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# Education in operating room nursing: transformation of the discipline at University of São Paulo School of Nursing (Brazil)

ENSINO DE ENFERMAGEM EM CENTRO CIRÚRGICO: TRANSFORMAÇÕES DA DISCIPLINA NA ESCOLA DE ENFERMAGEM DA USP (BRASIL)

ENSEÑANZA DE ENFERMERÍA EN QUIRÓFANO: TRANSFORMACIONES DE LA DISCIPLINA EN LA ESCUELA DE ENFERMERÍA DE LA USP (BRASIL)

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## ABSTRACT

The objectives of this paper are to present a summary of the evolution of the content of perioperative nursing at the University of São Paulo School of Nursing (EEUSP) and reflect on the National Curriculum Directives (NCD) for the nursing course. The study was developed from a brief history of the practice of perioperative nursing and the inclusion of this topic in the nursing curriculum at EEUSP. The National Curriculum Directives are important because they permit undergraduate schools to determine the amount of teaching time for each course that will comprise their curriculum, but the competencies and skills proposed are nonspecific. We believe that the general nurse should have theoretical and practical learning opportunities to work in every area and level of healthcare.

## DESCRIPTORS

Education, nursing  
Curriculum  
Perioperative nursing  
Operating room nursing  
Education higher

## RESUMO

Este artigo tem por objetivos apresentar uma síntese da evolução do conteúdo de bloco cirúrgico na Escola de Enfermagem da Universidade de São Paulo (EEUSP) e uma reflexão sobre as Diretrizes Curriculares Nacionais do Curso de Graduação em Enfermagem (DCN). O estudo se desenvolveu a partir de um breve histórico do desenvolvimento da enfermagem em centro cirúrgico na prática profissional e sua inserção no currículo de graduação da EEUSP. As Diretrizes Curriculares Nacionais têm seu mérito ao assegurar às instituições de ensino superior a liberdade na composição da carga horária a ser cumprida para a integralização dos currículos e na especificação das unidades de estudo a serem ministradas, porém, as competências e habilidades propostas são inespecíficas. Entendemos que o enfermeiro generalista é aquele que tem oportunidades de aprendizado teórico prático para atuar em todos os cenários de cuidado, área e níveis de atenção em saúde.

## DESCRITORES

Educação em enfermagem  
Currículo  
Enfermagem perioperatória  
Enfermagem de centro cirúrgico  
Educação superior

## RESUMEN

El artículo objetiva presentar una síntesis de la evolución del contenido de la unidad quirúrgica en la Escuela de Enfermería de la Universidad de São Paulo (EEUSP) y una reflexión sobre las Normativas Curriculares Nacionales del Curso de Graduación en Enfermería (DCN). Estudio desarrollado a partir de un breve histórico del desarrollo de la enfermería en quirófano en la práctica profesional y su inserción en el currículo de graduación de la EEUSP. Las Normativas Curriculares Nacionales tienen su mérito al asegurar a las instituciones de enseñanza superior la libertad de composición de la carga horaria a cumplirse para la integralización de los currículos y en la especificación de las unidades de estudio a administrarse, aunque las competencias y habilidades propuestas son inespecíficas. Entendemos que el enfermero generalista es aquel que tiene oportunidades de aprendizaje teórico-práctico para actuar en todos los escenarios de cuidado, área y niveles de atención sanitaria.

## DESCRIPTORES

Educación en enfermería  
Curriculum  
Enfermería perioperatoria  
Enfermería de quirófano  
Educación superior

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## INTRODUCTION

The emergence of operating room nursing is linked to the introduction of the aseptic techniques proposed by Lister, which permitted surgeries of higher complexity to be performed, and *nurses* were those responsible for taking care of the surgical instruments. In the turn of the century, when surgical procedures were restricted to specific spaces, the cleanliness of the environment became an important issue, and, thus, the *nurses* list of responsibilities was extended, as was their workload. The specific knowledge developed by those nurses differentiated them from the other nurses working in other healthcare units<sup>(1)</sup>.

At the same time, the forced learning on battlefields, regarding patient care, also boosted the evolution of nursing practice in the surgical field, thus, constituting the operating room (OR) nursing assistant. Development was expressive particularly during World War II due to the demand for nurses who were knowledgeable in the operating theater, including anesthesia, to work as supervisors of the auxiliary personnel and to take care of surgical patients. This situation accelerated knowledge development and skills regarding the surgical patient care<sup>(2)</sup>.

The experience report of an English nurse showed that in 1968, in their second year of training, nursing students spent 14 weeks in the OR; ten weeks in general operating rooms and four weeks in rooms specific for orthopedic procedures<sup>(3)</sup>.

As observed, the specificity of the operating room was developed on the field due to the emerging need, and nurses gradually obtained the required scientific evidence to support that knowledge.

In the transition from courses offering a nursing diploma to those offering a baccalaureate degree, some contents were excluded in some schools, including OR nursing<sup>(4)</sup>. One of the reasons for the exclusion of this content from the curricula of American schools was the shortage of faculty to teach this specific content, and adequate spaces for clinical practice<sup>(5)</sup>. The adoption of new theories to support nursing care was an additional contributing factor. In Georgetown University, OR was no longer part of the clinical practice fields in 1969, when the school adopted Orem's self-care theory in the nursing model taught to the students<sup>(6)</sup>.

By not offering this content to undergraduates, in the United States, there was a reduction in the number of nurses interested in working in the OR, and, as a result, the demand for OR enhancement courses also diminished. As an attempt to raise interest towards this field and re-include surgical theater content in undergraduate curricula, the *Association of periOperative Registered Nurses (AORN) - National Committee on Education* created the

*Primer Perioperative Program* with partnership strategies between hospitals and schools for practical teaching, suggestion of contents and bibliographic references<sup>(5)</sup>.

In 2006, AORN ratified a declaration regarding the importance of clinical activities in OR for the learning process of nursing undergraduates, emphasizing that this initial education could awake the interest of the future nurse in specialization courses in perioperative nursing<sup>(4)</sup>. Next, the *National Student Nurses' Association* also forwarded a statement to some American trade associations asking for their support to include theoretical and practical contents related to perioperative nursing to improve the care to the needs of surgical patients and their relatives, as opposed to the former tendency of gradually removing this content from nursing curricula<sup>(7)</sup>.

Concerned with the training and quality of future nurses, AORN created a guidance statement, the "*Value of Clinical Learning Activities in the Perioperative Setting in Undergraduate Nursing Curricula*", to help schools that offered baccalaureate nursing programs to plan learning opportunities in perioperative care that develop essential competencies for every student. This service refers to the pre-, intra- and post-operative care to patients undergoing surgery or other invasive procedures<sup>(8)</sup>.

The University of Notre Dame Australia is one of the few schools that offer a perioperative nursing discipline, according to the mandatory topics of Nursing Accreditation, and though the theoretical class load is small, it is considered sufficient for nurses to initiate their activities on the OR and, in the future, become interested in enhancing that knowledge<sup>(4)</sup>.

The curriculum at the University of São Paulo School of Nursing (EEUSP), just as in other Brazilian nursing schools, has undergone several changes over the years, depending on the social, economical and political situations of the country. Despite all the changes, for a considerable period, the total class load was above that established by the Minimum State Curriculum requirements, and, perhaps this is why the disciplines in OR Nursing (ORN) and in Central Supply Nursing (CSN) have been able to survive, until today, with their own identity.

The purpose of this article is to present a synthesis of the evolution of the operating theater knowledge at EEUSP and a reflection about the National Curriculum Directives (NCD) for the Nursing Undergraduate Course<sup>(9)</sup>.

EEUSP was a pioneer in offering the ORN content as an independent discipline. By analyzing its evolution timeline, it is possible to observe the pathway of perioperative care education. This timeline was developed using information from the files of the EEUSP Undergraduate Program Office, and the reports of the faculty of the OR discipline, who followed part of its history.

... the forced learning on battlefields, regarding patient care, also boosted the evolution of nursing practice in the surgical field, thus, constituting the operating room (OR) nursing assistant.

*1940's to 1960's:* The curriculum of the first nursing class consisted of a much smaller class load for theoretical classes compared to practical classes, which shows that it still maintained the characteristics of the courses offered in hospitals. The first discipline with an approach to surgery – Surgical Unit – comprised 40 theoretical and 340 practical hours. In 1947, The Operative Room discipline was included in the curriculum, with a total 275 practical class hours. Later, in the class of 1950, the discipline, now referred to as Operative Room Technique, the theoretical class load was 35 hours, and 265 hours of practical classes, and was different from the Surgical Unit Nursing discipline. The distribution of theoretical and practical class hours ranged considerably as curriculum changes occurred, and, in 1963, the referred discipline was replaced by Operating Room Nursing discipline, specifically, with 53 theoretical and 115 practical class hours.

*1960's:* The ORN discipline lasted two months and was taught by two professors to freshmen (second-year students). It focused on the operating room staff's activities. The only prerequisite to take the class was having completed the Nursing Fundamentals discipline. The developed program content approached the nursing practice in the supplies and sterilization central and the operating room.

As the number of weeks in the academic semester was reduced, the duration of field practice changed from eight to four weeks, and the program had to be reformulated in terms of depth and flexibility<sup>(10)</sup>. Therefore, the discipline then consisted of 150 class hours, and had the following objectives: to plan and provide physical and psychological care to patients in the operating room before, during, and after surgery, and take all the necessary notes; plan the work, prepare the operating room and follow gastrointestinal, bile ducts, head and neck, and gynecological surgeries, observing all the ethical aspects involved; report the sources of surgical wound contamination, and use the existing measures to avoid them; describe the hemostasis methods and the physical principles used to operate the electrosurgery unit and related them to patient care during surgery; describe and apply chemical, physical and microbiological principles in the sterilization of surgical material<sup>(10)</sup>.

*1970's to 1990's:* In 1972, with the introduction of habilitation courses, the ORN discipline then changed to 30 theoretical and 90 practical class hours. The growing demand to train nurses in this area of practice eventually led to hiring more professors for this discipline.

Students of the Medical-Surgical Nursing Habilitation Course attended a one-year internship program, and had one month of coordination activities in theatre. The habilitation course was optional for students after their graduation, but highly attended, nevertheless.

Until the late 1970's, the ORN discipline addressed the contents regarding central supply (CS) and OR. After several seminars, since 1980 a new and exclusive discipline

was created to address the CS content: CSN, which preceded the ORN discipline, and the class requirement for both was having completed the Medical Surgical Nursing discipline. These disciplines comprised the curriculum of the third year of the undergraduate course.

The ORN discipline counted with 120 class hours, 60 of which were practical classes and in two different fields. The discipline taught surgical contents of each medical area (surgeries of the abdomen, orthopedic, pediatric, vascular, gastrointestinal) and had a discussion on the surgical approach; anesthesia; pot-anesthetic recovery; the system for perioperative care – in which the patient was chosen one day before to perform the nursing process (NP); activities of the OR staff, without the presence of the circulating nurse in the OR. Because the evaluation seminars revealed that students felt anxious about being in the operating room, a change was made to the way it was conducted, so students started to develop activities with the circulating nurse, and surgical instrumentation was introduced.

Also at this time, a movement was started to conduct field research in the OR area. The number of faculty for the ORN and CSN disciplines increased to seven, and the disciplines were offered three times a year, and to three groups in each turn.

A great accomplishment by the OR faculty at the time was the development of the NP for the OR unit, which led to the proposition of the Systematization of Perioperative Nursing Care (SPNC)<sup>(11)</sup>, which presented every step of planning, implementing and assessing patient care in the operating room. Nursing care needed a model to guide nurses in their way of thinking and intervening. In this sense, the ORN discipline focused on risk factors in order to support the planning of care. In the students' opinion, this way of observing the surgical environment helped them to understand perioperative nursing care<sup>(12)</sup>.

A group of faculty identified that the OR unit was one of the most developing areas in terms of technology, and that the hour load invested in undergraduate teaching was insufficient for the performance that was required of OR nurses in the labor market. Thus, in July of 1988, they offered the first specialization course in the field, with 15 seats. Regarding the origin of the candidates, 82.4% were from the state of São Paulo, the others were from the states of Rio Grande do Sul, Rio de Janeiro, Minas Gerais and Santa Catarina, with at least 2.9% each, which revealed the need for these specialists in their states as well.

New changes to the curriculum in 1994 reduced the class hours of the disciplines, which changed to 30 hours for CSN and 90 hours for ORN. At this time, the habilitation course was no longer offered but the specialization course continued, which included among the selection criteria having prior experience in the surgical theater.

*2000 - 2010:* The curriculum structure approved in 1994 persisted for 16 years. In 2010, in the new pedagogical proj-

ect, the CSN discipline remained with 30 hours, while the content of the ORN discipline was included in the Adult Health Module, with a predefined load of 80 hours, to be taught starting in 2012 to junior students (3<sup>rd</sup> year).

The reduction of class hours due to changes in the curriculum has required the introduction of new learning opportunities in the practical field in the Clinical Clerkship Discipline, as Interventional Radiology Units. Because in this discipline the faculty supervises students at a distance, their staying in these location is only possible if there has been prior learning in OR nursing.

Despite the full involvement of the OR faculty, the ORN discipline no longer holds a special position in nurses' education and training, and, therefore, there is a risk that students will only have an observational practice if a patient is required to undergo surgery. As OR faculty retired and a new curriculum structure emerged, it is observed there is resistance against hiring faculty specializing in OR to fill in the open places, which will progressively weaken the attempts and efforts to maintain this content in the undergraduate course curriculum.

In graduate courses (*stricto sensu*) there are no masters or doctorate programs specifically aimed at OR. The faculty offers disciplines that address topics such as perioperative care, infection control and material processing within the Graduate Program in Adult Health Nursing.

### **Repercussions of NCD in operating room teaching**

The NCD owns its merit for assuring higher education institutions their right to determine the hour loads required to integrate curricula and to specify the units of study that will be taught. By being in line with the principles of the Unified Health System and to the morbidity and mortality rates of each region, the NCD provided great advancement in nurses' education and training.

However, the competencies and skills proposed in the NCD are nonspecific. Though they benefit the liberty to choose contents, they also permit the free interpretation of which contents are essential.

As an attempt to adequate the minimum hour load of the courses while also complying with the health policies and the requests for proposal of funding focused on Family Health, some contents such as OR tend not to be preferred, and are considered less valuable in nurses' education and training.

The movement aimed at preparing more generalist nurses involved a smaller focus on technical activities and more on decision-making and interdisciplinary skills, working with different clienteles, integrating with research and ethics, with a strong emphasis on community nursing and health promotion<sup>(13)</sup>. Furthermore, there is no consensus regarding the concept of generalist nurse and the OR content has been considered to be a specialty.

One priority of the health policies is Family Health, which also affects how the image of the generalist nurse is constructed. This program, however, is only one component of healthcare practice. The demands at the secondary and tertiary care levels have a strong effect on nurses' education and training, and nurses must also be prepared to take care of patients in hospital environments that are becoming more and more sophisticated in terms of technology.

We understand generalist nurses are those who had the opportunity to learn the theory and develop technical skills in every healthcare scenario that prepares them to work, initially, in any health care area or facility. These nurses are capable to meet care demands in any level of health care. We do not deny the specialty character of perioperative nursing, but it is also a specialty in pediatrics, mental health, collective health, intensive care, emergency, or any other fragmentation of knowledge in systems or areas in which the care process occurs.

It is said that nurses should favor comprehensive care to individuals, but care fragmentation is accepted when taking from students the opportunity of learning and practicing the care demands to perioperative patients and in anesthetic recovery. For nurses and nursing students be able to guide patients and meet their care needs in time of a surgery, or, yet, to assess the post-operative complications resulting from procedures in the operating room, they must have experienced care in the surgical environment.

The distribution of ORN content or the discipline, itself, differs across schools: some offer the discipline, in others a small theoretical content is included in other disciplines, with visits to OR units, and others do not offer any related content in the undergraduate course.

There is no difference between the Brazilian and the American situation. Some schools offer a very superficial content in the surgical nursing discipline and the practical part consists of visiting OR units. This quick exposure to the OR or an internship that is limited to a few days of observation implies that students will not be able to become involved in activities in the perioperative environment or identify what the nurses' role is in the OR unit<sup>(14)</sup>.

A study on the process of teaching perioperative nursing involving 10 school from the metropolitan region of São Paulo identified that 70% of them had their own OR nursing discipline, and the others included the content in the Adult Health discipline. The hour load for OR theoretical classes ranged between 30 (80%) and 72 hours (20%), while practical classes ranged between 60 hours (60%) and 90 hours (40%)<sup>(15)</sup>.

A poll with OR nurses regarding the importance of having perioperative nursing content in the undergraduate course showed that nurses who had the content in their curriculum as well as those who did not agree that knowledge in the ORN discipline is important for their practice

in the OR. Furthermore, 100.0% and 92.0%, respectively, said that this content should be included in the nursing course curriculum<sup>(16)</sup>.

Despite the statements that *the operating room is an object exclusive of specialization courses* and that *hospitals will only hire specialists*, its introduction in undergraduate courses remains important, because in Brazil hospitals continue hiring nurses without a specialization degree to work in the OR. Some specialization courses still require having experience in the OR unit, as a selection criteria, a condition that is also relevant in discussions on perioperative care and OR management so they (discussions) can be rich and result in quality specialist nurses who are critical thinkers and committed to their practice.

Due to the high demand for professionals in the labor market in the United States, health care services have hired nurses without a specialization degree in the area, and, therefore, institutions deal with unprepared professionals who, for this reason, are also incapable of keeping the job<sup>(14)</sup>. An evaluation regarding newly graduated nurses observed that without the opportunity to gain experience on context-based skills, graduates have reported a feeling of *not feeling prepared*<sup>(17)</sup>.

The technological advancements in surgery, the complexity of care and the vulnerable situation of surgical patients are factors that demand nurses in this fieldwork supported on evident knowledge of practice and understanding that our target is providing perioperative care to provide a safe and effective surgical anesthetic procedures.

As a global perspective, it has been observed that OR nursing has been inserted not only in the hospital area, but also in outpatient clinics, doctor's offices, specialized healthcare centers that perform small surgical procedures, where patients are guided regarding undergoing elective ambulatory surgical procedures and in day hospitals or at the doctor's office. In view of the technological advancements, it has become urgent to offer students the opportunity to learn new forms of surgical intervention. The process of admitting a patient for surgery has changed and many procedures are now performed at the outpatient clinic, with a one-day stay.

The need for the ORN content goes beyond the operating room area, the technological advancements in the area of image diagnosis with minimally invasive procedures for diagnosis or treatment, as well as in the preparation for certain surgeries have required for nurses working in this area to also have knowledge in perioperative nursing and material reprocessing.

Because of the relevance of the topic, in 2009 the Ministry of Health in a partnership with the Pan-American Health Organization of the World Health Organization (PAHO/WHO) published the Implementation Manual for the Patient Safety Project: "Safe Surgery Saves Lives", thus contributing with the full perception of risk, or a reinforcement of making an effective use of preventive measures, which increase the benefits from the technological advancement observed in surgical care<sup>(18)</sup>. This program involves issues regarding the prevention of surgical wound infection, providing safe anesthesia, having a safe surgical team and indicators of surgical care, issues that are addressed in the Operating Room Nursing discipline.

Terrorist attacks, wars, weather changes, and geological accommodation have caused catastrophes of extensive dimensions, which require improvised surgical environments to take care of the survivors. Nurses must have at least some minimal knowledge regarding the operative room environment and perioperative care in order to work in inhospitable locations without increasing the morbidity and mortality due to the lack of that minimal knowledge.

This does not exclusively refer to the Operating Room content in the curricula of undergraduate courses. But, rather, it regards understanding the repercussion of the lack of this content in courses, including for the adherence to programs of the World Alliance for Patient Safety promoted by the WHO.

The curriculum should not lose its classical contents, as they are the basis of the science of care. Teaching is historically transformed by technological development and by socio-economical-political changes. Therefore, it is observed it is necessary to adjust contents to improve the care to patients in different stages of the health-disease process.

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