

Exam Blueprint and Specialty Competencies

Introduction – Blueprint for the Perioperative Nursing Certification Exam

The primary function of the Blueprint for the CNA Perioperative Nursing Certification Exam is to describe how the exam is to be developed. Specifically, this blueprint provides explicit instructions and guidelines on how the competencies are to be expressed within the exam in order for accurate decisions to be made on the candidates' competence in perioperative nursing.

The blueprint has two major components: (1) the content area to be measured and (2) the explicit guidelines on how this content is to be measured. The content area consists of the list of competencies (i.e., the competencies expected of fully competent practising perioperative nurses with at least two years of experience), and the guidelines are expressed as structural and contextual variables. The blueprint also includes a summary chart that summarizes the exam guidelines.

Description of Domain

The CNA Perioperative Nursing Certification Exam is a criterion-referenced exam.¹ A fundamental component of a criterion-referenced approach to testing is the comprehensive description of the content area being measured. In the case of the Perioperative Nursing Certification Exam, the content consists of the competencies of a fully competent practising perioperative nurse with at least two years of experience.

This section describes the competencies, how they have been grouped and how they are to be sampled for creating an exam.

Developing the List of Competencies

A working group of six highly experienced perioperative nurses from various regions in Canada revised and updated the current list of competencies during a five-day meeting. These competencies were reviewed by a group of seven perioperative nurses in Eastern Canada and a subsequent group of seven perioperative nurses from Western Canada. The existing framework of the competencies was maintained. It consists of a four-category classification scheme, which is commonly used to organize perioperative nursing. The final list of competencies was approved by the Perioperative Nursing Certification Exam Committee.

¹ Criterion-referenced exam: An exam that measures a candidate's command of a specified content or skills domain or list of instructional objectives. Scores are interpreted in comparison to a predetermined performance standard or as a mastery of defined domain (e.g., percentage correct and mastery scores), independently of the results obtained by other candidates (Brown, 1983).

Assumptions

The following assumptions were made when developing the list of competencies for perioperative nursing:

The intended application of the Operating Room Nurses Association of Canada (ORNAC) standards, guidelines and position statements is for the perioperative environment. It is the responsibility of the users of this document to apply it in the context of their individual setting (ORNAC, Module 3, p. 1).

The Environment

- The surgical suite is located principally within a hospital setting.
- The surgical suite is a controlled, consistently monitored and highly technical area.
- The surgical suite accommodates scheduled and unscheduled client care.
- The surgical suite is designed to support the safety of the client and the personnel working within the suite.
- The surgical suite and related areas are regularly maintained and cleaned according to established schedules.

The Perioperative Client

- The perioperative client possesses his/her own value system which is influenced by, but is not limited to, age, culture, ethnicity, socio-economic level and spiritual beliefs.
- The perioperative client/family may experience stress due to a variety of factors (e.g., anesthesia, unfamiliarity with the surgical suite, fear of the unknown, loss of control).
- The perioperative client's ability to communicate and comprehend may be compromised by his/her health status or surgical intervention.
- The perioperative client/family has the ability to acquire information about the surgical procedure from outside sources such as Internet, videos and libraries; they may have higher expectations and arrive with specific questions about the procedure and outcomes.
- The perioperative client (or legal substitute decision-maker) provides informed consent.
- The perioperative client (or legal substitute decision-maker) communicates her/his advance directives about present and future health-care choices to the health-care team prior to loss of decisional capacity.

The Perioperative Nurse

- The perioperative nurse maintains professional accountability/competence through ongoing education, relevant evidence-based research findings and skill development.
- Perioperative nursing encompasses clinical practice and knowledge of both scrub nurse and circulating nurse roles and participates in administration, education and research roles.
- The perioperative nurse is cognizant of the importance of risk assessments from the time the surgery is scheduled, until anesthesia is reversed and the client is transferred to the receiving unit.
- The perioperative nurse practises with a surgical conscience.
- The perioperative nurse respects and values the knowledge and perspectives of other health-care providers.
- The perioperative nurse actively collaborates and where possible seeks appropriate consultations and referrals to other multidisciplinary health-care team members, in order to maximize health-care benefits for the individual client.
- The perioperative nurse shares knowledge and provides mentorship and guidance for the professional development of nursing students and other colleagues/multidisciplinary health-care team members.
- The perioperative nurse participates in continuous quality improvement (CQI) projects and supports and promotes research.
- The perioperative nurse recognizes and respects the inherent worth of each individual, acts as a client advocate, and provides the best care that circumstances permit.
- The perioperative nurse practises within his/her own level of competence and legal limitations (scope of practice) as set forth in jurisdictional licensure standards.
- The perioperative nurse protects the confidentiality of all information gained in the context of the professional relationship, and practises within relevant laws governing privacy and confidentiality of personal health information.
- The perioperative nurse strives to prevent adverse events and minimize harm in collaboration with the multidisciplinary health-care team. Should adverse events occur, the perioperative nurse utilizes opportunities to improve the system/processes.
- The perioperative nurse values and advocates for quality practice environments that have the organizational structures and resources necessary to ensure safety and respect for all persons in the work setting.

- The perioperative nurse communicates with the client’s family where necessary and/or desired by the health-care team.
- The perioperative nurse promotes the professional nursing specialty to the community through education and communication.

Health and Well-Being

- A holistic approach to client care incorporates knowledge of the biological, psychological, social, cultural, environmental and spiritual needs of the client and family.
- The client’s health and well-being is dynamic.
- It is recognized that clients are on a health continuum, and the perioperative nurse assists them to achieve their health goals.

Competency Categories

The competencies are classified under a four-category classification scheme. Some of the competencies lend themselves to one or more of the categories; therefore, these four categories should be viewed simply as an organizing framework. Also, it should be recognized that the competency statements vary in scope, with some representing global behaviours and others more discrete and specific nursing behaviours.

Percentage of Competencies in Each Group

The following table presents the number and the percentage of competencies in each category.

Table 1: Percentage of Competencies in Each Group

Category	Number of competencies	Percentage of the total number of competencies
Ethical and Professional Issues	13	5%
Immediate Preoperative Phase	41	16%
Intraoperative Phase	197	76%
Immediate Postoperative Phase	9	3%

Competency Sampling

Using the grouping and guidelines, the Perioperative Nursing Certification Exam will consist of approximately 165 questions; the categories have been given the following weights in the total examination.

Table 2: Competency Sampling

Categories	Approximate weights in the total examination
Ethical and Professional Issues	6-10%
Immediate Preoperative Phase	20-32%
Intraoperative Phase	52-64%
Immediate Postoperative Phase	4-12%

Technical Specifications

In addition to the specifications related to the competencies, other variables are considered during the development of the Perioperative Nursing Certification Exam. This section presents the guidelines for two types of variables: structural and contextual.

Structural variables: Structural variables include those characteristics that determine the general appearance and design of the exam. They define the length of the exam, the format and presentation of the exam questions (e.g., multiple-choice) and any special functions of exam questions (e.g., independent questions).

Contextual variables: Contextual variables specify the nursing contexts in which the exam questions will be set (e.g., client culture, client health situation or health-care environment).

Structural Variables

Exam Length: The exam consists of approximately 165 multiple-choice questions.

Question Presentation: The multiple-choice questions are presented in one of two formats: case-based or independent. Case-based questions are a set of approximately 4 questions associated with a brief health-care scenario (i.e., a description of the client's health-care situation). Independent questions stand alone. In the Perioperative Nursing Certification Exam, 85 to 95 per cent of the questions are presented as independent questions and 5 to 15 per cent are presented within cases.

Taxonomy for Questions: To ensure that competencies are measured at different levels of cognitive ability, each question on the Perioperative Nursing Certification Exam is aimed at one of three levels: knowledge/comprehension, application or critical thinking.²

1. Knowledge/Comprehension

This level combines the ability to recall previously learned material and to understand its meaning. It includes such mental abilities as knowing and understanding definitions, facts and principles, and interpreting data (e.g., knowing the effects of certain drugs or interpreting data appearing on a client’s record).

2. Application

This level refers to the ability to apply knowledge and learning to new or practical situation. It includes applying rules, methods, principles and theories while providing care to clients (e.g., applying nursing principles to the care of clients).

3. Critical Thinking

The third level of the taxonomy deals with higher-level thinking processes. It includes the abilities to judge the relevance of data, to deal with abstraction and to solve problems (e.g., identifying priorities of care or evaluating the effectiveness of interventions). The perioperative nurse with at least two years of experience should be able to identify cause-and-effect relationships, distinguish between relevant and irrelevant data, formulate valid conclusions and make judgments about the needs of clients.

The following table presents the distribution of questions for each level of cognitive ability.

Table 3: Distribution of Questions for Each Level of Cognitive Ability

Cognitive ability level	Percentage of questions on the Perioperative Nursing Certification Exam
Knowledge/Comprehension	10-20%
Application	45-55%
Critical Thinking	30-40%

² These levels are adapted from the taxonomy of cognitive abilities developed in Bloom, 1956.

Contextual Variables

Client Age and Gender: Two of the contextual variables specified for the Perioperative Nursing Certification Exam are the age and gender of the clients. Providing specifications for the use of these variables ensures that the clients described in the exam represent the demographic characteristics of the population encountered by perioperative nurses. These characteristics, listed in Table 4 as percentage ranges, serve as guidelines for test development.

Table 4: Specification for Client Age and Gender

Age Group	Percentage of questions on the Perioperative Nursing Exam	
	Male	Female
0 to 18 years	5-7%	5-7%
19 to 64 years	26-37%	26-37%
65+ years	5-15%	10-20%

Client Culture: The Perioperative Nursing Certification Exam is designed to include questions representing the variety of cultural backgrounds encountered while providing perioperative nursing care in Canada. Although the exam does not test candidates' knowledge of specific values, beliefs and practices linked to individual cultures, it is intended to measure awareness, sensitivity and respect for diverse cultural values, beliefs and practices. Cultural issues are integrated within the exam without introducing cultural stereotypes.

Client Health Situation: In the development of the Perioperative Nursing Certification Exam, the client is viewed holistically.

Health-Care Environment: It is recognized that perioperative nursing is practised in a variety of settings. For the purposes of the Perioperative Nursing Certification Exam, the primary health-care environment will be the hospital setting unless otherwise specified.

Conclusions

The Blueprint for the Perioperative Nursing Certification Exam is the product of a collaborative effort between CNA, ASI, ORNAC and a number of perioperative nurses across Canada. Their work has resulted in a compilation of the competencies required of practising perioperative nurses and has helped determine how those competencies will be measured on the Perioperative Nursing Certification Exam. A summary of these guidelines can be found in the summary chart: Perioperative Nursing Certification Development Guidelines.

It is recognized that perioperative nursing practice will continue to evolve. As this occurs, the blueprint may require revision so that it accurately reflects current practices. CNA will ensure that such revision takes place in a timely manner and will communicate any changes in updated editions of this document.

Summary Chart

Perioperative Nursing Certification Exam Development Guidelines

Structural Variables			
Exam Length and Format	Approximately 165 objective questions (e.g., multiple-choice)		
Question Presentation	85-95% independent questions 5-15% case-based questions		
Cognitive Ability Levels of Questions	Knowledge/Comprehension	10-20% of questions	
	Application	45-55% of questions	
	Critical Thinking	30-40% of questions	
Category	Ethical and Professional Issues	6-10% of questions	
	Immediate Preoperative Phase	20-32% of questions	
	Intraoperative Phase	52-64% of questions	
	Immediate Postoperative Phase	4-12% of questions	
Contextual Variables			
Client Age and Gender		Male	Female
	0-18 years old	5-7%	5-7%
	19-64 years old	26-37%	26-37%
	65+ years old	5-15%	10-20%
Client Culture	Questions measuring awareness, sensitivity and respect for different cultural values, beliefs and practices, without introducing stereotypes, are included on the exam.		
Client Health Situation	In the development of the Perioperative Nursing Certification Exam, the client is viewed holistically. The client health situations presented reflect a cross-section of the most common health situations encountered by perioperative nurses.		
Health-Care Environment	For the purposes of the Perioperative Nursing Certification Exam, the primary health-care environment will be the hospital setting unless otherwise specified.		

The Perioperative Nursing Exam List of Competencies

1. Ethical And Professional Issues

Perioperative nurses are required to be professionally responsible and accountable (ORNAC, 2005, Module 1, p. 23) and strive to provide the highest level of nursing care.

The perioperative nurse...

- 1.1 practises nursing care according to the Canadian Nurses Association (CNA) *Code of Ethics for Registered Nurses*
- 1.2 promotes and maintains Operating Room Nurses Association of Canada (ORNAC) standards of perioperative nursing practice
- 1.3 participates in lifelong learning and takes responsibility to develop and maintain competence essential to perioperative nursing practice
- 1.4 develops leadership skills and exemplifies characteristics of perioperative nursing practice as a role model and mentor
- 1.5 contributes to the assessment, formulation, implementation, evaluation and periodic revision of quality improvement activities
- 1.6 promotes:
 - 1.6.1 client/family advocacy, privacy, dignity and confidentiality
 - 1.6.2 client safety
 - 1.6.3 surgical conscience
 - 1.6.4 communication, consultation and collaboration with the multidisciplinary health-care team
 - 1.6.5 risk reduction strategies (including client and multidisciplinary health-care team)
 - 1.6.6 evidence-based practice
 - 1.6.7 ongoing education for client and multidisciplinary health-care team
 - 1.6.8 cost consciousness

2. Preoperative Phase

The perioperative nurse integrates and communicates data collected through detailed assessment, intuitive skills and observations to make therapeutic choices in order to optimize individualized perioperative nursing care.

The perioperative nurse...

- 2.1 confirms theatre preparation and availability of supplies and equipment:
 - 2.1.1 clean surgical environment
 - 2.1.2 surgical supplies/equipment
 - 2.1.3 anesthesia equipment

- 2.2 verifies, interprets and communicates data to the multidisciplinary health-care team:
 - 2.2.1 client identification
 - 2.2.2 client record (e.g., consents, history and physical, advance directives)
 - 2.2.3 surgical site/side identification
 - 2.2.4 preoperative investigations (e.g., lab work)
 - 2.2.5 preoperative preparation of client (e.g., n.p.o. status, blood products, allergies, prosthesis, body piercing/tattoos)
 - 2.2.6 implantable cardiac devices (e.g., defibrillator, pacemakers)
 - 2.2.7 physiological status (e.g., anatomical limitations, obesity, medications, illicit substances, herbal remedies)
 - 2.2.8 psychosocial status (e.g., developmental level, emotional needs, cultural/spiritual needs, language barrier)

- 2.3 prepares for potential life-threatening situations including:
 - 2.3.1 allergies/sensitivities (e.g., latex, food, medications)
 - 2.3.2 anaphylaxis
 - 2.3.3 airway management
 - 2.3.3.1 obstruction (e.g., foreign bodies, swelling)
 - 2.3.3.2 laryngospasm/bronchospasm
 - 2.3.3.3 aspiration
 - 2.3.3.4 difficult airway (e.g., anatomical/physiological)
 - 2.3.3.5 respiratory arrest
 - 2.3.4 malignant hyperthermia
 - 2.3.5 cardiac event (e.g., cardiac arrest, cerebral vascular accident, myocardial infarction)

- 2.3.6 seizure
- 2.3.7 shock
 - 2.3.7.1 hypovolemic
 - 2.3.7.2 septic
 - 2.3.7.3 cardiogenic
- 2.3.8 hypothermia
- 2.3.9 deep vein thrombosis/pulmonary embolism
- 2.4 prepares for infection prevention strategies:
 - 2.4.1 aseptic technique
 - 2.4.2 routine practices
 - 2.4.3 transmission-based precautions
 - 2.4.3.1 contact precautions
 - 2.4.3.1.1 multi-resistant organisms
 - 2.4.3.1.2 communicable diseases
 - 2.4.3.2 respiratory precautions
 - 2.4.3.2.1 droplet
 - 2.4.3.2.2 airborne
 - 2.4.4 transmissible spongiform encephalopathy (e.g., prion disease)
- 2.5 demonstrates an understanding of risk factors related to the safety of the client and multidisciplinary health-care team:
 - 2.5.1 environment (e.g., WHMIS, fire, room temperature, humidity, surgical plume, bone cement)
 - 2.5.2 recognizes inadequacies in resources and initiates corrective action (e.g., equipment availability, implant availability, staffing)
 - 2.5.3 equipment (e.g., electrical, endoscopic, sterilizers)
 - 2.5.4 personal protective equipment
 - 2.5.5 positioning and positioning devices (e.g., function and operation, padding)
 - 2.5.6 radiation (e.g., fluoroscopy, personal protective equipment, laser)
 - 2.5.7 biohazardous substances (e.g., formalin, radioactive isotopes)
 - 2.5.8 pharmaceutical waste (e.g., hazardous medications, cytotoxic)

3. Intraoperative Phase

The perioperative nurse implements competent nursing care using clinical knowledge, skills and decision-making processes to support the client throughout the intraoperative phase.

The perioperative nurse...

- 3.1 communicates relevant data to the multidisciplinary health-care team (e.g., allergies, operative site/side, anxiety level, abnormal lab results)
- 3.2 facilitates safe transfer of the client to the OR theatre and introduces staff
- 3.3 ensures surgical site verification, surgical site marking, surgical pause (timeout)
- 3.4 practises the principles of asepsis and initiates corrective action for breaks in aseptic techniques:
 - 3.4.1 surgical attire
 - 3.4.2 environmental conditions
 - 3.4.2.1 maintain and monitor integrity of sterile supplies
 - 3.4.2.2 humidity and ventilation
 - 3.4.2.3 confine and contain
 - 3.4.3 traffic control
 - 3.4.4 preparation of theatre
 - 3.4.5 scrubbing, gowning, gloving
 - 3.4.6 create, maintain and monitor sterile field
 - 3.4.7 maintain constant vigilance
- 3.5 conducts the surgical count recognizing the significance of:
 - 3.5.1 appropriate personnel
 - 3.5.2 items to be counted
 - 3.5.3 extent of count (e.g., partial, full)
 - 3.5.4 timing of count (e.g., initial, cavity, skin)
 - 3.5.5 sequence/method of the count
 - 3.5.6 incorrect count
 - 3.5.7 no count (e.g., emergency situations)
 - 3.5.8 reopening
 - 3.5.9 changeover count

- 3.6 recognizes the significance of normal and abnormal diagnostic data including:
 - 3.6.1 blood pressure
 - 3.6.2 basic ECG rhythms
 - 3.6.3 pulse oximetry
 - 3.6.4 laboratory results
- 3.7 demonstrates knowledge and understanding of commonly used anesthetic agents and medications
- 3.8 prepares for anesthesia and assists the anesthesiologist:
 - 3.8.1 invasive and non-invasive monitoring (including but not limited to)
 - 3.8.1.1 blood pressure
 - 3.8.1.2 ECG
 - 3.8.1.3 pulse oximetry
 - 3.8.1.4 temperature
 - 3.8.1.5 arterial line
 - 3.8.1.6 central venous pressure (CVP)
 - 3.8.1.7 pulmonary artery catheter
 - 3.8.2 general anesthesia phases
 - 3.8.2.1 induction
 - 3.8.2.1.1 preoxygenation
 - 3.8.2.1.2 basic intubation (e.g., laryngeal mask airway/endotracheal tube)
 - 3.8.2.1.3 cricoid pressure
 - 3.8.2.1.4 rapid sequence
 - 3.8.2.1.5 assistive devices (e.g., intubating scope)
 - 3.8.2.2 maintenance
 - 3.8.2.2.1 position change
 - 3.8.2.2.2 intraoperative event (e.g., change from laryngeal mask airway to endotracheal tube)
 - 3.8.2.3 emergence
 - 3.8.2.3.1 extubation
 - 3.8.3 regional anesthesia
 - 3.8.3.1 Bier block
 - 3.8.3.2 spinal, epidural, combined spinal/epidural (CSE)
 - 3.8.3.3 other (e.g., continuous peripheral nerve block, cervical plexus)

- 3.8.4 conscious monitored sedation/neuroleptic anesthesia
- 3.8.5 local anesthesia
- 3.8.6 pediatric anesthesia
 - 3.8.6.1 anatomical differences
 - 3.8.6.2 airway
 - 3.8.6.3 induction
 - 3.8.6.4 blood loss
- 3.9 recognizes the potential for and responds to complications resulting from:
 - 3.9.1 general anesthesia
 - 3.9.1.1 excitation/stimulation
 - 3.9.1.2 difficult intubation
 - 3.9.1.3 awake intubation
 - 3.9.1.4 malignant hyperthermia
 - 3.9.1.5 tracheostomy
 - 3.9.2 regional anesthesia (e.g., blocks, epidural, spinal)
 - 3.9.2.1 toxicity
 - 3.9.2.2 anaphylaxis
 - 3.9.3 conscious sedation/monitored care
 - 3.9.3.1 respiratory arrest
 - 3.9.4 local anesthesia
 - 3.9.4.1 toxicity
 - 3.9.4.2 anaphylaxis
 - 3.9.5 insertion of invasive lines
 - 3.9.5.1 arterial lines
 - 3.9.5.2 pulmonary artery catheter lines
 - 3.9.5.3 central venous pressure (CVP)
- 3.10 interprets, documents and acts upon data when using non-invasive monitoring techniques for a client undergoing local anesthesia without an anesthesiologist present

- 3.11 demonstrates an understanding of the principles of positioning in relation to:
 - 3.11.1 anatomy and physiology (e.g., correct anatomical alignment, physical limitations, pressure points)
 - 3.11.2 surgical site accessibility
 - 3.11.3 positioning devices (e.g., padding, operating room table, specialty table, stirrups)
 - 3.11.4 potential complications
 - 3.11.4.1 nerve palsy
 - 3.11.4.2 skin breakdown
 - 3.11.5 specific surgical positions
 - 3.11.5.1 supine
 - 3.11.5.2 prone
 - 3.11.5.3 lateral
 - 3.11.5.4 lithotomy
 - 3.11.6 nursing responsibilities related to client safety, privacy and dignity (e.g., assessment of skin condition, safety belt, repositioning, individual client requirements, inappropriate exposure)
 - 3.11.7 special considerations
 - 3.11.7.1 pregnancy
 - 3.11.7.2 neonate
 - 3.11.7.3 pediatric
 - 3.11.7.4 elderly
 - 3.11.7.5 morbidly obese
 - 3.11.7.6 duration of surgery
- 3.12 demonstrates an understanding of the principles of skin preparation in relation to:
 - 3.12.1 knowledge and selection of antimicrobial agents (e.g., location of surgical site)
 - 3.12.2 preparation of client (e.g., removal of jewellery including piercings, dressing)
 - 3.12.3 client-specific factors (e.g., skin condition, allergies)
 - 3.12.4 hair removal (e.g., clip, timing, amount)
 - 3.12.5 appropriate method of application/sequence
 - 3.12.6 designated personnel
- 3.13 understands and demonstrates the principles of draping and appropriate draping materials

- 3.14 demonstrates knowledge and ensures the safe utilization of equipment:
 - 3.14.1 mechanical equipment (e.g., operating room table and attachments)
 - 3.14.2 electrical equipment (e.g., video, fibre-optic light source, microscope, defibrillator, sequential compression devices)
 - 3.14.3 instrument integrity, care and handling
 - 3.14.4 laser
 - 3.14.5 electrosurgery
 - 3.14.6 thermal device (e.g., cryo, ablation systems)
 - 3.14.7 pneumatic tourniquet
 - 3.14.8 powered equipment
 - 3.14.8.1 electric
 - 3.14.8.2 battery-powered (e.g., drills, saws)
 - 3.14.8.3 compressed gas
 - 3.14.9 thermoregulatory equipment (e.g., warm air device, warming/cooling blanket, fluid warmers, rapid infusers)
 - 3.14.10 insufflation equipment (e.g., CO₂)
- 3.15 demonstrates knowledge of reprocessing methods and ensures the safe utilization of sterilization equipment:
 - 3.15.1 decontamination
 - 3.15.1.1 disassembly
 - 3.15.1.2 scopes
 - 3.15.1.3 lumens
 - 3.15.2 disinfection (e.g., low level, intermediate level, high level)
 - 3.15.3 pasteurization (e.g., respiratory equipment)
 - 3.15.4 sterilization
 - 3.15.4.1 steam
 - 3.15.4.1.1 personnel safety precautions
 - 3.15.4.1.2 parameters (e.g., sterilization times, temperature, pressure)
 - 3.15.4.1.3 load size and container weight
 - 3.15.4.1.4 indicators/integrators
 - 3.15.4.1.5 autoclave testing (e.g., biological indicator)

- 3.15.4.2 flash
 - 3.15.4.2.1 personnel safety precautions
 - 3.15.4.2.2 parameters (e.g., sterilization times, temperature, pressure)
 - 3.15.4.2.3 load size and container weight
 - 3.15.4.2.4 indicators/integrators
 - 3.15.4.2.5 autoclave testing (e.g., biological indicator)
 - 3.15.4.2.6 container selection and transportation
- 3.15.4.3 chemical (peracetic acid, hydrogen peroxide, ethylene oxide)
 - 3.15.4.3.1 personnel safety precautions
 - 3.15.4.3.2 indicators/integrators
 - 3.15.4.3.3 container selection and transportation
- 3.15.5 storage and packaging
 - 3.15.5.1 wrappers (e.g., reusable, disposable)
 - 3.15.5.2 peel packages
 - 3.15.5.3 rigid container systems
 - 3.15.5.4 location of sterile supplies
 - 3.15.5.5 event-related outdating
 - 3.15.5.6 integrity of packaging
- 3.16 demonstrates an understanding of the principles of electrosurgery including:
 - 3.16.1 dispersive electrode placement (e.g., disposable, reusable)
 - 3.16.2 monopolar/bipolar applications
 - 3.16.3 simultaneous use of two machines
 - 3.16.4 compatibility with implantable electronic devices (e.g., pacemakers, infusion pump, neurostimulators, implantable cardiac defibrillator)
 - 3.16.5 safe practices
 - 3.16.5.1 settings/alarms
 - 3.16.5.2 prep solutions
 - 3.16.5.3 active electrode isolation (cautery holster)
 - 3.16.5.4 flammability, fumes
 - 3.16.5.5 surgical plume evacuation

- 3.16.6 minimally invasive surgery
 - 3.16.6.1 capacitive direct coupling
 - 3.16.6.2 insulation check
 - 3.16.6.3 surgical plume evacuation
- 3.17 anticipates, recognizes and responds to complications and life-threatening situations including:
 - 3.17.1 allergies
 - 3.17.1.1 latex
 - 3.17.1.2 medications
 - 3.17.1.3 anaphylaxis
 - 3.17.2 airway management (e.g., laryngospasm, bronchospasm, aspiration, difficult airway, obstruction, respiratory arrest)
 - 3.17.3 malignant hyperthermia
 - 3.17.4 cardiac events
 - 3.17.4.1 dysrhythmias
 - 3.17.4.2 cerebral vascular accident
 - 3.17.4.3 arrest
 - 3.17.5 seizure
 - 3.17.6 shock
 - 3.17.6.1 hypovolemic
 - 3.17.6.2 septic
 - 3.17.6.3 cardiogenic
 - 3.17.7 hypothermia
 - 3.17.8 care of the deceased
- 3.18 demonstrates knowledge and understanding of hemostasis:
 - 3.18.1 mechanical (e.g., hemoclip, suture)
 - 3.18.2 thermal (e.g., electrosurgery, cryo, laser)
 - 3.18.3 chemical (e.g., hemostatic agents)
- 3.19 demonstrates knowledge and understanding of irrigations and medications on the surgical field:
 - 3.19.1 preparation
 - 3.19.2 dispensing
 - 3.19.3 labelling
 - 3.19.4 verification

- 3.20 implements and adapts a basic plan of care for adult and pediatric clients undergoing:
 - 3.20.1 cardiac surgery
 - 3.20.2 dental surgery (e.g., extractions, restoration)
 - 3.20.3 endoscopy (e.g., gastroscopy, colonoscopy)
 - 3.20.4 general surgery (e.g., bowel resection)
 - 3.20.5 gynecological/obstetrical surgery (e.g., abdominal hysterectomy)
 - 3.20.6 minimally invasive surgery
 - 3.20.7 neurosurgery (e.g., craniotomy)
 - 3.20.8 ophthalmic surgery (e.g., cataract, retinal)
 - 3.20.9 oral/maxillofacial surgery
 - 3.20.10 orthopedic surgery (e.g., fractures, arthroplasty, spine)
 - 3.20.11 otolaryngeal surgery (e.g., septorhinoplasty)
 - 3.20.12 plastic surgery (e.g., cosmetic, reconstructive)
 - 3.20.13 retrieval/transplant surgery (e.g., kidney, tissue, cornea, heart)
 - 3.20.14 thoracic surgery (e.g., lung)
 - 3.20.15 trauma surgery
 - 3.20.16 urological surgery (e.g., nephrectomy, transurethral resection of the prostate [TURP])
 - 3.20.17 vascular surgery (e.g., aortobifemoral bypass)
- 3.21 responds appropriately when unusual incidents occur to client, self or other multidisciplinary health-care team workers (e.g., injury, contamination)
- 3.22 responds to potential or actual life-threatening disasters (e.g., fire, power failure, bomb threat, explosion)
- 3.23 manages surgical specimens (scrub and circulating roles):
 - 3.23.1 care and handling (e.g., fixed, fresh, cultures, cytology)
 - 3.23.2 verification
 - 3.23.3 labelling
 - 3.23.4 logbook/transport
 - 3.23.5 special considerations (e.g., forensic, legal, research)

- 3.24 maintains accurate and complete documentation according to professional standards, including (but not limited to):
 - 3.24.1 diagnostic/operative procedure
 - 3.24.2 event times
 - 3.24.3 medications
 - 3.24.4 type of anesthetic
 - 3.24.5 implants and prosthetics
 - 3.24.6 preoperative checklist
 - 3.24.7 multidisciplinary health-care team and attendants
 - 3.24.8 specimens
 - 3.24.9 skin preparation
 - 3.24.10 dressings, drains and catheters
 - 3.24.11 wound classification
 - 3.24.12 sterilization (e.g., flash sterilization)
 - 3.24.13 surgical count
 - 3.24.14 surgical equipment
 - 3.24.15 surgical positioning
 - 3.24.16 unusual occurrences

4. Postoperative Phase

The perioperative nurse provides care at the completion of the surgical intervention until transport and transfer of accountability to the receiving unit (Phillips, 2004, p. 581).

The perioperative nurse...

- 4.1 assists with the emergence from anesthesia and anticipates potential complications
- 4.2 assesses the client's physiological status and documents changes (e.g., respiratory, cardiovascular, skin)
- 4.3 anticipates, communicates and addresses the client's needs postoperatively (e.g., dressing, securing drains, pain management)
- 4.4 communicates information essential to the client's postoperative care to the receiving unit prior to transfer (e.g., ventilator required, communicable disease, language and hearing limitations, mental illness, perioperative unusual incident)

- 4.5 recognizes the importance of continued thermoregulation (e.g., warm blankets)
- 4.6 prepares/transportes the client safely and transfers the accountability of nursing care to the health-care professional using a verbal or written report
- 4.7 demonstrates safe handling and care of supplies and contaminated equipment and instruments based on infection control guidelines (e.g., sharps, correct handling of delicate instruments, removal of gross contamination)
- 4.8 demonstrates appropriate environmental cleaning/sanitation practices (e.g., room changeover, contaminated procedural waste)
- 4.9 demonstrates knowledge and understanding of precautions in addition to routine practices (e.g., airborne, contact, prion)