

# PATIENTS IN INTENSIVE CARE BED IN REAR RECOVERY POSTANESTHETIC

*Pacientes de cuidados intensivos em leito de retaguarda na recuperação pós-anestésica*  
*Pacientes en cama de cuidados intensivos en recuperación posterior postanestésica*

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**ABSTRACT: Objective:** To identify the length of stay and the main difficulties in the nursing care of critically ill patients in bed in rear Post Anesthetic Care Unit. **Method:** it is an experience report of a researcher while Nurse Post Anesthetic Recovery of a university hospital in the southern city of São Paulo. **Results:** In 12 months 8,395 patients were admitted, of which 129 were severe patients who remained in the rear bed on average by 41.4 hours awaiting release of beds in the intensive care unit. Difficulties in assisting refer to admission, dilution and installation of drug infusion pumps, changing positions, bed bath, administration of diet, healing, polls, and transportation for exams. **Conclusion:** We emphasize the need for appropriate use of sector for post-operative recovery of patients, and that the presence of critically ill patients in rear bed requires adaptation of the professional staff in number and specificity. **KEYWORDS:** Anesthesia recovery period. Recuperação room. Operating room nursing. Intensive care. Residence time.

**RESUMO: Objetivo:** Identificar o tempo de permanência e as principais dificuldades na assistência de enfermagem a pacientes graves em leito de retaguarda na Recuperação Pós-Anestésica. **Método:** Trata-se de um relato de experiência da pesquisadora enquanto enfermeira da Recuperação Pós-Anestésica de um hospital universitário na zona sul da cidade de São Paulo. **Resultados:** Em 12 meses, foram admitidos 8.395 pacientes, sendo que 129 eram pacientes graves que permaneceram em leito de retaguarda em média por 41,4 horas aguardando liberação de leitos na unidade de terapia intensiva. As dificuldades na assistência se referem à admissão, diluição e instalação de drogas em bombas de infusão, mudança de decúbito, banho no leito, administração de dieta, curativos, sondagens, e transporte para exames. **Conclusão:** Ressalta-se a necessidade da utilização adequada do setor para a recuperação pós-operatória dos pacientes, e que a presença de pacientes graves em leito de retaguarda requer adequação do quadro de profissionais em número e especificidade. **PALAVRAS-CHAVE:** Período de recuperação da anestesia. Sala de recuperação. Enfermagem de centro cirúrgico. Terapia Intensiva. Tempo de Permanência.

**RESUMEN: Objetivo:** Identificar la duración de la estancia y de las principales dificultades en la atención de enfermería de los pacientes críticamente enfermos en cama Anestésico Recuperación. **Método:** se trata de un relato de experiencia de un investigador, mientras que la enfermera Publicar Anestésico Recuperación de un hospital universitario de la ciudad del sur de São Paulo. **Resultados:** 12 meses 8.395 pacientes fueron ingresados, de los cuales 129 eran pacientes graves que se quedaron en la cama trasera en un promedio de 41,4 horas a la espera de la liberación de camas en la unidad de cuidados intensivos. Las dificultades en la asistencia se refiere a la admisión, la dilución y la instalación de bombas de infusión de medicamentos, posiciones cambiantes, baño en la cama, la administración de la dieta, la curación, las encuestas, y el transporte para los exámenes. **Conclusión:** Hacemos hincapié en la necesidad de un uso adecuado de sector para la recuperación postoperatoria de los pacientes, y que la presencia de los pacientes críticamente enfermos en la cama trasera requiere una adaptación del personal profesional en número y especificidad.

**PALABRAS CLAVE:** Período de recuperación de la anestesia. Sala de recuperación. Enfermería Quirófano. Cuidados intensivos. Tiempo de residencia.

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## INTRODUCTION

After the anesthetic-surgical procedure, a critical period begins for the patients, who should remain under the constant observation and care from the nursing staff to prevent common interurrences of the post-anesthesia period. In the event of such occurrences, professionals must be able to provide these patients with immediate medical care<sup>1</sup>.

The surgical patient is usually referred to the Post-anesthesia Care Unit (PACU), which aims at providing care until patients are fully recovered from the effects of anesthesia, regaining motor and sensory functions, stable vital signs, and showing no evidence of hemorrhage, nausea or vomit<sup>2</sup>.

For this type of service, the PACU must be located near the operating rooms (OR), have the same number of beds as the existing ORs +1, be equipped with material resources and proper equipment, as well as with the necessary human resources for immediate postoperative care, that is, a nursing technician for every three beds and a nurse for every eight beds of non-critical patients<sup>1</sup>.

However, not all patients are referred to the PACU after the anesthetic-surgical procedure, which is even less common for major surgeries, for older patients with pre-existing conditions, in cases when specialized and/or constant therapeutic support are necessary or when life is at risk. In these cases, the immediate postoperative period (IPP) usually takes place in the Intensive Care Unit (ICU), given the severe conditions of such patients.

Recently, because of the high demand of patients in severe conditions and the limited number of beds in the ICU, some critical patients have remained on the pre-recovery bed at the PACU until all beds in the ICU are released<sup>3</sup>.

It is worth mentioning that, in these cases, there should be an adaptation of human resources, i.e., a nurse for every three or four beds due to the higher complexity of care<sup>1</sup>, although this proportion is not always adopted by the institution given the lack of professionals<sup>4</sup>.

The presence of critically ill patients in the PACU requires a readjustment from the nursing staff, since the services provided by these professionals are complex, like ventilatory support, invasive monitoring, probe, drain and urine output, administration of medications through infusion pump and enteral diets, measures to prevent pressure ulcer, among other activities.

Due to the increasing reality of critically ill patients on pre-recovery beds at the PACU, it is important to know the experiences in this context in order to learn more about the changes affecting the sector's routine; therefore, it is possible to adapt both the structure and the preparation of the nursing staff for the intensive care of these patients.

## OBJECTIVE

To identify the length of stay and the main difficulties from this period in nursing care provided for critically ill patients on pre-recovery beds at the PACU.

## METHOD

This is a descriptive research and a case report focusing on a phenomenon that society is unaware of or knows little about through the analysis of data to build a scenario. The research is based on the statement that problems can be solved and practices can be improved by the description and analysis of objective and direct observations<sup>5,6</sup>.

This investigation aims at describing the researcher experience at the PACU of a large university hospital, characterized as an emergency unit covering an area that comprises more than 5 million residents in the city of São Paulo (SP), besides receiving patients from other states. The institution performs about 1,600 surgical procedures per month. Every day, about 4 thousand outpatients attend the units and one thousand patients are admitted for all medical specialties, including highly complex procedures. There are 114 intensive care beds distributed in 10 adult ICUs, 9 beds in the pediatric ICU and 21 beds in the neonatal ICU.

The surgical center (SC) of the institution has 22 ORs, being 3 used for obstetric care. Minor, intermediate and major surgeries were performed in the following specialties: heart, pediatrics, head and neck, gastric surgery, urology, neurology, ophthalmology, otorhinolaryngology, orthopedics, gynecology, plastics, and human reproduction.

One resident in anesthesiology is in charge of 8 beds in the PACU (from 7 to 5 pm, Mondays to Fridays), and is also responsible for the patients' discharge from the IPP, intensive care and urgency/emergency. In his/her absence, the current anesthetic manager of the SC chooses another physician. The

PACU staff comprises 5 nurses, 2 in the morning, 1 in the afternoon, 1 in each night shift; and 16 nursing assistants/ technicians, 4 in each shift.

Data were collected from September 2012 to August 2013 from the PACU records, which register the number of patients assisted on the day and the information about personal identification and anesthetic-surgical procedures.

Because of the public institution characteristics — being an emergency unit — many major surgeries are performed in critically ill patients, who should be admitted to the ICU in the postoperative period; however, the number of ICU beds available in the institution is inversely proportional to reality. It is necessary to allocate these patients in the PACU to ICU pre-recovery beds, until the beds in intensive care are released.

## RESULTS

In the studied period, 8,395 (100%) patients were assisted at the PACU. Out of these, 129 (1.5%) were critically ill patients (priority 1) who remained on pre-recovery beds, whose detailed description is in Chart 1.

In the institution, critically ill patients are classified as priorities 1, 2 or 3 in the prioritization model for ICU admission. They use the classification as follows:

- priority 1 – patients in severe and unstable conditions, who cannot be offered monitoring and treatment outside the ICU;
- priority 2 – patients who require continuous monitoring and possible emergency interventions;
- priority 3 – critically ill patients, with reduced changes of recovery associated with the nature of the comorbidity; and
- priority 4 – patients who would not benefit from intensive care because of the low risk or little need for an emergency intervention or patients with irreversible terminal diseases<sup>7</sup>.

The length of stay of 129 critically ill patients on pre-recovery beds from the PACU in the studied period varied from 3 to 384 hours, and the average time was 41.4 hours (1.7 days). The detailed description is in Chart 2.

There are many difficulties regarding the nursing care for critically ill patients on Post-Anesthetic pre-recovery beds at the PACU, starting with admission. It takes time to

prepare the bed, to receive the patients and to monitor and identify their clinical condition in the changes of shifts and the phases of Nursing Care Systematization (NCS). There

**Chart 1.** Distribution of critically ill patients on pre-recovery beds at the post-anesthesia recovery unit per period. 2013

Period	Critically ill patients on pre-recovery beds at PACU
2012 September	10
2012 October	12
2012 November	11
2012 December	7
2013 January	13
2013 February	13
2013 March	18
2013 April	9
2013 May	10
2013 June	9
2013 July	9
2013 August	7
Total	128

PACU: Post-anesthesia Care Unit.

**Chart 2.** Distribution of critically ill patients according to length of stay on pre-recovery beds at the post-anesthesia recovery unit. 2013.

Length of stay on recovery beds at PACU	Number of critically ill patients
3 hours	3
6 hours	20
12 hours	13
24 hours (1 day)	41
48 hours (2 days)	21
72 hours (3 days)	14
96 hours (4 days)	7
120 hours (5 days)	3
144 hours (6 days)	3
168 hours (7 days)	1
192 hours (8 days)	2
Total	128
Average time of stay: 41.4 hours (1.7 days)	

PACU: Post-anesthesia Care Unit.

are other factors, like the dilution and installation of drugs, infusion pumps and other equipment, such as the mechanical ventilator.

These patients require other procedures, which are not part of the PACU's routine, such as changing positions, bed bath, administration of medications and diet, among other little and medium complexity procedures. Mostly, nursing technicians perform these procedures, whereas the PACU nurse is exclusively in charge of surgical wound dressings, probes, installation of hemoderivatives, and other highly complex procedures.

The performance of some of these procedures requires the collaboration of at least two employees; therefore, the team involved in caring for patients on pre-recovery beds and those in IPP is overloaded.

The nursing team of this institution follows the guidelines established by the Brazilian Society of Surgical Center Nurses, Anesthesia Recovery, Sterilization And Center Of Material Storage (SOBECC)<sup>1</sup> for PACU care to critically ill patients. However, the team is often incomplete because of days off, unjustified absence or medical leave from collaborators, causing dissatisfaction and stress on the rest of the staff.

If two or more members are absent, a professional from the SC is transferred to the PACU; however this person usually has no experience in this type of service, which makes the other members of the staff feel insecure.

Professionals feel overloaded when providing care for critically ill patients on pre-recovery beds for the ICU, not to mention the other patients in the IPP, the time spent to complete forms and other administrative processes.

The PACU staff performs the laboratory exams and sends them to the central laboratory of the hospital by the management support staff of the SC, and the period between the exams and the results does not compromise the service.

When an appointment is required with an intensive care physician and doctors from specific subjects, as well as other health professionals, the resident in anesthesiology at the PACU or the surgeon in charge for the patient requests this service. Then, the nurse from the PACU contacts the team.

The most required collaborator in the multi-professional staff is the physical therapist, since respiratory physical therapy is necessary for patients with orotracheal intubation (OTI) and to handle mechanical ventilation devices.

There are no visiting hours at the PACU; however, because there are patients on pre-recovery beds, whose length of stay

is long, we need to respect patient and the family's right, even if this access is difficult (starting by the location of the PACU inside the SC, because it is necessary to cross the corridor of ORs, not to mention the characteristics of the sector, with reduced flow of staff and proper clothing).

The visiting period for these patients lasts one hour in the afternoon shift, and only two family members can enter the room, one at a time, but for no longer than ten minutes. In exceptional cases, of critically ill patients with bad prognosis and with department's authorization, more visitors can be allowed.

Critically ill patient happens are moved in two moments: for the performance of computed tomography (CT) and to be transferred from the PACU to the ICU, in case there is a bed available. Two nursing technicians from the PACU and a medical resident are in charge if the patient depends on mechanical ventilation; but when on non-invasive ventilation, a nursing technician and a nurse from the PACU can do the process.

This practice is also a significant reason of dissatisfaction and stress of the staff regarding the waiting time for the elevators, preparation of the patient to be transferred from the sector, and a new admission to the PACU after undergoing the exam.

The patients are discharged from the PACU when they are transferred to the ICU to continue the treatment, when the patient gets better and is referred to the nursing ward or to another hospital, or in case of death.

## DISCUSSION

Nursing care addressed to critically ill patients on pre-recovery beds at the PACU is different from the unit's routine, starting with the length of stay of patients on these beds and their needs.

Literature shows that the length of stay of non-critically ill patients at the PACU is of about 2 hours, a period when most patients reach the maximum score in the Aldrete-Kroulik Index<sup>8,9</sup>. However, this IPP period can be reduced in case of elective or minor surgeries.

In this study, the length of stay of critically ill patient's on pre-recovery beds at the PACU was of 41.4 hours (1.7 days), that is, much higher than that of non-critically ill patients. This fact has a direct impact on the sector's bed turnover rate, thus forcing the postoperative recovery of patients

in the OR, followed by SC professionals who may not be experienced in evaluation of patients, besides the increasing rotation time of the room, and the consequent delay in surgery mapping.

In a study performed in another public institution in São Paulo, the same need to use the pre-recovery bed at the PACU was observed, with an average patient's length of stay of 27 hours. However, this study included critically ill and non-critically ill patients who were waiting for a bed release in the ICU and in the nursing ward, respectively. In the case of non-critically ill patients, the hospitalization period was shorter, therefore, sometimes the patient was discharged from the PACU and could go home<sup>3</sup>.

Literature points out that the average time of hospitalization in Brazilian ICUs is 6 days long, and in international institutions, 5.3 days<sup>10,11</sup>. The mean stay on pre-recovery beds in this study (41.4 hours or 1.7 days) was lower than the national and international means because the patients were transferred from the PACU to the ICU when beds were made available, ensuring the continuity of care.

The prolonged length of stay and clinical picture of these patients have some difficult aspects regarding nursing care, which requires more time to perform highly complex procedures from the nursing professional.

There is the need for more surveillance of the intubated patient, as well as more employees involved in care, because of the possibility of extubation during procedures such as changing positions, bed bath, among others, and also in cases of self-extubation, if the patient presents agitation, neurological changes or major respiratory discomfort, which would cause damages or complications to the user<sup>12</sup>.

Handling mechanical ventilation equipment, infusion pumps, among others, may cause insecurity in the professional, since it is unusual equipment in the PACU reality<sup>3</sup>.

With regard to the performance of more complex procedures, such as changing positions and bed bath, it is possible to observe that the members of the nursing team collaborate with each other, since these activities may require more physical effort from the professional, so the support from one or more collaborators is necessary<sup>3</sup>.

Therefore, we emphasize the importance of adjusting the number of collaborators in the area, since it is a known fact that the reduced number of employees in the PACU is a reason of distress for professionals in many

hospitals, which count only with the presence of assistants and/or technicians who end up being indirectly supervised by the SC nurse. This is a fact that makes individual and high-quality care difficult, especially in situations of emergency<sup>3</sup>.

The inappropriate number of employees caring for patients on pre-recovery beds while working with IPP patients may overload such professionals, and have an impact not only on the quality of care, but also on medical records. This corroborates the limited quality of nursing records, which is a constant challenge for this category<sup>8</sup>.

Visits of intensive care physicians and other specialists (i.e., physical therapists, occupational therapists) are very delicate, since they are not familiar with the location of the PACU in the institution or with the procedure regarding the proper clothes to enter in the sector. So, these professionals may be late, especially for emergency situations.

Thus, cases of cardiorespiratory arrest, clinical pictures of hypovolemic, cardiogenic, neurogenic, anaphylactic, and septic shocks, hemorrhages, seizures, among other interurrences, cause a high level of stress on the PACU staff.

Visits of family members are not different. They face some difficulties to access the sector and to wear the proper clothes, besides the fact that they interfere in the nursing routine, because of the time spent to prepare them to enter the PACU and answer their doubts about surgery, recovery and possible discharge date. Usually, the team is unaware of this information<sup>3</sup>.

However, the department and the professionals should adapt to receive the patient's family, given their importance for recovery and considering the guarantee of their rights<sup>13,14</sup>.

Hence, the nursing staff fatigue is related to the large number of therapeutic activities and to the time they spend in intensive and postoperative care, simultaneously.

Professionals need to adapt to the specific routine at the PACU, as well as to the new and equally specific and demanding routines and flows with the critical patient, which is typical in ICU care.

Therefore, these members of the staff should not only be technically skilled to work at the PACU, but also have knowledge and special abilities addressed to caring for the critically

ill patient with long length of stay in the sector, requiring specialized orientation and training<sup>3</sup>.

The SC and the PACU environments alone involve heavy emotional load (because it is a closed, critical department, with high levels of stress); add to that the characteristics of the ICU characteristics, that is, a place of instability, closeness to death and the tension from intensive care tension, besides the relationship with the patients' family members, and there may be consequences on the professional's physical and mental health.

Thus, it is worth to emphasize the need to adjust the nursing staff, to provide the proper number of nurses and nursing technicians associated with the number of beds, as well as the characteristics of patients as to the level of care they require, besides ensuring the proper technical training for these professionals.

## FINAL CONSIDERATIONS

The admission of patients referred to intensive care to the PACU has become a common practice recently, because of the increasing demand of this profile of patients, which is not proportional with the number of ICU beds available.

The institution analyzed in this paper experienced this reality and, in a 12-month period, the PACU received 8,395 (100%) patients; among them, 129 (1.5%) were critically ill patients waiting to be transferred to the ICU. The mean length of stay of these patients on pre-recovery beds at the PACU was of 41.4 hours, resulting in the low turnover of

beds and the consequent need for surgery patients to recover in the OR, which also has a direct impact on the course of the surgery mapping.

It has been observed that the difficulties faced by the nursing staff in relation to these patients during this period begin at admission, because of the time spent on bed preparation, besides, the patient's reception, monitoring, and identification of clinical picture. There is also the dilution and installation of drugs and infusion pumps and other equipment, such as the mechanical ventilator.

It is also necessary to conduct activities such as changing positions, bed baths, administration of diets, dressings, probes, blood infusions and to transfer the patients who need to undergo exams. These actions are not common at the PACU's routine. Besides, an extra professional is required for many of these activities, which overloads the team.

Multiprofessional care in routine situations, and especially in emergencies, is stressful because of the difficulty to the PACU. This is also true for family visits.

The different routines in the PACU and the work overload lead to discomfort and stress for the team. So, the need for the proper use of the sector for the postoperative recovery of patients is emphasized and may be assessed by indexes used in the unit.

Nevertheless, given the increasing presence of critically ill patients on pre-recovery beds at the PACU, there is the need to adapt the number of nursing professionals in the sector, associated with the number of patients, as well as the characteristics of these patients concerning the level of care, besides the proper technical training to provide a safe and humanized service.

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