



## Nurses in post-operative heart surgery: professional competencies and organization strategies\*

O enfermeiro no pós-operatório de cirurgia cardíaca: competências profissionais e estratégias da organização

El enfermero en el posoperatorio de cirugía cardíaca: competencias profesionales y estrategias de la organización

Ana Paula Azevedo Santos<sup>1</sup>, Sílvia Helena Henriques Camelo<sup>2</sup>, Fabiana Cristina dos Santos<sup>1</sup>, Laura Andrian Leal<sup>3</sup>, Beatriz Regina da Silva<sup>4</sup>

### How to cite this article:

Santos APA, Camelo SHH, Santos FC, Leal LA, Silva BR. Nurses in post-operative heart surgery: professional competencies and organization strategies. Rev Esc Enferm USP. 2016;50(3):472-478. DOI: <http://dx.doi.org/10.1590/S0080-623420160000400014>

\* Extracted from the dissertation "O enfermeiro no pós-operatório de cirurgia cardíaca: competências profissionais e estratégias da organização", Programa de Pós-Graduação Enfermagem Fundamental, Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, 2015.

<sup>1</sup> Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Programa de Pós-Graduação Enfermagem Fundamental, Ribeirão Preto, SP, Brazil.

<sup>2</sup> Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Docente do Departamento de Enfermagem Geral e Especializada, Ribeirão Preto, SP, Brazil.

<sup>3</sup> Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Ribeirão Preto, SP, Brazil.

<sup>4</sup> Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto, Programa de Pós-Graduação Interunidades de Doutorado em Enfermagem, Ribeirão Preto, SP, Brazil.

### ABSTRACT

**Objective:** To analyze nurses' competencies with regard to their work in post-operative heart surgery and the strategies implemented to mobilize these competencies. **Method:** This was an exploratory study with a qualitative approach and a methodological design of collective case study. It was carried out in three post-operative heart surgery units, consisting of 18 nurses. Direct observation and semi-structured interviews were employed to collect data. Data were construed through thematic analysis. **Results:** nine competencies were found, as follows: theoretical-practical knowledge; high-complexity nursing care; nursing supervision; leadership in nursing; decision making; conflict management; personnel management; material and financial resources management; and on-job continued education. Organizational and individual strategies were employed to develop and improve competencies such as regular offerings of courses and lectures, in addition to the individual pursuit for knowledge and improvement. **Conclusion:** the study is expected to lead future nurses and training centers to evaluate the need for further training required to work in cardiac units, and also the need for implementing programs aimed at developing the competencies of these professionals.

### DESCRIPTORS

Perioperative Nursing; Professional Competence; Thoracic Surgery; Postoperative Period; Strategies.

### Corresponding author:

Sílvia Helena Henriques Camelo  
Escola de Enfermagem de Ribeirão  
Preto, Campus da USP  
Av. Bandeirantes, 3900  
CEP 14040-902 – Ribeirão Preto, SP, Brazil  
shcamelo@eerp.usp.br

Received: 12/07/2015  
Approved: 04/24/2016

## INTRODUCTION

In the course of their work in hospital units nurses have taken on procedures of higher complexity, in addition to activities related to service organization and coordination. This demands a change in the profile of their competencies to meet the health needs of their patients. Managing these changes and adopting strategies to change the profile of professional competencies are tasks that should be assigned to those leading the work processes, requiring people who can champion changes following the precepts of quality and productivity<sup>(1)</sup>.

Over the years, the topic of professional competence has become the focus of attention of nurses and hospital managers because in quantitative terms the nursing team represents a significant share of the human resources allotted to health institutions and, therefore, directly affects the efficacy, quality and cost of the care delivered. Building or mobilizing professional competencies assumes differentiated work within the organization and a consistent search for instruments or strategies to develop these competencies, counting on human resources to master the practice through the professional competence that then allows them to perform their work in an efficient way<sup>(2)</sup>.

In this study professional competencies were related to human capacities to perform a specific task. Competencies became a basic element that allowed corporations to focus on the core aspects of their business, and staff their institutions with human capital with the knowledge, skills and attitudes required to cope with the challenges posed by the globalization<sup>(3)</sup>.

Professional competence should be related to an individual's performance at work, and it can also be measured. Although the analysis focuses on the individual, competencies should be aligned to the needs defined by the offices or positions existing in the organizations<sup>(4)</sup>.

The Nursing Leadership Institute (NLI) created a Model of Leadership Competence for Nurses within which researchers have identified six categories of competencies: personal mastering; interpersonal effectiveness; personnel management; financial management; care within the team, patients and the self; and systematized thinking<sup>(5-6)</sup>.

Post-operative heart surgery units in hospitals reveal a scenario of innovation and specialized nursing care for critically ill patients. Effective care for people in this area demands specific, safe and continuous practices. When working at heart surgery units, nurses perform multiple tasks requiring a high degree of responsibility which, depending on how the work is organized and the nurses' knowledge, skills and attitude, can interfere either positively or negatively on the care provided to patients.

Knowledge of the nurses' competencies in a highly complex sector like that of heart surgery can direct the working processes of professionals, provide input in organizing the work and the planning of nursing care, and also lead to the team's capacity-building efforts. This study asks the following questions: *What are the professional competencies required from nurses working in post-operative heart surgery units?*

*Which strategies have been promoted to develop competencies among these professionals?*

Hospitals have a large contingent of nurses, and the incorporation of new technologies demands more and more qualified professionals. Identifying the competencies of nurses working in post-operative heart surgery units is an urgent need, since it can direct the training of future professionals, improve nursing care quality, and provide input to health and nursing services managers in the implementation of new competencies.

The objective of this study was to identify nurses' competencies to work in post-operative heart surgery units and the strategies implemented to mobilize these competencies.

## METHOD

This was an exploratory study with a qualitative approach, with collective case study<sup>(7)</sup> as methodological design. The research proposal was approved by the Research Ethics Committee of the Escola de Enfermagem de Ribeirão Preto at Universidade de São Paulo, under protocol number 055/2014, and participants have signed a free and informed consent form.

The study scenario was composed of three post-operative cardiac surgery units belonging to different hospital institutions. The criterion used to select participants was that nurses should have been working for more than six months by the time of data collection in the cardiac units selected (this period would provide professionals with experience to identify the competencies required in the performance of their duties). Complying with the criteria adopted, three hospitals agreed to participate in the survey, totaling 18 nurses.

The structuring of data referring to nurses' competencies followed the analytical theoretical framework of the Model of Leadership Competence to Nurses of the NLI<sup>(5)</sup>.

Data collection employed the following techniques: direct non-participant observation and semi-structured interviews previously authorized by participants prior to data collection in the field. Observation was made for about 30 minutes before and after each interview, i.e., all respondents were observed, and data were recorded with accuracy and reliability in a field journal. Interviews were individual and took 20 minutes on average, being recorded and further transcribed. The scripts used for observation and interview were prepared following the theoretical framework, validated by experts and previously tested by the researcher.

Data were construed using the inductive content analysis and, for that, researchers decided to use the thematic analysis<sup>(8)</sup>. Participants were identified with letter "E" and numbers following the order in which the interviews were conducted.

## RESULTS

### CHARACTERIZATION OF PARTICIPANTS

Eighteen nurses participated, of which 72% were women. The prevailing age group ranged from 24 to 40 years old, i.e., young population. The time of undergraduate course completion varied from 1981 to 2012 and thus comprised new graduates to more experienced nurses; 50% of the

professionals had been working for more than four years in the institution, and 61.12% had up to four years of experience in the units of study.

Regarding professional education, two (11%) nurses attended *lato sensu* professional training in cardiology, and attended an academic master's degree course. Sixty-six percent of the professionals had specialization areas other than cardiology, such as: Intensive Care; Surgery Center; and First-Aid and Emergency Care, showing some education and professional preparation to provide high-complexity care.

## COMPETENCIES OF NURSES IN POST-OPERATIVE HEART SURGERY UNITS

The analysis of the results of our study highlighted nine competencies required by nurses to work in post-operative heart surgery units, as described below.

### THEORETICAL-PRACTICAL KNOWLEDGE

Nurses identified theoretical and specific practical knowledge in the field as a competency required to cope successfully with the everyday activities of their work.

*Competence, I believe is knowledge... because there's no use in wanting to work in a sector like this if you know absolutely nothing about heart surgery (E9).*

*I think you must understand well, what means being with stable hemodynamics, know what is right and the potential complications and care (E4).*

### HIGH-COMPLEXITY NURSING CARE

When the surgery ends, the presence of a nurse to admit the patient in the post-operative cardiac surgery unit is indispensable. In addition, nurses must continuously monitor high-complexity procedures because patients can destabilize quickly demanding prompt care and state-of-the-art technology.

*There must be continuous monitoring and nurse must pay attention to that patient, really appraise, because one single minute can be very important (E4).*

*The time the patient enters the ICU the nurse will welcome him (...) we inspect all types of devices (...) (E16).*

*Only nurses collect arterial blood. Nurses remove mediastinum probe, central access, make all dressings. Only nurses make the central access dressing (E7).*

Nursing systematization is performed in all units of the study, and is considered to be relevant to the nursing work routine.

*We enter on duty, so make the systematization... Everyday in the morning make the physical exam of all patients, auscultate, nursing prescription. In the afternoon and at night also make physical exam, but prescription remains the same (E7).*

### NURSING SUPERVISION

A nurse is the professional who has taken on the responsibility for managing teams and care units, ensuring

proper work and quality of care. This includes the supervision of care delivered by the nursing team, of multidisciplinary team interaction, of materials and equipment.

*We supervise if the care we delegated, that we prescribed, is being effectively delivered and if everything is OK, in order, checked (E2).*

*We must audit, inspect, supervise to check if equipment is correctly dated, if probe is duly fixed... (E14).*

### LEADERSHIP IN NURSING

In the context of high-complexity units, where tasks demand constant attention, nursing teams need a leader. As such, leadership emerges as a competence perceived by nurses in this sector.

*I think the main thing is really that of leadership (...) (E10).*

*(...) I take the lead in everything, leadership and they (nursing technicians) come doing things after me, organizing everything (...) (E1).*

*What we do is to guide (...). They usually adhere to the decision without arguing (E2).*

### DECISION MAKING

Nurses' work in post-operative heart surgery and their responsibility regarding care coordination and management must be grounded in the capacity to make decisions aimed at the proper use of resources, in addition to proper performance of procedures.

*(...) they (nursing clerks and technicians) inform us about everything. They make no decisions without us (E15).*

*Many things are not under our competence but, well, the basic you must know to make urgent decisions (E12).*

### CONFLICT MANAGEMENT

In high-complexity units like post-operative heart surgery nursing professionals are physically and emotionally involved and situations of conflict may arise that nurses must manage.

*Well, sometimes there are some conflicts because of working hours... I think, you know, this is a nurse's competence. Knowing how to manage these conflicts... (E12).*

*(...) It happens occasionally, but we solve it easily. We call one by one... we talk in private and peacefully solve the issue (E2).*

### PERSONNEL MANAGEMENT

The quality of human resources in nursing should be a concern to nurses when managing care provided to cardiac patients.

*(...) For example, an employee calls saying he is not coming. So the work shift will be undermined, so you need to find someone to work on that day, that shift (E11).*

*(...) to welcome the cardiac patient, the staff member must be experienced. So, I'm not talking about a new employee to take care of the cardiac patient... It's an instable patient, serious... (E4).*

## MATERIAL AND FINANCIAL RESOURCES MANAGEMENT

Usually, nurses are the professionals in charge of materials in the unit, which are here understood as hospital material end equipment, from purchase and conservation until their use and supervision by the nursing team. Management of material and financial resources is a core competence for nurses.

*To manage heart surgery you must be organized... with material resources (...). So, I believe that materials management is crucial (E15).*

*The nurse is in charge of inspecting materials, monitor, respirator, if it's working, if it's not, what is wrong, refer to the due sector (E18).*

*The institution defines a financial ceiling for you to work with materials, syringe, needle, this kind of things. Once a year materials are rescheduled... my only option is to reschedule based on the ceiling... nurse must take care of materials, financial matters (E11).*

## ON-JOB CONTINUED EDUCATION

Nurses are placed in the professional learning context under their own responsibility, and must promote the development of competencies specific to their duties.

*The staff member in training, we must get there... 'Is everything ok to receive the patient? Let's check it all?', to avoid problems (E9).*

*I have to teach balance, notes, medication, monitor everything closely. Many [nurses] working for just one week in the hospital are assigned to the night shift at the ICU. So, you have to talk with them and teach them since the beginning. But in everything, the nurse is with me (E5).*

## STRATEGIES TO DEVELOP COMPETENCIES

### ORGANIZATIONAL STRATEGIES

In this study it was noticed that nurses are assigned to the units without any specific admission training to work in post operative heart surgery. Newcomers are monitored, for some period, by the nurse on duty or the nursing team regarding as part of their everyday services. In addition, though continued education is present in institutions as a strategy, this is yet to be systematized.

*I spent one month training on dayshift with nurses and then was assigned to nightshift and was monitored by the nightshift nurse... And then I was left alone. (...) The hospital provides courses, and management also encourages (E7).*

*It provides continued education and usually, at every three months, they promote some lecture, some courses refreshment... It is comprehensive, in a general way (E2).*

### INDIVIDUAL STRATEGIES

The results show that not only should the organization promote competencies among nurses, but the professional should also find ways of learning like participation in scientific events, literature surveys, graduate courses, in order to qualify their work in such a specific unit.

*I have attended several congresses, and even presented works (...). (E11).*

*When I first got in contact with surgery, I had to search in literature (E6).*

*In the beginning I was with another nurse and we studied everything to comprise full knowledge to work here (...) but by ourselves (E9).*

## DISCUSSION

Regarding the participants' profile, the prevalence of women and age group corroborates a recent survey about the profile of nurses in the ICU<sup>(9)</sup>. Data also corroborate those described by the Conselho Federal de Enfermagem (COFEN) that, in 2010, counted 287,119 nurses, of which 88% were women and 44% were of 26 to 35 years old<sup>(10)</sup>.

The time of graduation showed the presence of new graduates to professionals with 15 years of professional training, corroborating a study that observed that graduation in the last 10 years may indicate the nurse's length of experience in the labor market, as well as relative maturity to work in high-complexity units<sup>(2)</sup>. Regarding the length of work in the institution and experience in heart surgery units, there were a large number of newcomers in the institution who, many times, are directly assigned to high-complexity units. In this sense, researchers have highlighted that new graduates can deal well with the experience of starting their career in critical care units<sup>(11)</sup>.

Most of the professionals approached in this study had taken specialization courses in different areas of cardiology showing some kind of professional qualification to provide care to patients. Nurses working in the Cardiac Intensive Care Unit have sought graduate courses in the *lato sensu* modality. The degree is believed to contribute to better understanding of the working process which, allied to length of work in these settings, will reflect on their particular ways of acting<sup>(12)</sup>. Still regarding professional training, reports showed that nurses lack academic preparation to work in high-complexity units, corroborating another study<sup>(2)</sup>. This fact suggests that these professionals should expand their knowledge and skills to meet the requirements demanded by this scenario.

Aspects related to professional profile such as age, professional experience and education are directly related to professional performance and competence. In addition, it is worth mentioning that nursing competence varies depending on the type of sector<sup>(13-14)</sup>.

Corroborating with these data, a study confirms that length of work experience has significant impact on the development of competencies. Nurses with a longer length of work experience scored higher in competence than younger professionals, showing the need for specific interventions in the training of different generations of nurses to ensure the maintenance of competence and high-quality care to the patient<sup>(15)</sup>.

This study tried to identify the competencies perceived by nurses working in heart surgery units, a sector of high complexity in the hospital context. These competencies



were identified as follows: theoretical-practical knowledge; high-complexity nursing care; decision making; leadership in nursing; nursing supervision; conflict management; personnel management; material and financial resources management; and on-job continued education.

The rapid changes taking place in the health environment today suggest the need for increased and continued development of nurses' clinical competencies<sup>(16)</sup>. This demands the previous acquisition of core competencies like knowing the basic principles that guide nursing care. Keeping in mind that nurses work in units with critically ill patients, mobilizing specific competencies is crucial in developing their duties, combining scientific knowledge, mastering of technology, humanization, individualization of care and therefore, higher quality in the care delivered<sup>(17)</sup>.

The admission of patients in post-operative heart surgery units requires nurses to utilize all their knowledge. These professionals organize the unit and the nursing team, and these actions improve performance and provide suitable structure to enable safe admission<sup>(18)</sup>.

Nurses are the professionals directly responsible for providing care to patients and perceiving their needs, contributing to their welfare with their own support and development. They participate in the patient's bath; make the first dressings on deep venous and arterial accesses, on operative wounds and the probe ostium; evaluate skin conditions, maintaining the patient's skin integrity, in addition to other important factors like maintenance of the therapeutic environment and humanization of care<sup>(19)</sup>.

Nurses must organize, plan and provide high-complexity care in an individualized and systematized way, using the knowledge and skills previously acquired during their training or in the work context, to meet the patients' needs.

In this context, supervision emerges as a competence for nurses that should lead, guide and adjust the services in order to achieve results that preserve the quality of care delivered. As supervisor, nurses have a broader view to identify problems and outline plans and goals related to the care provided to patients<sup>(20)</sup>. This study makes clear that nurses consider this competence as relevant in providing continuity to the working process in post-operative units, including it as a factor of education and integration with the team.

Moreover, exercise of leadership is a crucial factor in the nurse's working process. Leadership involves commitment, responsibility, empathy, decision-making skills, communications and management in an efficacious way<sup>(21)</sup>. When exercising leadership in post-operative heart surgery units the nurse provides a harmonious working environment, where professionals feel confident to perform their duties and count on his/her support.

Decision-making is highlighted as a required professional competence as it influences the nurse's professional work and can be defined as a complex duty that demands making a decision among several options, notably in situations with some degree of uncertainty about the results of the decision<sup>(22)</sup>. Relying on their own judgment, nurses make care-related decisions as to which priorities need their

intervention and for that they must have knowledge and skills to evaluate and decide about the best conduct.

In addition, in their everyday work nurses face many situations of conflict which make proper interpersonal relationship a crucial aspect of the quality of nurses' professional practice. Good interpersonal relationship among all the team members is of ultimate relevance to deliver the best care possible to those needing it, and to develop professional activities in a more pleasant and satisfactory way<sup>(23)</sup>.

One of the situations that could generate conflicts is the sizing and training of nursing human resources to provide care for patients who have undergone heart surgery. Bearing this in mind, people management emerges as an essential competence for nurses working in high-complexity units.

Planning human resources that are responsive to the work unit aims to ensure continuity to the care delivered. The lead nurse, being responsible for the team, has autonomy to make the required adjustments during his/her shift with respect to absences, licenses and vacations. Studies show that understaffing is risky for patient's safety and health, highlighting the need for allocating human resources to encourage good professional performance and contribute to the quality of care delivered<sup>(24)</sup>.

However, the proper management of human resources in nursing in a high-complexity unit demands that nurses are familiar with professional training and also demands the availability of collaborators, aligning these to the complexity level demanded by clients. In addition, quality care for the patient is closely linked to the materials and equipment available. Therefore, efficacious personnel management is not enough, nurses must have competencies to manage material and financial resources as well.

To this end, nurses have taken on material resources management, administering the flow of items used for nursing care which proved to be a core activity in ensuring quality, continued and comprehensive care<sup>(25)</sup>.

Considering care in the dimension of comprehensiveness, nurses must be attentive to the patients' needs and identify and implement primary teaching-learning strategies for their professional team. These strategies can be identified as continuing education, training and capacity-building, which were some of the competencies identified in the study.

Factors like updated knowledge and practice influence on learning and educational changes, entailing needs for adjustment and refocusing the employee's working process, subsidizing the implementation of a continued education strategy. Continued education is an important and decisive aspect of quality nursing care, grounded in technical-scientific knowledge with emphasis on training and courses to enable the team to work effectively in their respective units<sup>(26)</sup>.

Nurses found that despite the existing one-time organizational strategies that provide for continued education, these strategies are not consistent enough to improve competencies causing nurses to search for knowledge on an individual basis.

The many unforeseen working situations that can arise in the form of challenges, innovations or new clients'

demands require organizational strategies. The competent professional would be one who not only has sufficient resources, but who could properly mobilize these resources to perform a task, regardless of its complexity<sup>(27)</sup>.

In addition, there is a concern about a nurse's work in high-complexity units. This concern is to do with the patient's safety which speaks to the ethical commitment of the nursing professionals. There are circumstances when nurses miss the required training to provide care for a particular patient, mainly with regard to the use of technology<sup>(28)</sup>.

At an international level, hospitals have trained a large number of nurses that are experts in areas like intensive care and surgery nursing to improve and advance nursing services. Need oriented training for work is crucial to the sustainable and stable development of any profession, and also demands discussion and organizational restructuring. As result, hospitalization time is shortened saving medical resources and improving the prognosis and a patient's quality of life<sup>(29)</sup>.

Capacity-building and institutional support are crucial to monitor the constant changes and demands of the labor market. As such, both the nurses and the institution should seek for means and/or strategies to promote professional improvement<sup>(30)</sup>, since professionals are also responsible for their continued learning.

## CONCLUSION

The work environment in post operative heart surgery units poses challenges for nurses in the performance of complex duties and activities aimed at holistic and quality health care for the patient. These challenges require the acquisition of particular competencies. In the hospital context organizations have the duty of thinking of strategies capable of developing and/or improving knowledge, skills

and attitudes in nurses to enable them to provide quality and safe care for patients.

It could be said that institutions still miss systematized strategies in the implementation of permanent education programs focused on the development of nurse's competencies, thus raising concerns with respect to the training of these professionals to provide care to high-complexity patients.

This study is expected to be of major relevance because it helps make nurses and organizations pay more attention to the competencies required to work in critical care units, like post-operative heart surgery units, and to implement programs to develop these competencies based on the demands required by each service.

This study has limitations regarding the participating professional category, because it included only the nurses working in post-operative heart surgery units, believing these could have a broader view on their competencies. It did not include other health professionals in the unit that could have also pointed out aspects related to nurses' competencies. Further surveys are recommended to expand the study to include other professional categories to enable comparison and/or generalization of data and contribute to the identification of gaps in nurses' competencies that should be developed in those units.

Another factor that limited the results was the observation method which, despite being very popular, is recognized for its potential interference on the participants' behavior since they know they are being observed.

Finally, it is worth highlighting that this study did not intend to restrict, let alone exhaust the reflection about the competencies of nurses working in cardiac units; rather, it intended to add data related to the professionals' process of developing competencies regardless of their training or work context.

## RESUMO

**Objetivo:** Analisar as competências dos enfermeiros para atuarem no pós-operatório de cirurgia cardíaca e estratégias implementadas para a mobilização dessas competências. **Método:** Estudo exploratório, com abordagem qualitativa e desenho metodológico estudo de caso coletivo. Foi realizado em três unidades pós-operatórias de cirurgias cardíacas, com 18 enfermeiros. Na coleta de dados utilizou-se observação direta e entrevista semiestruturada. Para interpretação dos dados optou-se pela análise temática. **Resultados:** Foram identificadas nove competências, sendo: conhecimento teórico-prático, cuidados de enfermagem de alta complexidade, supervisão e liderança em enfermagem, tomada de decisão, gerenciamento de conflitos, de recursos humanos, materiais, financeiros e educação continuada em serviço. Estratégias organizacionais e individuais são realizadas a fim de desenvolver e aprimorar competências, tais como: oferecimento de cursos e palestras periodicamente, além da busca individual por conhecimento e aperfeiçoamento. **Conclusão:** O estudo deve provocar a reflexão de futuros enfermeiros e dos centros formadores quanto à formação necessária para atuar em unidades cardíacas e sobre a necessidade de implementação de programas que visam desenvolver competências nestes profissionais.

## DESCRITORES

Enfermagem Perioperatória; Competência Profissional; Cirurgia Torácica; Período Pós-Operatório; Estratégias.

## RESUMEN

**Objetivo:** Analizar las competencias de los enfermeros para actuar en el posoperatorio de cirugía cardíaca y las estrategias implantadas para la movilización de dichas competencias **Método:** Estudio exploratorio, con abordaje cualitativo y diseño metodológico estudio de caso colectivo. Se llevó a cabo en tres unidades posoperatorias de cirurgías cardíacas, con 18 enfermeros. En la recolección de datos se utilizó observación directa y entrevista semiestructurada. Para la interpretación de los datos se optó por el análisis temático. **Resultados:** Fueron identificadas nueve competencias, siendo: conocimiento teórico-práctico, cuidados de enfermería de alta complejidad, supervisión y liderazgo en enfermería, toma de decisiones, gestión de conflictos, de recursos humanos, materiales, financieros y educación continuada en servicio. Estrategias organizativas e individuales se realizan a fin de desarrollar y mejorar competencias, tales como: ofrecimiento de cursos y conferencias periódicamente, además de la búsqueda individual por conocimiento y perfeccionamiento. **Conclusión:** El estudio

debe provocar la reflexión de futuros enfermeros y los centros formadores en cuanto a la formación necesaria para actuar en unidades cardíacas y acerca de la necesidad de implantación de programas que tienen como fin desarrollar competencias en esos profesionales.

## DESCRIPTORES

Enfermería Perioperatoria; Competencia Profesional; Cirugía Torácica; Periodo Posoperatorio; Estrategias.

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