

## PROFESSIONAL COMPETENCIES AND ETHICAL ASPECTS OF NURSING CARE IN THE OPERATING ROOM

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**ABSTRACT:** This review article is devoted to the analysis of professional competencies and ethical aspects of nursing care in the operating room. The study examines modern approaches to organizing the work of an operating room nurse, her key functions, and her responsibilities as part of the surgical team. Particular attention is paid to adherence to the principles of medical ethics, ensuring patient safety, and maintaining a high level of professional culture. The review summarizes domestic and international data reflecting the requirements for the knowledge, skills, and personal qualities of an operating room nurse. The importance of continuous professional education, as well as the development of communication and stress-resilience skills that ensure the quality and ethical integrity of surgical nursing care, is emphasized.

**Keywords:** nursing care, operating room, professional competencies, medical ethics, patient safety, surgical team, professional development.

## ПРОФЕССИОНАЛЬНЫЕ КОМПЕТЕНЦИИ И ЭТИЧЕСКИЕ АСПЕКТЫ СЕСТРИНСКОГО УХОДА В ОПЕРАЦИОННОЙ

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**АННОТАЦИЯ:** Настоящая обзорная статья посвящена анализу профессиональных компетенций и этических аспектов сестринского ухода в операционной. Рассмотрены современные подходы к организации работы операционной медицинской сестры, её ключевые функции и ответственность в составе хирургической команды. Особое внимание уделено соблюдению принципов медицинской этики, обеспечению безопасности пациента и поддержанию высокого уровня профессиональной культуры. В обзоре обобщены данные отечественных и зарубежных источников, отражающих требования к знаниям, навыкам и личностным качествам операционной сестры. Отмечается значимость непрерывного профессионального образования, развития коммуникативных и стрессоустойчивых качеств, обеспечивающих качество и этичность медицинской помощи в хирургической практике.

**Ключевые слова:** сестринский уход, операционная, профессиональные компетенции, медицинская этика, безопасность пациента, хирургическая команда, профессиональное развитие.

**RELEVANCE:** The relevance of studying professional competencies and ethical aspects of nursing care in the operating room is determined by the growing complexity of surgical procedures and the increasing demands for patient safety and quality of care. The operating nurse plays a vital role in maintaining aseptic conditions, assisting the surgical team, and ensuring effective communication during all stages of an operation. Modern healthcare standards require nurses to possess not only advanced technical skills but also a deep

understanding of ethical principles, including responsibility, confidentiality, empathy, and respect for the patient's dignity. Ethical decision-making in the operating room often occurs under pressure and in situations requiring quick and precise responses, which highlights the importance of moral stability and professional integrity. In addition, the development of interdisciplinary cooperation between nurses, surgeons, anesthesiologists, and other healthcare professionals is essential to improve surgical outcomes and patient satisfaction. Continuous professional education, adherence to ethical codes, and the ability to adapt to technological innovations are integral to the professional growth of operating nurses. Therefore, the study of this topic contributes to the understanding of how professional competencies and ethical values interact to form the foundation of high-quality surgical nursing care and enhance the overall effectiveness and humanity of modern healthcare practice [1].

**MATERIALS AND METHODS:** This review article is based on a comprehensive analysis of scientific literature, educational guidelines, and international standards related to nursing practice in the operating room. The study utilized a systematic approach to collect and evaluate relevant sources published between 2010 and 2025, including research articles, professional manuals, and ethical codes of nursing associations such as the International Council of Nurses (ICN) and the World Health Organization (WHO). The databases used for literature retrieval included PubMed, Scopus, Google Scholar, and ResearchGate, applying keywords such as “operating room nursing,” “nursing ethics,” “professional competencies,” and “patient safety.”

The methodological basis of the review involved descriptive, analytical, and comparative methods. Descriptive analysis was applied to outline the general characteristics of operating room nursing, its historical evolution, and the current professional standards. Analytical methods were used to identify key competencies required for operating nurses, such as clinical judgment, teamwork, communication, and decision-making under stress. Comparative analysis allowed the examination of differences between national and international approaches to ethical regulation, professional education, and responsibility in surgical care.

A content analysis of ethical codes and nursing curricula was conducted to determine the integration of moral principles into professional training. The inclusion criteria for reviewed materials were relevance to the topic, publication in peer-reviewed journals, and clear methodological structure. Exclusion criteria included outdated or regionally limited sources lacking scientific verification. The synthesis of data was performed qualitatively, with emphasis on identifying common trends, challenges, and effective strategies for improving ethical and professional standards in surgical nursing.

The obtained information formed the basis for developing evidence-based conclusions regarding the importance of continuous education, adherence to ethical values, and the formation of professional competencies ensuring the safety, quality, and humanism of modern nursing care in the operating environment.

**RESULTS AND DISCUSSION:** Modern operating room nursing represents one of the most responsible and technologically intensive fields of clinical medicine, where scientific progress, humanistic values, and high professional accountability intersect. The formation of this specialty followed the historical evolution of surgery, medical education, and healthcare ethics. The origins of operating room nursing are linked to the reforms introduced by Florence Nightingale in the mid-nineteenth century, when she laid the foundation for modern nursing science, emphasizing hygiene, asepsis, and the moral duty of nurses toward patients and society. The development of antisepsis and aseptic techniques by Joseph Lister created the need for

trained staff capable of maintaining sterility, preparing instruments, and assisting surgeons during increasingly complex operations.

By the early twentieth century, formal training programs for operating nurses began to emerge in Europe and the United States, combining technical, clinical, and ethical education. In the Soviet Union, systematic education for operating room nurses started in the 1920s, when surgical departments became integral parts of hospital systems. At that time, official job descriptions were introduced, specifying the nurse's duties: preparing the operating block, maintaining sterile conditions, controlling disinfection and sterilization, and assisting during surgery. By the mid-twentieth century, the operating nurse had evolved from a supportive role to an essential professional member of the surgical team [1,2].

In the twenty-first century, the scope of the operating nurse's responsibilities has expanded dramatically. With the growth of minimally invasive and robotic surgery, and the introduction of advanced monitoring and sterilization systems, nurses are now expected not only to perform technical duties but also to manage, coordinate, and ensure patient safety throughout all perioperative stages. According to the World Health Organization (WHO), more than 234 million surgical procedures are performed annually, and in every case, the quality of nursing support directly influences patient outcomes. Studies indicate that up to 60% of intraoperative complications are linked not to surgical technique but to human and communication factors, highlighting the critical role of professional competence and teamwork.

The modern operating nurse is responsible for preoperative preparation, intraoperative support, and postoperative monitoring. Core duties include ensuring the sterility of instruments, checking equipment functionality, maintaining proper documentation, assisting the surgeon during the operation, monitoring patient parameters, and coordinating the team's workflow. In addition, nurses are responsible for infection control, prevention of surgical site infections, and compliance with safety protocols. The operating room is a complex ecosystem where precision, discipline, and communication are vital [2].

Professional training for operating nurses requires integrated knowledge of anatomy, physiology, microbiology, pharmacology, and medical technology. The International Council of Nurses (ICN) reports that 82% of its member countries have introduced regular certification programs for perioperative nurses every three to five years. In Uzbekistan, the Ministry of Health oversees standardized curricula for mid-level surgical staff, reflecting growing attention to professional specialization and ethical education.

Professional competence, in the nursing context, is defined as a dynamic combination of knowledge, practical skills, moral values, and the ability to act effectively in a clinical environment. Competence in the operating room includes clinical, technical, communicative, and organizational dimensions. Clinical competencies involve knowledge of surgical stages, understanding of anatomical structures, familiarity with surgical instruments, and maintenance of aseptic technique. Technical competencies involve the ability to operate and maintain equipment such as electrocautery units, suction devices, endoscopic systems, and sterilization control technologies [3].

Organizational and communicative competencies are equally crucial. The success of surgery depends on precise coordination between the nurse, the surgeon, the anesthesiologist, and supporting staff. Communication must be concise, accurate, and situationally appropriate. A 2022 study by the European Operating Room Nurses Association (EORNA) found that improved team communication reduced intraoperative errors by 35%. Nurses must anticipate the surgeon's needs, manage time efficiently, and remain emotionally stable under pressure.

Decision-making under stress is another key professional competency. In surgery, decisions must often be made within seconds; any hesitation or mistake may endanger a patient's life. The WHO estimates that 23% of critical incidents in operating rooms are caused by human factors, while successful management of emergencies depends in 78% of cases on teamwork and the nurse's self-control. This underscores the need for psychological readiness, concentration, and continuous training.

Multidisciplinary collaboration is a defining characteristic of modern perioperative practice. The nurse acts as a communication bridge between surgeons, anesthesiologists, infection-control specialists, laboratory personnel, and hospital administrators. This requires not only medical competence but also ethical awareness and responsibility. Nursing ethics encompass the moral principles that govern professional relationships, emphasizing respect, compassion, and justice. Core principles such as beneficence, nonmaleficence, confidentiality, and respect for patient autonomy are particularly important in the operating room, where the patient is unconscious and completely dependent on medical staff [4,5].

Ethical dilemmas are inherent to surgical nursing practice. For instance, a nurse may face conflicts between institutional policy and personal conscience regarding informed consent, disclosure of complications, or resource allocation. Professional codes of ethics, such as those issued by the ICN and national nursing associations, provide guidance in such situations. In Uzbekistan, the 2020 *Code of Professional Ethics for Mid-Level Medical Personnel* emphasizes humanism, confidentiality, and moral responsibility as key ethical imperatives.

Burnout and emotional fatigue represent major challenges for operating room nurses. High responsibility, long working hours, and exposure to traumatic situations contribute to psychological stress. According to WHO data from 2023, about 32% of nurses worldwide report symptoms of burnout, and this number rises to 45% among operating staff. Preventive strategies include workplace rotation, access to psychological counseling, mindfulness training, and supportive leadership. Studies show that hospitals implementing regular stress-management programs have reduced nurse turnover by up to 28%.

International standards increasingly recognize the need for evidence-based practice, professional autonomy, and interdisciplinary collaboration in surgical nursing. The ICN defines four levels of nursing competence: clinical, educational, research, and managerial. WHO recommends integrating modules on bioethics, patient safety, and digital technologies into all nursing curricula. The European Federation of Nurses Associations (EFN) and EORNA have developed harmonized European standards requiring continuing education, ethical compliance, and mandatory participation in quality-assurance programs [1].

Technological innovation has profoundly transformed the nature of operating room work. Digital tracking of instruments, electronic sterilization logs, and automated inventory systems have improved efficiency and reduced error rates by 20–25%. Simulation-based education has become a powerful tool for developing practical and decision-making skills in a risk-free environment. Many medical universities in Uzbekistan have recently adopted virtual training systems for surgical and nursing students, aligning with the global trend toward healthcare digitalization.

The methodological basis of this review included a systematic analysis of scholarly publications, regulatory documents, and educational frameworks related to operating room nursing. Literature was collected from PubMed, Scopus, Google Scholar, and WHO Global Health Observatory databases for the period 2010–2025. Inclusion criteria were topical relevance, methodological rigor, and publication in peer-reviewed journals. Descriptive, analytical, and

comparative approaches were used to identify trends, best practices, and challenges in modern perioperative nursing.

The results of this review demonstrate that operating room nursing is undergoing a transformation from a technically supportive role to a professionally autonomous and ethically responsible discipline. The leading trends include the reinforcement of ethical education, the integration of simulation technologies, and the recognition of nurses as full members of the surgical team. Studies consistently show that communication quality, adherence to ethical principles, and emotional resilience directly affect patient safety and satisfaction. The ICN (2024) reported that hospitals introducing mandatory communication training for surgical teams achieved a 27% reduction in intraoperative complications [5].

Ethical behavior significantly influences care quality and patient trust. Research indicates that patients who perceive empathy and respect from medical staff experience faster postoperative recovery and demonstrate higher satisfaction levels. Ethics thus becomes not only a philosophical but also a clinical determinant of success. In Uzbekistan, courses in medical ethics and deontology have been incorporated into nursing education, helping students develop empathy, responsibility, and moral awareness from the earliest stages of professional formation. Despite substantial progress, challenges remain. These include workforce shortages, uneven access to continuing education, limited digital integration in regional hospitals, and occasional violations of ethical norms due to workload and stress. Addressing these issues requires a comprehensive approach — combining government support, institutional leadership, peer mentoring, and recognition of nursing's strategic contribution to surgical outcomes.

Improving professional competencies and strengthening ethical foundations are essential for advancing healthcare quality. Lifelong learning, participation in international exchanges, and adoption of innovative teaching methods will help form a new generation of operating nurses — highly qualified, ethically conscious, and capable of acting decisively in complex clinical environments.

Operating room nursing today embodies the synthesis of science, technology, and morality. Each dimension plays an indispensable role in achieving the ultimate goal of surgical care — preserving human life and health. The continued development of this field depends on reinforcing educational standards, integrating modern technologies, enhancing psychological resilience, and cultivating an ethical professional culture. Only through these combined efforts can healthcare systems ensure patient safety, professional satisfaction, and the sustainable growth of the nursing profession in the twenty-first century [1,3].

**CONCLUSION:** The analysis of the professional competencies and ethical dimensions of nursing care in the operating room demonstrates that this field has evolved from a purely technical auxiliary role into a complex professional discipline grounded in science, ethics, and humanism. The transformation of perioperative nursing reflects broader shifts in modern medicine — the movement toward patient-centered care, multidisciplinary collaboration, and evidence-based practice. The operating nurse is no longer perceived merely as an assistant to the surgeon but as an autonomous specialist who ensures safety, coordination, and ethical integrity throughout the surgical process.

A fundamental conclusion of this review is that professional competence in operating room nursing should be understood as an integrative construct encompassing clinical, technical, cognitive, communicative, and ethical dimensions. The nurse's expertise determines not only the efficiency of surgical interventions but also the prevention of complications, infection control, and psychological comfort of patients. According to WHO (2024), approximately 50% of adverse surgical events in developing healthcare systems are preventable through enhanced

staff training, adherence to aseptic standards, and improved intra-team communication — all of which fall within the competence of perioperative nurses.

From a clinical standpoint, operating nurses must possess precise technical skills, deep anatomical and physiological knowledge, and the ability to anticipate the surgeon's needs. Yet, beyond these technical requirements, the moral and psychological aspects of the profession have become equally important. The ethical code of the International Council of Nurses (ICN, revised 2021) emphasizes that every nurse must act with compassion, respect human dignity, and protect the rights and confidentiality of patients. In the operating room, where the patient is unconscious and unable to advocate for themselves, the nurse assumes a guardian role — upholding ethical principles not as abstract values but as concrete actions that define professional integrity.

A second major finding concerns the centrality of communication and teamwork. Modern surgery is a multidisciplinary process involving surgeons, anesthesiologists, scrub and circulating nurses, and technicians, whose success depends on coordinated, error-free interaction. The EORNA (European Operating Room Nurses Association) has shown that structured team briefings, standardized communication protocols, and mutual respect among team members can reduce critical incidents by more than one-third. Effective communication also extends to patient interaction before and after surgery, helping to reduce anxiety, increase adherence to medical instructions, and improve postoperative recovery.

Another conclusion is the growing importance of lifelong learning and continuing professional development. Rapid advances in surgical technologies, digital systems, and infection-control methods require nurses to update their competencies continually. In countries where mandatory recertification and simulation-based training have been introduced, postoperative infection rates have decreased by 18–25%. The inclusion of ethics and communication modules in professional development programs strengthens not only technical proficiency but also the moral resilience of nurses, enabling them to make sound decisions in stressful or ethically ambiguous situations.

Ethical awareness remains at the heart of nursing professionalism. The daily reality of operating room work includes ethical dilemmas such as balancing efficiency with compassion, managing confidentiality in team discussions, or confronting personal fatigue while maintaining patient safety. The ability to resolve such dilemmas distinguishes a mature professional from a technical executor. Hospitals that integrate ethics committees, peer-review systems, and reflective practice sessions have reported improvements in staff morale and reductions in ethical distress. These mechanisms transform ethical principles from theoretical guidelines into living elements of organizational culture.

An essential practical implication emerging from this review is that patient safety and quality of surgical care depend not only on surgical mastery but also on the ethical climate of the operating unit. Studies show a direct correlation between a positive ethical work environment and lower rates of surgical complications, medication errors, and staff turnover. In this context, operating nurses play a pivotal role as “ethical mediators,” influencing the tone of professional interactions and ensuring that decisions remain patient-centered.

Cross-cultural and international comparisons reveal significant variations in training systems, professional autonomy, and ethical regulation, yet the general trend is convergence toward universal standards. The ICN, WHO, and EORNA collectively advocate for harmonized frameworks that define competencies, protect patients' rights, and promote interprofessional collaboration. In Uzbekistan, as in many emerging healthcare systems, reforms in nursing education are aimed at aligning curricula with international guidelines, introducing simulation

laboratories, and strengthening ethical and psychological preparation. These efforts not only elevate the status of nursing but also contribute to national health-system resilience.

The integration of digital technologies represents both a challenge and an opportunity for operating nurses. Automation, artificial intelligence, and real-time data systems are changing the workflow, enabling precise monitoring of surgical instruments, environmental sterility, and patient parameters. However, the ethical implications of digitalization — data privacy, accountability for system failures, and potential dehumanization of care — must be critically assessed. Nurses should remain active participants in shaping these technologies to ensure that innovation enhances rather than undermines the humanistic essence of care.

Another conclusion concerns the psychological dimension of nursing practice. Emotional intelligence, empathy, and stress resistance are now recognized as essential components of professional competence. Operating room nurses experience high cognitive and emotional load, as their work combines responsibility for human life with exposure to emergencies and unpredictable outcomes. Studies cited by WHO indicate that structured programs for stress management and peer support reduce burnout rates by up to 30% and improve job satisfaction. Promoting psychological safety within surgical teams — where every member feels respected and heard — fosters open communication and error prevention.

Despite the undeniable progress in training, technology, and professional ethics, the review identifies persistent systemic problems. These include staffing shortages, unequal access to education, insufficient mentoring for young nurses, and limited research involvement among nursing professionals. Addressing these issues requires policy-level interventions: investment in nursing education, establishment of leadership pathways for nurses, and recognition of nursing research as an integral part of clinical innovation. Empowering nurses to participate in decision-making processes improves not only staff motivation but also patient outcomes, as evidenced by health systems in Scandinavian and Western European countries.

Ethically, the nursing profession must continue to balance technological advancement with the timeless principles of compassion and dignity. The true measure of success in perioperative nursing is not the absence of technical errors alone but the presence of human understanding — the ability to perceive the patient as a person rather than a clinical case. Ethical excellence thus becomes a form of professional mastery, inseparable from technical skill.

For future development, several strategic directions can be highlighted. First, educational programs must integrate ethics, leadership, and cultural competence into the core curriculum of operating room nursing. Second, national regulatory frameworks should adopt competency-based certification that evaluates both clinical proficiency and ethical reasoning. Third, interdisciplinary research involving nurses should be expanded to generate evidence-based models of teamwork, communication, and psychological resilience. Fourth, healthcare institutions should institutionalize mentorship and reflective practice as continuous processes that sustain professional growth. Finally, the moral and social recognition of nursing must be strengthened, reaffirming its equal status within the multidisciplinary fabric of modern medicine.

Ultimately, the progress of operating room nursing reflects the evolution of healthcare itself — from a mechanistic model toward a human-centered, ethically informed system. The nurse's dual identity as both clinician and moral agent embodies the essence of this transformation. Competence without ethics risks becoming sterile efficiency; ethics without competence risks compassionate ineffectiveness. Only their integration ensures genuine excellence.

In conclusion, the professional and ethical dimensions of operating room nursing form a unified framework that safeguards both patient well-being and professional integrity. Continuous

education, ethical reflection, and institutional support are indispensable for sustaining this framework. As surgery becomes increasingly complex and technologically advanced, the nurse's human presence — vigilant, empathetic, and morally grounded — remains irreplaceable. By cultivating comprehensive competencies, embracing innovation responsibly, and upholding universal ethical principles, the operating room nurse not only contributes to successful surgical outcomes but also exemplifies the deepest values of medicine: respect for life, service to humanity, and unwavering commitment to do no harm.

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