Saudi Council For Health Specialties

SAUDI BOARD OF SURGERY

Emergency Medicine Training Program
First Edition

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Information Booklet
And
Residents Manual

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<table>
<thead>
<tr>
<th>Title</th>
<th>Page no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>Objectives</td>
<td></td>
</tr>
<tr>
<td>Admission Requirements</td>
<td></td>
</tr>
<tr>
<td>Training Requirements</td>
<td></td>
</tr>
<tr>
<td>Training period &amp; Rotations</td>
<td></td>
</tr>
<tr>
<td>Mandatory Rotations</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>Didactic Teaching</td>
<td></td>
</tr>
<tr>
<td>Courses &amp; Conferences</td>
<td></td>
</tr>
<tr>
<td>Resident Evaluation and promotion</td>
<td></td>
</tr>
<tr>
<td>Board examination</td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td></td>
</tr>
<tr>
<td>Vacation and Holidays</td>
<td></td>
</tr>
<tr>
<td>Core curriculum</td>
<td></td>
</tr>
<tr>
<td>Core contents of Emergency Medicine</td>
<td></td>
</tr>
<tr>
<td>General Objectives</td>
<td></td>
</tr>
<tr>
<td>Terminal Education Objectives</td>
<td></td>
</tr>
<tr>
<td>Anaesthesia</td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td></td>
</tr>
<tr>
<td>Critical Care</td>
<td></td>
</tr>
<tr>
<td>Emergency Medicine Service</td>
<td></td>
</tr>
<tr>
<td>Environmental Illness</td>
<td></td>
</tr>
<tr>
<td>Internal Medicine</td>
<td></td>
</tr>
<tr>
<td>General Surgery</td>
<td></td>
</tr>
<tr>
<td>Geriatrics</td>
<td></td>
</tr>
<tr>
<td>Neurology</td>
<td></td>
</tr>
<tr>
<td>Neurosurgery</td>
<td></td>
</tr>
<tr>
<td>Ob / Gyne</td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td></td>
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<tr>
<td>Paediatrics</td>
<td></td>
</tr>
<tr>
<td>Psychiatry</td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Resuscitation</td>
<td></td>
</tr>
<tr>
<td>Toxicology</td>
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<td>Wond Management</td>
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Introduction

The kingdom of Saudi Arabia has witnessed major developmental charges in the last few decades. This have resulted in massive urbanization and increased inner city population. With this progression came more buildings, highways, cars, and other accoutrements of urban societies. The consequence of this has been a dramatic increase in major traumas, burn and toxicological syndromes. In addition, a significant increase in the occurrences of urbane diseases like ischemic heart diseases, cerebrovascular accidents, diabetes mellitus and its complications etc.

The Emergency Physician is oftentimes the patients’ first introduction into the medical community and the first line of defense in treating major accidents and diseases. The goal of Emergency Medicine (EM) is to provide pre-hospitalization care and transport to the critically sick patient. While in the Emergency Department (ED), the patient is triaged, stabilized, resuscitated, investigated, and either admitted to the relevant specialty or discharged with proper follow-up. (EM) also plays a major role in public education, preventive medicine research, and disaster planning. No medical system is complete without EM.

As the progress of health care system in the kingdom has been making major strides in other specialties, EM Services has been lagging behind. Today, only a few Saudi physicians have been trained in EM and these have all have received training in Canada and United states. The number of paramedics and EM Technicians (EMTs) is also negligible. The idea of initiating and developing a training programs here in the kingdom should be a priority.

The goal of the EM Residency program is to prepare Saudi physicians to treat all acute medical emergencies, surgical emergencies including trauma and burns, pediatric emergencies, obstetrical and gynecological emergencies. They should also play active roles in pre-hospital care and management, disaster planning and public health education. The objective of the program is to establish the requisite teaching and practical skills environments that can be used to train these physicians within the Kingdom and thus negate total reliance on foreign training facilities.

The purpose of this document is to establish specific guidelines of an Emergency Medicine Residency Program. The document is organized as follows:

1. Definition
2. Admission requirement
3. Training Facilities
4. Program personnel
5. Training period and Rotations
6. Resident promotion
7. Vacation and holidays
8. Core curriculum
9. Goals and Objectives
10. Board Examination
Detailed Discussion

Definition:

The specialist emergency physician shall, by training and attitude, be highly skilled in the recognition and management of the broad spectrum of acute illness and injury in all age groups. These skills shall include an in-depth understanding of the pathophysiology principles of such disorders.

The specialist emergency physician employs pertinent methods of prioritization, assessment, intervention, resuscitation, and further management of patients to the point of transfer. Appropriate procedural and pharmacotherapeutic maneuvers are central to these abilities.

The specialist emergency physician processes organizational skills in emergency department and disaster management and the ability to interface with and play a leadership role in the development and organization of the emergency medical services and prehospital care.

Enabling Education Objectives in Emergency Medicine: The specific prerequisite knowledge or skill that the resident in Emergency Medicine should acquire in order to achieve the terminal education objectives in each of the core content categories will determine a program enabling education objectives. These enabling educational objectives should be identified prior to each rotational experience and in developing formal teaching programs. Formal assessment that these objectives have been achieved should be provided through end of rotation evaluations and in-training examination of each resident.

Objectives of Training Program

During the course of training, the candidate must acquire satisfactory knowledge and skill in the following:

1. Primary care of the patient, declared emergencies including the recognition, evaluation, and initial management of the illness or injury.
2. Triage of patients with major illness or injury.
3. The natural history of illness or injuries commonly presenting as emergency and long-term care and follow-up essential for these conditions.
4. Supervisor and administrative aspects of emergency services, ambulance services, communication systems, and disaster planning.
5. Research areas of emergency medicine.
6. Social and family implications of illness or injury.

To achieve these goals there is a general and terminal education objectives.
**General Objectives:**

The Resident in Emergency Medicine is expected to demonstrate consultant level abilities in the recognition under standing and treatment of illness and injuries.

During the course of education program, the resident must acquire and demonstrate satisfactory competence in knowledge, clinical skills, and administrative skills and attitudes consistent with the practice of the breadth and depth of emergency medicine.

**Admission requirements:**

To be accepted in a training program, the candidate has to fulfill the following requirements:

1. Bachelor degree in medicine
2. Successful completion of rotating internship
3. Three recommendation letters
4. Pass the council written examination
5. Candidate should pass the interview (may include oral with or without written exam) with EM Board-Certified Physicians and the Programme Director
6. Provision of a letter from sponsoring organization approving that candidate can join full time training for the period of the program (4 years)
7. Registration as a trainee at the Saudi council for health specialties.

Male and female candidates should be given an equal chance of enrollment.

**Training requirements:**

1. Training is a full time commitment. Resident shall be enrolled in continuous full time training for the whole period of the program.
2. Training is to be conducted in an institution accredited for training by the Saudi council for health specialties the Saudi board of emergency medicine.
3. Training shall be comprehensive and include emergency, inpatients, and ambulatory.
4. Trainees shall be actively involved in patient care with gradual progression of responsibility.
5. Trainees shall abide by training regulations and obligations set by the Saudi board of emergency medicine.

**Training period and rotation:**

Four years training is needed to expose the resident to the board scope of EM to ensure that the emergency medicine resident achieves the desired objectives of the training programme there must be mandatory rotations, electives, and an appropriate and valid evaluation process. The training programme is divided into the following components:
**Mandatory rotation:**
1. Elective
2. Academic half day
3. Courses and conferences
4. Evaluation

1. Mandatory rotations:

The mandatory rotation are the base on which the training programme functions there are specific objectives and related evaluation forms that are based on the core content of emergency medicine.

It is the responsibility of the resident to review the rotation objectives with the clinical supervisor (s) and have the clinical supervisor complete the specific in training evaluation reports (ITERS).

- 24-month emergency medicine including pediatric emergency.
- 2-month internal medicine
- 2-month general surgery/trauma
- 1-month orthopedic surgery
- 1-month plastic surgery
- 1-month neurosciences
- 2-month ICU
- 1-month PICU
- 1-month CCU
- 2-month anesthesia
- 1-month psychiatry
- 1-month OB/GYN
- 1-month EMS and transport
- 1-month research

2. Electives:

Electives should be used to enhance the experience of the resident in areas related to emergency medicine; electives must also have appropriate objectives and evaluation. It is essential that resident develop them objectives, discuss them with the programme director, and then with the clinical supervisor. The evaluation of the resident will be based on meeting the objectives.

**Suggestive rotation:**
- Toxicology
- Administration
- Sport medicine
- Neonatal ICU
- ENT, Ophthalmology
- Family medicine

(7)
3. **didactic teaching**

Several forms of didactic teaching should be organized. Weekly half day time protected for all residents, should be recognized. The day will be divided into several activities. The following is proposed.

- Lectures given by resident a weekly basis that will eventually cover each curriculum subject during the four years period
- Lectures organized and given by Emergency Consultants
- Guest speakers from other specialties with interest to EM
- Morbidity and Mortality meetings
- Journal club meetings

4. **Courses and conferences**

Since emergency medicine has active continuous medical education programme the residents are encourage to become instructors in ACLS, PLAS, ATLS. etc.

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<th>EMERGENTSY MEDICINE TRAINING ROTATIONS</th>
</tr>
</thead>
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5. Residents Evaluations

a. End of rotation evaluation:

The residents will be evaluated at the end of each complete rotation by the supervising consultant/team. It is the responsibility of each resident to acquire and submit his or her written evaluation to the Program Director.

b. In-training annual examination:

Toward the end of each training year there will be an in-training exam (written +/- oral) conducted by the in training programme committee and focus on emergency medicine.

Promotion:

In order for the resident to be promoted he/she should score:

1. Not less than 60% in the average summation of in-training evaluation 50% and end of year exam 50%.
2. Should score not less 50% in the training evaluation and not less than 59% in end of year exam.

In order to be promoted from junior resident to senior resident (R2 TO R3) the resident should pass the first part of Saudi board of emergency medicine.

Board examinations

Final Board Examination

This examination is given to candidates after successful completion of training as evidenced by an acceptable final in-training evaluation. It is held at least once per year in one or more of the training centers. Candidates are allowed a maximum of three attempts to pass this examination within a period of three years after completion of training.

The final examination consist of tow parts:

1. A written part: This is designed evaluate knowledge.
2. An oral part: This is designed to test clinical judgment in the field of Emergency medicine.

Candidates who failed the third attempt and which to sit for the exam he/she has to do extra one year as R4 then he will be allowed to have three attempts more.
Certification
Candidates passing the final examination are awarded the Saudi Certificate in Emergency Medicine.

Vacation, and Holidays
1. Resident are entitled for four weeks vacation annually and a maximum of 10 days for both Eid holidays and emergency leave.
2. Sick and maternity leave shall be compensated for during or the end of training.

Resident Syllabus
Core curriculum
A detailed outline of the Core Content of Emergency Medicine has been developed as a separate document to compliment these guidelines and educational objectives.

It provides the resources material for the individual residency programs to establish, monitor and assess the completion of the educational objectives.

Four approaches were used in developing the core content:
1. An identification of those patient declared emergency that present Emergency Department.
2. An identification of the breadth of cognitive knowledge (basic science and clinical medicine) required by a Specialist Emergency Physician.
3. An identification of the depth of cognitive knowledge (basic science, pathophysiology pharmacology, natural history of disease of injury, etc) required by a specialist.
4. An examination of the core content in Emergency Medicine developed by well established Emergency residency programs in word wide.

The core content document should assist in the development of a curriculum appropriate to the assessment, intervention and management of clinical presentations to the Emergency Department. The outline is not a compilation of either a minimum number of facts to be taught or learned. Furthermore, it is not an exhaustive list of all presentations of illness and injury that a specialist in Emergency Medicine may encounter. The Core in Emergency Medicine has been divided into categories. These are:

2. Acute disorders of body systems.
3. Trauma.
5. Toxicology.
8. proceudral skills in Emergency Medicine.
   In each of these categories, where appropriate, emphasis should be placed on a
   through understanding of these eight component parts.
   1. The prompt recognition of acute illness/injury.
   2. Intervention/ resuscitation.
   3. Specific clinical presentations (Sighs and Symptoms).
   4. The pathophysiology of disease / injury.
   5. The natural history of disease / injury.
   6. Investigation.
   7. Diagnosis / management decision.
   8. Disposition Decision / Requirements for follow up care.

**Core Content Listing in Emergency Medicine**

1. **principles of Emergency Care**
   1.1 Recognition / intervention of acute Illness and Injury.
   1.2 Resuscitation / Stabilization of the seriously Ill and Injured patient.

2. **Acute Disorders by Body Systems**
   2.1 Head and Neck.
   2.2 Eye.
   2.3 Cardiovascular.
   2.4 Thoracic / Respiratory.
   2.5 Abdominal / Gastrointestinal.
   2.6 Renal / Urinary Tract.
   2.7 Genital tract.
   2.8 Dermatological.
   2.9 Musculoskeletal / Rheumatological.
   2.10 Nervous System.
   2.11 Psychological / Behavioral.
   2.12 Hematological.
   2.13 Endocrine / Metabolic / Nutritional.
   2.14 Acid Base.
   2.15 Fluid and Electrolyte.
   2.16 Allergic / Immunological.

3. **Trauma**
   3.1 Multiple Trauma.
   3.2 Trauma to the Head, Neck (Including CNS and Spinal Tract).
   3.3 Trauma to the Face (Including Eyes / Ears / Nose / Tongue / Mouth /
3. Teeth.
3.4 Trauma to the Chest.
3.5 Trauma to the Heart and cardiovascular System.
3.6 Trauma to the Abdomen.
3.7 Trauma to the Urogenital System.
3.8 Trauma to the Musculoskeletal System.
3.9 Trauma to the Hand / wrist.
3.10 Trauma to Skin / Soft Compartments.

4. Acute Age-Related Disorders: Pediatric Disorders
4.1 Clinical Assessment on Infant / child.
4.2 Resuscitation.
4.3 Neonatal Conditions.
4.4 Specific clinical Presentations / Considerations.
4.5 Acute Pediatric Disorders by Body Systems.
4.6 Congenital / Development Syndromes.
4.7 Toxicological Disorders in Childhood.
4.8 Infectious Disorders in childhood.
4.9 Pediatric Hematology / Oncology.
4.10 Child Abuse / Deprivation / Family Dysfunction.

5. Acute Age-Related Disorders: Geriatric Disorders
5.1 Physiology of Aging.
5.2 History and Physical Examination of the Elderly.
5.3 Specific Clinical Presentations / Consideration.
5.4 Evaluation of Functional Ability.
5.5 Effect of Aging on Diagnostic Test.
5.6 Pharmacokinetics in the Elderly.
5.7 Common Psychosocial Disorders in the Elderly.
5.8 Geriatric Disorders presenting with Variable Manifestations.

6. Toxicology
6.1 General Principal of Drug Absorption / Kinetics / Excretion.
6.2 General Approach to Poisoned / Overdosed Patient.
6.3 Specific Clinical Presentations / Considerations.
6.4 Drug Interactions / Adverse Reactions.
6.5 Drug Acting at Synaptic and Neuroaffecter Sites.
6.6 Medicinal Agent.
6.7 Specific Toxic Agents / Poisons (Toxidromes).
6.8 Plant poisons.
6.9 Toxins Produced by Biological Agents.
6.10 Neurotoxins /cellular Toxins.
6.11 Local Acting Drugs.
6.12 Food poisons.

7. Environmental Disorders
7.1 Pathophysiology in Environmental Disorders.
7.2 Clinical Syndromes – heat Induced.
7.3 Clinical Syndromes – Cold Induced.
7.4 Clinical Syndromes – Water Immersion.
7.5 Hyperbaric Syndromes.
7.6 Hypobaric Syndromes.
7.7 Contamination of Air.
7.8 Radiation Exposure / Syndromes.
7.9 Microwave / Laser Exposure.
7.10 Electrical Injuries.
7.11 Chemical Injuries.
7.12 Animal Bites.
7.13 Insect / Arthropod Bites / stings.
7.14 Transport of Hazardous products.

8. Investigative Modalities in Emergency Medicine
8.1 Hospital Laboratory Determinations.
8.2 Emergency Department Laboratory Assessments.
8.3 Physiological Measurements – Static.
8.4 Physiological Measurements – Invasive.
8.5 Imaging.

9. Manipulative / Procedural Skills Emergency Medicine
9.1 Resuscitation.
9.2 Airway Management.
9.3 Ventilation.
9.4 Venous Access.
9.5 Arterial Access.
9.6 Stabilization / Immobilization.
9.7 Emergency Department Anesthesia / Analgesia.
9.8 wound Management (Skin and Soft Tissue).
9.9 Assessment of Infectious Processes.
9.10 Management of Superficial Infection.
9.11 Plastic Surgery Procedures.
9.12 Musculoskeletal Procedures. 
9.13 Neurological / Neurosurgical Procedures.
9.14 Specific Procedural Skills Common to All Specialties.
9.15 Toxicological.

10. Emergency Medicine Services Systems (EMSS)
10.1 Prehospital Emergency Medicine Service.
10.2 Emergency Department Administration.
10.3 Disaster Medicine.
10.4 Medicolegal Aspects of Emergency Medicine.
10.5 History Education Research in Emergency Medicine.
10.6 Emergency Medicine Organization and Liaisons.

Terminal Education Objectives:

ANESTHESIA

Goals:
1. Develop airway management skills.
2. Develop familiarity with pharmacologic agent used in anesthesia.
3. Learn standard monitoring techniques.
4. Learn relevant pre-operative historical and physical exam considerations.
5. Learn principles of pain management.

Objectives:
1. Demonstrate correct use of the bag – valve – mask device.
2. Demonstrate knowledge of the anatomy of the upper airway.
3. Demonstrate basic familiarity with nasotracheal and endotracheal intubation as well as the indications and complications.
4. State the dosages, indications and contraindications for inhalation anesthetic agents, intravenous analgesic and anesthetics, and neuromuscular blocking agents.
5. Demonstrate ability to use standard monitoring techniques.
6. Demonstrate ability to manage a patient on a ventilator.
7. Demonstrate knowledge of the principles of regional anesthesia and successfully perform metacarpal, digital, radial, median, ulnar, tibia and sural nerve blocks.
8. Demonstrate ability to administer local anesthesia and be familiar with agents, dosing, side effects, and techniques to monitor pains.
9. Recognize and manage an obstructed airway.
10. Demonstrate skills in all aspects of nasotracheal and endotracheal intubation.
11. Demonstrate ability to use standard emergency department monitoring techniques.
12. Perform conscious sedation under faculty supervision.
13. Perform facial nerve blocks to include supraorbital, infraorbital, mental and auricular nerves.
14. Demonstrate appropriate judgment regarding the need for airway intervention.
15. Demonstrate skill in the use of anesthetics and neuromuscular blocking agents including conscious sedation and rapid sequence intubations.
16. Demonstrate ability to obtain a surgical airway.
17. Demonstrate ability to perform dental blocks.

**CARDIOLOGY**

**Goals:**
1. Demonstrate the ability to stabilize patients who present in cardiopulmonary arrest.
2. Develop skills in the evaluation of patients who present with chest pain.
3. Demonstrate the ability to evaluate, stabilize, treat, and arrange for appropriate disposition of patients with cardiac disease processes.
4. Demonstrate the ability to develop a differential diagnosis for patients presenting with cardiac symptomatology (chest pain, shortness of breath, weakness, palpitations) etc.
5. Demonstrate skill in the interpretation of diagnostic modalities (ECG, Chest x-ray and cardiac ultrasonography).
6. Develop a familiarity with cardiac pharmacologic agents.
7. Demonstrate skill at cardiac related procedures: venous line and CVP pressure monitoring, pericardiocentesis, defibrillation and cardioversion, Swan gantz catheterization, and ultrasonography.
8. Demonstrate the ability to diagnose, stabilize, and apply thrombolytic therapy to patients presenting with acute early myocardial infarction.

**Objectives:**
1. Demonstrate the ability to perform an appropriate history and physical examination on the patient presenting with cardiac symptomatology.
2. List items elicited from the history of patient with chest pain to suggest a risk for cardiac etiology.
3. Discuss limitations in differentiation of cardiac chest pain from non-cardiac pain in patients with risk factors.
4. Describe the pathophysiology of cardiac ischemia, acute anginal chest pain, and acute myocardial infarction.
5. Describe the typical electrocardiograph findings of patients with myocardial ischemia, subendocardial infarction and myocardial and transmural infarction.
6. Describe the typical electrocardiographic findings of patients with myocardial ischemia, subendocardial infarction, and transmural myocardial infarction.
7. Discuss differential diagnosis of atypical chest pain.
8. Discuss atypical presentations for acute cardiac ischemia and myocardial infarction.
9. Discuss the sensitivity and specificity of ancillary studies for chest pain presentation including EKG, chest x-ray, cardiac enzymes, and arterial blood gases.
10. Describe the appropriate triage considerations for patients presenting to the emergency department with chest pain.
11. Differentiate between stable and unstable angina and outline the initial treatment of patients with unstable angina including the use of nitrates, beta blockers, calcium channel blockers, etc.
12. Discuss the concept of "silent" myocardial infarction and ischemia.
14. Discuss the significance to acute complete atrio-ventricular block with inferior myocardial infarction versus anterior myocardial infarction.
15. Demonstrate knowledge of AHA recommendation for the treatment of acute ventricular fibrillation, ventricular tachycardia, systole, electromechanical dissociation, atrial flutter and fibrillations, functional ectopy, pre-excitation, supraventricular tachycardia, and bradycardia, sick-sinus syndrome, atrial ventricular blocks (first degree, second degree and third degree) and bundle branch blocks.
16. Describe the clinical findings of cardiogenic shock and outline therapy for cardiogenic shock.
17. Differentiate cardiogenic shock from other etiologies for shock.
18. Describe the clinical presentation for pericardial disease and outline the appropriate initial therapy and management for pericardial disease.
19. Describe the presentations for myocardial infarction and their association with vessel involvement and outline initial treatment for myocardial infarction.
20. List the indications, contraindications and complications for thrombolytic therapy for acute myocardial infarction.
22. Describe the valvular anatomy of the heart and list etiologies for valvular heart disease.
23. Describe the clinical findings of a mitral valve prolapse, valvular aortic stenosis, aortic regurgitation, tricuspid stenosis tricuspid regurgitation, and pulmonary stenosis, and discuss management of each of these valvular abnormalities.
24. List complications of prosthetic cardiac valves and appropriate emergency
department management.

25. Differentiate between congestive cardiom-yopathy hypertrophic cardiom-yopathy and restrictive cardiom-yopathy and discuss therapy for each.

26. Define myocarditis and describe the EKG findings and acute management of myocarditis.

27. Discuss the pathophysiology of acute pulmonary embolism and the predisposing factors for pulmonary embolism.

28. Discuss the sensitivity and specificity of the various tests used to diagnosis pulmonary embolism including arterial blood gases, EKG, chest x-ray, etc.

29. Discuss the sensitivity and specificity of ventilation perfusion scan in acute pulmonary embolism.

30. Outline treatment for acute pulmonary embolism.

31. Differentiate between acute hypertensive emergencies, hypertensive urgency and uncomplicated hypertension.

32. Discuss the indications for treatment of hypertension in the emergency department.

33. Describe the syndrome of hypertensive encephalopathy.

34. Outline the treatment for acute hypertensive emergency and differentiate treatment in the setting of thoracic aortic dissection.

35. Differentiate between primary agents for hypertensive emergency to include their advantages and disadvantages.

36. Describe the clinical presentation of acute mesenteric ischemia and discuss the inherent difficulties in the diagnosis as well as the emergency department management.

37. Discuss the pathophysiology, etiology, and overall morbidity or mortality of patients presenting with acute aortic dissection.

38. Explain the emergency department management of acute aortic dissection.

39. Differentiate between expanding, ruptured and dissecting aortic aneurysms.

40. Describe the pathophysiology and clinic presentation for acute peripheral ischemia and outline the emergency department management.

41. Differentiate between superficial and deep venous thrombosis.

42. Outline the emergency management of acute thrombophlebitis.

43. Discuss the pathphysiologic connection between thrombophlebitis and pulmonary embolism.

44. Discuss the use of thrombolysis in acute thrombophlebitis.
CRITICAL CARE

Goals:
1. Develop the ability to rapidly evaluate, diagnose, stabilize, and disposition critically ill patients.
2. Learn respiratory, cardiovascular, renal and neurologic physiology and pathophysiology of trauma, toxins, shock sepsis, cardiac failure, and respiratory failure, which affect critically ill patients.
3. Learn the principles of medical instrumentation and hemodynamic monitoring and are to utilize them in the care of critically ill patients.
4. Learn the indications and develop the technical skills needed to perform diagnostic and therapeutic interventions in critically ill patients.
5. Learn the rational use of laboratory, radiographic and other diagnostic tests in the management of critically ill patients.

Objectives:
1. Demonstrate ability to rapidly perform history and physical exams in critically ill patients.
2. Demonstrate the ability to perform the following procedures: oral endotracheal intubation, nasotracheal intubation, cricothyrotomy, needle thoracostomy, central intravenous placement, swan gans placement, transvenous cardiac pacing, arterial line placement, ABG, and foley catheterization.
3. Demonstrate the ability to use and interpret data from ECG monitors, ECGs, cardiac outputs, hemodynamic monitoring, arterial blood gases, pulse oximetry, end tidal CO2 monitors and respirators.
4. Describe the dosage, indications and contraindications of pharmacologic interventions for shock, cardiac failure, dysrhythmias, sepsis, trauma, toxins, respiratory failure, hepatic failure, renal failure, and neurologic illnesses.
5. Demonstrate the ability to manage a patient on a ventilator.
6. Demonstrate appropriate judgement in the management of critically ill patients.
7. Demonstrate appropriate prioritization of diagnostic and therapeutic interventions in critically patients.
8. Demonstrate ability to diagnose and treat shock, sepsis, fluid and electrolyte abnormalities, cardiac failure, cardiac dysrhythmias, renal failure, hepatic failure, toxicologic emergencies.
9. Demonstrate an understanding of the appropriate use of consultants in critically ill patients.
10. Demonstrate an understanding of the ethical and legal principles applicable to the care of critically ill patients.
EMERGENCY AND MEDICAL SERVICES

Goals:
1. Learn common organizational structures of emergency medical services.
2. Learn the educational requirements and skill levels of various EMS providers.
3. Learn principles of EMS system operations.
4. Learn basic principles of disaster management.
5. Learn principals of prehospital triage and emergency medical care delivery.
6. Learn basic principals of EMS research.

Objectives:
1. Actively participate in EMS system management.
2. Demonstrate ability provide initial and continuing education to all levels of EMS personnel.
3. Demonstrate familiarity with research methodologies relating to EMS and disaster management.
4. Participate in EMS continuous quality improvement.
5. Participate as an observer or team member in ground and air medical transport system.
6. Discuss development of EMS prehospital care protocols.
7. Discuss basic concepts of disaster management.
8. Demonstrate understanding of appropriate utilization practices for ground and air medical services.
9. Discuss the importance of and method for medical control in EMS system.
10. Discuss the differences in education and skill level of various EMS providers.
11. Describe common environmental, toxicologic, and biological hazards encountered in the prehospital care setting as well as injury prevention techniques.

ENVIRONMENTAL ILLNESS

Goals:
1. Learn the pathophysiology, patient evaluation and management of thermal and burns.
2. Learn the pathophysiology, patient evaluation and management of electrical injury, including lightning injury.
3. Learn the pathophysiology, patient evaluation and management of radiation injuries.
4. Learn the pathophysiology, evaluation and management of hypothermia and patient frostbite.
5. Learn the pathophysiology.
6. Learn the pathophysiology, patient evaluation and management of heat illness.
7. Learn the pathophysiology, patient evaluation and management of drowning and near drowning.
8. Learn the pathophysiology, patient evaluation and management of barotrauma.
9. Learn the pathophysiology, patient evaluation and management of high altitude illness.

**Objectives:**

1. Demonstrate the correct care for the burn victim.
2. Demonstrate the ability to calculate surface area burned for various age groups using Lund-Browder chart.
3. Demonstrate the method for determining the correct maintenance fluid regimen for the burned patient.
4. State the admission criteria for the burned patient, including criteria for burn unit admission.
5. State the chemical mechanism of injury for hydrochloric and sulfuric acids, hydrofluoric acid, alkaline burns, and phosphorous burns.
6. List the differences between alkali and acid burns.
7. State the treatment for an acid burn, alkali burn, hydrofluoric acid burn, and white phosphorous burn.
8. Appropriately manage acute chemical burns in the Emergency Department.
9. State the common injuries/conditions which are associated with electrical injuries.
10. Demonstrate appropriate clinical and diagnostic evaluation of the electrically-injured patient.
11. List the complications resulting from electrical injuries.
12. State the common injuries and conditions associated with lightning injuries.
13. List the appropriate clinical and diagnostic evaluation of the lightning-injured patient.
14. Demonstrate the ability to evaluate and treat lightning injury.
15. State the conditions which are associated with radiation injuries.
16. The appropriate clinical and diagnostic evaluation of the radiation-injured patient.
17. List the decontamination procedures required for the radiation-injured patient.
18. State the pathophysiologic mechanisms associated with inhalation injury.
19. State the indications for intubation in the smoke inhalation patient.
20. List the common toxins commonly associated with a house fire.
21. Recognize those patients which require emergent intubation after an.
22. Inhalation injury.
23. Demonstrate appropriate management of inhalation injuries.
24. Demonstrate the correct care for the frostbite victim.
25. Discuss the criteria for superficial frostbite and for deep frostbite.
26. Demonstrate the correct care for the hypothermic patient.
27. State the various techniques for passive and active rewarming.
28. Discuss the appropriate interpretation of blood gases in the hypothermic patient.
29. State the specific consideration regarding intubation, use of external cardiac.
30. Compression, and use of cardiovascular medications in the hypothermic patient.
31. Demonstrate the correct care for the heat cramp, heat exhaustion, heat stroke patient.
32. State the definition for heat stroke and list the patients at risk for heat stroke.
33. State the criterion that differentiate the various types of heart illness.
34. Demonstrate the correct care for the near drowning/drowning patient.
35. State the pathophysiologic processes associated with inunersion.
36. List the complication resulting from near drowning/drowning.
37. State the pathophysiology of barotraumas of descent, barotraumas of ascent, airembolism, and decompression sickness.
38. Discuss the appropriate therapy for dysbaric injuries.
39. List the indication for hyperbaric oxygen therapy.
40. Discuss emergency first aid for a diving accident at sea.
41. State the symptoms associated with acute mountain sickness, high altitude cerebral edema, high altitude pulmonary edema, and high altitude retinopathy.
42. Discuss the appropriate therapy for mountain sickness, high altitude cerebral Edema, high altitude pulmonary edema, and high altitude retinopathy.

GENREL MEDICINE

Goals:
1. Assimilate general concepts of internal medicine, history taking and physical examination skills to develop a systemic evaluation for patient presenting to the emergency department.
2. Learn the pathophysiology, presentation and management of diseases related to the alimentary tract.
3. Develop knowledge of the pathophysiology, presentation and management of common hematologic diseases.
   Disorders of hyper-arid hypofunction of the inner system.
4. Know the major systemic infectious disorders, their diagnosis and treatment.
5. Learn the pathophysiology, evaluation and treatment of renal disorders.
6. Develop knowledge of the etiologies, manifestations, and treatment of endocrine and metabolic.
7. Master an understanding of the diseases of the respiratory system.
including pathophysiology, evaluation and treatment.

**Objectives:**

1. Demonstrate appropriate history taking skills for all patients presenting to the emergency department.
2. Demonstrate the ability, based on the history acquired to do an immediate assessments and initial stabilization followed by a complete directed examination.
3. Combine the knowledge defined in the objectives below with the history and physical examination, to develop and appropriate differential diagnosis for all presentation.
4. Demonstrate knowledge of the causes, presentation, and management of esophageal problems.
5. Describe the etiologic agents, pathophysiology, and management of infectious diarrhea.
6. Demonstrate the ability to evaluate, manage and appropriately disposition patients with gallbladder and liver disorders.
7. Demonstrate knowledge of the presentation, diagnosis, and management of obstructive lesions of the alimentary tract.
8. Demonstrate the ability to perform intubation procedures of the alimentary tract, including, but not limited to, NG tube insertion and anoscopy.
9. Describe the presentation work-up and appropriate treatment of patients with inflammatory processes of the alimentary tract.
10. Demonstrate familiarity with the evaluation, treatment, and appropriate disposition of patients with gastrointestinal bleeding.
11. Demonstrate knowledge of the proper evaluation and treatment of the patient with sickle cell disease.
12. Describe the appropriate steps in the assessment and treatment of the patient with bleeding disorders.
13. Demonstrate knowledge in the work-up treatment, and appropriate disposition of the patient with anemia.
14. Demonstrate understanding of the appropriate use of transfusions of blood components, including diagnosis and treatment of transfusion reactions.
15. Demonstrate familiarity with the mechanism and manifestations of immune compromise, including that caused by infection with HIV.
16. Discuss and be able to differentiate non-AIDS cause of immune hypofunction.
17. Discuss the manifestations, initial treatment, and appropriate disposition of patients with rheumatologic and autoimmune diseases.
18. Demonstrate understanding of the work-up and treatment of patients with hypersensitivity reactions, including transplant rejection.
19. Demonstrate knowledge of the concepts of cellular and humoral immunity and
the proper use of immunizations in patients presenting to the emergency department.

20. Demonstrate familiarity with the manifestation of evaluation for, and treatment of bacterial infections, especially including gonorrhea, syphilis, tuberculosis, and tetanus.


22. Know the characteristics of sepsis in different age groups.

23. Demonstrate knowledge of the appropriate initial treatment of the patient with possible sepsis.

24. Demonstrate knowledge of the vector, predisposing factors, clinical courses, work-up and treatment of rickettsial diseases.

25. Discuss the manifestations of, treatment of, appropriate disposition for, and immunization (when appropriate) of patients with viral infection 9.5.

26. Demonstrate knowledge of the line course, vectors, and treatment of the more common protozoal diseases.

27. Demonstrate familiarity with the causes, presentation, initial management and disposition of patients with glomerular disorders.

28. Describe the common etiologic agents, and appropriate work-up and disposition of patients with infections of the renal system.

29. Discuss the common causes, metabolic manifestations, treatment (including dialysis) and disposition of patients with renal failure.

30. Describe the common complications of dialysis therapy and how they manifest in patients presenting to the emergency department.

31. Define the etiologies, and demonstrate understanding in the evaluation and treatment of patients with acid/base disorders.

32. Demonstrate understanding of the etiologies, manifestations and treatment of fluid and electrolyte abnormalities.

33. Discuss the manifestations, work-up, treatment, and disposition of patients with disorders of glucose metabolism.

34. Demonstrate understanding of the common endocrine abnormalities, especially regarding presentation, initial evaluation and management, and disposition.

35. Discuss acute treatment for patients presenting with disorders of severe malnutrition 4.5.

36. Demonstrate knowledge in the etiologic agents causing, presentation and evaluation, and disposition of patients with infections of the respiratory system.

37. Describe the etiology, manifestations, and treatment of patients with acute and chronic airways disease.

38. Discuss the predisposing factors, presentation, and appropriate treatment of patients with pulmonary embolus.

39. Demonstrate knowledge of the potential presentation, work-up, treatment and
appropriate disposition of patients with chest masses.

40. Demonstrate knowledge of the presentation, work-up treatment, and disposition of patients with chronic granulomatous diseases.

41. Demonstrate knowledge of the appropriate evaluation of patients with abnormalities of the lymphatic system.

42. Demonstrate knowledge of the presentation, treatment, and disposition of patients with malignancies of the hematopoietic system.

43. Demonstrate understanding of the etiologies, diagnosis, and treatment of adult respiratory distress syndrome and multisystem organ failure.

**GENREL SURGERY**

**Goals:**
1. Develop familiarity with common general surgical disorders.
2. Develop relevant history and physical exam skills.
3. Develop procedural skills relevant to general surgery.
5. Learn indications for consultation and surgical intervention in patients with acute abdominal pain.
6. Learn the principles of care of the perioperative patient.

**Objectives:**
1. Demonstrate ability to perform an appropriate history and physical exam in patients with general surgical disorders, including an appropriate preoperative evaluation.
2. Discuss the differential diagnosis of acute abdominal pain and demonstrate ability to evaluate, treat and obtain appropriate consultation.
3. Demonstrate ability to diagnose and treat common disorders of the breasts.
4. Demonstrate ability to diagnose and treat common disorders of the anus and rectum.
5. Demonstrate ability to perform common procedural skills including gastric intubation tube thoracostomy placement of central venous lines wound closure and abscess incision and drainage.
6. Demonstrate ability to assist in the operative and perioperative therapy of surgical patients.
7. Discuss the common fluid and electrolyte disturbances in surgical patients and demonstrate ability to manage patients with these disorders.
9. Demonstrate ability to manage pain in surgical patients.
10. Discuss the role of abdominal x-ray in the evaluation of abdominal pain and
demonstrate ability to appropriately order and interpret imaging modalities in surgical patients.

11. Demonstrate ability to rapidly recognize and treat patients with abdominal aortic aneurysm.

12. Demonstrate ability to manage patients with acute and chronic peripheral vascular insufficiency.

13. Demonstrate ability to manage patients with soft tissue infections.

14. Demonstrate ability to diagnose common structural defects of the abdominal wall.

GERIATRICS

Goals:
1. Understand the change in anatomy, physiology, pharmacology, and psychology that occur with aging.
2. Learn the overall principles of managing the geriatric patients in the emergency care environment.
3. Understand societal biases regarding aging in the context of the emergency health care system.
4. Learn the concept of functional status as the interaction of the age, disease, and environment.
5. Learn the pathophysiology and emergency treatment of elderly patients with common medical, neurologic, psychologic, and surgical diseases.

Objectives:
1. Demonstrate a sensitivity to the needs of elderly patients and respect for their ability to make decision.
2. Discuss which laboratory tests are physiologically altered with aging and which tests are not changed.
3. Discuss which common diseases (appendicitis, myocardial infarction, etc.) present in elderly patients with atypical signs and symptoms that are different than the presentation in younger patients.
4. Demonstrate the ability to do functional assessments evaluating activities of daily living (ADL) of elderly patients in an emergency department setting.
5. Demonstrate the ability to define and diagnose dementia and delirium on elderly patients.
6. Discuss the etiologies and pathophysiology of falls in the elderly; demonstrate the ability to care for the elderly fall victim.
7. Discuss the management of elderly patients who present with polypharmacy.
8. Demonstrate the ability to detect depression, alcohol and drug abuse, and anxiety disorders in elderly patients.
9. Demonstrate the ability to detect and manage elder mistreatment, including physical abuse, sexual assault, physical neglect, and psychological abuse and neglect.

10. Demonstrate the ability to diagnose and treat myocardial infarction in elderly patients; discuss the importance of myocardial salvage for elderly patients with care myocardial infarction.

11. Demonstrate the ability to diagnose and treat elderly patients with cerebral vascular accidents.

12. Demonstrate the ability to diagnose and manage trauma and acute abdominal emergencies in the elderly patient; discuss the differences in the approach to elderly patients with surgical emergencies compared to the non-elderly.

**NEUROLOGY**

**Goals:**

1. Learn the anatomy, pathophysiology, presentation, and management of common nervous system disorders.

2. Develop skill in the performance of a screening and detailed neurological evaluation.

3. Develop skill in the use and performance of diagnostic procedures in the evaluation of neurological disorders.

**Objectives:**

1. Demonstrate brief and detailed neurological-directed history taking and physical examination.

2. Demonstrate the ability to recognize and manage cerebrovascular disorders, cranial nerve disorders, demyelination disorders, seizure disorders, headache, spinal cord compression, pseudotumor cerebri, normal pressure hydrocephalus, peripheral neuropathy, shunt malfunction, neurological infections, and neurological inflammatory states.

3. Demonstrate knowledge of neuroanatomy and application of this knowledge in the neurological examination to localize neurological disorders.

4. Describe the indication, techniques, and contraindications for neurological imaging procedures including plain radiographs, computerized tomographic scans, magnetic resonance imaging, myelography, tomography.

5. Describe the main classification of headaches and state the doses, indications, and contraindications for agents used to manage each of these types headaches.

6. Demonstrate skill in the performance and interpretation of spinal fluids studies.

7. Demonstrate knowledge of the proper sequence for evaluation and management
of patients with shunt malfunction, seizures, spinal cord compression, and neurological infections.
8. Discuss the indications, contraindications, and dosages of agents used to treat neurological infections in pediatric and adult populations.

**NEUROSURGERY**

**Goals:**
1. Develop history taking and physical examination skills that identify and localize injury to the central nervous system.
2. Effectively utilize radiologic studies to diagnose neurological disease or injury.
3. Diagnose, stabilize and provide initial treatment of injuries and diseases of the brain, spinal cord, bony spine and peripheral nerves.
4. Learn the CSF shunts function and learn to evaluate patients with possible shunts malfunction.

**Objectives:**
1. Demonstrate a brief and a complete neurological history and examination on patients with various levels of localizing the site of pathology in these patients.
3. Demonstrate the ability to recognize and manage cerebrovascular and spinal cord disorders that are amenable to neurological intervention.
4. Describe the indications, techniques, and contraindications for neurologic imaging procedures including plain skull and spinal radiography, computerized tomographic scan (with and without contrast), tomography, and magnetic resonance imaging.
5. Demonstrate ability to interpret skull and spinal radiographs (cervical, thoracic, lumbar, sacral), and CT scans of the head.
6. Describe initial management of fractures, subluxations, and dislocations of the spine.
7. Demonstrate spinal immobilization techniques.
8. Demonstrate skill in the initial evaluation and management of blunt and penetrating traumatic injuries of the CNS.
9. Demonstrate the ability to evaluate CSF shunt malfunction.
10. Demonstrate ability to recognize and manage spinal cord compression due to nontraumatic causes.
11. Describe the indications and techniques for control of intracranial pressure.
OBSTETRICS / GYNECOLOGY

Goals:
1. Learn the principles of contraception.
2. Develop expertise in the diagnosis and management of emergent complications of pregnancy.
3. Develop expertise in the management labor and delivery.
4. Develop expertise in the management of sexual assault.
5. Learn the principles of management of gynecologic and obstetrical trauma.
7. Develop expertise in the diagnosis and management of abdominal pain in females.
8. Develop expertise in the diagnosis and management of vaginal bleeding.

Objectives:
1. Demonstrate ability to correctly perform a complete gynecologic exam.
2. Discuss the differential diagnosis and demonstrate ability to evaluate and treat patients with vaginal discharge.
3. Discuss the differential diagnosis and demonstrate ability to evaluate and treat patients with pelvic pain.
4. Discuss the differential diagnosis and demonstrate ability to evaluate and treat patients with vaginal bleeding in pregnant and non-pregnant women.
5. Discuss the differential diagnosis and demonstrate ability to evaluate and treat patients with dysmenorrhea.
6. Demonstrate ability to evaluate and treat patients with genitourinary infections including PID, UTI, STD, and vaginities.
7. Describe the symptoms and differential diagnosis of toxic shock syndrome.
8. Demonstrate ability to perform perinatal and neonatal resuscitations.
9. Demonstrate ability to evaluate and manage the care of patients with suspected ectopic pregnancy.
10. Discuss the signs, symptoms and treatment of placenta previa.
11. Discuss the signs, symptoms and treatment of abruption placenta.
12. Discuss the signs, symptoms and treatment of preeclampsia and eclampsia.
13. Discuss the normal stages of labor and the time course for each.
14. Demonstrate ability to determine the APGAR score and discuss the significance of different values.
15. Demonstrate ability to evaluate and treat sexual assault victims, including evidence collection, appropriate patient counseling and pregnancy prevention.
16. Discuss the differential diagnosis and demonstrate ability to diagnose and treat genital ulcerations.
17. Discuss the pathophysiology, differential diagnosis, signs,
symptoms and treatment of ovarian torsion.

18. Discuss the management of trauma during pregnancy.

19. Discuss the indication for perimortem caesarian section and describe the technique.

20. Demonstrate ability to perform uncomplicated full-term deliveries.

21. Demonstrate ability to diagnose and manage postpartum complications including retained products, endometritis and mastitis.

22. Discuss RH incompatibility.

23. Describe the presentation a patient with hydatidiform mole.

24. Describe the classification scheme for abortion.

ORTHOPEDICS

Goals:

1. Develop relevant history and physical exam skills.

2. Learn use of the diagnostic imaging modalities available for the evaluation of orthopedic disorders;

3. Develop skill in the evaluation and management of musculoskeletal trauma.

4. Develop skill in the diagnosis and treatment of inflammatory and infectious disorders of the musculoskeletal disorders.

5. Learn principles of acute and chronic pain management in patients with musculoskeletal disorders.

Objectives:

1. Develop ability to correctly perform a history and physical in patients with musculoskeletal disorders.

2. Demonstrate ability to correctly order and interpret radiographs in patients with orthopedic injuries.

3. Demonstrate understanding of the anatomy, mechanism of injury, presentation, complications, managements, and prognosis of common musculoskeletal injuries.

4. Demonstrate knowledge of standard orthopedic nomenclature.

5. Demonstrate knowledge of appropriate aftercare and rehabilitation of orthopedic injuries.

6. Demonstrate knowledge of the differences pediatric and adult skeletal anatomy and indicate how those differences are manifest in clinical and radiographic presentation.

7. Demonstrate ability to apply orthopedic devices, including compressive dressings, splints and immobilizers.

8. Demonstrate skill in performance of the following procedures: fracture / dislocation immobilization and reduction, arthrocentesis,
9. Demonstrate ability to prioritize and manage the treatment of orthopedic injuries in multiple trauma patients.
10. Describe the presentation of patients with inflammatory and infectious disorders and demonstrate ability to diagnose and treat them.
11. Demonstrate ability to diagnose and treat soft tissue foreign bodies.
12. Describe the presentation, complication, diagnosis, management and prognosis of patients with human and animal bites.
13. Describe the presentation, complication, diagnosis, and management of compartment syndromes.
14. Demonstrate ability to provide regional anesthesia, including hematoma blocks. Bier blocks and radial, ulnar, median, axillary, posterior tibial and sural nerve blocks.
15. Discuss the dosages, indication, contraindications and side effects of standard analgesic and sedative agents used to treat patients with acute orthopedic trauma and demonstrate skills in their use.
16. Discuss the dosages, indication, contraindications, side effects and relative potency of standard oral analgesics used in treatment of patients with musculoskeletal disorders.
17. Discuss the differential diagnosis, historical features, physical and examination findings of patients with low back pain.
18. Demonstrate ability to recognize and treat soft tissue infections involving muscle, fascia, and tendons.
19. Describe diagnosis and treatment of overuse syndrome.
20. Describe how to evaluate and preserve amputated limb parts.
22. Discuss evaluation and treatment of soft tissue injuries such as, penetrating soft tissue injuries, crush injuries, and high pressure injection injuries.

**PEDIATRICS**

**Goals:**
1. Develop skill in infant/pediatrics resuscitation.
2. Develop skill in performance of appropriate pediatric history and physical exam, including general growth and development, assessment and knowledge of current immunization requirements.
3. Learn the etiologies, significance and treatment of fever and infection in the child.
4. Learn the manifestations and significance of abdominal related complaints in the child.
5. Learn the etiologies and treatment of neurologic emergency in the child.
7. Learn the indications of social and/or psychological disturbances.
8. Learn the specific problems of pediatric trauma victims.
9. Learn the manifestations and treatment of pediatric cardiac abnormalities.
10. Learn the pathophysiology, etiologies and treatment of respiratory disorders of children.
11. Learn the pathophysiology, etiologies and treatment of common serious endocrine and hematologic disorders of children.
12. Learn the pathophysiology, etiologies and treatment of common serious gynecologic and urologic conditions of children.
13. Learn to recognize and provide appropriate treatment for orthopedic and soft tissue problems of children.
14. Learn the common dermatologic diseases and dermatologic manifestations of systemic diseases in children.
15. Learn to recognize and treat children with common and/or serious problems of the head and neck.

Objectives:
1. Demonstrate correct airway management including pediatric endotracheal intubation.
2. Demonstrate ability to obtain and utilize intravenous access including venipuncture, intraosseous needle placement, and administration of appropriate dose of emergency medications.
3. Demonstrate knowledge of the significance of fever in children of various ages, and the ability to perform an "optimal resuscitation" including yale observation score of the febrile child.
4. Demonstrate knowledge of common infections diseases of childhood, including appropriate work-up and treatment of meningitis, sepsis, pneumonia, urinary tract infection, and bacteremia.
5. Demonstrate ability to perform a pediatric lumber puncture.
6. Demonstrate knowledge of the pathophysiology and manifestations of the common and/or serous diseases of the gastrointestinal tract and abdominal cavity of children, including gastroenteritis, intussusception, volvous, meckel's anaphlactoid purpura, and appendicitis.
7. Discuss the differential and preliminary work-up of abdominal masses found in the pediatric patient.
8. State the appropriate management of children with seizures, both febrile and afebrile.
9. Demonstrate familiarity with the diagnosis and management of reye's syndrome.
10. Demonstrate knowledge of hydrocephalus, its differential, treatment and the management of neurologic shunt problems.
11. Calculate fluid and electrolyte requirements of a dehydrated child. 22.1.15
12. Discuss the diagnostics work-up and disposition when child abuse and / or neglect is suspected.
13. Demonstrate ability to perform a history and physical exam of an alleged victim of sexual abuse.
14. Demonstrate ability to direct a pediatric trauma resuscitation.
15. Demonstrate knowledge of the significance and correct treatment of various pattern of burns in pediatric patients.
16. Interpret a series of pediatric EKG's showing awareness of the normal physiologic differences from adult EKG's.
17. Discuss the common pediatric dysrhythmias, their diagnosis and treatment.
18. Discuss the types of congenital cyanotic and nonsyanotic heart diseases, their complications and treatment.
19. Demonstrate ability to perform a history and physical exam of an alleged victim of sexual abuse.
20. Demonstrate ability to properly treat a patient who needs prophylaxis for rheumatic fever or subacute bacterial endocarditis.
21. Discuss the differential diagnosis of chest pain in children and adolescents, noting difference from adults, and demonstrating knowledge of proper work-up and treatment.
22. Discuss the differential of congestive failure in the pediatric patient and demonstrate knowledge of appropriate treatment.
23. Discuss the anatomy and physiology of the respiratory tract in children.
24. Demonstrate correct performance of peak expiratory flow measurements, pulse oxymetry and end-tidal CO.
25. Demonstrate management of patients with upper airway infection suspected of having epiglottitis.
27. Discuss the etiologies and demonstrate correct management of children with lower and upper airway diseases including asthma, bronchiolities, cystic fibrosis, pneumonia.
28. Demonstrate correct management of foreign bodies of the upper airway and ability to diagnose and arrange disposition for patients with lower airway foreign bodies.
29. Demonstrate correct management of the pediatric patients with diabetes and / or diabetic ketoacidosis.
30. Demonstrate knowledge of the etiologies of anemia in children and the appropriate diagnostic evaluation.
31. Demonstrate knowledge of the differential diagnosis and work-up of the jaundiced child.
32. Discuss the differential diagnosis and work-up of the child with evidence of a bleeding disorder.
33. Demonstrate correct evaluation and treatment of a child with dysuria or suspected urinary tract infection.
34. Discuss the indication for and interpret the intravenous pyelogram of a child.
35. Demonstrate knowledge of and treatment for phimosis, paraphimosis, balamatis, and testicular lesions including torsion.
36. Discuss the differential and required workup for a pediatric patient with a limp.
37. Demonstrate x-ray interpretation and perform proper splinting for a variety of pediatric fractures including the clavicle, distal radius and ulna, and distal tibia and fibula.
38. Demonstrate ability to perform and interpret the results of an arthrocentesis.
39. Discuss the findings and disposition of a patient with a suspected autoimmune syndrome such as juvenile arthritis, lupus, or dermatomyositis.
40. Demonstrate ability to perform reduction of a dislocated joint.
41. Discuss the etiology and treatment of acute soft tissue infections and perform an incision and drainage.
42. Correctly diagnose common pediatric exanthemas including varicella, measles, monilia, roseola, rubella, pityriasis, scabies, and erythema infectiosum.
43. Demonstrate knowledge of the differential diagnosis and evaluation of children with petechiae.
44. Demonstrate ability to correctly and interpret the exam of the ears, nose and throat.
45. Demonstrate knowledge of pediatric facial and orbital infections and their treatment.
46. Discuss the causes of neonatal shock and demonstrate the ability to perform and infant resuscitation, including endotracheal intubation and insertion of an umbilical venous catheter.
47. Demonstrate proper performance of a suprapubic bladder aspiration.
48. Discuss the finding and differential of sudden infant death syndrome, and demonstrate knowledge of the proper legal steps and ability to support the family.
49. Discuss the differential diagnosis and acute treatment of the week infant and child including polio, botulism and the Landry-Guillain – Barre syndrome.
50. Demonstrate knowledge of the evaluation and treatment of children with diarrheal illness.
51. Demonstrate knowledge of the common poisoning of childhood and their treatments.
52. Manage the care of a child with immersion / drowning.
53. Manage the care of a child with a foreign body ingestion, discussing the complications, diagnostic steps and treatment.
54. State the differential diagnosis of a child with upper or lower GI bleeding, and discuss the evaluation and treatment.
55. Discuss the differential diagnosis and work-up of renal failure or anuria in children.
56. Demonstrate ability to evaluate children with syncope and discuss its differential diagnosis.
57. Discuss the signs, symptoms, treatment and complication of Kawasaki disease.
58. Discuss the risk factors associated with teenage suicide 13.8.3
59. Discuss the differential of abnormal vaginal bleeding in childhood and demonstrate ability to perform a complete genital exam on children of various ages.
60. Demonstrate ability to evaluate and treat a child with altered mental status and interpret a pediatric cranial CT scan.
61. Discuss the technique for reducing an incarcerated inguinal hernia.
62. Discuss the common pediatric malignant tumors.
63. Differentiate between presentation, diagnostic test result and treatment of transient synovitis and septic joint.

PSYCHIATRY

Goals:
1. Develop familiarity with common psychotherapeutic agents.
2. Learn relevant interviewing techniques to deal with patients with various psychiatric disorders.
3. Learn principle of managing the violent patients.

Objectives:
1. Demonstrate ability to conduct an interview in patients with acute psychiatric disorders.
2. Demonstrate ability to perform a mental status exam in patients with normal and altered mental status.
3. Discuss the indications for emergent psychiatric consultation.
4. Discuss the indications for routine psychiatric consultation.
5. Demonstrate ability to assess suicide risk.
6. Demonstrate ability to interact with violent emergency department patients and discuss protection technique for patients and staff members.
7. Discuss technique of avoiding and acute psychiatric crisis in the emergency department.
8. Define major categories of psychiatric illness including thought, mood, anxiety, somatoform and personality disorders.
9. Discuss the pharmokinetics, indications, contraindication and side effects of the major classes of psychotherapeutic agents including major tranquilizers, sedative/hypnotics, and antidepressants.
10. Discuss the process of voluntary and involuntary commitment.
11. Discuss the indications for physical and chemical restraint and demonstrate ability to use restraint appropriately.
12. Discuss the difference between pseudodementia (depression) and true dementia in the elderly.
13. Discuss organic causes of altered mental status including dementia and delirium.
15. Demonstrate ability to diagnose and manage common intoxication and withdrawal syndromes.
16. Discuss the common complications of alcohol and drug abuse and demonstrate ability to diagnose and manage these complications.
17. Demonstrate ability to interact effectively with patients with personality disorders including antisocial, borderline, compulsive, dependent, histrionic and passive aggressive personality.

**RESEARCH**

**Goals:**
1. Learn techniques of analyzing biomedical research.
2. Understand methods of hypothesis development and testing.
3. Understand various types of study design and methodology.
4. Learn various methods of obtaining consent for biomedical research.
5. Understand basic statistical methods.
6. Understand the ramifications of ethical considerations in research.
7. Learn the skills to develop a manuscript that is acceptable for publication in a peer review journal.
8. Understand grants and funding of research.

**Objectives:**
1. Demonstrate an understanding of the advantages and disadvantages of various study designs, including the randomized clinical trial and case control, cohort, and cross sectional studies.
2. Demonstrate an understanding of the null and alternative hypotheses.
3. Demonstrate an understanding of the practical and ethical ramifications of
implied and non-implied consent as they apply to hospital and pre-hospital research.

4. Understand the differences between interval, ordinal, nominal, parametric, and non-parametric data.

5. Understand the differences between independent and dependent variables.

6. Demonstrate an understanding of methodologies and variable types analyzed by the following statistical tests: t test, analysis of variance, chi square, Fischer exact test, and non-parametric tests for interval and nominal data.

7. Demonstrate an understanding of the terms 'paired' and 'railed' (one and tow).

8. Demonstrate an understanding of type I and type II errors as relate to sample size and variance.

9. Demonstrate an understanding of alpha, beta, and statistical power.

10. Demonstrate an understanding of the differences between statistical and clinical significance.

11. Define sensitivity, specificity, positive, predictive value and negative predictive value.

12. Define mean, median, mode, standard deviation, and variance.

13. Demonstrate an understanding of confidence intervals.

14. Describe correlation and regression to the mean.

15. Discuss the advantage of single and double blind studies.

16. Demonstrate facility with at least one computer statistical program.

17. Demonstrate an understanding of basic ethical issues in research including consent and researchers interactions with computer funding sources.

18. Demonstrate an understanding of research funding.

19. Demonstrate the skills necessary to write a publishable manuscript.

**RESUSCITATION**

**Goals:**

1. Understand the etiologies and pathophysiology of cardiac arrest.

2. Learn to recognize the dysrhythmias associated with cardiac arrest and their treatment.

3. Learn the American Heart Association recommendation and develop standard resuscitative procedures.

4. Learn the principle of pharmacotherapy and the routes and dosages of drugs recommended during cardiac arrest and following resuscitation.

5. Learn standard monitoring techniques.

6. Learn the indication for withholding and terminating resuscitation.
Objectives:
1. Demonstrate knowledge of the various etiologies of cardiac arrest and the corresponding therapeutic approaches.
2. Demonstrate knowledge of the factors effecting blood flow, oxygen delivery and oxygen consumption during cardiac arrest.
3. Demonstrate ability to recognize dysrrhythniias associated with cardiac arrest and knowledge of ACLS protocols for their treatment.
4. Demonstrate ability to manage the airway during cardiac arrest, including mouth-to-mouth ventilation, bag-valve-mask ventilation, endotracheal intubation, cricothyroidotomy, and recognition of the obstructed airway.
5. Demonstrate ability to perform external closed chest cardiopulmonary resuscitation according to America Heart Association guidelines.
6. Discuss the dosages, indications and contraindications for pharmacologic therapy during cardiac arrest and following resuscitation. Demonstrate knowledge of the techniques for drug administration including peripheral and central venous, endotracheal, intraosseous and intracardiac administration.
7. Demonstrate ability to safely perform external defibrillation.
8. Demonstrate ability to safely perform external cardiac pacing.
9. Demonstrate ability to perform standard monitoring techniques during cardiac arrest and resuscitation including arterial blood gases, blood pressure monitoring. Right heart and pulmonary artery catheterization and end tidal CO₂ monitoring.

TOXICOLOGY

Goals:
1. Learn the pertinent aspects of the history and physical exam relative to acute poisoning with particular emphasis on clinical recognition of major toxic syndromes (toxidromes).
2. Learn the generic aspects of clinical management of poisoning including stabilization and decontamination.
3. Understand the principles, methods, and controversies of decontamination and enhancement of elimination of toxins.
4. Learn the presenting signs, symptoms, laboratory findings, pathophysiology and treatment of common therapeutic drug poisonings, drugs of abuse, natural toxins, and general household poisons as delineated in the core curriculum of Emergency Medicine, section.
5. Learn the common hazardous materials (HAZMAT) of the workplace and prehospital operations with regard to HAZMAT incidents.
6. Learn the principle of clinical operational toxicology and the major occupational
toxins of western society.
7. Learn the fundamentals of poisoning epidemiology, pharmokinetics, and biotransformation, including the effects of pregnancy and lactation.
8. Learn to recognize, diagnose, assess and emergently manage acute and choric complications of substance abuse.
9. Learn the use of adjunctive services, including the toxicology laboratory and poison center, in the management of acute poisoning.
10. Learn the specific indications and implementation of specific therapeutic modalities, such as the use of antidotes, hemodialysis, and hyperbaric oxygen.

**Objectives:**
1- Demonstrate the ability to perform gastric lavage, whole bowel irrigation, skin and eye decontamination, and administration of activated charcoal, 17.3.2
2- Discuss the indications, contraindications, dosages, and side effects of the currently available antidotes and antivenoms.
3- Demonstrate clinical recognition of toxidromes associated with drug overdose and drug withdrawal.
4- Demonstrate knowledge of the principles of hemodialysis and hemoperfusion and the toxic agents that can be removed by these methods.
5- Demonstrate ability to recognize common venomous animals and poisonous plants and their clinical presentations and treatments.
6- Demonstrate knowledge of the diagnostic laboratory including methods, limitations and costs.
7- Demonstrate knowledge of the drug interactions, side effects, and therapeutic agents.
8- Demonstrate the proper technique for handling a HAZMAT contaminated patient in the emergency department and the prehospital environment.
9- Demonstrate knowledge of the common household poisons, pesticides.
10- Demonstrate the knowledge and clinical skills necessary to manage a patient poisoned by any of the following: acetaminophen, amphetamines, anticholinergics, aspirin, abarbiturates, benzodiazepines, beta blockers, calcium channel blockers, carbon monoxide, caustics, cocaine, cyanide, cyclic antidepressants, digitalis, ethanol, ethylene glycol, INH, iron. Lithium, methanol, opiates, organophosphates, phenytoin, theophylline and venomous animals.
11- Demonstrate knowledge of basic principles of drug absorption, redistribution, metabolism, and elimination.
TRAUMA

Goals:

1- Learn basic principles of care of the trauma victim.
2- Develop an organized approach to the assessment, resuscitation, stabilization and provision of definitive care for the trauma victim.
3- Learn use of the diagnostic imaging modalities available for evaluation of the trauma victim.
4- Develop procedural skills needed in the evaluation and management of trauma.
5- Learn to recognize immediate life and limb threatening injuries.
6- Learn special considerations in the evaluation and management of the pregnant trauma victim.
7- Learn special considerations in the evaluation and management of the pediatric trauma victim.
8- Learn special considerations in the management of the geriatric trauma victim.
9- Learn principles of disaster management.
10- Learn principles of burn management.
11- Learn a systems approach to trauma management at the local and state levels.
12- Learn the principles of pre-hospital trauma care.

Objective:

1- Demonstrate ability to rapidly and thoroughly assess victims of major and minor trauma.
2- Demonstrate ability to establish priorities in the initial management of victims of life-threatening trauma.
3- Demonstrate ability to manage fluid resuscitation of trauma victims.
4- Demonstrate ability to manage the airway of trauma victims.
5- Discuss the definitive care of the trauma victim, including operative, post-operative and rehabilitative phases of care.
6- Demonstrate ability to perform the following procedures: oral and nasogastric intubation, venous cut downs, insertion of large bore peripheral and central venous lines, insertion of arterial lines, tube thoracostomy, local wound exploration, peritoneal lavage, vessel ligation, repair of simple and complex lacerations, splinting of extremity fractures, and reduction and immobilization of joint dislocations, cricothyroidotomy, cardiorrhaphy, aortic cross-clamping and extensor tendon repair.
7- Demonstrate ability to interpret radiographs on trauma patients, including chest, cervical, thoracic and lumbar spine, pelvis and extremity films.
8- Discuss the importance of mechanism of injury in the
evaluation and treatment of the trauma victim.
9- Demonstrate ability to calculate the Glasgow Coma Score and discuss its role in the evaluation and treatment of head injured patients.
10- Demonstrate ability to use spine immobilization techniques in trauma victims.
11- Demonstrate ability to diagnose and manage trauma victims with extremity fractures, dislocations and subluxations.
12- Demonstrate ability to mange soft tissue injuries including laceration, avulsions and high-pressure injection injuries.
13- Discuss the diagnosis and management of compartment syndromes.
14- Discuss the diagnosis and management of urogenital injuries.
15- Demonstrate appropriate use of analgesics and sedatives in trauma patients.
16- Demonstrate appropriate use of antibiotics in trauma patients.
17- Demonstrate ability to direct a trauma team during complex resuscitations.
18- Demonstrate ability to coordinate consultants involved in the care of multiple trauma patients.
19- Demonstrate ability to use and interpret imaging modalities in the evaluation of trauma patients.
20- Demonstrate ability to arrange appropriate consultation and disposition of trauma patients.
21- Demonstrate ability to direct the care of trauma victims in the pre-hospital setting.
22- Discuss principle of disaster drills.
23- Discuss the role of pre-hospital systems in the management of trauma patients.
24- Discuss factors unique to the evaluation and management of pediatric trauma.
25- Demonstrate ability to direct pediatric trauma resuscitations.
26- Discuss factors unique to the evaluation and management of geriatric trauma.
27- Demonstrate ability to direct geriatric trauma resuscitations.
28- Discuss factors unique to the evaluation and management of trauma in pregnancy.
29- Discuss of the evaluation and management of spinal cord injuries.
30- Demonstrate ability to diagnose and manage tendon injuries.
31- Demonstrate ability to manage amputation injuries and discuss the potential for reimplantation.
32- Demonstrate the ability to manage the acutely burned patient, including minor and major injuries.
33- Demonstrate the ability to diagnose and treat smoke inhalation.
34- Demonstrate the ability to assess and manage facial trauma.
35- Demonstrate the ability to evaluate and manage anterior neck injuries.
36- Demonstrate the ability to assess and manage penetrating and blunt chest trauma.
37- Demonstrate the ability to evaluate and manage blunt and penetrating abdominal trauma.
38- Demonstrate the ability to diagnose and treat pelvic fractures.

WOUND MANAGEMENT

Goals:
1- Understand the pathophysiology of wound healing.
2- Learn effective wound evaluation and management skills.
3- Learn wound closure techniques appropriate for outpatient, traumatic wounds.
4- Learn appropriate methods for control of pain in patients with traumatic wounds.
5- Understand quality assurance/risk management issues relating to wound care.
6- Learn effective documentation skills in patients with traumatic wounds.
7- Learn appropriate disposition and referral skills.
8- Learn appropriate follow-up techniques and management of the complications of traumatic wounds.

Objectives:
1- Demonstrate ability to perform appropriate history and physical exams in patients with traumatic wounds.
2- Demonstrate an understanding of wound pathophysiology, including cellular response, static and dynamic wound tensions, growth factors and tensile strength.
3- Demonstrate an understanding of the predictors of wound sepsis.
4- Demonstrate effective wound cleansing skills.
5- Describe the appropriate use, limitations and potential complications of wound cleansing solutions.
6- Describe the appropriate use, limitations and potential complications of antimicrobials in the management of traumatic wounds.
7- Demonstrate an understanding of various imaging modalities in the detection of soft tissue foreign bodies.
8- Demonstrate appropriate use of universal precautions in wound treatment.
9- Demonstrate skill in various wound closure techniques including intradermal suture, fascial closure, interrupted skin sutures, running skin sutures, vertical and horizontal mattress sutures, half-buried horizontal mattress sutures, tape closure and use of staples.
10- Demonstrate appropriate use of delayed closure techniques.
11- Demonstrate appropriate management of special wound types, including skin ulcers, human bites, animal bites, snake bites, plantar puncture wounds, dermal abrasions and tar burns.
12- Demonstrate skill in the management of complex lacerations.
13- Demonstrate skill in the provision of analgesia and anesthesia to patients with traumatic wound including use of local infiltration, topical administration and conscious sedation.
14- Demonstrate ability to apply wound dressings.
15- Demonstrate ability to thoroughly document historical and physical exam data relating to wound care.
16- Describe indications for specialty referral of traumatic wounds.
17- Demonstrate ability to diagnose and manage complication of traumatic wounds.

Enabling education objective in emergency medicine the specific prerequisite knowledge of skill that the resident in emergency medicine should required in order to achieve the terminal education objectives in each of the core content categories, will determine a programs enabling education objective. These enabling education objectives should be identified prior to each rotational experiences and in developing formal teaching program, formal assessment that these objectives have been achieved should be provided through end of rotation evaluation and in training examination of each resident.