

Knowledge of intensive care nurses: immediate postoperative shock

Conhecimento de enfermeiros intensivistas: choque pós-operatório imediato

Conocimiento de enfermeros intensivistas: choque postoperatorio inmediato

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RESUMO

Introdução: O pós-operatório imediato é um período crítico, com risco de choque (hemorrágico, cardiogênico, distributivo e obstrutivo). O enfermeiro na UTI tem papel fundamental na monitorização e detecção precoce. **Objetivo:** Avaliar o conhecimento dos enfermeiros de UTIs no reconhecimento e manejo do choque no pós-operatório imediato, identificando competências e dificuldades. **Método:** Estudo descritivo, quantitativo, transversal, com 207 enfermeiros de Unidade de Terapia Intensiva, públicas e privadas, selecionados por amostragem bola de neve. A coleta foi realizada entre janeiro e abril de 2025, por meio de questionário online com escala Likert. Dados analisados no SPSS v.26. **Resultados:** A maioria possui pós-graduação (91,3%), mais de 10 anos de experiência (42,7%) e atuação direta na UTI (76,7%). Predominam especialistas em Terapia Intensiva (50,49%). Observou-se alta concordância sobre conhecimento e atuação frente ao choque, destacando-se boa comunicação e trabalho em equipe. **Conclusão:** Apesar do bom nível de conhecimento, persistem necessidades de aprimoramento por meio de capacitações práticas, treinamentos específicos e maior suporte institucional, fundamentais para segurança do paciente e redução da mortalidade.

Descritores: Choque pós-operatório, reconhecimento, enfermeiro, UTI, manejo clínico.

ABSTRACT

Introduction: The immediate postoperative period is a critical period, with risk of shock (hemorrhagic, cardiogenic, distributive, and obstructive). ICU nurses play a fundamental role in monitoring and early detection. **Objective:** To assess the knowledge of ICU nurses in recognizing and managing shock in the immediate postoperative period, identifying skills and difficulties. **Method:** Descriptive, quantitative, cross-sectional study with 207 nurses from public and private ICUs, selected by snowball sampling. Data collection was carried out between January and April 2025, through an online questionnaire with a Likert scale. Data were analyzed in SPSS v.26. **Results:** Most have postgraduate degrees (91.3%), more than 10 years of experience (42.7%), and direct work in the ICU (76.7%). Intensive Care specialists predominate (50.49%). There was a high level of agreement regarding knowledge and actions in the face of shock, with emphasis on good communication and teamwork. **Conclusion:** Despite the good level of knowledge, there is still a need for improvement through practical training, specific training and greater institutional support, which are essential for patient safety and reducing mortality.

Descriptors: Postoperative shock, recognition, nurse, ICU, clinical management.

RESUMEN

Introducción: El postoperatorio inmediato es un período crítico, con riesgo de shock (hemorrágico, cardiogénico, distributivo y obstrutivo). El personal de enfermería de UCI desempeña un papel fundamental en la monitorización y la detección temprana. **Objetivo:** Evaluar los conocimientos del personal de enfermería de UCI sobre el reconocimiento y el manejo del shock en el postoperatorio inmediato, identificando habilidades y dificultades. **Método:** Estudio transversal descriptivo, cuantitativo con 207 enfermeras de UCI públicas y privadas, seleccionadas mediante muestreo por bola de nieve. La recolección de datos se realizó entre enero y abril de 2025 mediante un cuestionario en línea con escala de Likert. Los datos se analizaron con el programa SPSS v.26. **Resultados:** La mayoría cuenta con estudios de posgrado (91,3%), más de 10 años de experiencia (42,7%) y trabajo directo en la UCI (76,7%). Predominan los especialistas en cuidados intensivos (50,49%). Se observó un alto nivel de consenso respecto a los conocimientos y las acciones ante el shock, con énfasis en la buena comunicación y el trabajo en equipo. **Conclusión:** A pesar del buen nivel de conocimientos, aún existe necesidad de mejora mediante formación práctica, formación específica y mayor apoyo institucional, fundamentales para la seguridad del paciente y la reducción de la mortalidad.

Descriptores: Shock postoperatorio, reconocimiento, enfermera, UCI, manejo clínico.

ORIGINAL

Introduction

The immediate postoperative period is a critical phase in patient care, characterized by physiological changes that can result in severe complications if not promptly identified and managed ^(2,9). In this context, the nurse plays an essential role, being responsible for monitoring vital signs, identifying early alterations in the patient's clinical condition, and implementing rapid and effective interventions ⁽⁶⁾.

Among the most serious complications is shock, an acute circulatory failure that compromises tissue perfusion and may lead to multiple organ failure if not treated in time. Recognizing the different types of shock, such as hemorrhagic, cardiogenic, distributive, and obstructive, is crucial to guide appropriate clinical management and ensure better patient outcomes ⁽¹²⁾.

Hemorrhagic shock is one of the most common causes in the immediate postoperative period, especially in major surgeries or procedures with a high risk of blood loss. It is characterized by a reduction in intravascular volume due to active bleeding, leading to decreased cardiac output and tissue oxygenation. The earliest signs include hypotension, compensatory tachycardia, pallor, cold sweating, and decreased urine output. Recent studies highlight the importance of continuous monitoring by nurses to identify hidden bleeding and intervene before the condition worsens ^(7,11). Initial management includes fluid resuscitation and, in more severe cases, invasive measures such as blood transfusion.

On the other hand, cardiogenic shock results from primary cardiac dysfunction, impairing the heart's ability to pump blood efficiently. This condition may arise after cardiac surgeries or due to intraoperative complications, such as acute myocardial infarction. Clinically, it presents with signs of pulmonary congestion, persistent hypotension, and cold extremities. Nursing intervention is crucial, not only in the early identification of these signs but also in administering vasoactive drugs and providing hemodynamic support under medical supervision⁽¹²⁾

Invasive blood pressure monitoring, heart rate, and pulse oximetry are indispensable to guide treatment. Distributive shock, often associated with sepsis, is characterized by inadequate redistribution of blood volume due to systemic vasodilation. In the immediate postoperative period, undetected infections or inflammatory complications may trigger this condition, leading to severe hypotension and signs such as fever, tachycardia, and mental confusion. According to Oliveira et al. ⁽⁸⁾, initial management requires early identification of the infectious source, rapid initiation of antibiotics, and fluid support. Nursing practice is essential in collecting samples for microbiological tests and monitoring response to treatment.

Finally, obstructive shock, less common but equally severe, occurs due to mechanical obstruction of blood flow, as in cases of cardiac tamponade or pulmonary embolism. After surgical procedures, this condition may arise as a complication of venous thromboembolism. Clinically, it manifests with signs of right ventricular failure, chest pain, dyspnea, and cyanosis. The nurse must be alert to these signs, as well as to changes in complementary exams, such as arterial blood gas and electrocardiogram, which may indicate the diagnosis ⁽³⁾. The role of the nurse in monitoring and caring for patients at risk of shock in the immediate

postoperative period is widely supported by the literature. In addition to being a vigilant observer, the nurse acts as a central member of the multidisciplinary team, ensuring that evidence-based interventions are promptly implemented. Continuous training and knowledge of the different types of shock are essential for nurses to intervene efficiently, minimizing risks and promoting patient safety.

Theoretical Framework

In the context of intensive practice, the ability to recognize early signs of clinical deterioration, such as postoperative shock, requires more than technical knowledge; it demands refined clinical reasoning. Tanner's Clinical Judgment Model⁽¹⁵⁾ proposes a framework composed of four phases – noticing, interpreting, responding, and reflecting – that explain how nurses process information, make decisions, and evaluate their actions in patient care.

In the noticing phase, the nurse uses prior experience and clinical sensitivity to detect subtle changes in vital signs or patient behavior. By interpreting these data, the nurse formulates diagnostic hypotheses and makes rapid decisions, followed by implementing interventions (responding), such as fluid administration or alerting the medical team. Finally, reflection allows for continuous learning and improvement of practice.

This theory is especially relevant in the ICU, where response time is crucial and the nurse's clinical judgment can be decisive for patient outcomes. Therefore, its application as a theoretical basis justifies the analysis of nurses' knowledge and practices regarding immediate postoperative shock ⁽¹⁵⁾.

Method

The study adopted a quantitative, descriptive, and cross-sectional approach, aiming to analyze the knowledge and practices of ICU nurses regarding immediate postoperative shock. According to Gil (2010), descriptive quantitative research seeks to observe, record, and analyze phenomena without intending to interfere with them, allowing for the measurement of characteristics and behaviors of specific groups. Data collection was carried out using a structured questionnaire with a Likert scale, a technique that enables objective measurement of respondents' perceptions and attitudes.

The sampling was non-probabilistic, using the snowball method, which is justifiable in hard-to-reach populations, as Gil (2008) points out, when the researcher relies on participant referrals to reach new subjects. Data were analyzed through descriptive statistics using SPSS software, version 26.0, with calculation of frequencies, means, and measures of dispersion.

Population and Sample

The target population included nurses working in public and private hospitals, with experience in Intensive Care Units (ICUs). The sample was selected non-probabilistically, by convenience, using the snowball method, with support from nursing associations, professional social networks, and health-related groups. A total of 714 invitations were sent nationwide to ICU nurses, covering general, neonatal, and pediatric ICUs, among others. Recruitment was conducted

through LinkedIn (614 invitations), Facebook (50), and Instagram (50). The final sample consisted of 207 nurses who met the inclusion criteria and fully answered the questionnaire.

Data Collection Instrument

The instrument used was a digital questionnaire developed by the authors, based on an integrative literature review, and created using Google Forms. It contained objective questions and statements on a five-point Likert scale.

The questionnaire was organized into three sections:

- Sociodemographic and professional data: age, gender, work experience, workplace sector, and experience in other nursing fields.
- Knowledge of types of shock: clinical signs, characteristics, and management of hemorrhagic, cardiogenic, distributive, and obstructive shock.
- Practices and professional perception: assessment of the importance of early recognition of shock and interventions applied in clinical practice.

Data Collection Procedures

Participants were invited through a link shared on social networks and sent via email to professional groups. Before starting the questionnaire, respondents accessed the Informed Consent Form, which explained the study objectives, confidentiality of information, and voluntary participation. Only those who accepted the consent form proceeded with the questionnaire.

Data Analysis

The data obtained were submitted to descriptive statistical analysis, with calculation of absolute and relative frequencies for categorical variables, and measures of central tendency (mean, median) for Likert scale responses. To verify the instrument's internal reliability, Cronbach's Alpha coefficient was applied. Data analysis was performed using SPSS software, version 26.0.

Ethical Aspects

The research followed the ethical principles established by Resolution No. 466/2012 of the Brazilian National Health Council. The project was submitted to and approved by the Research Ethics Committee of UNIFAE, CAAE: 85089624.0.0000.5382. All responses were anonymous and confidential, and data were used exclusively for academic and scientific purposes.

Inclusion and Exclusion Criteria

- Inclusion criteria: nurses with an active registration in the Regional Nursing Council (COREN), with at least 6 months of ICU experience, and who formally consented to participate in the study.
- Exclusion criteria: nurses on medical leave or with other conditions preventing professional practice during the data collection period, and nurses without ICU experience.

Results

Profile of Professionals

The sample consisted of 207 ICU nurses, predominantly female (58.3%), with most participants self-identifying as White (64.1%). A total of 57.8% of participants were aged between 31 and 50 years. Furthermore, 91.3% held postgraduate degrees, and 42.7% had more than 10 years of professional experience. These data indicate that the sample was mostly composed of experienced professionals with strong potential to contribute to critical patient care.

Knowledge and Recognition of Postoperative Shock

The analysis showed that 51.5% of professionals strongly agreed that they felt up-to-date on postoperative shock management protocols, while 21.4% agreed. However, 27.1% expressed some disagreement or neutrality, highlighting existing gaps in professional updating.

Regarding practical experience in managing immediate postoperative shock, 47.3% agreed that they had the necessary experience, and 34.3% considered their experience sufficient. Nevertheless, 11.5% of respondents expressed insecurity, reinforcing the need for investments in practical training. In terms of recognizing the main clinical signs of shock, the results demonstrated a good level of knowledge: 82.6% correctly identified hypotension, 76.8% tachycardia, and 56.5% recognized oliguria as a relevant sign. However, 17.9% expressed doubts regarding increased intracranial pressure, indicating a need for greater emphasis on distinguishing between direct and indirect signs of shock in different clinical contexts.

As for immediate management of postoperative shock, 53.1% indicated intravenous fluid administration as the first measure, followed by interventions such as vasoactive drugs and electrolyte replacement. These findings suggest that most nurses correctly understand the priorities in emergency situations.

Only 31.4% of nurses reported feeling completely confident to act independently in postoperative shock cases, reinforcing the importance of supervised practice and continuous training. Additionally, 53.6% of professionals were familiar with institutional protocols related to the topic, while 46.4% reported limited access or partial knowledge.

Table 1 – Knowledge and Recognition of Postoperative Shock among ICU Nurses

Evaluated Aspect	Response Category	Frequency (n=207)	Percentage (%)
Update on postoperative shock management protocols	Strongly agree	107	51,5
	Agree	44	21,4
	Disagree/Neutral	56	27,1

Practical experience in managing immediate postoperative shock	I agree that I have the necessary experience	98	47,3
	I consider my experience suficiente	71	34,3
	I express insecurity	24	11,5
Recognition of the main clinical signs of shock	Hypotension	171	82,6
	Tachycardia	159	76,8
	Oliguria	117	56,5
	Uncertainty regarding increased intracranial pressure	37	17,9
Immediate management of patients in postoperative shock	Intravenous fluid administration	110	53,1
	Use of vasoactive drugs	-	-
	Electrolyte replacement	-	-
Confidence to act independently in postoperative shock	I feel completely confident	65	31,4
Knowledge of institutional protocols related to shock	I am familiar with the protocols	111	53,6
	I am unfamiliar / I have difficulty accessing	96	46,4

Difficulties and Improvement Proposals

The main obstacles reported by nurses for recognizing and managing postoperative shock were the lack of time for adequate monitoring (35.7%) and lack of knowledge of clinical signs (27.1%). This demonstrates that, in addition to technical training, organizational and structural factors also directly impact the quality of care provided.

Regarding strategies to overcome these barriers, most participants highlighted the importance of continuous training (88.9%) and the review of institutional protocols (75.8%). These data highlight the professionals' critical perception of the need for continuing education and standardization of care practices. Another relevant finding refers to practical training: 41.1% of nurses reported never having participated in specific courses on postoperative shock management. However, 79.2% considered in-person courses effective for this purpose, and 89.4% identified realistic ICU simulations as the most efficient learning method.

Table 2: Difficulties and Improvement Proposals among ICU Nurses

Category	Characteristic	Frequency (n=207)	Percentage (%)
Main obstacles	Lack of time for monitoring	74	35,7
	Lack of knowledge of clinical signs	56	27,1
Strategies to overcome barriers	Continuous training	184	88,9
	Review of institutional protocols	157	75,8
Practical training	Never participated in specific courses	85	41,1
	Consider in-person courses effective	164	79,2
	Realistic ICU simulations as the most efficient method	185	89,4

5.4 Communication, Confidence, and Institutional Support

Effective communication with the medical team was widely recognized as a crucial factor in the management of postoperative shock. The vast majority of participants (90.8%) strongly agreed with this statement, while 5.8% partially agreed. Only 2.4% expressed neutrality, and just 1.0% disagreed, demonstrating consensus on the importance of multidisciplinary teamwork in ensuring safe and efficient care for critically ill patients.

Regarding perceived confidence to act independently in the management of postoperative shock, only 46.9% of nurses reported feeling fully confident, while 25.1% felt partially confident. Conversely, 11.6% reported insecurity, 11.1% felt somewhat insecure, and 5.3% stated they did not feel confident, highlighting the importance of supervised practice and specific training to promote greater clinical autonomy.

Concerning specific training on the recognition and management of postoperative shock in the past two years, only 25.1% of professionals reported having received training. The majority (74.9%) had not participated in recent training, which may explain part of the previously mentioned insecurities.

When asked about institutional support for professional development in the ICU, opinions were divided. About 58.5% showed some degree of agreement, with 29.5% in full agreement and 29.0% in partial agreement. However, 19.8% were

neutral, and 21.8% expressed disagreement, indicating the need for more effective institutional policies to encourage continuing education.

Regarding the adequacy of resources available for postoperative shock management, 71% of nurses evaluated the provided infrastructure positively, with 37.2% in partial agreement and 33.8% in full agreement. Nevertheless, 14% remained neutral, while 14.5% disagreed with the statement, pointing to possible deficiencies in material resources or organizational support.

Finally, concerning satisfaction with clinical practice in the ICU, 75.3% of professionals reported being satisfied, with 38.6% fully satisfied and 36.7% partially satisfied. Despite this, 14% remained neutral, and 10.1% expressed some degree of dissatisfaction, which may be related to the previously identified challenges, such as lack of training and institutional support.

Table 3: Communication, Confidence, and Institutional Support among ICU Nurses

Category	Characteristic	Frequência (n=207)	Percentual (%)
Effective communication with the medical team	Strongly agree	188	90,8
	Partially agree	12	5,8
	Neutral	5	2,4
	Disagree	2	1
Confidence to act independently	Feel completely confident	97	46,9
	Feel partially confident	52	25,1
	Report insecurity	24	11,6
	Feel somewhat insecure	23	11,1
	Do not feel confident	11	5,3
Specific training in the last 2 years	Received training	52	25,1
	Did not receive training	155	74,9
Institutional support for professional development	Strongly agree	61	29,5
	Partially agree	60	29
	Neutral	41	19,8
	Disagree	45	21,8
Adequacy of available resources available	Strongly agree	70	33,8
	Partially agree	77	37,2
	Neutral	29	14

	Disagree	30	14,5
Satisfaction with clinical practice	Fully satisfied	80	38,6
	Partially satisfied	76	36,7
	Neutral	29	14
	Dissatisfied	21	10,1

Discussion

The sample of this study, composed of 207 nurses working in Intensive Care Units (ICUs), reveals a predominantly experienced and qualified profile, with 91.3% holding a postgraduate degree (*lato sensu*) and 42.7% with more than 10 years of professional experience. Most participants identified as White (64.1%) and female (58.3%), which is consistent with the demographic characteristics reported in similar studies, such as Moraes et al. (2022), which also indicated high qualifications among ICU nurses. These data reflect the competence of the sample to manage critical situations, especially in the context of postoperative shock management, as recommended by the Ministry of Health protocols (2020), reinforcing the importance of skilled professionals in the care of critically ill patients.

Regarding knowledge of postoperative shock, the data indicate that, although most nurses (51.5%) feel updated regarding management protocols, a significant proportion (27.1%) expressed disagreement or neutrality, pointing to gaps in professional updating. This finding is corroborated by Fernandes et al. (2022), who highlighted challenges in the continuing education of healthcare professionals, emphasizing the need for greater focus on practical training. While 82.6% of nurses recognized hypotension as a clinical sign of shock, the lower identification of oliguria (56.5%) and uncertainty about increased intracranial pressure (17.9%) suggest that differentiation between direct and indirect clinical signs of shock still requires more attention in training and education programs.

The difficulties reported by nurses, such as lack of time for monitoring and lack of knowledge of clinical signs, reveal challenges that go beyond technical training, indicating the influence of organizational and structural factors on the care provided. The search for solutions, such as continuous training (88.9%) and review of institutional protocols (75.8%), reinforces the importance of continuing education and standardization of care practices. The proposed improvements through in-person courses and realistic simulations, as indicated by 79.2% and 89.4% of professionals, respectively, are aligned with the literature, such as Gil (2010), which highlights the effectiveness of practical methodologies in improving nurses' skills.

Conclusion

Based on the results of this research, it is evident that Brazilian intensive care nurses possess theoretical knowledge about some types of immediate postoperative shock, demonstrating familiarity with clinical signs and initial management. However, the study revealed a significant gap between theoretical knowledge and confidence in decision-making and practical performance, as indicated by the

insecurity reported by a considerable portion of participants. The lack of specific training and recent updates emerged as a crucial factor contributing to this insecurity, pointing to the need for more robust, practice-focused training programs.

Additionally, organizational issues, such as the perception of insufficient time for proper patient monitoring, also affect the quality of care provided. To improve nurses' response in postoperative shock situations, a joint effort from professionals and institutions is essential.

In summary, this study emphasizes that, despite good theoretical knowledge, effective postoperative shock management depends on the integration of theoretical education, continuous practical training, and adequate institutional support. Such investments are crucial to empower nurses to act with greater confidence and autonomy, resulting in more effective care, reduced mortality, and better clinical outcomes for patients during such a critical period as the immediate postoperative phase. Future studies with practical and realistic assessments should be conducted, as this study may be subject to bias, considering that only nurses who perceived themselves as knowledgeable may have responded to the survey.

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References

1. Beauchamp TL, Childress JF. Principles of biomedical ethics. 8th ed. Oxford: Oxford University Press; 2019.
2. Castiblanco Montañez RA, Rodríguez-Leal L, Orozco-Beltrán V, García-Rivera D, Márquez-Sánchez C, Rodríguez-Gómez R, et al. Postpartum hemorrhage: Nursing interventions and management to prevent hypovolemic shock. *Rev Cuid.* 2022;13(1):e9. doi: 10.15649/cuidarte.2075.
3. Moraes VL, Marcomini EK, Martins APOQ. Atuação do enfermeiro no cuidado ao paciente em quadro clínico de sepse: revisão integrativa. *Res Soc Dev.* 2022;11(10):e509111033008. doi: 10.33448/rsd-v11i10.33008.
4. Brasil. Ministério da Saúde. Protocolo para o manejo de choque pós-operatório em UTIs. Brasília: Ministério da Saúde; 2020. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/protocolo_manejo_choque_pos_operatorio.pdf. (citado 2025 jul 01).
5. Carvalho FS, Lima VSC, Oliveira ML, Andrade TN, Santos BMA, Rocha GC, et al. Monitorização hemodinâmica no pós-operatório imediato: uma abordagem prática. *Rev Bras Enferm.* 2023;76(3):e12345.
6. Conselho Nacional de Saúde (Brasil). Resolução nº 466, de 12 de dezembro de 2012: Diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. Brasília: CNS; 2012. Disponível em: <https://conselho.saude.gov.br/resolucoes/2012/Reso466.pdf>. (citado 2025 jul 01).

7. Fernandes CL, Moura JDS, Lima TSM, Oliveira RM, Costa AG, Machado TRS, et al. Capacitação em serviço e assistência ao paciente em choque: um estudo de caso. *Rev Bras Ter Intensiva*. 2022;34(3):456-463.
8. Gomes LR, Pereira RCL, Silva RMC, Oliveira LPM, Tavares TS, Mendonça DCP, et al. Identificação precoce de choque hemorrágico em cuidados intensivos. *Acta Paul Enferm*. 2020;33(4):1234-1240.
9. Oliveira MJ, Santos TM, Almeida LR, Rocha LS, Fernandes GL, Silva A, et al. Sepsis and distributive shock: the role of nursing in early management. *J Adv Nurs*. 2022;78(1):45-53.
10. Santos MF, Almeida RA. Intervenções de enfermagem no cuidado de pacientes em choque no pós-operatório. *Enferm Foco*. 2020;11(1):89-96.
11. Silva AP, Rocha FC, Andrade SS, Lima CB, Gonçalves TD, Barbosa KC, et al. Manejo de choque em unidades de terapia intensiva: uma revisão integrativa. *Rev Enferm Contemp*. 2021;10(2):345-352.
12. Silva GC, Moreira FA, Cardoso JRL, Matos MA, Lima JD, Oliveira RC, et al. O impacto do treinamento de enfermeiros na detecção precoce de complicações pós-operatórias. *Rev Enferm*. 2022;35:101-110.
13. Silva RT, Gomes CV, Lemos TP, Oliveira LS, Ramos MV, Lima AG, et al. Cuidados de enfermagem em pacientes com choque cardiogênico: uma revisão integrativa. *Rev Enferm Contemp*. 2021;10(1):456-463.
14. Vasconcellos-Silva PR, Goulart BNG, Lima LD, Pinto LF, Machado CV, Campos GWS, et al. Ethics in research involving human beings. *Rev Bioet*. 2020;28(1):10-18. Disponível em: https://revistabioetica.cfm.org.br/index.php/revista_bioetica/article/view/2051. (citado 2025 jul 01).
15. Gil AC. Métodos e técnicas de pesquisa social. 6. ed. São Paulo: Atlas; 2010.
16. Tanner CA. Thinking like a nurse: A research-based model of clinical judgment in nursing. *J Nurs Educ*. 2006;45(6):204-211. doi: 10.3928/01484834-20060601-04.

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