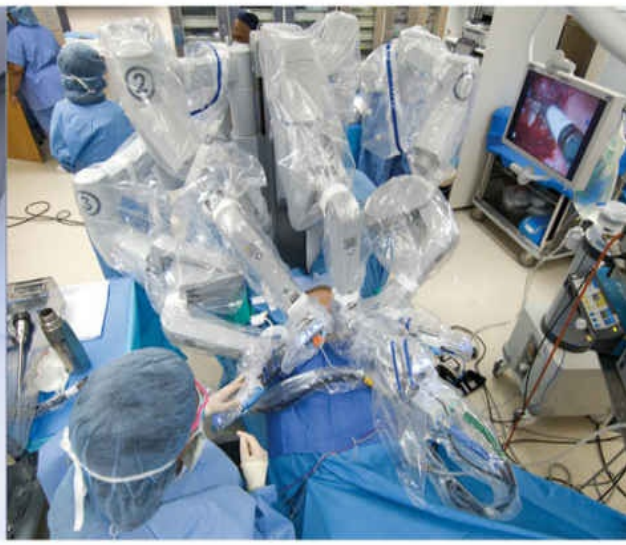
ALEXANDER'S

CARE *of the* PATIENT *in* SURGERY

16th Edition



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ELSEVIER

Alexander's Care of the Patient in Surgery

16TH EDITION

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Jane C. Rothrock PhD, RN, CNOR, FAAN

To Brittany Anne Hutt—an incredible, loving niece who has energy, motivation, sincere values, and a passion for creating a sustainable planet we call home. You represent who we all should strive to be.

I love you and everything about you.

Dr. Jane Rothrock has practiced and taught perioperative nursing since 1969. In 1979 she joined the faculty of Delaware County Community College, where she is now an Adjunct Professor in the

college's Perioperative Programs. Her current responsibilities include entry-level, postbasic RN education for perioperative nursing. During her 40-year tenure at the college, Jane has helped to educate more than 4500 registered nurses in the professional practice of perioperative patient care.

Jane's decades of experience include not only being a faculty member but also an author, editor, and speaker. She has taught at the University of Pennsylvania, served as an OR director, and acted as preceptor for many graduate students. She has authored five perioperative nursing textbooks, published more than 50 articles, and presented a host of topics to nursing audiences across the United States and internationally. Jane is an AORN past president and chaired AORN's Project Team on Professional Practice Issues, its Project Team on a Professional Practice Model for Perioperative Nursing, and its Perioperative Academic Curriculum Task Force. She also served as an evidence reviewer for AORN's Evidence-based Recommended Practices for Perioperative Patient Care and is currently a research reviewer for the AORN Journal.

Jane has received numerous professional awards and remains very active in both nursing and community organizations. Jane is a past vice chair of NOLF, a past member of the ANCC Magnet Commission, a past president of the ASPAN Foundation, and a past president of the AORN Foundation Board of Trustees. She served on ASPAN's first National Clinical Guideline Panel to develop a Guideline on Prevention of Unplanned Hypothermia in Adult Surgical Patients. In 2000 Jane became a Fellow of the American Academy of Nursing (FAAN). In 2016 she was elected Professor Emerita at Delaware County Community College.

Jane began her nursing education with a diploma from Bryn Mawr School of Nursing. She went on to earn her BSN and MSN from the University of Pennsylvania and became the first recipient of a doctoral degree from Widener University in suburban Philadelphia, earning her PhD in nursing in 1987.

Preface

This updated sixteenth edition of *Alexander's Care of the Patient in Surgery* reflects new and essential key concepts in perioperative nursing practice and an increased sophistication and complexity in surgical procedures. Its multimedia resource, first introduced in the thirteenth edition, strongly enhances the elemental goal of this textbook: to provide a comprehensive foundational reference that will assist perioperative practitioners to meet the needs of patients they care for safely, cost-effectively, and efficiently during surgical interventions.

As the standard in perioperative nursing for more than 50 years, *Alexander's Care of the Patient in Surgery* is written primarily for professional perioperative nurses, but it is also useful for surgical technologists, nursing students, healthcare industry representatives, medical students, interns, residents, and government officials concerned with healthcare issues. Perioperative nurses, RN first assistants, clinical nurse specialists, nurse practitioners, surgeons, and educators from many geographic areas of the United States have served as contributors and reviewers for this text. In doing so, they provide a vast range of perioperative patient care knowledge, procedural information, and wisdom.

This thoroughly revised edition highlights current surgical techniques and innovations. More than 1000 illustrations, including many new photographs and drawings, help familiarize the reader with contemporary procedures, methods, and equipment. Classic illustrations, particularly of surgical anatomy, remain to enhance the text. New to this edition are features highlighting patient

engagement and patient-centered communication, the addition of Enhanced Recovery After Surgery protocols, and an expanded emphasis on robotic-assisted surgery. Each chapter contains a summary of Key Points and a Critical Thinking Question. There is a thorough laboratory values appendix in which readers can review normal lab values and ranges. Readers will again find Ambulatory Surgery Considerations; Evidence for Practice; Patient, Family, and Caregiver Education; Patient Safety; Research Highlights; Sample Plan of Care; and Surgical Pharmacology features, updated to reflect changes.

Enhanced in the sixteenth edition is the Evolve website. With its learner resources, readers are able to access animations, The Agency for Healthcare Research and Quality (AHRQ) case studies, answers to the critical thinking questions, interactive study questions, OR Live links, and scenario packets.

Also enhanced in the sixteenth edition are resources for instructors and clinical educators. In addition to the learner resources listed previously, instructor resources contain a lesson plan for each chapter with the following elements: case studies, answers to critical thinking questions, learning objectives, suggested content for lectures and class activities, clinical learning scenarios for each covered surgical procedure, PowerPoint lecture slides with speaker notes, and an image collection of more than 1000 images to use in teaching. Instructors and clinical educators will also find a test bank with more than 750 questions as well as more than 50 customizable competency assessments for use in clinical settings or simulation laboratories as learners practice new perioperative nursing skills and techniques. Overall, this textbook imparts state-of-the-art information and resources to reflect contemporary practice and to promote delivery of comprehensive perioperative patient care.

Unit I, Foundations for Practice, provides information on basic principles and patient care requisites essential for all recipients of perioperative patient care. The nursing process, a model for developing therapeutic nursing interventional knowledge, reflects a six-step method that includes the identification of desired patient outcomes. Interest in patient outcomes and their improvement continues to be an essential element of nursing. The collection of

health data requires clear identification of contributions to patient outcomes and quantification of these contributions. Perioperative nurses must continue to link their interventions to outcomes. This relationship is presented in Chapter 1 and explicated in each Sample Plan of Care throughout the text.

Research Highlights continue to be included in every chapter and reflect the steady increase in the amount and quality of research relevant to perioperative patient care. As current findings of new research are important to use in clinical practice, the editors and authors of *Alexander's Care of the Patient in Surgery* are committed to supporting this research-practice relationship. The Research Highlights will help perioperative nurses implement research findings in their practice and patient care activities.

Chapter 1 also sets the stage for an emphasis on patient, family, and caregiver education and discharge planning throughout the text. Chapters in Units II and III address specific patient, family, and caregiver education and discharge planning relevant for patients undergoing one or more of the respective specialty surgical procedures. As the responsibilities of perioperative nurses become greater with regard to those important care components, it is imperative that we effectively educate patients, their families, and their caregivers. As length of stay in healthcare facilities continues to decrease, patients, families, and caregivers need more and better information to deal appropriately with postoperative needs after discharge. Pain management, addressed in Chapter 10, also appears in many of the chapters on surgical specialties because all perioperative nurses recognize its importance in patient discharge planning.

Chapter 2 focuses on patient safety and risk management, including a review of the use of social media and patient privacy issues. As members of the perioperative team face increasing workloads and workplace stress, this sixteenth edition emphasizes the need for workplace safety in Chapter 3. When pressure in the surgical suite mounts, perioperative staff may feel the need to work faster, even if it means taking shortcuts. The chapter on workplace safety stresses the need for personal safety at work and explores such issues as noise in the OR, active shooter situations, workplace violence, and bullying. The remaining chapters in Unit I focus on

perioperative precepts guiding infection prevention; anesthesia; patient positioning; sutures, sharps, and instruments; surgical modalities; wound healing; and caring for the postoperative patient in the PACU and on the transfer unit.

The chapters in *Unit II, Surgical Interventions,* include more than 400 contemporary and traditional specialty surgical interventions, with descriptions of open approaches, minimally invasive surgical procedures, and robotic-assisted surgery. Each chapter provides a helpful review of pertinent anatomy and details the steps of surgical procedures. Perioperative nursing considerations are again presented within the nursing process framework. Current NANDA International–approved nursing diagnoses and Sample Plans of Care for each surgical specialty aim to help perioperative nurses plan, implement, and evaluate individualized perioperative patient care. Each of these chapters also provides an example of Evidence for Practice related to the surgical specialty. In 2018 and beyond, perioperative nurses can expect to find a continuing emphasis on evidence-based nursing as a means to provide care that is effective and yields improved outcomes. The integration of evidence-based practice with the perioperative nurse's individual clinical expertise leads to optimal care provision, the foundation of perioperative patient care. Improving the quality of patient care and effecting safe outcomes are at the heart of all our efforts to achieve excellence in whatever setting we encounter the patient who is undergoing an operative or other invasive procedure.

Incorporation of Surgical Pharmacology in the sixteenth edition reflects the ongoing emphasis on medication safety in the United States. Medication errors can occur anywhere in the medication-use system, from prescribing to administering a drug. *Alexander's Care of the Patient in Surgery* joins the nationwide health professional education campaign that aims to reduce the number of common but preventable sources of medication errors. Providing information about select medications and dosages used in surgical specialties, the Surgical Pharmacology feature is intended to promote safe medication practices and to avoid serious, even potentially fatal, consequences of medication errors by perioperative practitioners.

To further facilitate the perioperative nurse's focus on safe patient care, Patient Safety features in each chapter succinctly review a

practice to assist perioperative practitioners in developing a core body of knowledge about safe patient care. We intend for this feature to raise awareness about patient safety applications. We also intend simultaneously to foster communication and ongoing dialogue in perioperative practice settings regarding application of recommended patient safety strategies and use of robust process improvement initiatives. In so doing, we hope to improve quality and safety overall in perioperative patient care.

New to the sixteenth edition is information on Enhanced Recovery After Surgery protocols. These protocols aim to increase efficiency during all phases of perioperative patient care and decrease length of stay for surgery patients and costs of care, while improving outcomes. As applicable to the chapter content, Enhanced Recovery After Surgery features address the evidence-based strategies and merits of such protocols.

The unique needs of pediatric, geriatric, and trauma surgery patients are presented in *Unit III, Special Considerations*. The "Interventional and Image-Guided Procedures" chapter reflects processes of care in sophisticated hybrid OR suites, where enhanced capabilities merge open and interventional surgery in a multidisciplinary environment. The "Integrative Health Practices: Complementary and Alternative Therapies" chapter was introduced in the twelfth edition. Perioperative nurses frequently encounter patients who use such therapies, some of which are nonpharmacologic and some of which involve medications. This chapter explores alternative medical systems, mind-body interventions, biologically based therapies, manipulative and body-based methods, and energy therapies. Treatments and systems within each category are discussed.

Many expert perioperative practitioners, RN first assistants, clinical nurse specialists, and educators have contributed to this sixteenth edition, and I owe a debt of gratitude to all of them for sharing their expertise in the development of this text. I give ongoing thanks to my partner, Alan Zulick, Esquire, for his help during copyediting and page proofs. I also acknowledge the valuable assistance of editors, reviewers, photographers, and illustrators who have contributed their time and expertise to the revision of this text. The team I had the privilege of working with at

Elsevier is talented and eager to support perioperative practitioners in their commitment to excellence in patient care. Laura Selkirk, I would clone you and give you as a gift to all of my nurse editor colleagues if I could—you walk the entire journey with each edition of this book with supreme aplomb! Donna McEwen, my Associate Editor, is not only a masterful editor but also an instructional design expert. The Evolve website is the elegant and robust feature that it is due to her acumen and talent. Christine Smith is a clinical nurse specialist who developed the competencies. Mickey Cromb is a registered nurse and instructional designer who developed the test bank. Clearly, I work with a team to be admired and esteemed for their contributions to this edition.

Alexander's Care of the Patient in Surgery is written by and for perioperative nurses. Its premise is underscored by the clear understanding that perioperative nursing is a caring and intellectual endeavor, requiring critical thinking, technical acumen, and clinical reasoning and decision-making to improving patient outcomes. With the multimedia package accompanying this sixteenth edition, *Alexander's Care of the Patient in Surgery* invites you to journey with us as we meet the challenges and opportunities of perioperative nursing in the twenty-first century.

Jane C. Rothrock

UNIT I

Foundations for Practice

OUTLINE

CHAPTER 1

Concepts Basic to Perioperative Nursing

Richard G. Cuming

Overview of Perioperative Nursing Practice

Perioperative nursing is the nursing care provided to patients before, during, and after surgical and invasive procedures. Nurses practice this specialty in surgical suites, ambulatory surgery centers, endoscopy suites, laser centers, interventional radiology departments, mobile surgical units, and physicians' offices across the United States and the world. Perioperative nursing includes a broad array of cutting-edge innovations, such as remote surgery, virtual endoscopy, robotics, computerized navigation systems, transplanted tissue and organs, biologic materials that are absorbed to replace worn-out body parts, radiofrequency identification (RFID), transoral approaches (natural orifice surgery), and electronic health records (EHRs). In this high-tech era, perioperative patient care is very different from the way it was in the past.

In the past, the term *operating room (OR)* nursing was used to describe the care of patients in the immediate preoperative,

intraoperative, and postoperative phases of the surgical experience (Fig. 1.1). This term implied that nursing care activities were limited to the physical confines of the OR. The term may have contributed to stereotypic images of the OR nurse who took care of the OR and its equipment but had little, if any, interaction or nursing responsibility for medicated and anesthetized patients in the surgical suite. With such an image, nurses practicing outside the OR had difficulty crediting important elements of the nursing process and patient care accountability to the nurse who practiced "behind the double doors" of the surgical suite.

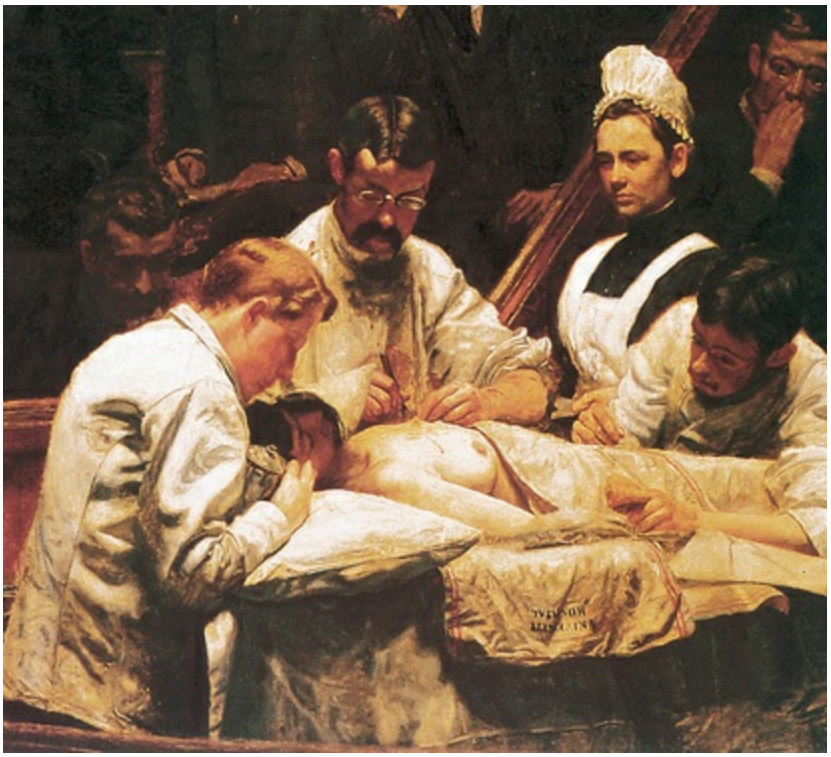

FIG. 1.1 *The Agnew Clinic,* by Thomas Eakins, 1889. In this painting, reforms and advancements in surgical techniques and procedures are apparent. Surgeons wear gowns, instruments are sterilized, ether is used, and the patient is covered. An operating room nurse is a prominent member of the team.

Today, *perioperative nursing* implies the delivery of comprehensive patient care within the preoperative, intraoperative, and postoperative periods of the patient's experience during operative and other invasive procedures by using the framework of

the nursing process. In doing so, the perioperative nurse assesses the patient by collecting, organizing, and prioritizing patient data; establishes nursing diagnoses; identifies desired patient outcomes; develops and implements a plan of nursing care; and evaluates that care in terms of outcomes achieved by and for the patient. Throughout the process, the perioperative nurse functions both independently and interdependently. As with nurses in other specialties, the perioperative nurse collaborates with other healthcare professionals, makes appropriate nursing referrals, and delegates and supervises other personnel in providing safe and efficient patient care.

When nurses practice perioperative nursing in its broadest sense, care may begin in the patient's home, a clinic, a physician's office, the patient care unit, the presurgical care unit, or the holding area. After the surgical or invasive procedure, care may continue in the postanesthesia care unit (PACU), and evaluation of patient outcomes may extend onto the patient care unit, in the physician's office, in the patient's home, in a clinic, or through written or telephone patient surveys.

When nurses practice perioperative nursing in its more limited sense, patient care activities may be confined to the common areas of the surgical suite. Assessment and data collection may take place in the holding area, whereas evaluation may take place on discharge from the OR. Regardless of the way nurses practice perioperative nursing in a healthcare setting, it is based on the nursing process and professional nursing practice.

The perioperative nurse functions as a patient advocate during times of vulnerability. This specialty requires a broad knowledge base, instant recall of nursing science, an intuitive ability to be guided by nursing experience, diversity of thought and action, and great stamina and flexibility. Whether a generalist or a specialist, the perioperative nurse depends on knowledge of surgical anatomy, physiologic alterations and their consequences for the patient, intraoperative risk factors, potentials for and prevention of patient injury, and psychosocial implications of surgery for the patient, family, and caregiver. This knowledge enables the perioperative nurse to anticipate needs of the patient and surgical team and to rapidly initiate safe and appropriate nursing

interventions. This too is part of patient advocacy, that is, doing for the patient what needs to be done to provide a safe and caring environment. The Association of periOperative Registered Nurses (AORN) has asserted the significance of such safety by reaffirming that staffing of healthcare personnel must ensure that patients undergoing surgical and invasive procedures have a perioperative nurse as circulator in the OR, and that the core activities of perioperative nursing care (assessment, diagnosis, outcome identification, planning, and evaluation) be completed by a perioperative nurse (AORN, 2014a).

A significant part of perioperative nursing is the delivery of scientifically based care. Such care implies understanding the rationale for certain activities and interventions; knowledge of how and when to implement them; and the skills to evaluate safety, cost-effectiveness, and outcomes of the care delivered. This knowledge empowers the perioperative nurse to anticipate and prepare for steps of the surgical procedure and understand their concomitant implications for the patient and for the surgical team. Scientific nursing interventions; critical thinking and clinical reasoning; and caring, comforting behaviors are at the heart of perioperative nursing. Unit II of this book focuses on surgical procedures common to inpatient and ambulatory settings. Each chapter in Unit II contains a Sample Plan of Care with suggested nursing interventions. A fundamental assumption throughout this textbook is that perioperative nursing is a blend of technical and behavioral care and that critical thinking underpins caring for patients professionally. Quality nursing care is dependent on nurses' ability to think critically (Helzer Doroh and Monahan, 2016). Critical thinking requires purposeful, outcome-directed thought and is driven by patient need. It is based on the nursing process and nursing science. Further, critical thinking requires knowledge, skills, and experience guided by professional standards and ethics and grounded in constant reevaluation, self-correction, and continual striving to improve.

Perioperative Patient Focused Model

AORN has developed a model to describe the important

relationship between the patient and the perioperative nursing care provided. The Perioperative Patient Focused Model (AORN, 2015) consists of domains or areas of nursing concern including nursing diagnoses, nursing interventions, and patient outcomes. These domains are in continuous interaction with the health system that encircles the focus of perioperative nursing practice—the patient (AORN, 2015).

Three of these domains (behavioral responses, patient safety, and physiologic responses) reflect phenomena of concern to perioperative nurses and comprise the nursing diagnoses, interventions, and outcomes that surgical patients or their families experience. The fourth domain, the health system, comprises structural data elements and focuses on clinical processes and outcomes.

The model illustrates the dynamic nature of the perioperative patient experience and the nursing presence throughout that process. Working in a collaborative relationship with other members of the healthcare team and the patient, the nurse establishes outcomes, identifies nursing diagnoses, and provides nursing care. The nurse intervenes within the context of the healthcare system to help the patient achieve the highest attainable health outcomes (physiologic, behavioral, and safety) throughout the perioperative experience.

The model emphasizes the outcome-driven nature of perioperative patient care. Perioperative nurses possess a unique understanding of desired outcomes that apply to all surgical patients. In contrast to some nursing specialties in which nursing diagnoses are derived from signs and symptoms of a condition, much of perioperative nursing care is preventive in nature and based on knowledge of risks inherent to patients undergoing surgical and invasive procedures. Perioperative nurses identify these risks and potential problems in advance and direct nursing interventions toward prevention of undesirable outcomes, such as injury and infection. Based on an individual patient assessment, the perioperative nurse identifies risks and relevant nursing diagnoses. This information guides nursing interventions for each patient. From admission through discharge and home follow-up, the perioperative nurse plays a major role in managing the patient's

care. Research based on AORN's Perioperative Patient Focused Model continues to test and validate the contributions of perioperative nurses to patient outcomes in the variety of settings in which this nursing specialty is practiced.

Standards of Perioperative Nursing Practice

Perioperative nursing is a systematic, planned process in a series of integrated steps. For professional nursing, national standards establish the full expectations of the professional role within which the nurse practices. In the 1960s, the American Nurses Association (ANA) engaged in standards development. First published in 1973, these standards helped to shape nursing practice. Specialty nursing organizations, including AORN, have worked with the ANA to develop their own standards and guidelines using the ANA framework. This collaboration has resulted in the use of common language and a consistent format for the profession.

Perioperative Nursing Practice Standards

AORN (2015) has developed a set of standards for perioperative nursing (Box 1.1). These standards are authoritative statements that define and enumerate the responsibilities for which perioperative nurses are accountable. The standards represent a comprehensive approach to meeting the healthcare needs of surgical patients and relate to nursing activities, interventions, and interactions. They are used to explicate clinical, professional, and quality objectives in perioperative nursing. The *Guidelines for Perioperative Practice* contain recommendations for implementing perioperative patient care based on a comprehensive appraisal of both research and nonresearch evidence (AORN, 2016). They complement the *Standards of Perioperative Nursing*, which are based on and describe the application of the nursing process in perioperative nursing. The guidelines include the collection and analysis of health data, identification of expected outcomes, planning and implementation of patient care, and evaluation of the effects of this care on patient

outcomes.

Box 1.1

Standards of Perioperative Nursing

- *Focus:* providing perioperative patient care and performing professional role responsibilities
- *Responsibility:* each perioperative nurse, with appropriate working conditions and resource support
- *Underlying themes:*
    - Perioperative nursing care is individualized to unique patient needs and situations.
    - Care is provided in the broad context of injury prevention.
    - Cultural, racial, and ethnic diversity, along with the patient's preferences and goals, is always taken into account when planning and providing perioperative nursing care.
- *Conceptual framework for practice:* The Perioperative Patient Focused Model
- *Nursing process underpinning:* assessment, diagnosis, planning, implementing the plan of care, and evaluating the patient's progress toward outcomes
- *Quality and appropriateness of practice emphasis:* systematically evaluated
- *Evaluation of own practice:* in the context of current professional standards, rules, and regulations
- *Collegiality:* demonstrated when interacting with peers, colleagues, and others
- *Collaboration:* takes place with the patient and other designated personnel when practicing professional nursing

Modified from the Association of periOperative Registered Nurses: *Guidelines for perioperative practice*, Denver, 2015, The Association.

AORN (2015) *Standards of Perioperative Nursing* require, in part, that the perioperative nurse evaluates the effectiveness of nursing practice and the quality of that practice. These standards also require perioperative nurses to evaluate their own practice. Achieving certification (certified nurse, operating room [CNOR]), pursuing lifelong learning, and maintaining competency and current knowledge in perioperative nursing are hallmarks of the professional. The guidelines focus on the importance of evidence-based practice (EBP) and participation in the generation of new knowledge through research. The pace and complexity of advances in surgical procedures, minimally invasive surgery, robotics, new technologies, professional nursing issues, ongoing healthcare reform measures, continuing changes in evidence-based recommendations for practice, and the burgeoning body of nursing research demand constant professional education and development. Perioperative professionals must continue to research patient outcomes, to link nursing interventions to outcomes, and to develop methods that conserve resources when implementing interventions.

Nursing Process

Looking at nursing as a process brings it into perspective as a system of critical thinking that provides the foundation for nursing actions (Fig. 1.2). The focus of the nursing process is the patient, and prescribed nursing interventions are those that meet patient needs. Using the nursing process directs the perioperative nurse's focus on the patient by using clinical skills and knowledge to care for patients and to make independent judgments and clinical decisions. Use of the nursing process, nursing plans of care, clinical pathways, and best practices (discussed later in this chapter) is an integral part of patient care.

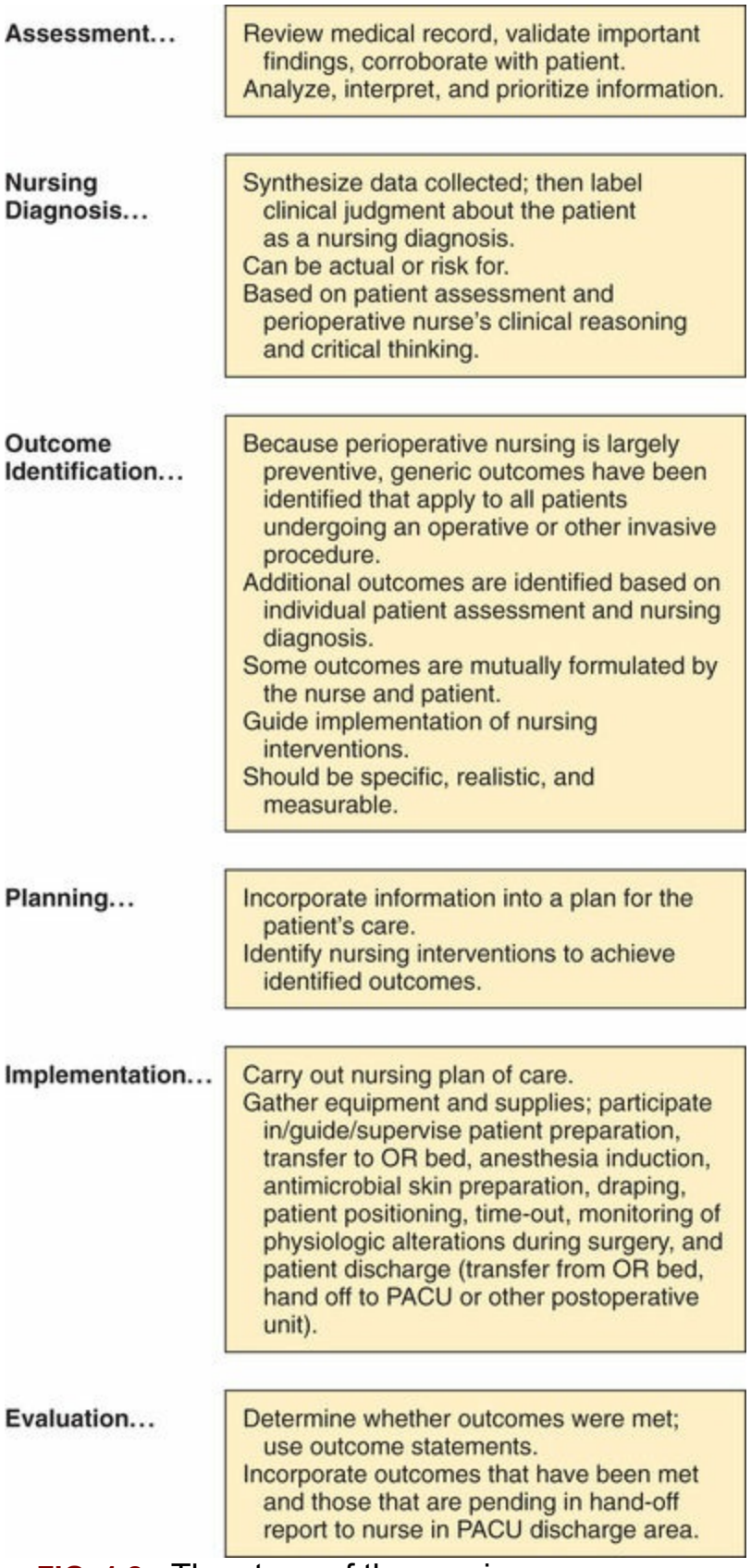

FIG. 1.2 The steps of the nursing process are interrelated, forming a continuous cycle of thought and action. *OR,* Operating room; *PACU,* postanesthesia care unit.

In its simplest form, the nursing process consists of the following six steps: assessment, nursing diagnosis, outcome identification, planning, implementation, and evaluation. The process is dynamic and continual. Certain responsibilities are inherent in the nursing process: (1) providing culturally and ethnically sensitive, age-appropriate care; (2) maintaining a safe environment; (3) educating patients and their families; (4) ensuring continuity and coordination of care through discharge planning and referrals; and (5) communicating information.

Assessment

Assessment is the collection and analysis of relevant health data about the patient. Sources of data may be a preoperative interview with the patient and the patient's family; review of the planned surgical or invasive procedure; review of the patient's medical record; examination of the results of diagnostic tests; and consultation with the surgeon and anesthesia provider, unit nurses, or other personnel. Data collection focuses on these major elements: (1) the patient's current diagnosis, physical status, and psychosocial status (including literacy, language skills, and spiritual, ethnic, cultural, and lifestyle information relevant to the delivery of patient-specific care); (2) previous hospitalizations or surgical interventions and serious illnesses; and (3) the planned surgical or invasive procedure and the patient's understanding of this plan. Implementing patient-centered care requires the perioperative nurse to encourage the patient's active involvement in his or her care as part of patient safety. Of primary importance are the understanding of the scheduled procedure by the patient and patient's family and the patient's participation in activities such as marking the surgical site (Patient Safety) (the Universal Protocol for correct site surgery, along with other National Patient Safety Goals, is discussed in Chapter 2) (TJC, 2016a). The perioperative nurse also assesses risk factors that may contribute to negative outcomes.

Patient Safety

Involving Patients in Marking the Surgical Site

Perioperative nurses value the goal of patient safety. One way to facilitate this goal is to improve involvement of patients in their care through information and education. TJC NPSGs and its Speak Up campaigns are safety initiatives that encourage patients to take an active role in their health care. *Help Avoid Mistakes in Your Surgery* offers a patient the following information about marking the surgical site and the time-out:

- A healthcare professional will mark the spot on your body on which the surgeon will operate. Make sure that only the correct part and nowhere else is marked. This helps avoid mistakes.
- Marking usually happens when you are awake. Sometimes you cannot be awake for the marking. If this happens, a family member or friend or another healthcare worker can watch the marking. They can make sure that your correct body part is marked.
- Your neck, upper back, or lower back will be marked if you are having spine surgery. The surgeon will check the exact place on your spine in the OR after you are asleep.
- Ask your surgeon if he or she will take a "time-out" just before your surgery. This is done to make sure the surgeon does the right surgery on the right body part on the right person.

NPSG, National Patient Safety Goals; *OR,* operating room; *TJC,* The Joint Commission.

Modified from The Joint Commission: *2017 hospital national patient safety goals* (website), 2016. https://www.jointcommission.org/hap_2017_npsgs/. (Accessed 26 December 2016).

The perioperative nurse proactively reports any concerns (e.g., abnormal laboratory values, or issues related to the patient's lack of understanding of the planned procedure) to the surgeon, documents all data collected, and notes any referrals that he or she makes.

Assessment formats vary from institution to institution but always include the physiologic and psychosocial aspects of the

patient. In some settings the assessment is done in stages by one or more perioperative nurses. A perioperative nurse may perform an assessment in the presurgical care unit or by telephone before the day of surgical admission. In such cases the nurse in the OR verifies parts of the assessment previously done and completes the remainder. For a perioperative nurse caring for a healthy patient, assessment may mean only a thoughtful, brief review of the assessments previously done; a short patient interview; review of the medical record and surgical procedure; and a mental rehearsal of the resources and knowledge necessary to support the patient successfully through an operative procedure or any other invasive procedure. At other times, the perioperative nurse assesses all aspects of the patient and the patient's condition thoroughly.

When developing guidelines for preoperative assessment; patient, family, and caregiver education; and discharge planning, the perioperative nurse considers the following:

- What is the best EBP?
- Is relevant, concise patient information already available to the perioperative nursing staff?
- Is enough information available for perioperative nurses to consider patient care needs when preparing the OR room (e.g., special equipment, accessory items, instruments, sutures)?
- Is sufficient time available to initiate a meaningful perioperative nurse–patient interaction?
- Are surgical patients satisfied with their perioperative nursing care (do they express feelings of comfort and satisfaction regarding their care in the surgical setting)? Do they have knowledge of the perioperative nurse's role?
- Is there continuity of care between the

perioperative unit and other nursing care units?

Being able to exchange information about patients in face-to-face meetings, by telephone, or by written messages is helpful for unit and perioperative nurses. A thorough assessment made and recorded by the preoperative nurse can accompany patients to the OR and serve as a guide for the perioperative nurse, who then completes a more focused preoperative patient assessment. With the burgeoning number of ambulatory surgery procedures, preoperative assessment is often integrated with preadmission testing. Some institutions hold group preoperative sessions. These not only help nurses get to know the patients, but also permit nurses to impart information on common routines, reactions, sensations, and nursing procedures that will take place preoperatively, intraoperatively, and postoperatively. The perioperative setting determines the type of interaction that occurs. The use of preoperative phone calls and online questionnaires has gained wide acceptance. The important point is that some form of assessment; patient, family, and caregiver education; and discharge planning is done. The particular facility and nursing staff determine how to accomplish it.

Assessment requires that the nurse know and understand the patient as a feeling, thinking, and responsible individual who is a candidate for a surgical or invasive procedure. Data identified through assessment help the perioperative nurse meet unique patient needs throughout the surgical intervention. Based on data collected, recorded, and interpreted during patient assessment, the perioperative nurse then formulates a nursing diagnosis.

Nursing Diagnosis

Nursing diagnosis is the process of identifying and classifying data collected in the assessment in a way that provides a focus for planning nursing care. Nursing diagnoses have evolved since they were first introduced in the 1950s. Today they are identified, named, and classified according to human response patterns and functional health patterns. The authoritative organization responsible for delineating the accepted list of nursing diagnoses is the North American Nursing Diagnosis Association International

(NANDA-I) (Box 1.2). Each NANDA-I–approved nursing diagnosis has a set of components including a definition of the diagnostic term, its defining characteristics (i.e., the pattern of signs and symptoms or cues that make the meaning of the diagnosis clear), and its related or risk factors (i.e., causative or contributing factors that are useful in determining whether the diagnosis applies to a particular patient). For perioperative patients, many nursing diagnoses are "risk" diagnoses, which means they are not evidenced by signs or symptoms because the problem has yet to occur. Nursing interventions are directed at preventing the problem, vulnerability, or risk.

Box 1.2

Selected Perioperative Nursing Diagnoses

- Ineffective airway clearance
- Anxiety
- Risk for allergy reaction
- Risk for aspiration
- Readiness for enhanced comfort
- Ineffective coping
- Risk for electrolyte imbalance
- Impaired urinary elimination
- Risk for imbalanced fluid volume
- Impaired gas exchange
- Hyperthermia
- Risk for hypothermia
- Risk for infection
- Risk for injury
- Risk for perioperative positioning injury
- Deficient knowledge
- Acute pain
- Risk for impaired skin integrity

- Risk for delayed surgical recovery
- Ineffective peripheral tissue perfusion

From NANDA International, Inc: *Nursing Diagnoses: Definitions and Classification 2018-2020,* © 2017 NANDA International. Used by arrangement with the Thieme Group, Stuttgart/New York.

Not all patient problems encountered in the perioperative setting can be described by the list of accepted NANDA-I nursing diagnoses. Perioperative nurses can participate in describing and naming new nursing diagnoses that characterize unique perioperative patient problems. NANDA-I has established a "to be developed" category to designate nursing diagnoses that are partially developed and deemed useful to the nursing profession. Perioperative nurses may develop unique diagnostic labels and definitions and work to develop and validate them further through this process.

Outcome Identification

Outcome identification describes the desired or favorable patient condition that can be achieved through nursing interventions (Box 1.3). To be useful for assessing the effectiveness of nursing care, patient outcomes should be "nursing-sensitive"; they should be influenced by nursing and describe a patient state that can be measured and quantified. Nursing-sensitive patient outcomes derive from nursing diagnoses and direct the interventions that resolve the nursing diagnoses. They are the standards or criteria by which the effectiveness of interventions is measured. Outcomes are stated in terms of expected or desired patient behavior and must be specific and measurable. The appropriate time to measure perioperative nursing-sensitive outcomes varies.

Box 1.3

Selected Perioperative Nursing Data Set Desired Patient Outcomes

- O.10 Patient is free from signs and symptoms of injury related to thermal sources.
- O.20 Patient is free from signs and symptoms of unintended retained objects.
- O.30 Patient's procedure is performed on the correct site, side, and level.
- O.40 Patient's specimen(s) is managed in the appropriate manner.
- O.50 Patient's current status is communicated throughout the continuum of care.
- O.60 Patient is free from signs and symptoms of injury caused by extraneous objects.
- O.80 Patient is free from signs and symptoms of injury related to positioning.
- O.130 Patient receives appropriately administered medication(s).
- O.280 Patient is free from signs and symptoms of infection.
- O.290 Patient is at or returning to normothermia at the conclusion of the immediate postoperative period.
- O.300 Patient's fluids, electrolyte, and acid-base balances are maintained at or improved from baseline levels.
- O.310 Patient's respiratory status is consistent with or improved from baseline levels established preoperatively.
- O.320 Patient's cardiovascular status is maintained at or improved from baseline levels.
- O.500 Patient or designated support person demonstrates knowledge of the expected psychosocial responses to the procedure.
- O.550 Patient or designated support person demonstrates knowledge of the expected responses to the operative or invasive procedure.
- O.700 Patient or designated support person participates in decisions affecting his or her perioperative plan of care.
- O.720 Patient's value system, lifestyle, ethnicity, and culture are considered, respected, and incorporated in the perioperative plan of care.

- O.740 Patient's right to privacy is maintained.

Modified from Association of periOperative Registered Nurses (AORN): *PNDS—perioperative nursing data set*, ed 3, Denver, 2011, The Association.

Some outcomes from intraoperative nursing interventions can be measured or evaluated immediately. Others occur over a longer period. In this textbook, the use of the phrase "the patient will" indicates an outcome that is expected to occur over time. Identification of expected and desired outcomes unique to the surgical patient provides the opportunity to prioritize care, becomes a basis for continuity of care, and directs evaluation (outcomes research). In this type of research, the relationship between patient characteristics, the processes of care (i.e., what the perioperative nurse does, which is described later in the Implementation section), and the outcomes of that care are studied, enhancing the perioperative nurse's ability to improve care. By using EBP, patient care can be standardized and perioperative nurses can support their choice of interventions that result in improved patient outcomes (Spruce, 2015).

Planning

After collecting and interpreting patient data, identifying appropriate nursing diagnoses, and establishing desired outcomes, the perioperative nurse begins *planning* the nursing care for the patient. Planning requires use of nursing knowledge and information about the patient and the intended surgical or invasive procedure to prepare the surgical environment and to plan patient care. Perioperative nurses check equipment for proper functioning; ensure that requisite supplies and positioning devices are available; and use their knowledge of anatomy to have proper instruments, sutures, accessory items, and surgical supplies on hand for the procedure to be performed. They also modify routines based on unique patient information such as allergies, transmissible infections, risk for perioperative hypothermia, deep vein thrombosis (DVT), infection, or pressure injury. They know the sequence of steps in the operative or other invasive procedure and use surgeons' preference cards, nursing care guides, and other

resources, such as computerized data sheets, to prepare the room and equipment for the patient and surgical team.

Planning is preparing in advance for what will or may happen and determining the priorities for care. Planning based on patient assessment results in knowing the patient and the patient's unique needs so that alterations in events, such as positioning requirements or the surgical process, are anticipated and readily accommodated. Planning also requires knowledge of the patient's psychosocial state and feelings about the proposed operation so that the perioperative nurse can provide explanation, comfort, and emotional support.

Effective communication with other members of the healthcare team is essential, and improving communication among team members improves patient safety (Cabral et al., 2016). Briefings before the procedure allow for opportunities to improve safety and efficiency of care by ensuring that team members understand the plan of care, are prepared for potential changes, and discuss any safety concerns (Fig. 1.3). Debriefings at the end of the procedure provide an opportunity to discuss changes that should be made based on lessons learned. Coaching the surgical team has been shown to improve the quality of briefings and debriefings (Research Highlight).

FIG. 1.3 A surgical team at Christiana Care Health System's Christiana Hospital (Newark, Delaware) conducts a briefing before surgery. This briefing allows team members to finalize the plan for the patient's

care, anticipate potential changes in the patient's needs, and discuss potential safety concerns effectively.

Research Highlight

Coaching to Improve Quality of Surgery Briefings and Debriefings

Communication failures are identified as a root cause of many sentinel events occurring during surgery, including such failures as wrong-patient, wrong-site, and wrong-procedure events. To reduce communication failures and make the surgical environment safer for patients, many teams have adopted CRM training. CRM has been shown to improve communication and teamwork in the aviation industry and has been successfully applied to healthcare in many settings. The OR is thought to be an ideal setting for CRM training because effective communication of each team member is essential to improve safety and teamwork.

The purpose of this research was to determine whether or not communication in the OR was improved through coaching. Specifically, the researchers sought to leverage a coaching intervention to improve the quality and quantity of OR briefings and debriefings.

Using a preintervention/postintervention evaluation design, researchers in a large Midwestern hospital used trained observers to evaluate the frequency and quality of communication before and after surgical procedures. On completion of preintervention observations, a retired orthopedic surgeon, highly skilled in the use of CRM techniques, conducted coaching over a 4-week period. This particular surgeon was well known to the OR team, having developed strong relationships with them during the previous 5 years when he participated in their initial CRM training. Postintervention observations were then conducted using the same trained observers and tools with documented reliability and validity.

The frequency of briefings and debriefings was 100% both preintervention and postintervention. The authors, although pleased with these results, suspect that the finding may be attributable to the Hawthorne effect (i.e., staff knew that briefings and debriefings were being observed). When examining the quality of the communication that occurred during briefings and debriefings, there was a significant difference in briefing preintervention scores (mean [M] = 3.478, standard deviation [SD] = 0.70) and postintervention scores (M = 3.644; SD = 0.76; $t = -2.01$; $p = .044$). Likewise, there was a significant difference in the scores for debriefings preintervention (M = 2.377, SD = 1.10) and postintervention (M = 2.991, SD = 1.18; $t = -4.608$; $p < .0001$).

Although there was no difference in the frequency of briefings and debriefings observed in this study, there were significant differences in the quality of the communication observed. Coaching appeared to be an effective intervention, improving the quality of communication among team members.

CRM, Crew resource management; *OR,* operating room.

Modified from Kleiner C et al: Coaching to improve the quality of communication during briefings and debriefings, *AORN J* 100(4):358–368, 2014.

Implementation

Implementation is performing nursing care activities and interventions that were planned as well as responding with critical thinking and orderly action to changes in the surgical procedure, patient's condition, or emergencies (Box 1.4). Implementation uses established standards of nursing care, recommendations for practice, clinical practice guidelines, and best practices. During this phase of the nursing process the perioperative nurse continues to assess the patient to determine the appropriateness of selected interventions and to alter interventions as necessary to achieve desired outcomes of care. Interventions are the "work of nursing." Many interventions used in perioperative nursing address patient safety issues (Patient Safety). The study of nursing interventions links nursing diagnoses with interventions and outcomes, and leads to validation of selected interventions or the development of new ones. Likewise, clinical practice, decision-making, and EBP are enhanced by their study. The study of nursing interventions also

helps deliver cost-effective care by quantifying resource allocation.

Box 1.4

Selected Perioperative Nursing Data Set Perioperative Nursing Interventions

- A.10 Confirms patient identity.
- A.20 Verifies operative procedure, surgical site, and laterality.
- Im.60 Uses supplies and equipment within safe parameters.
- E.10 Evaluates for signs and symptoms of physical injury to skin and tissue.
- Im.20 Performs required counts.
- E.50 Evaluates results of the surgical count.
- Im.330 Manages specimen handling and disposition.
- E.40 Evaluates correct processes have been performed for specimen handling and disposition.
- Im.500 Provides status reports to designated support person.
- E.800 Ensures continuity of care.
- Im.10 Implements protective measures prior to operative or invasive procedure.
- Im.80 Applies safety devices.
- Im.160 Maintains continuous surveillance.
- A.280.1 Identifies physical alterations that require additional precautions for procedure-specific positioning.
- Im.120 Implements protective measures to prevent skin/tissue injury due to mechanical sources.
- Im.210 Administers prescribed solutions.
- Im.220 Administers prescribed medications.
- Im.300 Implements aseptic technique.
- Im.300.1 Protects from cross-contamination.
- Im.270 Performs skin preparations.
- Im.280 Implements thermoregulation measures.