INTRODUCTION

Perianesthesia nursing certification, sponsored by ABPANC, is designed to promote and enhance the quality of care delivered to patients receiving anesthesia, sedation or analgesia. ABPANC sponsors two certification programs for qualified Registered Nurses: the CPAN® program (Certified Post Anesthesia Nurse) and the CAPA® program (Certified Ambulatory Perianesthesia Nurse). At the time this study was conducted there were 9,177 perianesthesia nurses holding the CPAN and/or CAPA certification credentials.

The CPAN and CAPA certification programs have been accredited by the Accreditation Board for Specialty Nursing Certification, Inc. (formerly known as the ABNS Accreditation Council) since 2004. Accreditation is granted for a period of five years. ABSNC has established standards for accrediting certification programs. Their standards are intended to assure the public that the credentials granted by certifying organizations are based on reliable and valid procedures. Standard 7 of the ABSNC standards requires that a RDS be conducted every five years to support the validity and reliability of certification examinations.

This report describes ABPANC’s most recent Role Delineation Study (RDS) conducted from 2010 – 2011. Background information, as well as a description of the methods, findings, and changes made to the CPAN and CAPA test blueprints are included in this report.

Background

A major RDS undertaken in 1999-2000 led to the re-conceptualization of the model on which the CPAN and CAPA examination blueprints are based (Niebuhr and Muenzen, 2001). In that study, the needs of perianesthesia patients were seen as the driving force of the competencies required of the certified nurse. This model specified four domains of perianesthesia patient needs: Physiological, Behavioral and Cognitive, Safety, and Advocacy.

The content of the examination blueprints based on the aforementioned model was updated and revised in the 2005-2006 RDS (Niebuhr and Muenzen, 2006), and the same model of four domains of patient needs was maintained (Physiological, Behavioral and Cognitive, Safety, and Advocacy).

The domain structures for the CPAN and CAPA examinations are the same. This is based on consistent results from role delineation studies (including the most recent one described in this report) that the patient needs and perianesthesia nursing tasks and knowledge required to meet these needs are the same for both the CPAN and CAPA roles. Data from these studies showed that the difference between the practice of CPAN and CAPA certified nurses is the time spent meeting patient needs in the domains. Thus, the percentage of exam content for each domain differs depending on whether the candidate takes the CPAN or CAPA certification examination. In other words, the examination candidate decides which examination is most relevant to their practice, based on what their patient needs are and the amount of time patients spend in the specific phases described in ASPAN’s Perianesthesia Continuum of Care (ASPN, 2010). The Phases are defined as (1) the Preanesthesia level of care: Preadmission and Day of Surgery/Procedure; and (2) Postanesthesia levels of care: Phase I, Phase II, and Extended Care. Regardless of the setting in which the candidate practices, if most of their time is spent caring for
patients in Phase I, the CPAN examination is most relevant. If most of their time is spent caring for patients in Preadmission and Day of Surgery/Procedure Phase II, and/or Phase III, the CAPA examination is most relevant.

**Demonstrating Validity and Reliability of Examinations**

Since their inception, the CPAN and CAPA certification examinations have been based on the results of a Role Delineation Study (RDS). Conducting a RDS, also called a job analysis or Study of Practice, is key to demonstrating the validity and reliability of nationally recognized specialty nursing certification examinations.

**THE 2010-2011 ROLE DELINEATION STUDY**

This study consisted of a multi-step process to update the description of certified perianesthesia nursing practice. ABPANC contracted with Professional Examination Service (PES) to conduct the study. The Project Leadership group included the ABPANC Chief Executive Officer, Bonnie Niebuhr, MS, RN, CAE; Teresa Emmons, MSN, RN, CPAN, Board Member and Board Liaison to the Examination Construction Committees; Sandra Barnes, MSN, RN, CPAN, Former ABPANC President with experience serving on the previous two Advisory Teams; Bonnie Crumley Aybar, RN, CPAN, Chair of the Examination Construction Committees; and Gail Kuhlman, BSN, RN, CPAN, CAPA, Chair-Elect of the Examination Construction Committee.

An Advisory Team was formed to oversee the study process and to serve as content experts. PES created a project timeline based on the goal of getting approval by the Board of Directors of any changes made to the test blueprints and announcing these changes to the perianesthesia nursing population by April, 2011. The first certification examinations using the revised blueprints were to be administered in the Fall of 2012.

**Goals of Study**

- Update the 2005-2006 RDS;
- Delineate needs of perianesthesia patients in relevant domains;
- Delineate the tasks and knowledge required to meet patient needs;
- Identify differences in practice between CPANs and CAPAs;
- Develop revised test specifications for the two certification examinations;
- Discuss whether the data supports the need for a separate pediatric focused examination.

**Methods**

At the outset of the study, RDS project leadership appointed a ten member Advisory Team which would be representative of the population of CAPAs and CPANs. In addition to a geographical representation, members of the Advisory Team had a range of years of experience, credentials, work settings, roles and experience with patients of varying ages.

At the first meeting held September 24 – 26, 2010, the Advisory Team discussed suggested changes to the test specifications by the Examination Review Committee related to difficulties rubricing examination questions to the existing domain of patient needs – Advocacy. In addition, the results of an environmental scan which was performed by ABPANC and ASPAN prior to the first Advisory Team meeting was discussed. The environmental scan focused on trends and changes in the practice of perianesthesia nursing in the past five years which could influence the patient needs, tasks, and knowledge required of a certified CPAN or CAPA nurse to meet these patient needs.
A major decision made by the Advisory Team during the first meeting was the elimination of advocacy as a stand-alone domain of patient need. This change was made to eliminate unintended overlap between the content of the advocacy domain and the other three domains of patient needs. Tasks from the advocacy domain that did not overlap with existing tasks were repositioned in other domains. While advocacy was eliminated as a domain, the overarching role of the perianesthesia nurse in serving as an advocate for this vulnerable patient population was reflected in the adoption of a conceptual statement that precedes the updated CPAN and CAPA test blueprints printed in the Certification Candidate Handbook, Appendix C: All content in the role delineation reflects advocating on behalf of patients across the lifespan continuum to address their physiological, behavioral/cognitive, and safety needs in a variety of settings throughout the perianesthesia experience.

In addition to the changes regarding the Advocacy domain, the Advisory Team updated the patient needs within each of the remaining three domains and the perianesthesia patient needs included in the 2005 examination blueprints were rewritten in terms of specific tasks perianesthesia nurses perform in order to address the patient needs.

At this meeting, the Advisory Team also reviewed the existing linkage outline that identified the domains in which each knowledge area was used. Based on the updated list of perianesthesia nursing knowledge, and the revised domain structure, the Advisory Team updated the linkages between knowledge areas and the three domains of patient needs included in the updated role delineation. Appendix C of the Certification Candidate Handbook (found on the ABPANC website at www.cpancapa.org) lists, by domain, the patient needs and related knowledge required to meet those needs.

**Survey Development**

The Advisory Team reviewed and approved a draft validation survey which reflected the changes to the Domains, Tasks, and Knowledge. The demographic questionnaire and rating scales to be used were also defined and are discussed later in this report.

**Piloting of Survey**

A pilot test of the CPAN/CAPA role delineation survey was conducted in advance of the survey's administration to the larger survey sample. The purpose of the pilot test was to ensure that all content and technical aspects of the survey instrument are of the highest quality and that the survey is as clear and user-friendly as possible. A total of 34 subject-matter experts were nominated by Advisory Team members to represent a range of perianesthesia nursing areas of expertise, work settings, and locations. Pilot testers were asked to provide feedback regarding clarity of instructions, utility of rating scales, technical difficulties, and length of completion time, as well as make any additional suggestions or comments to improve the survey experience. A total of 21 participants responded. Of these respondents, 11 were CPANs, 10 were CPANs. The response rate for SME pilot testers was 62% - an above average response rate for this type of activity. A conference call was held in November, 2010 with the Project Leadership and Advisory Team to revise and finalize the survey instrument based on the results of the pilot test.

**Survey Dissemination**

To verify that the updated role delineation was an accurate reflection of the current work of perianesthesia nurses, a Web-based survey was developed to gather validation data from practicing
CPANs and CAPAs. In the first section of the survey, participants made two ratings for each of the 46 tasks: (1) how often they performed the task during the past 12 months and (2) what level of harm could result if the perianesthesia nurse either omitted or incorrectly performed the task. In the second section of the survey, participants were asked to rate (1) what percentage of their work time they spend performing the specific tasks in each domain and (2) how much harm could result if the perianesthesia nurse either omitted or incorrectly performed the tasks in each domain. Participants were also asked to estimate the percentage of the certification examination that should focus on each domain of patient need. Currently certified CPANs made this rating regarding the CPAN examination, and currently certified CAPAs were asked the same question with respect to the CAPA examination.

In the third section of the survey participants made two ratings for each of the 43 perianesthesia nursing knowledge areas: (1) how often they used the knowledge during the past 12 months and (2) the cognitive level at which they used it. In the fourth and final section of the survey, respondents answered questions regarding their demographic and professional background.

Of the population of CPANs and CAPAs, 1000 CPANs and 1000 CAPAs were randomly selected from the ABPANC database to receive the survey. No dually certified individuals were selected. Mail-based invitation letters containing a link to the survey and an individualized password for each participant were mailed in November 2010. A week later, reminder postcards were sent to those who did not yet complete the survey. The return rate for the survey was 39% (766 of 1972 eligible), which is above average for this type of study. The number eligible was calculated as the number invited minus the number of invitations that were either undeliverable or delivered to nurses who were no longer practicing.

**FINDINGS**

The Project Leadership and Advisory Team met via conference call with PES in February 2011 to review the survey results and empirically derived test specifications.

**Characteristics of Respondents**

The respondent group represented 44 states plus the District of Columbia. The states not represented included Alaska, Arkansas, Nevada, North Dakota, Rhode Island, and West Virginia.

Respondents spent an average of 83% of their work time in direct patient care of perianesthesia patients. Respondents were highly experienced, with an average of 28 years of nursing experience. CPANs and CAPAs reported about the same amount of experience in perianesthesia nursing (18 versus 17 years). CPANs reported having more experience in the inpatient PACU setting than CAPAs, while CAPAs had more experience in the ambulatory setting than CPANs.

CAPAs and CPANs reported the same percentage of their patients falling in each age range, with the majority being adult patients (about 50%), about 34% geriatric patients, about 15% pediatric patients, and only 1% neonatal patients.

Most CPANs worked in hospital PACU settings (75%) or ambulatory settings (13%). Sixty-six percent of CAPAs worked in ambulatory surgical units, 14% worked in PACU settings, and 20% worked in multiple or other settings.

As might be expected, there was a difference between CPANs and CAPAs in the percentage of time spent in the anesthesia phases. CPANs reported spending about two thirds of their time caring for
patients in Postanesthesia Phase I and CAPAs spend about half of their time caring for patients in the Preanesthesia phases, Phase II and Extended Care.

In contrast to the certified population, the respondent group was more experienced, worked at slightly larger facilities, and was more likely to float between different settings and units. This latter difference may illustrate a trend in floating becoming more prevalent in perianesthesia practice. Overall, the respondent group reported floating between traditional inpatient PACU and ambulatory settings, to special procedure units, and to preadmission testing more than CAPAs and CPANs at their time of certification. The Advisory Team, reviewing these findings, believed that while the respondent group was different in some ways from the overall certificant population, the respondent group by virtue of their greater depth of experience was in a position to provide accurate judgments regarding the practice of the specialty.

**Validation of Tasks Related to Meeting Patient Needs**

Across all three domains, and for both CPANs and CAPAs, all tasks related to meeting perianesthesia patients’ needs were validated as frequently addressed and causing harm if omitted or incorrectly performed by the perianesthesia nurse. Although all patient needs were validated for both CPANs and CAPAs, some differences emerged in the ratings of the two groups. In the case of 14 task statements, the frequency ratings for CAPAs were higher than those for CPANs. Upon review of the task statements for which these differences occur, the Advisory Team judged that these findings were consistent with their understanding of the roles of CAPAs and CPANs in practice.

In addition, review by the Advisory Team of the 49 write-in responses to the question of whether any tasks performed to meet the physiological, behavioral/cognitive, and safety needs of perianesthesia patients were missing from the delineation indicated that all suggestions were already reflected in the delineation, out of scope, or not specific to the role of perianesthesia nurses.

These validated tasks for each domain of Patient Needs are described in Appendix 1.

**Validation of Knowledge Related to Meeting Patient Needs**

Forty of the 43 knowledge areas were used at least weekly on average, 2 were used monthly to weekly, and one knowledge area, *MHAUS guidelines/protocol*, was used less than monthly. (Please note: due to the level of harm that could occur in a patient experiencing hyperthermia, the *MHAUS guidelines/protocol* were maintained in the list of knowledge areas). There were no substantial differences (> .5) between CAPAs and CPANs in frequency of use for the knowledge areas, however there were some differences in the cognitive level at which they use the knowledge. For *anesthetic and reversal agents*, CPANs were slightly more likely to use the knowledge at a higher cognitive level than CAPAs, and for *teaching and learning theories*, CAPAs were slightly more likely to use the knowledge at a higher cognitive level than CPANs. Overall, the level of usage ratings indicated that the knowledge areas were used predominantly at an applied cognitive level as opposed to a recognition/recall level. In addition, review of the 12 write-in responses to the question of whether any knowledge was missing from the delineation indicated that all 12 were already reflected in the delineation.

The validated knowledge areas for each domain of patient need are found in Appendix 2.
Development of Revised Test Specifications

Two methods for developing empirically-derived test specifications were used based on questions included in the validation survey. In the first method, weights representing percentages of the CPAN and CAPA examinations devoted to each domain were calculated using respondents’ domain-level Percentage of Work Time and Potential Harm ratings. In the second method, CPAN and CAPA survey respondents’ ratings of the percentage of the relevant certification examination that should cover each domain of patient need were averaged. For both the CPAN and the CAPA examination, the weights derived from two methods were very similar, differing by no more than 1 to 3% for each domain. Ultimately, the Advisory Team adopted the percentages derived from respondents’ Percentage of Work Time and Potential Harm ratings as the basis for the examination specifications, making slight adjustments to the Behavioral and Cognitive domain (+1%) and the Safety domain (-1%) based on the amount of testable content in each domain.

The test specifications recommended by the Advisory Team and approved by the ABPANC Board of Directors on March 10, 2011 are shown below in Table 1. The ABPANC Board of Directors adopted the percentage weights for each domain for use in constructing the CPAN and CAPA examinations to be administered beginning in the Fall, 2012.

Table 1. Updated Test Specifications

<table>
<thead>
<tr>
<th>Perianesthesia Patient Needs</th>
<th>Percentage of Examination Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain of Patient Needs</td>
<td>CPAN Exam</td>
</tr>
<tr>
<td>Domain 1: Physiological Needs</td>
<td>57%</td>
</tr>
<tr>
<td>Domain 2: Behavioral and Cognitive Needs</td>
<td>20%</td>
</tr>
<tr>
<td>Domain 3: Safety Needs</td>
<td>23%</td>
</tr>
</tbody>
</table>

Relationship between Tasks Performed to Meet Patient Needs and Nursing Knowledge

The goal of the certification examinations is to assess the knowledge required by perianesthesia nurses to meet patient needs in the three domains of perianesthesia nursing practice through the performance of specific job tasks. The applicability of each knowledge area to performing tasks in each domain was explored and it was determined that 29 knowledge areas are drawn on to perform tasks addressing physiological needs, 28 to perform tasks addressing behavioral and cognitive needs, and 25 to perform tasks addressing safety needs. Because a knowledge area can be drawn upon to address multiple patient needs across domains, any given knowledge area could have multiple linkages. The linkages provide the foundation for content-relevant test questions, as item writers create questions assessing knowledge as it is applied in domain-specific contexts.

IMPLICATIONS OF STUDY FINDINGS ON THE CPAN AND CAPA EXAMINATION PROGRAMS

This study continued to support a model driven by patient needs. The change of incorporating Advocacy throughout the other three domains reflects the need for patient advocacy by certified perianesthesia nurses throughout their perianesthesia experience. The perianesthesia patient needs framework continues to reflect the 2010 IOM’s Future of Nursing Report that all Americans have access to high quality, patient-centered care. The data continues to support that patient safety needs and the role of the perianesthesia nurse in ensuring safety measures is a major public protection issue.
This study further validated, as have the previous two studies, that the need for two examinations is justified and the context of questions for the CPAN and CAPA certification examinations is different. Further, the findings reflected the belief of the Advisory Team that a stand-alone pediatrics certification examination in this specialty is not necessary at this time but that some exam questions should reflect care of the pediatric patient.

Data regarding the percentage of CPANs and CAPAs who float between traditional Inpatient PACU and Ambulatory settings, Special Procedure Units, and Preadmission Testing has increased since the 2005-2006 RDS. This finding might account for more perianesthesia nurses sitting for both the CPAN and CAPA examinations.

**Summary**

Patients are in a vulnerable state when they are under the effects of anesthesia, sedation, or analgesia. Perianesthesia nurses must be proactive in ensuring patient safety and serving as a patient advocate. ABPANC believes that certification of registered nurses caring for perianesthesia patients is a fundamental way of ensuring quality patient care delivery. ABPANC believes that organizing certification programs around meeting patient needs is most valuable in demonstrating the credibility and relevance of the certification program. As technology changes, so do patient needs. As patient needs change, so does nursing practice. It is key that a certifying organization, like ABPANC, maintains a test blueprint that is based on current practice. To that end, ABPANC is committed to conducting a Study of Practice or Role Delineation Study every five years, or more often if indicated. This study provided the opportunity for ABPANC to make very deliberate decisions about the framework on which the CPAN and CAPA examination programs are built.
References


### APPENDIX 1

**TASKS ADDRESSING PERIANESTHESIA PATIENT NEEDS**

| TASKS ADDRESSING PHYSIOLOGICAL NEEDS  
(57% CPAN; 49% CAPA) |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Assess, diagnose, plan, intervene, and evaluate in order to promote:</td>
</tr>
<tr>
<td>stability of respiratory system</td>
</tr>
<tr>
<td>stability of cardiovascular/ peripheral vascular/ hematological systems</td>
</tr>
<tr>
<td>stability of neurological system</td>
</tr>
<tr>
<td>stability of musculoskeletal system</td>
</tr>
<tr>
<td>stability of gastrointestinal system</td>
</tr>
<tr>
<td>stability of renal system</td>
</tr>
<tr>
<td>stability of integumentary system</td>
</tr>
<tr>
<td>stability of endocrine system</td>
</tr>
<tr>
<td>stability of genitourological and reproductive systems</td>
</tr>
<tr>
<td>stability of fluids and electrolytes</td>
</tr>
<tr>
<td>maintenance of normothermia</td>
</tr>
<tr>
<td>physiological comfort (including, but not limited to, relief from pain, shivering, nausea and vomiting; temperature control and appropriate positioning)</td>
</tr>
<tr>
<td>a therapeutic environment (including, but not limited to, minimal interruption of normal regimen, preemptive interventions)</td>
</tr>
</tbody>
</table>
Recognize and respect patient/family/significant other diversity (for example, cultural, religious, physical, age-related, cognitive, and language differences)

Provide and maintain an environment that promotes patient privacy and confidentiality

Provide psychosocial assistance for patient/family/significant other (for example, coping mechanisms, spiritual and emotional support)

Assess patient/family/significant others ability to learn, learning style (for example, kinetic, auditory, visual), readiness to learn, and barriers to learning

Provide patient/family/significant other education and evaluate understanding related to:

- admission procedures
- preparations for procedures/surgery
- anesthesia expectations
- post-anesthesia recovery settings
- identifying, describing, and communicating pain perception/experience
- postoperative pain control measures, including pharmacological and non-pharmacological interventions
- discharge care (including, but not limited to, ambulation, diet, wound care, physical therapy, effects on sexuality, pain management, catheter care, equipment and medical devices, routine course, and/or potential complications)
- medications (for example, when to discontinue or resume; interactions with prescriptions, over the counter medications, herbal supplements, alcohol, and/or illegal drugs)
- impact of existing medical conditions (for example, diabetes, COPD, hypertension) on current surgery/procedures
- measures to assist healing process (for example, appropriate adjunctive therapies, consults, and/or referrals)
- measures to prevent complications
### TASKS ADDRESSING SAFETY NEEDS (23% CPAN; 27% CAPA)

Deliver, document, and communicate care based on accepted national standards of perianesthesia nursing practice and applicable laws, guidelines, and regulations

<table>
<thead>
<tr>
<th>Protect patient from harm and take preventive measures related to:</th>
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<tbody>
<tr>
<td>the use of protective safety devices and equipment (including, but not limited to, padded side rails, safety straps, and/or restraints)</td>
</tr>
<tr>
<td>immobility and/or positioning</td>
</tr>
<tr>
<td>adverse environmental influences (including, but not limited to, latex and/or equipment failure)</td>
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<tr>
<td>exposure to infections and diseases</td>
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<tr>
<th>Facilitate patient access to:</th>
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<tr>
<td>appropriate resources and referrals (including, but not limited to, medical equipment, pharmaceutical care, pastoral care, nutritional education, physical/occupational therapy, case management/social services)</td>
</tr>
<tr>
<td>an environment that accommodates physical, mental, and emotional abilities/limitations</td>
</tr>
<tr>
<td>an environment that provides for assistance (including, but not limited to, call light, personnel within hearing or at bedside, visitation)</td>
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<tr>
<th>Develop and implement effective multidisciplinary discharge plan that addresses:</th>
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<tbody>
<tr>
<td>the presence of competent, responsible adult caregiver</td>
</tr>
<tr>
<td>safe transport to home or discharge care site</td>
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<tr>
<td>verbal and written discharge instructions</td>
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<tr>
<td>the ability to understand and comply with discharge instructions</td>
</tr>
<tr>
<td>the awareness of postoperative/post-procedural physical limitations</td>
</tr>
<tr>
<td>the availability of resources for care in the home</td>
</tr>
<tr>
<td>the preparation of safe home environment (including, but not limited to, physical barriers and/or abuse assessment)</td>
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</tbody>
</table>

| Perform post discharge assessment (including, but not limited to, follow-up visit and/or telephone call) |
APPENDIX 2
VALIDATED PERIANESTHESIA NURSING KNOWLEDGE

Nursing process
Evidence-based practice
Anatomy and physiology of body systems
Growth and development
Pathophysiology
Normal and abnormal diagnostic values
Acceptable deviations from normal physiologic states
Comorbidities/potential complications
Airway management
Vital signs/hemodynamic monitoring
Fluid and electrolyte management
Thermoregulation
Pain assessment and management (psychological, physiological, medical)
Post-operative nausea and vomiting (PONV) and post-discharge nausea and vomiting (PDNV) assessment and management
Physical assessment techniques
Positioning
Pharmacodynamics/pharmacokinetics
Pharmacological interventions
Anesthesia techniques (general, regional, moderate sedation, Monitored Anesthesia Care (MAC), Total Intravenous Anesthesia (TIVA))
Anesthetic and reversal agents
Phases of anesthesia experience
Surgical and procedural interventions
Normal and abnormal physical response to surgery/procedure/anesthesia
Environmental influences affecting patient care
Alternative and adjunctive treatment modalities
Discharge planning and criteria
Diversity (including but not limited to cultural, religious, lifestyle)
Impact of psychosocial issues (including but not limited to coping styles, life situations, religious/spiritual issues) on compliance, comfort, discharge and healing
Teaching and learning theories
Communication principles and techniques
Psychosocial and cognitive assessment
Abnormal psychological/psychiatric states
Special needs patient issues (for example, language barrier, sensory limitations)
Multidisciplinary collaboration and referral
Conflict resolution/mediation techniques
ACLS, PALS
MHAUS guidelines/protocol
ASPN standards
Regulatory, legal, and ethical guidelines (for example, Patient Bill of Rights, advance directives, informed consent, HIPAA)
Measures to maintain privacy and confidentiality
Injury prevention
Infection control
Quality and risk management principles and guidelines