الخفيش السديد
SAUDI DIPLOMA
ADULT CRITICAL CARE NURSING CURRICULUM

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INTRODUCTION

In the Kingdom of Saudi Arabia, critical care is a booming specialty in nursing. Currently, hospitals are offering critical care nurses more attractive incentives, including sign-on bonuses, relocation bonuses, and reimbursement for continuing education and certification. Although there have always been very sick and severely injured patients, the concept of critical care as a specialty, is relatively modern. Given the advances in medicine and technology, the nursing care of patients has become more complex. To provide appropriate care, nurses require specialized knowledge and skills as the mechanisms of delivering care evolve to support patients’ needs for continuous monitoring and treatment.

The practice of intensive care nursing of adults has improved over the past decades. Knowledge of the pathophysiology of life-threatening conditions and the technological capacity to monitor and treat adult patients suffering from these conditions, have advanced rapidly during this period. Currently, in the Kingdom of Saudi Arabia, there is a high incidence and prevalence of acute medical conditions among adults.

In Saudi Arabia, there is a high prevalence of acute illnesses and complications of chronic illness due to the sedentary (inactive) lifestyle of the Saudi population. There has also been an increase in trauma cases e.g., road traffic accidents, as accidents continue to increase. Therefore, nurses who are specialized in critical care are in demand in Saudi Arabia to meet the healthcare needs of critically ill patients.

To meet the national and international standards of critical care nursing, the Saudi Commission for Health Specialties (SCFHS) will offer an evidence-based training and educational program, tailored specifically to intensive care unit (ICU) nurses. The expected outcomes of this program include the generation of research investigations and dissemination of research findings related to this specialized area of practice.

This program will focus on the nursing care of adult patients with acute and complex health problems. The emphasis is on enhancing the critical thinking skills necessary to make sound nursing judgments and promote self-directed nursing care of patients with acute and complex health problems. Furthermore, this program will synthesize evidence-based data to deliver competent, culturally sensitive, and appropriate holistic care to clients with complex health needs.
PROGRAM OVERVIEW

The Advanced Practice Nursing Program in Adult Critical Care is a two-year program designed to provide opportunities for registered nurses to acquire updated clinical knowledge and skills, and further develop professional attitudes and behaviors, which will enable them to work with critically ill patients.

This program will help the trainee nurses to develop intellectual and creative abilities to facilitate the development of independent judgment and problem-solving skills. The ultimate goal of this program is to prepare registered nurses with sound skills and attitudes to perform competently in critical care settings. Upon successful completion of the Advanced Nursing Practice Program in Adult Critical Care, the nurse will be awarded a certificate from the SCFHS to practice as a Senior Specialist in Adult Critical Care Nursing.

Program Objectives

Upon completion of the Advanced Nursing Practice Program in Adult Critical Care, the learner will be able to:

1) Integrate knowledge of nursing and related sciences with the care of critically ill adults.
2) Identify common risk factors that may adversely affect the physical and psychosocial well-being of adult patients with acute life-threatening diseases.
3) Utilize the nursing process in the care of adult patients with acute life-threatening health problems.
4) Demonstrate the interpersonal and psychomotor skills needed to implement effective nursing care of critically ill adults.
5) Utilize critical thinking skills to improve the health outcomes of patients with acute life-threatening diseases.
6) Provide health education and counseling to adult patients and their families.
7) Manage sudden or acute deteriorations in the conditions of adult patients who are ill with acute life-threatening diseases.
8) Apply infection control and safe-patient care standards when caring for adult patients with acute life-threatening diseases.
9) Develop an improvement project proposal targeting the adult population e.g., to reduce the fall rate of hospitalized patients.
10) Utilize an evidence-based approach to evaluating nursing practice in adult settings.
11) Apply concepts of quality improvement to the evaluation of nursing care.
12) Manage ethical issues concerning the care of adult patients and their families in accordance with Islam, Saudi culture, and their regulations.
13) Participate in professional development activities, including self-directed learning and continuing professional education.
14) Demonstrate competencies in the attached skills (Appendix i)
15) Assess and facilitate patients’ and families’ use of effective coping mechanisms in times of crisis.
16) Provide safe and effective practice in the administration and disposal of drugs used in the care of the critically ill patient; assess the effects of drug therapy and initiate action according to the clinical unit’s protocols.
17) Analyze management and leadership using relevant theories and demonstrate their application to professional practice.
18) Reflect and critically evaluate their own practice in the application of an appropriate model of nursing.

19) Apply knowledge, demonstrate knowledge and request of patient’s rights in professional clinical practice.

**General Training Requirements**

1) The trainee shall abide by the regulations and obligations established by the Saudi Commission for Health Specialties (SCFHS).
2) Training is a full-time commitment. The trainee shall be enrolled on a full-time, continuous basis for the entire duration of the program.
3) Training is to be conducted in institutions accredited for nurses’ training by the Saudi Commission for Health Specialties.
4) The training will be comprehensive in the specialty of the critical care of adults.
5) The trainee shall be actively involved in patient care with gradual progression of responsibility.

**Admission Requirements**

Eligible applicants must fulfill the application requirements of the SCFHS and meet the following criteria:

1) Be a graduate from an accredited nursing program with a Bachelor of Nursing (BSN) degree.
2) Pass the interview for admission.
3) Have a current license to practice nursing.
4) Provide a letter from an employer supporting a full time enrollment in the program.
5) Provide evidence of current certification in Basic Life Support (BLS).

To obtain a certificate of the Advanced Nursing Practice Program in Adult Critical Care, the candidate must fulfill the following requirements:

1) The required period for the completion of this program is two calendar years.
2) The program consists of a 44 weeks per calendar year, excluding examination weeks and annual vacation. A total of 88 weeks must be completed during the entire study period.
3) A total of 40 hours of didactic and clinical hours must be completed each week.
4) The trainee rotation consists of an 8-hour shift, excluding lunchtime or a 12-hours shift to complete the required total of 40 hours per week.
5) The program’s language of instruction is English.

**Leaves**

1) Trainees are entitled to an annual leave of thirty days in addition to one of the Eid leaves.
2) Trainees are also entitled to sick leaves, maternity leaves, and "emergency" leaves for a period not exceeding ninety days. Trainees shall compensate for such leaves with an equivalent number of days before being awarded the program’s certificate of completion.
3) Leaves that are not utilized in due time within the year shall not be shifted to the coming year.
4) Trainees may be granted a special leave for scientific purposes not to exceed seven days per training year to attend scientific conferences, seminars, or workshops in the same specialty area. The trainee is required to provide proof of attending such activities.

### Time Frame for Program Completion

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<th>Modules</th>
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<td><strong>Eid Vacations:</strong> 2 Weeks (One Week for Each Eid)</td>
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INSTRUCTIONAL METHODS

1) Interactive lectures and discussions
2) Computer assisted interactive instructional programs
3) Weekly reading assignments and use of the SCFHS digital library
4) Simulations and clinical skills demonstrations
5) Presentations
6) Group discussion of case studies
7) Clinical practicums to include:
   a) Theory to precede related clinical assignments (as needed).
   b) Post clinical debriefing: 1-2 times per week, as needed, and the development of nursing plans of care for selected patients.
8) Case presentations: Guidelines: Each trainee will present a case study of a patient cared for in the clinical setting. The case presentation should include: the patient’s past medical/surgical history, disease diagnosis/treatment history, current medical/surgical diagnosis, and nursing diagnosis with appropriate assessment findings, and current plans of care with identification of optimal outcomes. Presentations are to be approximately 15 minutes with the trainee facilitating the post-presentation discussion. The discussion should include a comparison of plans of care with the current American Association of Critical-care Nurses (AACN) Clinical Practice guidelines, Standards of Care, and any other evidence-based practice standards.

This program contains fifteen modules that address topics relevant to the education and training of nurses enrolled in an advanced practice program with a focus on critical care nursing. Each module targets specific competencies. The program’s clinical competencies have been adopted from Mosby’s online nursing skills database, with some modifications to meet the outcomes of this program (Appendix i). Each trainee is issued a username and a password to access Mosby’s Nursing Consult database. The trainee is expected to perform the competency exams online. The assigned clinical instructor monitors the test results and schedules trainees for competency checks in the nursing skills laboratory, based on the trainees’ online-exam scores.

The attached checklist is used as a tool to monitor the competency checks of each trainee.

Hospital Rotations

Most hospitals’ critically ill patients are in the intensive care units. Therefore, to experience the role of the adult critical care nurse, trainees are provided with adequate specialty experience. The purpose is to enable them to have confidence and gain competence in terms of the assessment and overall holistic management of critically ill patients in varied critical care settings. Some hospitals have several ICUs, such as a Trauma, Surgical, and Burn ICUs. Additionally, some critically ill patients arrive in the Emergency Department and then transfer to another hospital or die. Therefore, trainees are advised to see these cases with his/her clinical instructor.
Module I: Foundations of Intensive Care Nursing I

Learning Objectives
At the end of this module, the learner will be able to:
1) Appraise the functions and responsibilities of the professional critical care nurse and select essential criteria for establishing a professional portfolio.
2) Obtain initial subjective and objective data from the critically ill patient.
3) Implement the basic principles of time management in the performance of nursing activities to care for critically ill patients. The learner will prioritize a plan of care according to the changing acuity of a patient.
4) Differentiate among the potential stressors in the critical care environment and select strategies to minimize their effects on patients and families.
5) Describe the different methods of therapeutic-airway management.
6) Describe the principles of wound and burn management.
7) Demonstrate cardiopulmonary resuscitation techniques.

Module Outline
A. Roles and responsibilities of intensive care nurses:
   - Scope of practice
   - Professionalism and ethics
   - Accountability
   - Professional relationships
   - Legal responsibility
   - Advance practice roles
   - Credentialing
   - Professional development
   - Professional portfolios
   - Identifying stressors
   - Burnout
   - Managing stress and stress-reduction techniques
   - Sensory deprivation
   - ICU psychosis
   - Patterns and routines
   - Team work
   - Acuity index

B. Crisis management:
   - Communication skills
   - Family counseling
   - Framework for crisis management
   - Transcultural issues in death and dying
   - Grief counseling
C. Proficient vascular access monitoring  
D. Airway management and ventilation  
E. Calculate and administer drugs safely  
F. Care of patients undergoing invasive procedures  
G. Wound management  
H. Burn management  
I. Cardiopulmonary resuscitation

Clinical Competencies
A. Monitor and interpret pulse oximetry and carbon dioxide levels.  
B. Monitor vascular access.  
C. Administer IV infusion fluids, blood, and blood products.  
D. Assist airway management and ventilation.  
E. Perform suctioning from different orifices.  
F. Assist the patient undergoing invasive procedures.  
G. Assist with pleural decompression (thoracentesis).  
H. Perform standard procedures for wound dressings.  
I. Measure burn surface areas (%) and manage burns.  
J. Participate in direct current defibrillation for ventricular fibrillation.  
K. Contribute to/participate in synchronized cardioversion.

Module II: Ethics in Nursing and Dimensions of Care

Learning Objectives
At the end of this module, the learner will be able to:  
1) Examine the nature and role of ethical theories in guiding sound ethical decision-making in workplace settings.  
2) Discuss the ethical and legal contexts of professional nursing practice.  
3) Examine key ethical issues occurring in nursing and related healthcare contexts.  
4) Discuss the processes for achieving desired moral outcomes in nursing and healthcare domains.  
5) Analyze the conflicting duties and rights inherent in moral dilemmas.  
6) Discuss the impact of current issues related to healthcare delivery.  
7) Use ethical reasoning to synthesize standards of practice, ethical principles, and legal/regulatory requirements in the resolution of ethical dilemmas.  
8) Discuss the relevant ethical issues of traumatized patients  
9) Discuss staff members’ refusal to implement Do Not Resuscitate (DNR) orders from the family members.  
10) Recognize the importance of family members’ desire to attend the resuscitation of their loved ones.  
11) Discuss the process of organ procurement and transplantation, and facilitate the process in brain-dead patients.
Module Outline

A. Introduction to moral and legal concepts
B. Credentialing and licensing
C. Autonomy and paternalism
D. Bereavement
E. Life and death
F. Public health
G. Ethical and legal issues related to emergency situations and critically ill patients
H. Organ donation and organ procurement
I. Brain death

Clinical Competencies

A. Identifies basic ethical principles related to emergency management in the Kingdom of Saudi Arabia.
B. Distinguishes between moral and legal concepts in relation to trauma diagnosis and treatment.
C. Identifies ethical and cultural life-and-death considerations encountered in the Kingdom of Saudi Arabia.
D. Demonstrates knowledge by identifying common ethical dilemmas related to trauma patients.
E. Lists ethical issues related to organ procurement and organ donation.
F. Discuss the bereavement process and brain death certification.
G. Discuss nosocomial infections, medical errors, and medication errors.

Module III: Behavioral Problems and Psychosocial Concepts

Learning Objectives

At the end of this module, the learner will be able to:
12) Identify communication and interpersonal relationship skills used in the emergency management of critically ill patients and their families.
13) Describe the relationship between stress and anxiety.
14) Identify the stages of the grieving process and describe nursing interventions for each stage.
15) Recognize the emotional implications of transferring a patient from the critical unit and describe interventions that help the patient cope with changes.
16) Discuss the physical and emotional responses to stress, including the local and general adaptation syndromes, mind-body interaction, anxiety, coping, and defense mechanisms.

Module Outline

A. Assessment and management of mental-health emergencies:
   • Anxiety and panic reaction
   • Ineffective coping and situational crisis
   • Depression
   • Suicidal behavior
B. Therapeutic communication skills
C. Developmental factors in effective coping responses:
   • Stress
   • Anxiety
   • Dependency
   • Responses to loss
D. General systems theory applied to individual and family coping responses
E. Major coping risks associated with physical and/or emotional illness:
   • Major developmental issues
   • Control
   • Loss
   • Guilt
F. Psychosocial interventions for ineffective coping by patients and/or families:
G. Interventions with dying patients and their families

Clinical Competencies
A. Apply principles of interpersonal communication in critical care settings and/or crisis situations.
B. Interact effectively with patients and their caregivers in times of extreme stress or crisis.
C. Demonstrate respect for patients’ dignity and autonomy.
D. Utilize stress-management resources available for patients and families.
E. Develop a sense of responsibility, accountability, and advocacy in the care of the critically ill.
F. Teach critically ill patients and their families about crisis management and coping.
G. Demonstrate psychosocial interventions with patients and/or families with ineffective coping methods.
H. Apply proper interventions with dying patients and their families.

Module IV: Advanced Health Assessment

Learning Objectives
At the end of this module, the learner will be able to:
1) Demonstrate knowledge of health assessment skills.
2) Comprehend the various components of a comprehensive health assessment.
3) Determine the four basic assessment techniques of physical examination (i.e., inspection, auscultation, palpation, and percussion) and their mnemonic sequences.
4) Integrate knowledge of pathophysiology when conducting a comprehensive health assessment for the different body systems.
5) Describe the use of primary and secondary surveys to diagnose and manage life-threatening injuries.

Module Outline
A. Patient history
B. General approaches to physical examination
Clinical Competencies

A. Prepare equipment necessary to perform a health assessment.
B. Utilize effective communication skills with family members to conduct a health history if the patient is unconscious.
C. Utilize principles of interviewing techniques when assessing ICU patients.
D. Demonstrate competence in performing physical examination skills using the correct mnemonics.
E. Assess patients systematically and according to priorities.
F. Monitor new technologically complex procedures.
G. Perform a pain assessment.
H. Apply primary and secondary surveys to diagnosis and manage life-threatening injuries.
I. Collect, analyze, interpret, and document data correctly.

Module V: Advanced Pathophysiology and Nursing Management

Learning Objectives

At the end of this module, the learner will be able to:
1) Recognize physiological changes occurring during life-threatening illnesses.
2) Understand the pathophysiology of disease processes commonly seen in critically ill patients.
3) Understand the inflammatory response and infection process.
4) Discuss fluid, electrolyte, and acid-base balance and imbalances.
5) Explain the pathophysiology of shock.

Module Outline

A. Introduction to pathophysiological adaptations and alterations in cellular function
B. Body defense mechanisms
C. Inflammation and repair
D. Immunity
E. Fluid, electrolyte, and acid base balance and imbalances
F. Pathophysiology of various types of shock, such as cardiogenic shock, septic shock, and neurogenic shock
G. System and associated pathophysiological problems:
   • Respiratory alterations
   • Cardiovascular alterations
   • Hematological disorders
   • Neurological disorders
Clinical Competencies

A. Demonstrate knowledge of the assessment of patients with organ/system disorders.
B. Monitor pathophysiological alterations seen in different types of medical emergencies.
C. Monitor patients’ homeostasis.
D. Measure fluid intake and output correctly.
E. Compare the physiological changes seen in different types of medical emergencies.
F. Interpret knowledge related to pathophysiological changes to implement appropriate nursing interventions.

Module VI: Infection Control

Learning Objectives

At the end of this module, the learner will be able to:
1) Delineate the professional responsibilities associated with monitoring infection-control practices and interventions for compliance and safety.
2) Explain the chain of the spread of infection and describe the ways infection control concepts are applied.
3) Wear barriers and personal protective equipment (PPE) for the protection from exposure to potentially infectious materials.
4) Explain the importance of reprocessing methods (cleaning, disinfection, and sterilization) to ensure the safety and integrity of patient-care equipment.
5) Identify occupational health strategies to prevent the transmission of blood borne pathogens and other communicable diseases through healthcare workers.

Module Outline

A. Standard Precautions:
   • Transmission-based precautions
   • Airborne precautions
   • Droplet precautions
   • Contact precautions
   • Empiric precautions
   • Patient placement
   • Transportation of infectious patients
B. **Special Infections:**
   - Blood borne Infections
     - Hepatitis B
     - Hepatitis C
     - Hepatitis D
   - Human Immunodeficiency Virus (HIV)
   - Tuberculosis
     - Mycobacterium Tuberculosis Infection
     - Tuberculosis Transmission and Control
     - Tuberculosis Control Recommendations
   - H1N1 and other respiratory organisms
   - MERS.Cov
   - Respiratory protection (precaution)
   - Multiple Drug Resistant Organisms
   - MRSA and VRE
   - Central line associated blood stream infections (CLABSI)

C. **Long-term ventilation**

D. **Cather-related infections**

**Clinical Competencies**

1) Apply the five moments for hand hygiene.
2) Apply all standard precautions.
3) Apply air born precautions.
4) Apply contact precautions.
5) Apply droplet precautions.
6) Apply knowledge of the correct use of PPE.
7) Implement infection-control precautions.

**Module VII: Pharmacology for Critically Ill Patients**

**Learning Objectives**

At the end of this module, the learner will be able to:

1) Apply knowledge of the legal and ethical aspects of drug administration and the importance of correct drug calculations to nursing practice.
2) Calculate drug dosages, read prescriptions, and become familiar with commonly used medical abbreviations.
3) Discuss the principles of pharmacokinetics, pharmacodynamics, and drug interactions.
4) Discuss the clinical pharmacology of anticoagulant and thrombolytic drugs.
5) Describe toxicological emergencies that occur in the prehospital setting.
6) Recognize the major classifications and types of drugs used in critical care settings.
Module Outline

A. Introduction to pharmacology and the legal and ethical aspects of drug administration
B. Dose calculation, administration of IV fluids, drug incompatibilities, and prescription reading
C. Principles of pharmacokinetics and pharmacodynamics
D. Adverse drug reactions and drug interactions
E. Psychological factors affecting drug therapy
F. Toxicological emergencies in the prehospital setting
G. Drugs and coagulation (anticoagulants, thrombolytics):
   • Inotropes: Noradrenaline, Dopamine, and Dobutamine
   • Sedatives: Midazolam, Fentanyl high dose, Propofol, and Precedex
   • Sedation Scale: Richmond Agitation-Sedation Scale (RASS)
H. Drugs used in the treatment of different diseases in ICU settings:
   • Respiratory system diseases
   • Cardiovascular system diseases
   • Neurological system diseases
   • Gastrointestinal system diseases
   • Renal system diseases
   • Endocrine system diseases
   • Obstetrical and gynecological systems diseases
   • Behavioral emergencies

Clinical Competencies

1) Apply knowledge of the principles and routes of drug administration and storage forms.
2) Calculate appropriate drug dosages.
3) Administer drugs through a variety of routes safely and efficiently
4) Describe hemodynamic monitoring and normal values.
5) Demonstrate the specialized administration rates used in critical and emergency care.
6) Utilize the systems of drug-dose and drug-level measurement: units of measurement.
7) Apply basic precautions to ensure safe drug administration.
Module VIII: Epidemiology

Learning Objectives

1) Describe the mechanisms and dynamics of disease transmission in populations and the risk factors that determine their distribution.
2) Calculate measures of morbidity, mortality, incidence, and prevalence.
3) Assess the validity and reliability of diagnostic and screening tests.
4) Explain the different mechanisms used to describe disease prognosis in quantitative terms for groups of patients.
5) Assess the efficacy of preventive and therapeutic measures via randomized trials.
6) Critique epidemiological study designs (cohort, cross-sectional, retrospective, and prospective).
7) Differentiate between association and causation.
8) Identify potential biases, confounders, and interacting factors in an epidemiological study.
9) Explain the role of genetic and environmental factors in disease causation.
10) Apply epidemiologic methods to evaluate screening programs.
11) Identify the sources of information for disease occurrence.
12) Critique medical and other health-related research studies.

Module Outline

A. Definitions of epidemiology and health
B. Dynamics of disease transmission
C. Epidemiology of infectious diseases
D. Measuring the occurrence of diseases
E. Assessing the reliability and validity of diagnostic and screening tests
F. Assessing the efficacy of preventive and therapeutic measures through randomized trials
G. Cohort studies
H. Case control and cross-sectional studies
I. Estimating risk and determining associations
J. Estimating the potential for prevention
K. From association to causation: Deriving inferences from epidemiologic studies
L. Bias, confounds, and interactions
M. Roles of genetic and environmental factors in disease causation
N. Ethical and professional issues in epidemiology

Clinical Competencies

1) Identify the basic principles of epidemiology.
2) Describe the dynamics of disease transmission and occurrence.
3) Determine the associations among diseases and other variables of interest (e.g., patient characteristics), and estimate the potential for disease prevention.
4) Identify the roles of genetic and environmental factors that contribute to the causation and occurrence of disease.
Module IX: Nursing Research and Evidence-Based Practice in Nursing

Learning Objectives

At the end of this module, the learner will be able to:
1) Define the basic concepts of research methodology.
2) Describe different research designs.
3) Describe the scientific process and its use in nursing research.
4) Design a research proposal.
5) Define the steps of the research process in the proposal and/or conduct a circumscribed nursing research project.
6) Identify research problems and the components of the literature review process related to nursing practice.
7) Compare and contrast research designs.
8) Discuss appropriate statistical techniques used in the analysis of data.
9) Critique current studies of nursing practice.
10) Discuss the utilization of research findings.
11) Discuss the historical perspective of evidence-based practice.
12) Define and apply evidence-based practice principles, which have been identified through nursing research.

Module Outline

A. Overview of nursing research
B. Research methodology and process
C. Research designs
D. Data collection and analyses
E. Evidence based research and application

Clinical Competencies

1) Demonstrate familiarity with research terminology.
2) Demonstrate knowledge of research designs.
3) Conduct a literature search using all resources (electronic and non-electronic resources).
4) Gather and interpret relevant data to make judgments.
5) Identify evidence-based principles and their application to practice.
6) Apply a critical appraisal approach to all steps of the research process.
7) Review and critique journal articles.
8) Formulate a research proposal for an investigation of a topic of interest in the specialty.
9) Apply the research process to the design and implementation of a research project.
10) Prepare a manuscript for publication.
Module X: Biostatistics

Learning Objectives

At the end of this module, the learner will be able to:
1) Demonstrate familiarity with statistical terminology and the purpose of statistics.
2) Identify ways of organizing data.
3) Define and compute measures of central tendency and variability.
4) Demonstrate an understanding of the analysis of statistical data within the context of the research process.
5) Provide the necessary statistical rationale for analyzing data and drawing inferences from the analysis.
6) Demonstrate understanding of the logic of hypothesis testing.

Module Outline

A. Descriptive statistics, frequencies, shapes, and measures of central tendency
B. Univariate descriptive statistics, measures of variability, range, standard deviation, scores in a distribution, z scores, and standardized distributions
C. Bivariate descriptive statistics
D. Inferential statistics, probability, sampling distribution, and hypothesis testing
E. Power analysis, Type I and Type II errors, level of significance/critical regions, confidence interval, one-tailed and two-tailed tests, and parametric tests
F. Bivariate inferential statistics, t-tests for independent groups, and paired t-tests (dependent groups)
G. ANOVA, between groups versus within groups, non-parametric tests, chi square, tests for independence, and Pearson’s correlation coefficient (r) as an inferential statistic

Clinical Competencies

1) Demonstrate familiarity with the terminology of biostatistics, as listed in the module’s outline.
2) Demonstrate organization of data.
3) Define and compute measures of central tendency and variability.
4) Discuss the logic of hypothesis testing.
5) Analyze data and draw inferences from the analysis.
6) Demonstrate an understanding of the role of statistical data in the research process.

Module XI: Healthcare Informatics

Learning Objectives

At the end of this module the learner will be able to:
1) Describe nursing informatics as an emerging field and identify key factors and legislative organizations that have helped shape nursing informatics.
2) Discuss evolving models and theories that define the roles of and competencies in nursing informatics.
3) Explain the implications of nursing informatics for nursing practice, administration, education, and research.

4) Demonstrate skills in the acquisition and retrieval of nursing information using health information systems within institutions and through the worldwide web and various electronic resources.

5) Apply methods to safeguard data and information integrity while maintaining privacy and confidentiality.

Module Outline

A. Introduction of nursing informatics and overview
B. Nursing informatics goals, standards, and scope of practice
C. Nursing informatics competencies (i.e., computer literacy skills, informatics literacy skills, etc.)
D. Models and theories of informatics
E. Internet, search engines, electronic databases, and resources
F. Selection of healthcare information systems
G. System implementation, maintenance, and development
H. Data integrity, security, and confidentiality
I. Intranet, extranet, and network integration
J. Information technology in patient education
K. Integrating computers and information technology in nursing education and practice

Clinical Competencies

1) Assess the application of information and communication technology (ICT) in the management of patients/patient-related data.
2) Identify different models of computerized health-care electronic records.
3) Differentiate among the models of health information management systems.
4) Analyze the implications for healthcare delivery arising from tele-health and telemedicine.
5) Recognize the impact of the information-technology revolution on nursing practice.
6) Apply skills to access, create, store, and retrieve nursing-related information from the internet and the worldwide web.
7) Demonstrate ways of integrating nursing informatics with nursing administration, education, clinical practice, and research.
8) Identify security regulations to safeguard data consisting of information about patients and organizations.
9) Recognize ethical issues related to nursing informatics.
10) Assess the future of information technology and its impact on the nursing practice.

Module XII: Leadership and Management

Learning Objectives

At the end of this module, the learner will be able to:

1) Analyze the components of organizational structure and culture.
2) Apply theories of effective leadership and management in selected healthcare areas.
3) Employ the skills of the nursing process, critical thinking, ethical decision-making, communication, and therapeutic nursing interventions in managing culturally competent and cost-effective care of groups of patients across the wellness/illness continuum.

4) Collaborate with multidisciplinary healthcare team members in prioritizing and coordinating health care that is high quality and cost effective.

5) Demonstrate leadership and management of a care-giving team comprised of individuals with varied cultural backgrounds and levels of clinical knowledge and competencies.

6) Utilize inquiry and research skills to enhance the healthcare team’s knowledge base, facilitate change, and improve quality of care.

7) Demonstrate professional accountability for effective leadership in nursing practice.

8) Contribute to the organization’s strategic planning and its implementation at different levels within the healthcare facility.

Module Outline

A. Organizational structure and culture
B. Application of leadership and management theories
C. Organizational and personal mission, vision, and goals
D. Critical thinking, problem solving, and effective decision making
E. Quality and risk management
F. Budgeting, cost, care-delivery models, and staffing
G. Communication, motivation, and team building
H. Change and conflict management
I. Role transition and delegation
J. Strategic planning and strategic management
K. Career planning

Clinical Competencies

1) Apply “systems thinking” to analyses of healthcare organizations.
2) Utilize effective time-management skills.
3) Discuss and implement the principles of information management.
4) Utilize resources effectively (i.e., staffing and scheduling, resource allocation, etc.)
5) Examine a healthcare organization’s financial management (cost analyses, budget forecasting, etc.)
6) Develop plans for quality and risk management (quality plans, risk management models, etc.).
7) Use organizational principles to manage organizational change and conflict resolution.
8) Outline the steps of the strategic planning process.
9) Identify the components of strategic management.
10) Develop a career plan based on trends in health care.
Module XIII: Professional Development

Learning Objectives

At the end of this module, the learner will be able to:
1) Assume responsibility for personal and professional development.
2) Initiate independent learning activities.
3) Provide care in an inter-professional environment.
4) Advocate for the health and safety of patients.
5) Identify differences between effective and ineffective communication.
6) Discuss the meaning of active listening.
7) Identify three skills necessary for active listening.
8) Describe ways patients and coworkers benefit when nurses communicate effectively.
9) Discuss the difference between "I" and "You" statements.
10) Identify skills required for therapeutic communication.

Module Outline

A. Sources of data for evidence-based practice
B. Educational process (teaching and learning principles)
C. Legal issues
D. Ethical issues
E. Patient advocacy
F. Quality assurance
G. Professional development
H. Multidisciplinary collaboration
I. Effective communication

Clinical Competencies

1) Assume responsibility for personal and professional development.
2) Initiate independent learning activities.
3) Advocate for the health and safety of patients.
4) Describe and provide examples of differences between effective and ineffective communication.
5) Define and demonstrate the meaning of active listening.
6) Demonstrate three skills necessary for active listening.
7) Demonstrate through role-play, three ways patients and coworkers benefit when nurses communicate effectively.
8) Demonstrate the difference between "I" and "You" statements.
9) Demonstrate through role-play, the skills required for therapeutic communication.
Module XIV: Intensive Care Nursing Practicum II

Learning Objectives

At the end of this module, the learner will be able to:
1) Understand the principles of the electrocardiogram (ECG) and 12-Leads ECGs.
2) Discuss the measures used to control hemorrhage related to head trauma, such as subdural hematoma and subarachnoid hemorrhage.
3) Discuss the difference between internal and parenteral nutrition.
4) Describe the route used for blood glucose monitoring and the nursing care for diabetic ketoacidosis.
5) Insert a urinary bladder catheter correctly and manage patients undergoing supra-pubic bladder drainage.

Module Outline

A. The principles of the ECG and the 12-Leads ECG
B. Nasogastric tube intubation and removal
C. Hemorrhages related to head trauma, such as subdural hematomas and subarachnoid hemorrhages
D. Enteral and parenteral nutrition
E. Blood glucose monitoring techniques and nursing care for diabetic ketoacidosis.
F. Catheterization of the urinary bladder
G. Management of patients undergoing suprapubic bladder drainage.
H. Glasgow Coma Scale

Clinical Competencies

1) Monitor a cardiac ECG and demonstrate skills for a 12-Leads ECG interpretation and tracing.
2) Manage patients undergoing invasive hemodynamic monitoring.
3) Apply principles to nasogastric tube insertion and removal.
4) Perform the measures used for control of esophageal bleeding.
5) Administer enteral and parenteral nutrition.
6) Teach patients to monitor their blood glucose and perform self-administered injections of Insulin.
7) Perform urinary bladder catheter insertion and removal.
8) Manage patients undergoing suprapubic bladder drainage.
9) Use the Glasgow Coma Scale in the clinical setting.
Module XV: Intensive Care Nursing Practicum III

Learning Objectives

At the end of this module, the trainee will be proficient and competent in performing the following skills:

1) Effectively monitor central venous pressure (CVP) and provide related nursing care.
2) Assist in central venous catheter (CVC) insertion.
3) Assist with arterial lines and related hemodynamics monitoring.
4) Assist with the insertion of a peripherally inserted central catheter (PICC) line and provide related nursing care.
5) Administer blood and blood-products transfusions safely to patients in ICUs.
6) Assist with chest tube (CT) insertion, monitoring, and nursing care.
7) Provide evidence-based nursing care for patients with a CVA.
8) Assist with intracranial pressure (ICP) and external ventricular drain (EVD) insertion, monitoring, and related nursing care.
9) Manage continuous renal replacement therapy (CRRT) operation and monitoring in accordance with the ICU’s protocols.

Module Outline

A. Demonstrate knowledge of the indications of CVP and the interpretation of related data
B. Understanding the indication for an arterial line and interpret arterial line parameters.
C. Understand the indication for a PICC line.
D. Demonstrate optimal blood and blood-products transfusions safely.
E. Review updated nursing care for the patient with a chest tube.
F. Acquire knowledge and clinical skills to provide effective nursing care for patients with CVAs, ICPs, and EVDs.
G. Understanding CRRT operations and monitoring.

Clinical Competencies

1) Implement nursing care related to CVP and interpretation of CVP-related data
2) Demonstrate competence when assisting with the insertion of an arterial line and in the interpretation of arterial line parameters.
3) Perform the ideal nursing care for patients with PICC lines.
4) Demonstrate optimal safety during the administration of blood and blood products transfusions.
5) Implement proficiency in providing nursing care for the patient with a chest tube.
6) Demonstrate effective knowledge and clinical skills when providing nursing care for patients with CVAs, ICPs, and EVDs.
7) Demonstrate competence in implementing CRRT operations and monitoring.
Overall, the evaluation and assessment of trainees is carried out in accordance with the Saudi Commission training and examination rules and regulations. Assessment is divided into two parts:

- Continuous evaluation process
- Centralized examinations

### The Continuous Evaluation Process

The main aim of the continuous evaluation process is to evaluate every aspect of the trainee’s performance during his or her time at the training center. This process enables those involved in the training process (i.e. preceptors) to provide objective feedback. It also involves evaluating interactive training activities such as case studies and seminars. A report is submitted to the Regional Training Supervisory Committee of the Specialty for review and follow-up of the trainee’s progress.

The following components are part of the continuous evaluation process:

- Feedback from the assigned preceptor: this feedback should be obtained and documented every month and as needed.
- Feedback from the assigned clinical instructor: this feedback should be obtained and documented every 3 month and as needed.
- Feedback from the assigned head nurse/nurse manager: this feedback should be obtained every month and as needed.
- Seminar evaluation: trainees will attend one group seminar each year. Seminar topics should be selected by the trainee and approved by the assigned clinical instructor and the program director.
- Case study evaluation: the case study of a patient cared for in a clinical setting. The case presentation will include: the patient’s past medical/surgical history, clinical diagnosis/treatment history, current medical/surgical diagnosis, and nursing diagnosis with appropriate assessment findings, and current medical/nursing plans of care with an assessment of optimal outcomes. Presentations should last approximately 15 minutes, with the trainee facilitating the post-presentation discussion.

### Centralized examinations

This assessment component includes the following examinations conducted centrally by the Saudi Commission for Health Specialties:

- Promotion Examinations
- Final Examinations
Promotion Examination
This examination are held at the end of first year of the program. The successful completion of this examination will enable the trainee to be promoted to the second year of the training program. The promotion examinations will consist of the following:

1. **Promotion Written Examination**
The main objective of this exam is to assess the trainees’ theoretical knowledge and critical thinking skills in relation to topics and clinical experience covered during the first training year. The examination format (including the number of questions, eligibility, and the scores required to pass) will be based on the Saudi Commission Examination Rules and Regulations, available from the Saudi Commission Website: [www.scfhs.org.sa](http://www.scfhs.org.sa).

2. **Promotion Clinical Examination**
An objective structured clinical examination (OSCE) will be held to assess the trainees’ clinical skills, including data gathering, patient management, communication, and counseling. This examination will include a specific number of stations designed to achieve the training objectives. The examination format (including the number of questions, eligibility, and the scores required to pass) will be based on the Saudi Commission Examination Rules and Regulations, available from the Saudi Commission Website, [www.scfhs.org.sa](http://www.scfhs.org.sa).

Final (End-of-program) Examination
The end-of-program examinations are comprehensive. The trainee will be awarded his or her diploma certificate once he/she has successfully completed these examinations.

1. **Final Written Examination**
This exam assesses the trainees’ theoretical knowledge and critical thinking skills in relation to all of the topics and clinical experience covered during the program. The examination format (including the number of questions, eligibility, and the scores required to pass) will be based on the Saudi Commission Examination Rules and Regulations, available from the Saudi Commission Website, [www.scfhs.org.sa](http://www.scfhs.org.sa).

2. **Final Clinical Examination**
An objective structured clinical examination (OSCE) will be held to assess the trainees’ clinical skills, including data gathering, patient management, communication, and counseling. This examination will include a specific number of stations designed to achieve the training objectives. The examination format (including the number of questions, eligibility, and scores required to pass) will be based on the Saudi Commission Examination Rules and Regulations, available from the Saudi Commission website, [www.scfhs.org.sa](http://www.scfhs.org.sa).

Certification
A certificate of completion will be issued when the trainee has successfully completed all training program requirements, including examinations and competencies. Trainees who complete these requirements successfully will receive Diploma certificate in "Adult Critical Care Nursing".
REFERENCES


2) For information about the severe shortage of nurses internationally, refer to Nurses for a Healthier Tomorrow, a coalition of many healthcare organizations, available at: http://www.nursesource.org/critical_care.html (Accessed May 21, 2016)


4) The SCFHS Digital Library provides instructors and trainees access to diverse electronic learning resources, including full-text evidence-based reports of best practices, such as the Ovid Medical Collection, Mosby’s Nursing Consult, LexiComp, PubMed Central, and the up to date Digital Library that is available at: http://www.scfhs.org.sa/eservices/ELibrary/Pages/default.aspx (Accessed: May 21, 2016)

5) Instructors and trainees will refer to an electronic logbook, in which trainees record their learning activities that can be reviewed by the instructors. The instructions and login website for users are available at: http://www.scfhs.org.sa/en/MESPS/TrainingProgs/ElectrobookCases/Pages/default.aspx (Accessed: May 21, 2016) www.scfhs.info/medical/Bmedical/login.php


APPENDICES

Appendix 1

1) Arterial and Venous Sheath Removal
2) Arterial Catheter Insertion (Assisting), Care, Removal, and Blood Sampling
3) Arterial Puncture: Arterial Blood Gas Sampling and Interpretation
4) Aspiration Precautions
5) Assessment: Abdomen, Genitalia, and Rectum
6) Assessment: Cardiovascular
7) Assessment: Focused
8) Assessment: General Survey
9) Assessment: Head and Neck
10) Assessment: Intake and Output
11) Assessment: Musculoskeletal and Neurologic
12) Assessment: Nutrition Screening
13) Assessment: Orthostatic Vital Signs
14) Assessment: Respirations
15) Assessment: Thorax and Lungs
16) Assessment: Wound
17) Automated Internal and External Defibrillator (AED)
18) Blood and Fluid Pressure Infusers
19) Blood Glucose Monitoring
20) Blood and Blood Products Administration
21) Blood Specimen Collection: Blood Cultures
22) Burn and Wound Care
23) Cardiac Monitor Setup and Lead Placement
24) Central Venous Catheter Insertion, Blood Sampling, Removal, and Site Care
26) Chest Tube Insertion, Removal, and Care
27) Chest Tube: Closed-Drainage Systems
28) Code Management
29) Continuous Renal Replacement Therapy
30) Continuous ST-Segment Monitoring
31) Electrocardiogram: 12 Lead
32) Emergent Sternotomy and Internal Defibrillation: Advanced Practice
33) Endotracheal and Tracheostomy Tube Cuff Care
34) Endotracheal Tube and Tracheostomy Tube: Oxygen Administration
35) Tracheostomy Tube Decannulation
36) Endotracheal Tube Extubation and Tracheostomy Tube Decannulation
37) Endotracheal Tube Intubation
38) Endotracheal Tube and Tracheostomy Tube: Suctioning
39) Endotracheal Tube: Skin and Oral Care
40) Epidural Catheter Insertion, Management and Removal
41) Eye Care for Unconscious Patients
42) Fall Prevention
43) Feeding Tube: Enteral Nutrition via Nasoenteric, Gastrostomy, or Jejunostomy Tube
44) Hemodialysis
45) Hyperthermia Measures
46) Hypothermia Measures
47) Hypothermic and Hyperthermic External and Intravascular Monitoring
48) Intra-abdominal Pressure Monitoring
49) Intracranial Pressure Monitoring: External Ventricular Drain and Care
50) Intravenous Therapy: Insertion, Discontinuation, and Administration Set Change and Care
51) Intravenous Therapy: Dose and Flow-Rate Calculations
52) Isolation Precautions: Personal Protective Equipment
53) Lumbar Catheter Assisting with Insertion, Care, and Removal
54) Fluid and Electrolytes Infusions
55) Mechanical Ventilation: Volume and Pressure Modes, and Weaning
56) Medication Administration: Intermittent Infusion Methods
57) Medication Administration: Parenteral Routes
58) Nasal Cannula or Oxygen Mask Application
59) Nasogastric Tube: Insertion, Irrigation, and Removal
60) Oral Airway Insertion
61) Oral Care (e.g., Oral Hygiene)
62) Oral Nutrition Assistance for Adult Patients
63) Oxygen Therapy and Oxygen Delivery
64) Preoperative Care
65) Pressure ulcer care
66) Pressure Ulcer: Risk Assessment and Prevention
67) Pressure Ulcer: Treatment
68) Pulse Oximetry
69) Pulse Assessment
70) Skeletal Traction and Pin Site Care
71) Skin Traction
72) Staple and Suture Removal
73) Sterile Gown and Gloves (Closed Gloving)
74) Transducer System Setup and Zeroing
75) Safe Patient Transfer
76) Urinary Catheter: Suprapubic Insertion, Removal, and Care
77) Wound Drain Care
78) Wound Drainage Evacuation
79) Restraint Use as per Policy
80) Sedation Assessment (e.g., RAMSAY)