arising from the growing complexity of health systems, the rise in chronicity, the adoption of new technologies, and the need to improve the quality and safety of care. Given this scenario, self-training and continuing education are fundamental tools for promoting, preventing, and preserving health, as well as for adopting healthy lifestyles and developing effective educational interventions for users, families, and communities. The ongoing training of nursing staff is therefore a necessary condition for responding appropriately and promptly to healthcare demands in highly complex units such as pediatric intensive care.

Several studies have examined factors that facilitate or hinder nursing staff participation in continuing education. Flores Peña et al.[6] identify intrinsic motivation, real opportunities offered by institutions, availability of time, support from management, working conditions, and the perceived usefulness of training activities for daily performance as the main determining factors. Along the same lines, Cadena Estrada et al.[1] highlight the importance of systematically evaluating nursing training programs to ensure they respond to the real needs of the service, align with quality indicators, and provide feedback for both planning and resource allocation.

The research dimension is inseparably integrated into nursing training and the nursing profession. Pino Armijo[7] argues that research is an essential component of nursing practice, as it enables the generation and application of knowledge to improve the effectiveness, efficiency, and safety of care. Research not only provides evidence for clinical and management decision-making but also empowers the nursing community by recognizing it as a producer of knowledge rather than just an executor of practices. From this perspective, research training—in methodological aspects, critical reading of evidence, the use of indicators, and the application of results in practice—is a key requirement for consolidating a scientific culture in services.

However, the development of nursing research faces multiple structural and organizational barriers. Based on discussions with professionals, Corominas[4] notes a genuine interest in nursing research but identifies a marked lack of institutional support, protected time, funding, and methodological guidance. It is also noted that resource allocation tends to prioritize teaching over scientific production, and that research and research training are not always included in service management policies. These limitations directly affect the feasibility of developing

research projects in complex healthcare settings, such as intensive care units, where healthcare demands consume a large portion of the working day.

At the public policy level, the Ministry of Health, through the National Directorate of Human Capital and Occupational Health, proposes guidelines for the development of training programs for health workers that include the diagnosis of training needs, competency-based planning, the use of active methodologies, and the evaluation of processes and results. These guidelines emphasize the need to align training with institutions' strategic objectives, the quality of care and patient safety, and the improvement of working conditions and the organizational climate. For the field of nursing, this involves designing training proposals that respond to the specificities of each service—for example, a pediatric intensive care unit with a high technological load and clinical complexity—and, at the same time, integrate the research dimension as a professional competency.

From the perspective of personnel development management, Siliceo Aguilar[5] argues that training should be understood as a systematic process encompassing diagnosis, programming, execution, and evaluation, aimed at closing performance gaps and aligning worker competencies with institutional objectives.

This approach is particularly relevant in nursing, where the sustained increase in invasive procedures, life-support technologies, and highly complex surgeries requires not only technical skills but also analytical and problem-solving abilities, interdisciplinary work, and effective communication with families and teams.

This intervention project integrates: a) the concept of continuing education and self-training in nursing as permanent and strategic processes to address the current challenges of the profession;[1,2] b) the contributions of human talent management and staff development, which recognize training as an organizational investment and a way to strengthen leadership, performance quality, and innovation;[3,5] c) evidence on factors that influence participation in continuing education and the need to design relevant, evaluable programs that are aligned with service needs;[6,8] and d) the centrality of research as a constituent part of the professional role of nursing and as a tool for empowerment, knowledge production, and improvement of the quality of care.[4,7]

CONCLUSIONS

Continuing education and the development of research skills in nursing are strategic and essential pillars for sustaining the quality of care in highly complex contexts, such as the pediatric intensive care unit of the hospital studied. Nursing education, understood as a permanent educational process linked to work, transcends mere technical updating and is configured as a space for building professional autonomy, human development, and strengthening the social role of the discipline. In this context, health education and self-training have become key tools for promoting, preventing, and preserving health, both for patients and their families and for the community, responding to the challenges posed by contemporary health systems.

By placing the intervention in a PICU with high demand for care, a diversity of critical pathologies, and a growing volume of cardiovascular surgeries, it became clear that clinical and technological demands require highly qualified nursing teams capable of integrating specialized knowledge, technical skills, and analytical and decision-making competencies. From a human

talent management perspective, it is recognized that investing in training and the development of professional "talents" not only improves individual performance but also affects patient safety, process efficiency, and the organizational climate.

Likewise, it was reaffirmed that research is an inherent function of the professional role of nursing and an indispensable component for the generation and application of evidence in clinical practice. However, the barriers identified—lack of time, limited institutional support, limited resource allocation, and a lack of specific research training—hinder the consolidation of a scientific culture in healthcare services. Given this scenario, the Ministry of Health of the Nation's guidelines on competency-based training programs offer a timely framework for designing contextualized, assessable training proposals aligned with the quality and safety of care.

In summary, the reality described in the pediatric hospital in Rosario supports the relevance and necessity of the intervention project aimed at strengthening the continuing education and research skills of the UTIP nursing staff. This project presents a concrete opportunity to reduce performance gaps, promote professional empowerment, optimize health outcomes, and contribute to transforming the structural elements that still limit the full practice of nursing in the hospital setting.

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FINANCING

None.

CONFLICT OF INTEREST

None.

AUTHORSHIP CONTRIBUTION

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