Introduction

• Patients arriving in the diagnostic department could be experiencing a variety of ailments. Non trauma related emergencies are most likely to occur while the patient is undergoing a procedure. Observing and communicating with your pt is important.

• In most cases, the first action that you should take in a life-threatening emergency is to call the hospital emergency team, the physician conducting the exam, and a co-worker for assistance.
http://www.ncemi.org/cse/contents.htm
Sudden Illness
Responding to a Medical Emergency

- General signs of sudden illness:
  - Change in a person’s level of consciousness
  - Feeling lightheaded, dizzy or weak
  - Nausea or vomiting
  - Changes in breathing, circulation, skin temperature, color or moisture
Responding to a Medical Emergency

- General care for sudden illnesses include—
  - Do no further harm.
  - Monitor breathing and consciousness.
  - Help the victim rest in the most comfortable position.
  - Keep the victim from getting chilled or overheated.
  - Reassure the victim.
  - Give any specific care needed.
Sudden Illness

- Sudden illness can be—
  - Acute.
  - Chronic.

- Common sudden illnesses include—
  - Fainting.
  - Diabetic emergencies.
  - Seizures.
  - Stroke.
  - Poisoning.
  - Heart attack.
  - Shock.
Fainting

- Partial or complete loss of consciousness caused by a temporary reduction of blood flow to the brain.

- The victim will commonly display shock-like signals, such as—
  - Cool, pale, moist skin.
  - Nausea.
  - Numbness or tingling in the fingers and toes.
Fainting

• Additional signals that may precede fainting include—
  • Sweating.
  • Vomiting.
  • Distortion or dimming of vision.
  • Head or abdominal pain.
Care for Fainting

- General care for sudden illness:
  - Position the victim on the back on a flat surface. Elevate the legs about 12 inches.
  - Loosen any restrictive clothing.
  - Check for any other life-threatening and non-life-threatening conditions.
Care for Fainting

• General care for sudden illness:
  • Do not give the victim anything to eat or drink.
  • Do not splash the victim with water or slap his or her face.
  • As long as the fainting victim recovers quickly and has not lasting signals, you may or may not need to call 9-1-1 or the local emergency number.
Diabetes Mellitus

• A condition in which the body does not produce enough insulin or does not use insulin effectively is called diabetes mellitus.
  • Type I
  • Type II
  • Hyperglycemia
  • Hypoglycemia
Signs of Diabetic Emergency

- Changes in consciousness, including dizziness, drowsiness and confusion.
- Irregular breathing.
- Abnormal pulse (rapid or weak).
- Feeling or looking ill.
Care for a Diabetic Emergency

- Check and care for any life-threatening conditions.
- If conscious:
  - Check for non-life-threatening conditions.
  - Look for a medical alert tag or ask the victim if he or she has diabetes.
  - Give sugar in the form of fruit juice, candy or a non-diet soft drink.
Care for a Diabetic Emergency

• Check and care for any life-threatening conditions.

• If unconscious:
  • Call 9-1-1 or the local emergency number immediately.
  • Do not give the victim anything by mouth.
  • Monitor signs of circulation and breathing.
  • Keep him or her from getting overheated or chilled.
Seizures

- Caused by an acute or chronic condition.
- Before a seizure occurs, the victim may experience an aura.
- Seizures can range from mild blackouts to sudden, uncontrolled muscular contractions that can last several minutes.
- Febrile seizures
  - Common in children under 5 and can be triggered by ear, throat, or digestive system infections or a fever of over 102°F (38.9°C).
Seizures

- Febrile seizures
  - Common in children under 5 and can be triggered by ear, throat, or digestive system infections or a fever of over 102°F (38.9°C).
  - Signs:
    - A sudden rise in body temperature
    - A change in the level of consciousness
    - Rhythmic jerking of the head and limbs
    - Urinating or defecating
    - Confusion
    - Drowsiness
    - Crying out
    - Becoming rigid
    - Holding the breath
    - Upward rolling of the eyes
Care for a Seizure

- Do not try to hold or restrain the victim.
- Protect the victim from injury and maintain an open airway.
- Remove nearby objects that could cause injury.
- After the seizure, position him or her on one side so that fluid can drain from the mouth.
Care for a Seizure

- Check for life-threatening conditions.
- Stay with the victim until he or she is fully conscious and aware of his or her surroundings.
- Call 9-1-1 or the local emergency number, if necessary.
Stroke

- A disruption of blood flow to a part of the brain, resulting in permanent damage to brain tissue.

- Caused by a blood clot, aneurysm or atherosclerosis.

- A transient ischemic attack (TIA) -
Reducing Risk of Stroke and Other Cardiovascular Diseases

- Control blood pressure
- Not smoking
- Eat a healthy diet
- Exercise regularly
- Control diabetes
Signs of Stroke

- Appearing or feeling ill, or displaying abnormal behavior
- Sudden weakness or numbness of the face, arm or leg, often on only one side of the body
- Difficulty speaking or being understood
- Blurred or dimmed vision
- Pupils of unequal size
Signs of Stroke

- Sudden severe headache
- Dizziness
- Confusion
- Change in mood
- Ringing in the ears
- Loss of consciousness
- Loss of bowel or bladder control
Care for a Stroke

- Care for life-threatening conditions.
- Call 9-1-1 or the local emergency number immediately.
- Position him or her on one side (affected or paralyzed side down) to allow fluids to drain.
- Stay with the victim and check his or her breathing and signs of circulation.
Care for a Stroke

- If the victim is conscious—
  - Check for non-life-threatening conditions.
  - Offer comfort and reassurance.
  - Have the victim rest in a comfortable position.
What type of emergencies?

- Shock
- Anaphylaxis (a type of shock)
- Pulmonary embolus
- Reactions related to Diabetes Mellitus
- Cerebral vascular accident (CVA)
- Cardiac and Respiratory failure
- Syncope
- Seizures
**Crash Cart**

- A cart that contains medications and equipment that are needed when a patient’s condition suddenly becomes critical.

  ✓ Every department has one or more.

  ✓ **KNOW** where they are located.
Assessment of Levels of Neurologic and Cognitive Functioning

• During the care of a patient, you must be able to assess the patient's condition. It is not within your scope of practice to assess the neurologic condition. However, knowing what to look for will help you be aware of patient assessment.

• Glasgow Coma Scale
  
  – This scale addresses the 3 areas of neurologic functioning and it gives an overview of the pt’s responsiveness.
    
    • Eyes open
    • Motor response
    • Verbal response
Shock

- Shock is the body’s pathological reaction to illness, trauma, or severe physiologic or emotional stress. It may be caused by body fluid loss, cardiac failure, decreased tone of the blood vessels, or obstruction of blood flow to the vital body organs.

- Shock is a life threatening condition that may occur rapidly and without warning.
Types of Shock

- **Shock Continuum** = due to loss of blood or tissue fluid.
- **Cardiogenic** = due to cardiac disorders (myocardial infarction).
- **Distributive** = due to the blood vessels’ inability to constrict and their resultant inability to assist in the return of the blood to the heart.
  - Anaphylactic shock
- **Obstructive** = due to a pathological conditions that interfere with the normal pumping action of the heart.
3 Types of Distributive Shock

- **Neurogenic**
  - Loss of sympathetic tone causing vasodilation of peripheral vessels.

- **Septic**
  - Caused by a Gram-negative bacteria organism

- **Anaphylactic**
  - This type of shock is a type of vasogenic shock and is most common in the department due to iodinated contrast media. It is the result of an exaggerated hypersensitivity reaction to an exposure or re-exposure to an antigen that was previously encountered by the body’s immune system.
Radiographer’s Responsibility

• A complete medical history prior to administration of iodinated contrast agents.
  – Food allergies
  – Medication allergies
  – Previous incidents with past contrast agents.
  – Additional questions on display 7-2

• Clinical Manifestations
  – Mild
  – Moderate
  – Severe
Mild Systemic Reaction

- Nasal congestion
- Periorbital swelling
- Itching
- Sneezing
- Tingling or itching at the site on injection
- Feeling a fullness or tightness of the chest, mouth, or throat.
**Moderate Systemic Reaction**

- All symptoms listed above with rapid onset
- Flushing, feeling warm, itching and urticaria
- Bronchospasm and edema of the airway or larynx
- Dyspnea, cough, and wheezing
Severe Systemic Reaction

- All symptoms listed before but with an abrupt onset
- Decreased B/P
- Weak thready pulse
- Severe dyspnea and cyanosis
- Dysphasia, abdominal cramping, vomiting, diarrhea
- Seizures, respiratory and cardiac arrest
Medications for Anaphylactic Shock

- Epinephrine
- Diphenhydramine
- Hydrocortisone
- Aminophylline

Documentation

- If the patient does experience an anaphylactic reaction, the radiographer is responsible for putting a sticker stating: allergy reaction on the patient’s x-ray jacket, or documenting in PACS system.
Pulmonary Embolus

- A pulmonary embolus is an occlusion of one or more pulmonary arteries by a thrombus or thrombi.
- This is a common emergency, which results in more than 50,000 deaths each year.
- They are associated with: trauma, abdominal surgery, pregnancy, congestive heart failure, prolonged immobility.
Diabetes Emergencies

- Diabetes Mellitus is not recognized as a group of metabolic diseases resulting from a chronic disorder of carbohydrate metabolism.

- It is caused by:
  - Insufficient production of insulin.
  - Inadequate utilization of insulin by the cells of the body.

- The result
  - An abnormal amount of glucose in the blood (hyperglycemia).
4 Major Types of Diabetes Mellitus

- **Type 1: Diabetes Mellitus**
  - Under the age of 30
  - Abrupt onset
  - Insulin by injection
Cont.

- **Type 2: Diabetes Mellitus**
  - Pt’s older than 40
  - Gradual onset
  - Can be controlled by weight loss, diet, and exercise, but must be controlled.
Cont.

- **Type 3** - Diabetes mellitus associated with or produced by other medical conditions or syndromes

- **Type 4** - Gestational Diabetes
  - Occurs in the later months of pregnancy
  - Controlled by diet, but insulin may be given
Acute Complications of Diabetes Mellitus

- Hypoglycemia
- Diabetic Ketoacidosis
- Hyperglycemic Hyperosmolar Nonketotic Syndrome
Cerebral Vascular Accident (Stroke)

- CVAs are caused by occlusion of the blood supply to the brain, rupture of the blood supply, rupture of a cerebral artery resulting in hemorrhage directly into the brain tissues or into the spaces surrounding the brain.

- Strokes are now being termed “brain attacks” and are recognized as a medical crisis as a heart attack.
Clinical Manifestations

- Severe headache
- Numbness
- Muscle weakness, flaccidity of face or extremity
- Eye deviation
- Confusion
- Dizziness or stupor
- Difficult speech (dysphasia) or no speech (aphasia)

Which modality best demonstrates a CVA?
- CT
Cardiac and Respiratory Emergencies

- Respiratory failure, cardiac failure (also called cardiac arrest).
- You may be the first health care worker to witness this event, so it will be your responsibility to call the code and initiate emergency action.
- The human brain can survive without oxygen for only 2-4 min.
- All health care staff must be prepared to perform basic CPR, abdominal maneuver, and use of the automated external defibrillator (AED).
- Cardiac arrest - When the heart fails to beat effectively, the blood can not circulate through out the body, and the person no longer has an effective pulse.
Seizures

• An unsystematic discharge of neurons of the cerebrum that results in an abrupt alteration in the brain function.

• Seizures are a syndrome or symptom of a disease, not a disease in themselves.

• 2 types of seizures:
  - Generalized
  - Partial
    - Complex
    - Simple
Syncope

- Also known as “fainting” is a loss of consciousness which usually results from an insufficient blood supply to the brain.

- Orthostatic Hypotension
  - Is an abnormally low blood pressure occurring when a person stands up before the blood pooled in the extremities has time to circulate to the upper body.
The Radiographer’s Response to Pain

• Be sensitive to the patient’s need for pain control.

• In 1999 JCAHO established standards for pain management for all patients.

• Find out the polices in your CES.

• Factors that affect pain:
  – Age
    • Children
    • Elderly
  – Gender
  – Culture
  – Mental status
The Agitated or Confused Patient

- Patient’s with emotional and mental problems
- Combative or aggressive
- Confused elderly patient