Medical Emergency Preparation

Unit 4 Part 1

- Chapter 20 pg. 242

Emergency

Situation in which the condition of a patient or a sudden change in medical status requires immediate action

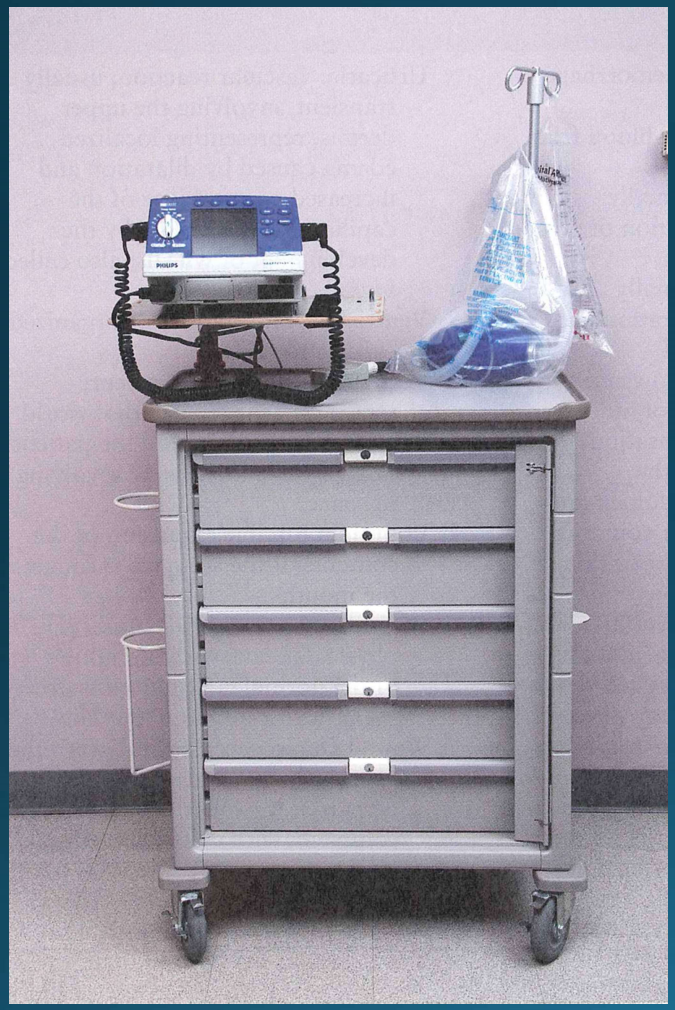
General Priorities:

- Ensure open airway
- Control bleeding
- Take measures to prevent or treat shock
- Attend to wounds or fractures
- Provide emotional support
- Continually reevaluate and follow up appropriately

Emergency Equipment

- Be familiar with location of emergency equipment in each room where you work
  - Drug Box or Drug cart
  - Emergency cart or crash cart
  - Oxygen
  - Wall-mounted suction
  - AED (automatic external defibrillators)

- Chapter 20 pgs. 242 -243



BOX 20.1 Equipment and Drugs Typically Found on an Emergency Cart

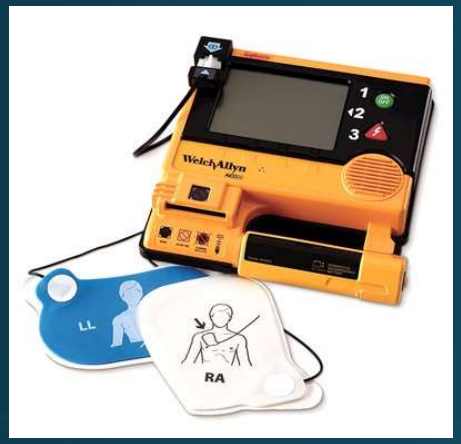
Standard Equipment

- Backboard
- Stethoscope
- Blood pressure cuff
- Ambu bag
- Laryngoscope
- Flashlight
- Batteries
- Extension cord
- Oxygen flow meter
- Tourniquet
- Airways
- Endotracheal tubes
- Nasopharyngeal tubes
- Suction catheters
- Levine tubing
- Jelco cannulas
- Tracheal tubes
- Cutdown tray
- Suction bottle
- Hemostat
- Scissors
- Sterile gloves, various sizes
- Syringes, various sizes
- Needles, various sizes
- Stopcocks and connectors
- Tongue blades
- Sterile gauze
- Adhesive and paper tape
- Alcohol swabs
- Surgical lubricant
- Blood collection tubes

Emergency Drugs Commonly Found on a Crash Cart

Medication	Indication
Adenosine (Adenocard)	Arrhythmias
Amiodarone (Cordarone)	Arrhythmias
Atropine	Bradycardia
Dexamethasone (Decadron)	Allergic reaction
Diphenhydramine (Benadryl)	Allergic reaction
Dobutamine (Dobutrex)	Shock
Dopamine	Shock
Epinephrine	Cardiac arrest, anaphylaxis
Furosemide (Lasix)	Edema
Norepinephrine	Shock
Phenytoin (Dilantin)	Seizures
Procainamide (Pronestyl)	Arrhythmias
Sodium bicarbonate	Metabolic acidosis
Verapamil	Arrhythmias

Emergency Equipment AED



AED (automatic external defibrillator) usually located on top of crash cart

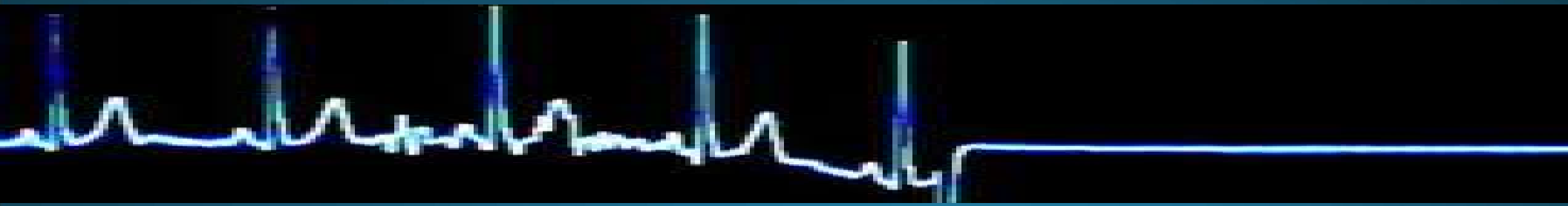
- Sometimes located on wall
- Useful in treating cardiac arrhythmia
- AED's located in every department, including DOB and Outpatient centers
  - Fully Automatic
  - Semi-Automatic

SHS Info….

- Red Phones
  - Call 911
- Receptionist Desk – Equipment
- AED
- Charlie Sullivan Auditorium Closet – Wheelchair
- Nursing Skills Lab

Code Blue
Rapid Response Team
Medical Emergency
Code Help

Policy –Medical Emergencies (can be found within Learning Units; Unit 4)



Code Blue

- Code used to expedite the response of the appropriate medical team to participate in resuscitation of any person who has had a cardiopulmonary arrest/failure or who is experiencing a potential life-threatening event.
- May be called to respond to patients, staff members, visitors, or outpatients
- A Pediatric Code Blue will be announced for all children *17 years and under*

Conditions requiring CODE BLUE considerations:

- Lack of pulse or ventilation
- Acute deterioration of airway, pulmonary, and/or circulatory systems
- Acute unresponsiveness

CODE BLUE: Members (not limited to the individuals listed here)

- Resident
- Critical Care Nurse
- Respiratory Therapist
- Anesthesia
- Primary Care RN
- Nurse Manager / Director / Coordinator
- Chaplain
- Laboratory

How is Code Blue called?

- In Hospital--Dial x6363
  - Tell the operator to page "Code Blue"
  - Tell operator your location
    - Example: "Charlie 1, Radiology, Room 2"
- In Outpatient centers call 911 only

RT Role: Code BLUE

- Call for help
- Assess vital signs
- Get emergency equipment to room
- Get chart to the room (unless electronic)
- Provide appropriate care while waiting for help to arrive
- Begin CPR if applicable - ABCs (CAB)
- Be prepared to provide history of events

Rapid Response Team

- A team of clinicians who bring critical care expertise to *INPATIENT* bedside. The team assesses and assists the bedside nurse in the management of the patient.
- This response team is called *instead* of a Code Blue when a patient demonstrates signs of deterioration but does not meet the criteria of a Code Blue

- If a less serious situation arises, call RRT
  - Dial x6363
  - MUST *BE SPECIFIC* if it is a pediatric patient

Members of the Team

- Hospitalist - Team Leader
- Internal Medicine Resident
- COACH/ICU RN
- Respiratory Therapist
- Bedside Registered Nurse
- Laboratory Technician
- (Additional members if "Pediatric, Trauma, or Brain Attack RRT" is called)

Responsibilities of the Team

- Arrive within 5 minutes of the call
- Assess
- Stabilize
- Assist with communication. Assure that the attending physician is notified.
- Educate and support
- Assist with transfer, if necessary
- Document the event
- Provide feedback

Examples of signs of deterioration for inpatient Adult RRT Activation

- Staff member is concerned/worried about the patient
- Acute change in HR, BP, SpO_2
- Acute change in respiratory status or rate, threatened airway
- Acute requirement to increase O_2 to maintain oxygen saturation
- New onset arrhythmia
- Potential symptoms of heart attack
- Acute change in mental status
- Acute change in neurologic status (ambulatory function, decreased sensation, increased tingling)
- New seizure activity
- Failure to respond to treatment for an acute problem/symptom
- Onset of new stroke symptoms
- Potentially serious medical error

Examples of signs of deterioration for inpatient Pediatric RRT Activation

- Staff member is concerned/worried about the patient
- Acute changes in heart rate trends
- Acute changes in systolic BP trends
- Acute change in respiratory rate, effort and air entry. Respiratory rate greater than 60 is inappropriate for any age child
- Partial airway obstruction with respiratory distress
- Acute change in saturation less than 92%, despite O2
- Acute change in conscious state
- Acute change in trending of urinary output less than 1-2 ml/kg per hour

Responsibility of RT during RRT Activation

- Assure notification of the Attending physician by the appropriate person (Resident physician for Teaching Service patients)
- Provide the Team with a brief history of the situation, patient background and his/her assessment of the patient
- Provide the team with the patient's current and recent medications, laboratory results and recent interventions

Medical Emergency

- A team of healthcare individuals who will respond to a status change of an individual (non-inpatient)
  - Status changes: feeling faint, low blood sugar, fall, chest pain, panic attack, etc.
- Available in-house at all times
- Assesses and assists in the management of the patient
- Not for serious conditions that warrant a Code Blue and the individual is not an In-Patient so it would not be a RRT. Individuals would include:
  - Outpatient, visitor, staff, student, contractor

- The Team includes Emergency Department Staff, COACH Nurse and Security:
  - Clinical, observation and critical help

- *In Hospital – Dial x6363*
  - Tell operator your location
    - Example: "Charlie 1, Radiology, Room 3"

- *In Outpatient centers call 911 only*

MEDICAL EMERGENCIES

MAJOR EMERGENCIES

- Head Injury
- Shock
- Anaphylaxis
- Diabetic Coma
- Respiratory Distress and Arrest
- Airway obstruction
- Cardiac Arrest
- CVA

HEAD INJURY

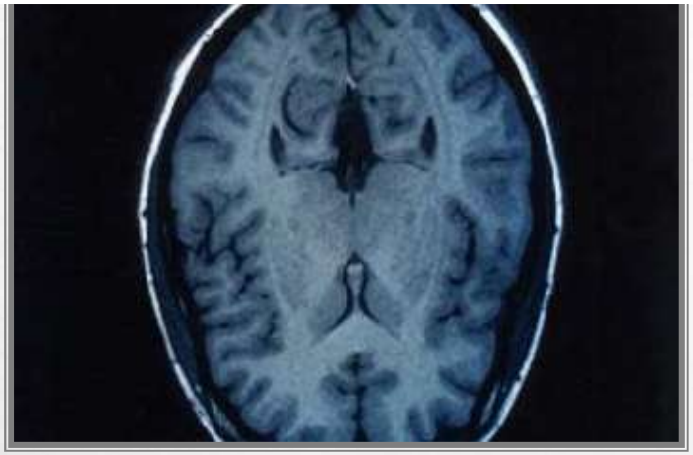
LEVELS OF CONSCIOUSNESS (LOC)

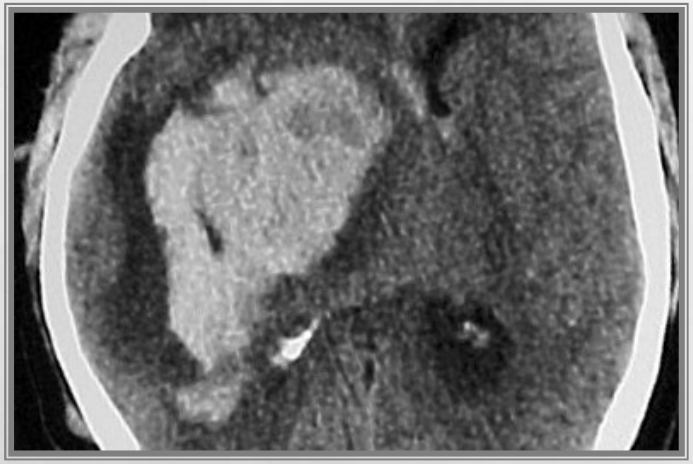
- ALERT/CONSCIOUS: LEAST SEVERE INJURY
- SEMI-CONSCIOUS/SERIOUS HEAD INJURY
- UNCONSCIOUS
- COMATOSE/UNRESPONSIVE

Ch. 20, pages 243-244

Indications of Deteriorating Consciousness

- IF PATIENT CHANGES LOC DURING EXAM, NOTIFY NURSE/DOCTOR <u>IMMEDIATELY</u>
  - PATIENT STARTS TO COMPLAIN OF HEADACHE
  - PATIENT BECOMES RESTLESS OR UNUSUALLY QUIET (LETHARGY)
  - SLURRED SPEECH
  - IRRITABILITY
  - SLOWING PULSE RATE
  - SLOWING RESPIRATORY RATE





RESPONSE TO DETERIORATING CONSCIOUSNESS

- STAY WITH PATIENT UNTIL HELP ARRIVES
- ASSESS VITAL SIGNS
- MAINTAIN OPEN AIRWAY
- MOVE PATIENT AS LITTLE AS POSSIBLE

GLASGOW COMA SCALE: A WAY TO ASSESS NEUROLOGICAL FUNCTIONS

- THREE AREAS OF FUNCTIONING
  - EYES OPEN
  - MOTOR RESPONSE
  - VERBAL RESPONSE

Glasgow coma scale	
Eye opening	spontaneously to speech to pain none
Verbal response	orientated confused inappropriate incomprehensible none
Motor response	obeys commands localises to pain withdraws from pain flexion to pain extension to pain none
Maximum score	

SHOCK

Ch. 20, page 244

FAILURE OF THE CIRCULATORY SYSTEM TO SUPPORT VITAL BODY FUNCTIONS

- HYPOVOLEMIC
- DISTRIBUTIVE
  - ANAPHYLACTIC
  - NEUROGENIC
  - SEPTIC
  - CARDIOGENIC

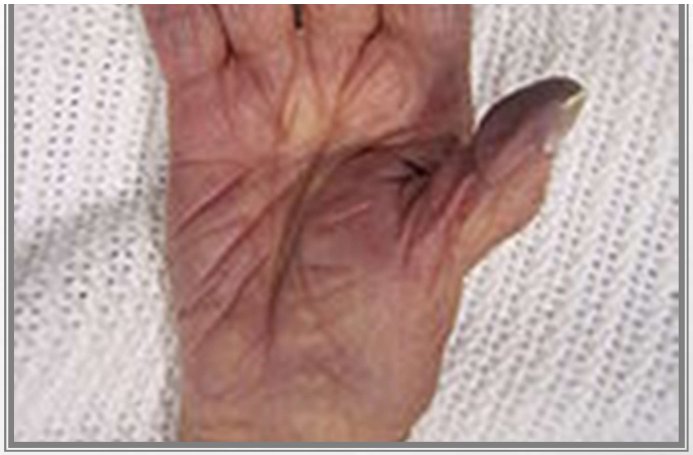
SHOCK-SYMPTOMS

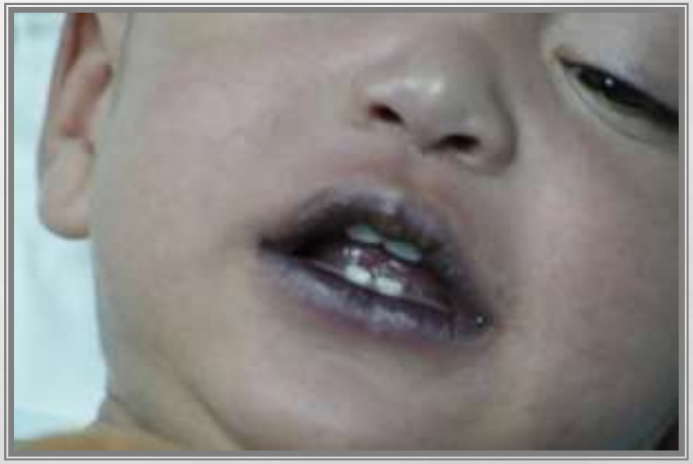
- RESTLESSNESS
- APPREHENSION / GENERAL ANXIETY
- TACHYCARDIA (RAPID AND OFTEN WEAK)
- DECREASING BLOOD PRESSURE
- COLD, CLAMMY SKIN
- PALLOR

HYPOVOLEMIC SHOCK

CAUSED BY LOSS OF BLOOD OR TISSUE FLUID

- IF BLEEDING FROM WOUND CAUSES SHOCK, PLACE PRESSURE ON WOUND SITE TO REDUCE HEMORRHAGE
  - MONITOR PATIENT FOR CYANOSIS
    - LIPS/NAILS





DISTRIBUTIVE SHOCK

RESULTS FROM EXCESSIVE VASODILATION AND THE IMPAIRED DISTRIBUTION OF BLOOD FLOW

- ANAPHYLACTIC
- NEUROGENIC
- SEPTIC
- CARDIOGENIC

- ***ALLERGIC REACTION***
  - IMPORTANCE OF PATIENT SCREENING
  - MONITOR PATIENT CONSTANTLY AFTER GIVING IV CONTRAST
    - MILDER REACTIONS: HIVES (URTICARIA), ITCHING, NAUSEA AND VOMITING
      - TREATED WITH ANTIHISTAMINE, EPINEPHRINE
    - SEVERE REACTIONS: LARYNGEAL EDEMA, SHOCK, TACHYCARDIA, CARDIAC ARREST, DEATH

- ***NEUROGENIC***
  - CAUSED BY SPINAL ANESTHESIA/DAMAGE TO THE UPPER SPINAL CORD

- ***SEPTIC***
  - RESULT OF BODY RESPONSES TO INVASION OF GRAM-NEGATIVE BACTERIA (ORGAN DYSFUNCTION DUE TO PRESENCE OF INFECTION)
    - MOSTLY SEEN IN ER AND ICU

- ***CARDIOGENIC***
  - CAUSED BY A VARIETY OF CARDIAC DISORDERS
    - MYOCARDIAL INFARCTION

SHOCK

PREVENTION/INTERVENTION

PREVENTION

- MAINTAINING NORMAL BODY TEMPERATURE
- AVOID ANY ROUGH OR EXCESSIVE HANDLING
- BE AWARE OF THE PATIENT'S PSYCHOLOGICAL CARE

INTERVENTION

- IF SITUATION IS DEVELOPING – STOP THE PROCEDURE
- MAINTAIN BODY TEMPERATURE
- CALL FOR ASSISTANCE
- TAKE NOTE OF PATIENT VITAL SIGNS

DIABETIC CRISIS

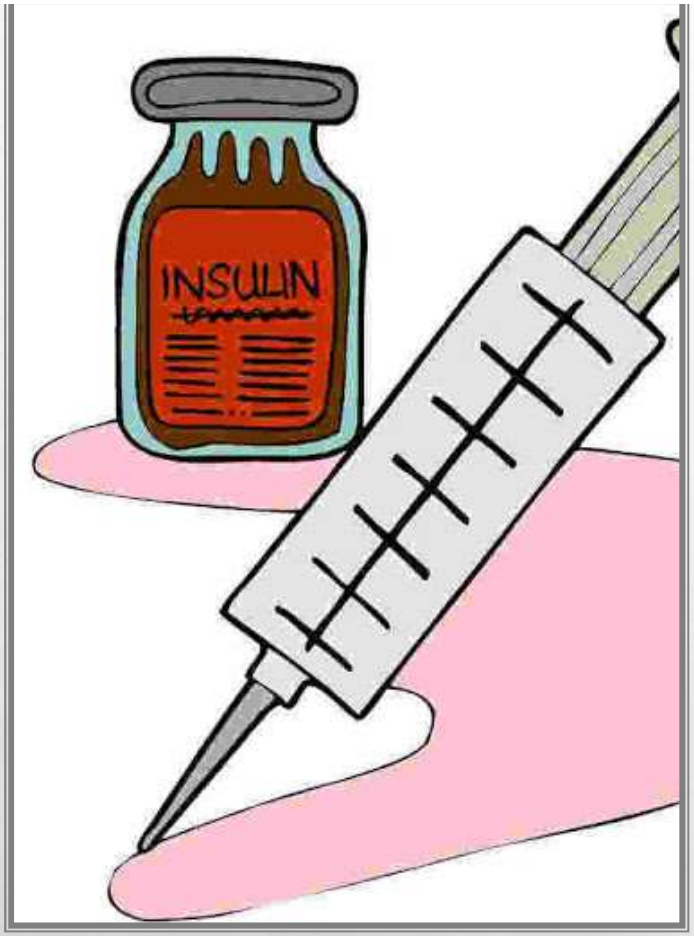
Ch. 20, pages 244-245

DIABETIC CRISIS

A DISEASE IN WHICH THE BODY CANNOT REGULATE THE AMOUNT OF SUGAR IN THE BLOOD.

- INSUFFICIENT PRODUCTION OF INSULIN
- INADEQUATE USAGE OF INSULIN
- MAY BE TEMPORARY
  - GESTATIONAL DIABETES
- NORMAL GLUCOSE LEVEL = 70-110 MG/DL

Reference: medlineplus.org



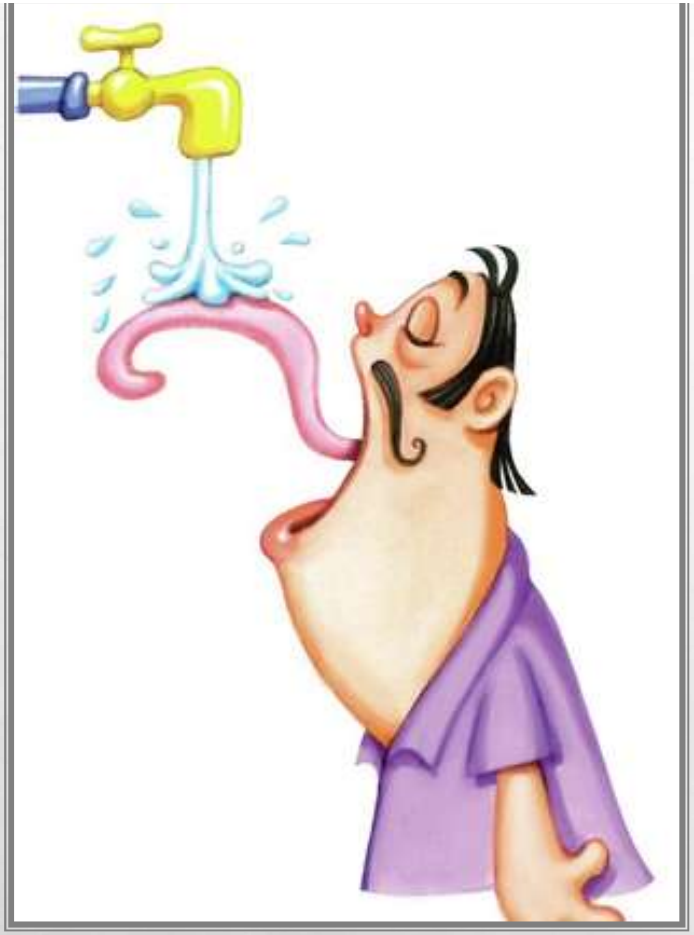
HYPOGLYCEMIA

EXCESSIVE INSULIN IS PRESENT

- CAN OCCUR IF PATIENT TAKES NORMAL DOSE OF INSULIN AND DOES NOT EAT (EXAM PREPARATION)
  - PATIENTS OFTEN RECOGNIZE EARLY SIGNS AND NEED A QUICK FORM OF CARBOHYDRATE OR TAKE A GLUCOSE TABLET

INSULIN SHOCK & INSULIN REACTION

- ***MILD SYMPTOMS***- TREMOR, SWEATING, HUNGER, TACHYCARDIA, IRRITABILITY
- ***MODERATE SYMPTOMS***- DIZZINESS, HEADACHE, NUMBNESS OF LIPS OR TONGUE, CONFUSION, COLD AND CLAMMY SKIN, BLURRED VISION, IRRATIONAL BEHAVIOR
- ***SEVERE SYMPTOMS***- DISORIENTATION, DIFFICULTY AROUSING FROM SLEEP, IMPAIRED MOTOR FUNCTION, DIMINISHING LEVEL OF CONSCIOUSNESS, SEIZURE, COMA



HYPERGLYCEMIA

EXCESSIVE SUGAR IN THE BLOOD AND IS THE CHARACTERISTIC TYPICALLY ASSOCIATED WITH DIABETES

SYMPTOMS:

- **EXCESSIVE THIRST/URINATION**
- **DRY MUCOSA**
- **RAPID AND DEEP BREATHING**
- **DROWSINESS**
- **CONFUSION**

HYPERGLYCEMIA

OTHER SYMPTOMS ---- (*SIMILAR TO HYPOGLYCEMIA)

- WEAKNESS, DROWSINESS, FATIGUE
- HEADACHE, BLURRED VISION
- WARM, DRY SKIN AND EXTREME THIRST
- TACHYCARDIA
- PATIENT WILL HAVE SWEET ODOR ON BREATH
  - FRUIT OR NAIL POLISH REMOVER

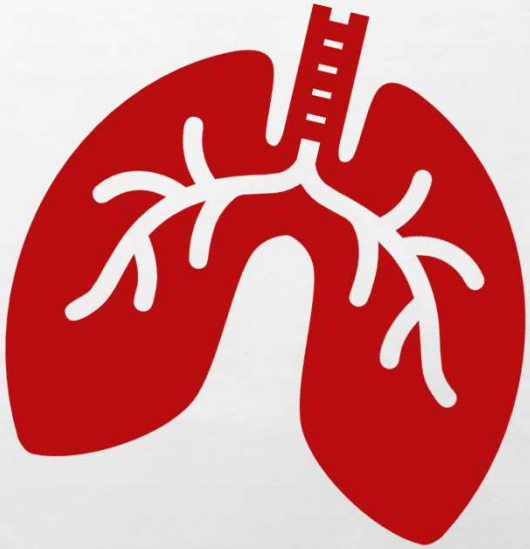
✓ DIABETIC COMA (HYPEROSMOLAR COMA) CAN OCCUR IF SYMPTOMS PERSIST IN EXCESS

KETOACIDOSIS

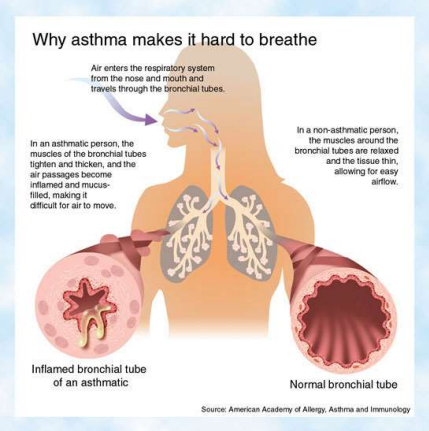
- FAT BROKEN DOWN INTO FREE FATTY ACIDS AND GLYCEROL
- LIVER CONVERTS FATTY ACIDS TO KETONE BODIES OR *TOXIC ACIDS* (KETOSIS)
- KETONE BODIES IN BLOODSTREAM CAUSE METABOLIC ACIDOSIS *OR DIABETIC COMA*
  - NOT ENOUGH INSULIN TO STOP THIS PROCESS IN DIABETICS

✓ KETOACIDOSIS OCCURS SLOWLY BUT CAN BE FATAL

RESPIRATORY DISTRESS AND ARREST



Ch. 20, page 245



ASTHMA

Condition characterized by difficulty breathing, wheezing

- Bronchial swelling on inspiration, collapse on exhalation
- Increased mucous production

May happen in imaging department

- Reaction to contrast
- Response to stress, anxiety of exam

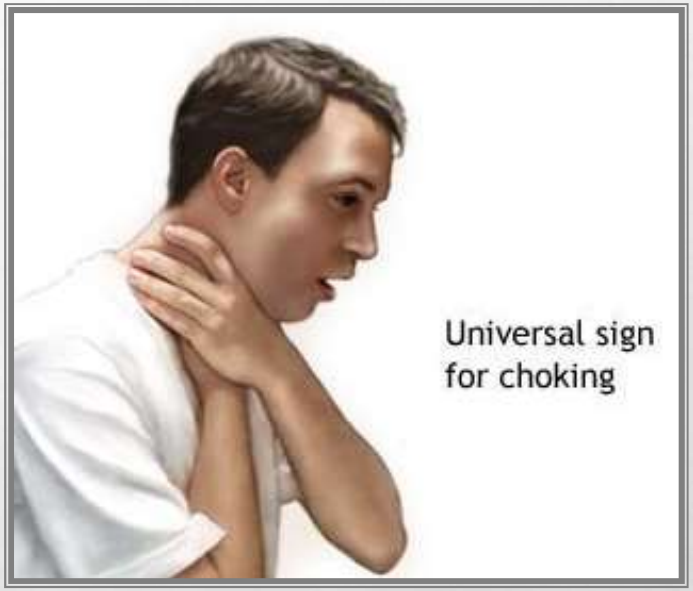
Ch. 20, pages 245-246

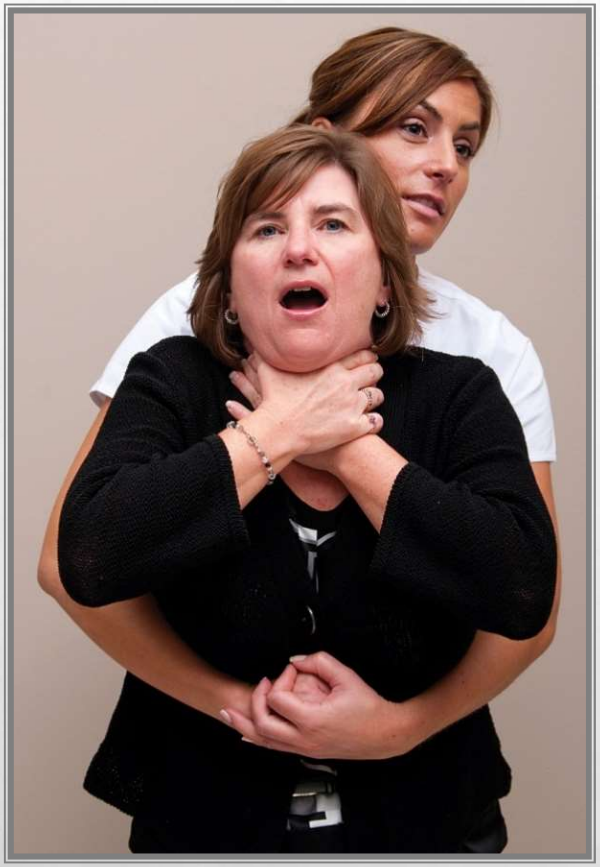
MAJOR EMERGENCY: *CHOKING*

- CHOKING OCCURS WHEN A FOREIGN OBJECT BECOMES LODGED IN THE THROAT OR WINDPIPE, BLOCKING THE FLOW OF AIR
- ***STRIDOR*** = ABNORMAL BREATHING SOUND THAT RESEMBLES WHEEZING OR CREAKING OR WHISTLING SOUND

- PARTIAL OBSTRUCTION
- COMPLETE OBSTRUCTION

**UNIVERSAL DISTRESS SIGNAL FOR CHOKING





Heimlich Maneuver

PURPOSE: TO INCREASE INTRATHORACIC PRESSURE ENOUGH TO PROPEL THE LODGED OBJECT OUT OF THE THROAT/AIRWAY

- STAND BEHIND VICTIM
- CLUTCH FIST OF ONE HAND WITH THE OPPOSITE HAND
- THUMB OF FIST PLACED ON MIDLINE OF ABDOMEN BETWEEN NAVAL AND STERNUM
- HOLD ELBOWS OUT
- THRUST INWARD AND UPWARD UNTIL OBJECT IS FREED

PREGNANT WOMEN OR OBESE PATIENTS--USE CHEST THRUSTS

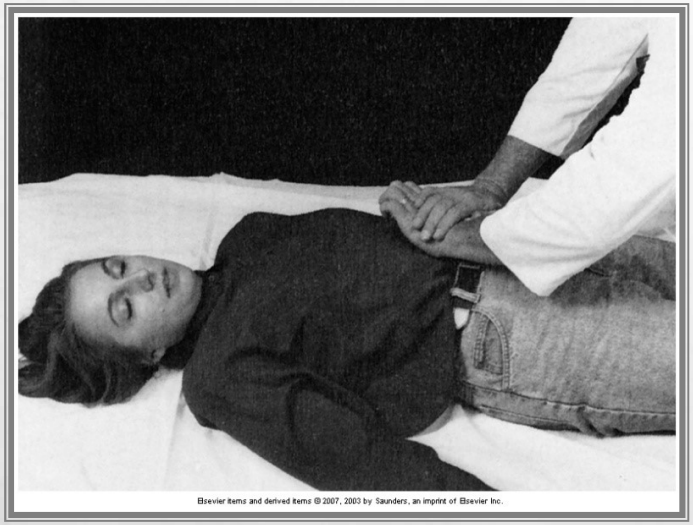
- PLACE ARMS UNDER ARMPITS OF VICTIM
- THUMB OF FIST GOES TO CENTER OF STERNUM
- THRUST BACKWARDS

FIG. 19-5 The Heimlich maneuver adapted for a woman in an advanced stage of pregnancy.

INFANTS < 12 MONTHS, USE BACK BLOWS AND CHEST THRUSTS

- ALWAYS SUPPORT THE HEAD AND NECK
- ALTERNATE BACK TO FRONT POSITIONING
- USE HEEL OF HAND FOR BACK BLOWS
- USE 2 OR 3 FINGERS FOR CHEST THRUSTS

FIG. 19-6 The Heimlich maneuver on an infant. Position the infant face up over the forearm. Use two or three fingers to perform the *abdominal* thrust.



UNCONSCIOUS PATIENT

- FOR UNCONSCIOUS PATIENT, START WITH CPR IN CASE OBJECT BECAME DISLODGED
- CHECK FOR OBJECT IN MOUTH—BUT ***NO*** BLIND FINGER SWEEPS!

Ch. 20, pages 246-250

MAJOR EMERGENCY: *CARDIAC ARREST*

THE SUDDEN STOPPAGE OF CARDIAC OUTPUT THAT LEADS TO PERMANENT ORGAN DAMAGE OR DEATH IF NOT TREATED

SYMPTOMS:

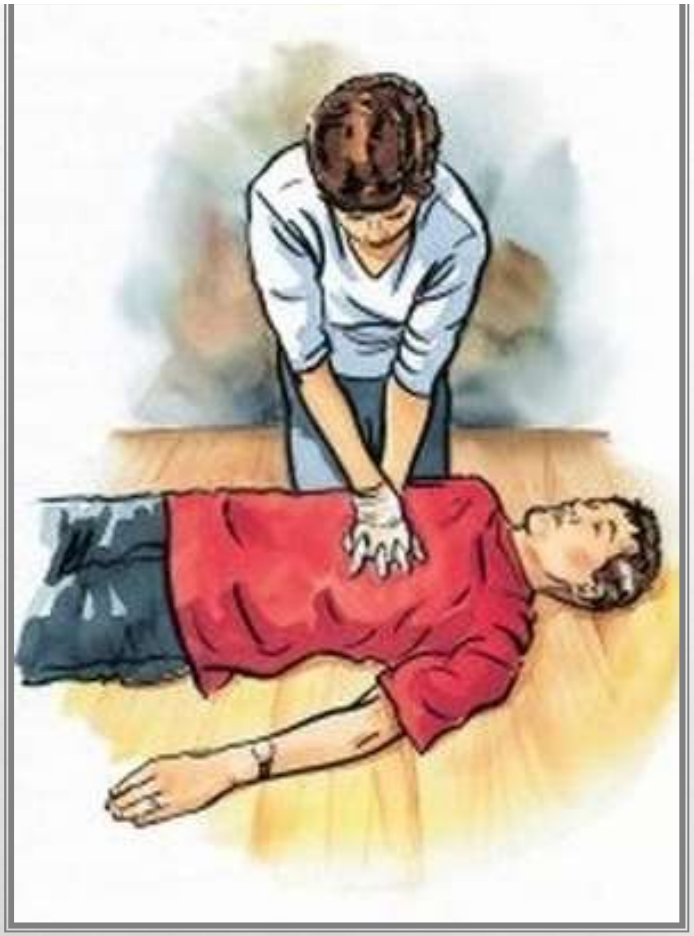
- ✓ CRUSHING CHEST PAIN
- ✓ CHEST PAIN RADIATING DOWN LEFT ARM
- ✓ UPPER GI DISCOMFORT
- ✓ LOSS OF CONSCIOUSNESS, PULSE AND BLOOD PRESSURE
- ✓ DILATION OF PUPILS WITHIN SECONDS
- ✓ POSSIBILITY OF SEIZURES

MAJOR EMERGENCY: *CARDIAC TAMPONADE*

BLOOD/FLUIDS FILL THE SPACE BETWEEN THE SAC THAT ENCASES THE HEART AND THE HEART MUSCLE

SYMPTOMS:

- ✓ CHEST PAIN RADIATING TO YOUR NECK, SHOULDERS, OR BACK
- ✓ TROUBLE BREATHING, RAPID BREATHING OR TAKING DEEP BREATHS
- ✓ LOW BLOOD PRESSURE OR WEAKNESS
- ✓ ANXIETY AND RESTLESSNESS
- ✓ DISCOMFORT RELIEVED BY SITTING/LEANING FORWARD
- ✓ FAINTING, DIZZINESS, AND LOSS OF CONSCIOUSNESS



CPR

- REMEMBER THE ABC'S OF CPR BUT NOW ITS.....
  - CIRCULATION (COMPRESSIONS)
  - AIRWAY
  - BREATHING

You all Are CPR Certified...Adult, Child, Infant

- WHEN DOING CPR IN THE HOSPITAL, USE STANDARD PRECAUTIONS
- CALL FOR HELP IMMEDIATELY
- CHECK DNR/AND STATUS****
- INITIATE CPR IF NECESSARY
- BE SURE TO USE CRASH CART/AED
- DISPOSABLE MASK OR AMBU BAG SHOULD BE USED
- FINGER SWEEP SHOULD BE DONE WHILE WEARING GLOVES

- PATIENT NEEDS OXYGEN TO GO TO THE BRAIN WITHIN 4 MINUTES

AED--(AUTOMATIC EXTERNAL DEFIBRILLATION)

- A PORTABLE ELECTRONIC DEVICE THAT AUTOMATICALLY DIAGNOSIS LIFE THREATENING CARDIAC ARRHYTHMIAS IN A PATIENT AND TREATS THEM THROUGH DEFIBRILLATION ALLOWING THE HART TO RE-ESTABLISH EFFECTIVE RHYTHM
- VENTRICULAR FIBRILLATION
- VENTRICULAR TACHYCARDIA

Ch. 20, page 250

MAJOR EMERGENCY: *CEREBROVASCULAR ACCIDENT*

STROKE OR BRAIN ATTACK

- ONSET MAY BE SUDDEN OR DEVELOP GRADUALLY OVER TIME
- ***WARNING SIGNS:***
  - PARALYSIS ON ONE/BOTH SIDES
  - SLURRED SPEECH/LOSS OF SPEECH
  - EXTREME DIZZINESS
  - LOSS OF VISION
  - COMPLETE LOSS OF CONSCIOUSNESS

SYMPTOMS SOMETIMES ONLY TEMPORARY

Ch. 20, pages 250-251

MINOR EMERGENCIES

- Nausea and Vomiting
- Epistaxis
- Vertigo and Syncope
- Seizures
- Wounds

NAUSEA & VOMITING

CAN INSTRUCT THE PATIENT TO BREATHE SLOWLY AND DEEPLY THROUGH THEIR MOUTHS

IF VOMITING OCCURS:

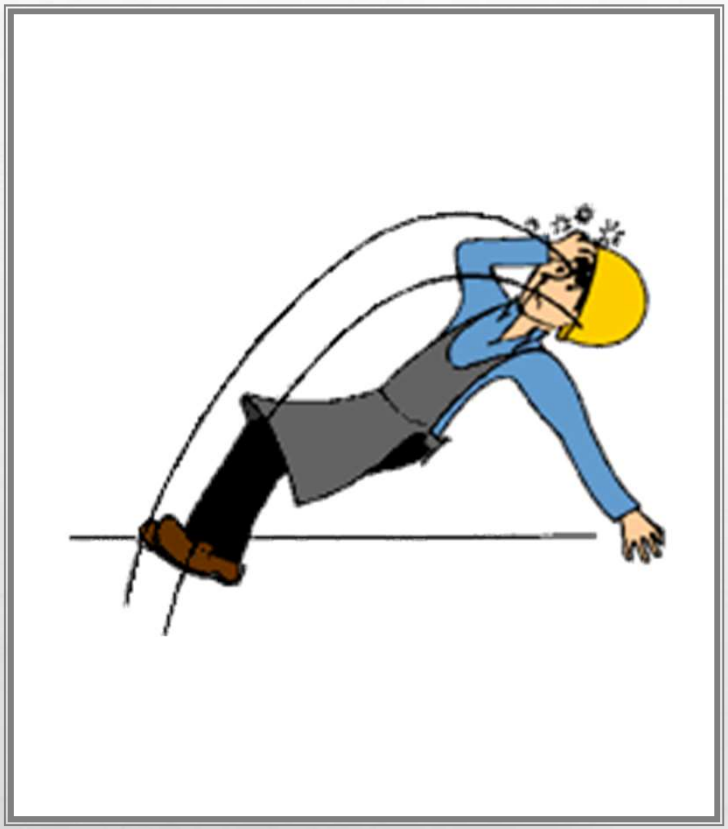
- PROVIDE PATIENTS WITH EMESIS BASIN/BAG AND MOIST CLOTHS
- PATIENT SHOULD BE POSITIONED ERECT OR LATERAL
  - DECREASES CHANCE OF ASPIRATION
- PATIENT IN SUPINE POSITION SHOULD TURN THEIR HEAD TO THE SIDE

EPISTAXIS (NOSEBLEED)

- HAVE PATIENT LEAN FORWARD AND PINCH NOSTRIL AGAINST THE MIDLINE NASAL CARTILAGE
- ***DO NOT*** PLACE PATIENT RECUMBENT OR TILT HEAD BACK. KEEP PATIENT UPRIGHT IN CHAIR
  - BLOOD CAN FLOW DOWN THROAT
  - PATIENT WILL SWALLOW BLOOD
- APPLY MOIST COMPRESS IF GENTLE PRESSURE FAILS TO STOP THE BLEEDING
- IF ACTIONS ARE NOT EFFECTIVE WITHIN 15 MINUTES SEEK MEDICAL ASSISTANCE

VERTIGO (DIZZINESS)

- OFTEN A PRECURSOR TO SYNCOPE
- SHOULD BE ASSISTED TO A SEATED OR RECUMBENT POSITION
- WATCH FOR VERTIGO WHEN SITTING PATIENTS UP FROM A RECUMBENT POSITION
  - EXAMPLE: FROM X-RAY TABLE
- INSTRUCT THEM TO TAKE SLOW, DEEP BREATHS
- ALLOW THEM TO CHANGE POSITIONS SLOWLY
  - *POSTURAL HYPOTENSION**



SYNCOPE (FAINTING)

SELF-CORRECTING, TEMPORARY STATE OF SHOCK AND THE RESULT OF LACK OF BLOOD FLOW TO THE BRAIN

- ASSIST PATIENT INTO A RECUMBENT POSITION
- TIGHT CLOTHING LOOSENED
- MOIST CLOTH APPLIED TO FOREHEAD

SEIZURES

Range from mild to severe

MILD:

- BRIEF LOSS OF CONSCIOUSNESS
- STARE INTO SPACE FOR A BRIEF TIME
- SLIGHT CONFUSION OR WEAK AFTER THE EPISODE

SEVERE:

- INVOLUNTARY CONTRACTION OF MUSCLES ON ONE/BOTH SIDES OF BODY LASTING MINUTES OR SEVERAL MINUTES.
- LOSS OF CONTROL OF BODILY FUNCTIONS: DROOLING, URINATION, LOSS OF BOWELS
  - NONCONVULSIVE (PETIT MAL)
  - CONVULSIVE (GRAND MAL)

***DO NOT ATTEMPT TO RESTRAIN THE PATIENT

- PLACE PILLOW UNDER PATIENT'S HEAD
- CLEAR AREA FROM ANY HAZARDOUS OBJECTS
- LOWER TO FLOOR WHEN POSSIBLE
- IF PATIENT SEIZES ON X-RAY TABLE, MAKE SURE THEY DON'T FALL--DON'T LOWER THEM TO THE FLOOR

AFTER SEIZURE: MAKE SURE PATIENT HAS AN OPEN AIRWAY

RT Responsibility:

- Make note of where seizure began
- Was it one or two sided
- Length of seizure

WOUNDS (HEMORRHAGE)

A RAPID AND UNCONTROLLABLE LOSS OR OUTFLOW OF BLOOD/FLUIDS

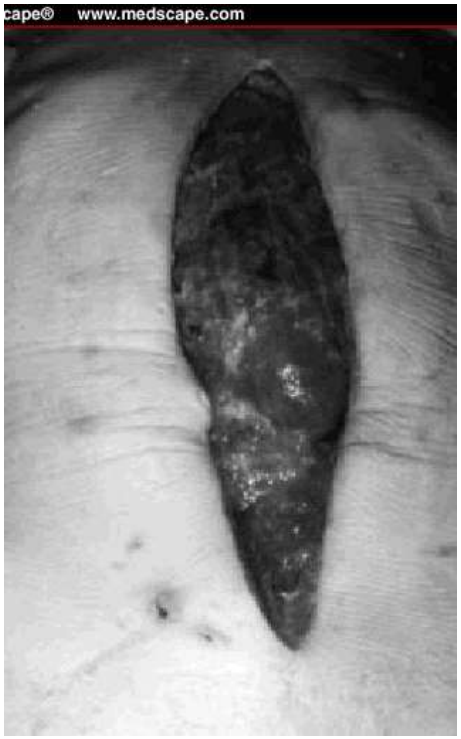
- WOUNDS NEED TO BE OBSERVED FOR SIGNS OF HEMORRHAGE
- IF DRESSING BECOMES SOAKED DURING AN EXAM, APPLY PRESSURE UNTIL BLEEDING STOPS
- MAY NEED TO USE STERILE GAUZE OVER DRESSING
- DO NOT REMOVE DRESSING IN THIS CASE
- CLOTTING MAY TAKE 10 MINUTES OR MORE
- AFTER CLOTTING OCCURS, TAPE GAUZE INTO PLACE OVER DRESSING

STEPS TO TAKE FOR SUPERFICIAL LACERATIONS:

- STOP THE BLEEDING; APPLY PRESSURE
- CLEAN THE AREA; APPLY AN ANTIBIOTIC CREAM; APPLY A STERILE BANDAGE

STEPS TO TAKE FOR DEEP LACERATIONS:

- LACERATION IS BLEEDING SEVERELY; BLOOD IS SPURTING FROM THE LACERATION
- CLAMPING THE ARTERIES ("CLAMPING BLEEDERS")
  - HEMOSTAT TO ARTERY/VEIN THAT IS PROFUSELY BLEEDING *(OR/TRAUMA SITUATION)*



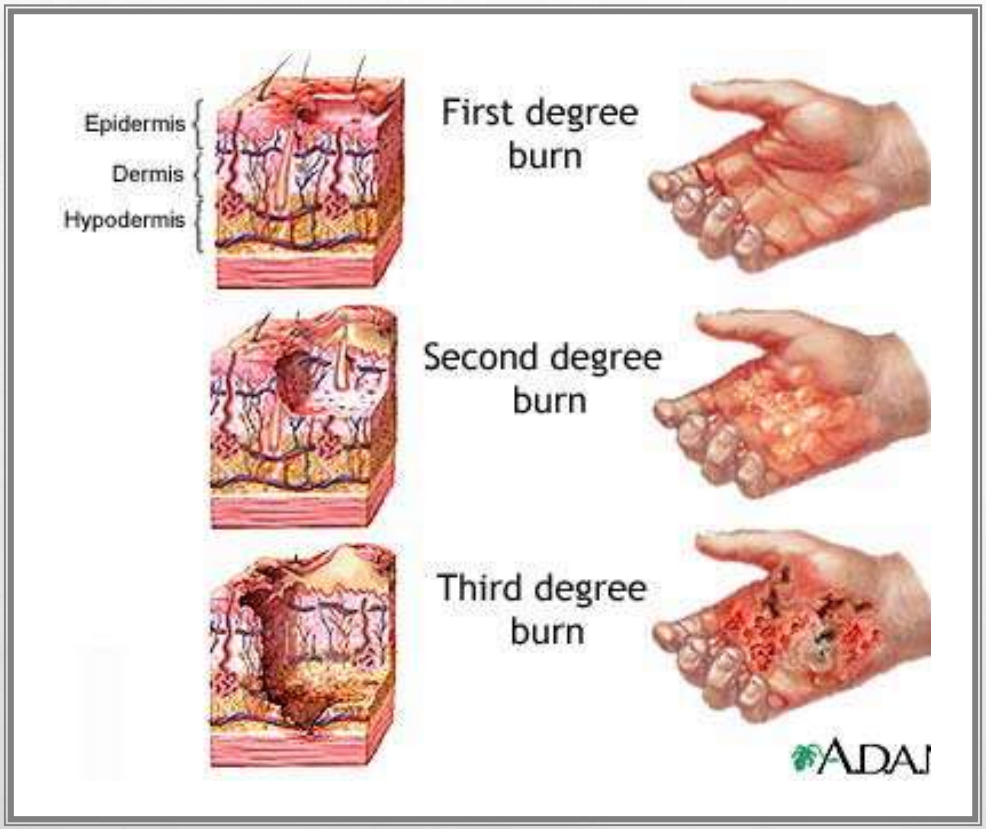
DEHISCENCE

A PATIENT'S SUTURES SEPARATE ALLOWING THE CONTENT TO BE VISIBLE OR SPILL OUT

- **PARTIAL OR COMPLETE**
  - **PLACE STERILE DRESSING OVER SITE**
  - **PLACE PATIENT IN SEATED POSITION, BENDING FORWARD TO RELIEVE PRESSURE ON WOUND (IF ABDOMEN)**
  - **DO NOT ATTEMPT TO PLACE TISSUES BACK INSIDE WOUND**
  - **MEDICAL ATTENTION SOUGHT IMMEDIATELY!**

BURNS

- DISRUPT THE PROTECTIVE FUNCTION OF THE SKIN
  - VERY PRONE TO INFECTION
  - IMPERATIVE TO MAINTAIN STERILE PRECAUTIONS
- EXTREMELY PAINFUL—HANDLE WITH CARE
- NEVER REMOVE CLOTHING FROM A BURN IF IT IS STUCK TO THE SKIN



THREE TYPES OF BURNS:

- ***FIRST DEGREE*- LEAST SEVERE**
- ***SECOND DEGREE*- DEEPER THAN FIRST DEGREE BURNS**
- ***THIRD DEGREE*- DEEPEST AND MOST SEVERE**

LATEX ALLERGY

Latex comes from the sap of the rubber tree

Latex allergy can build up due to repeated exposure

- Rubber gloves are the main offenders

Symptoms may include:

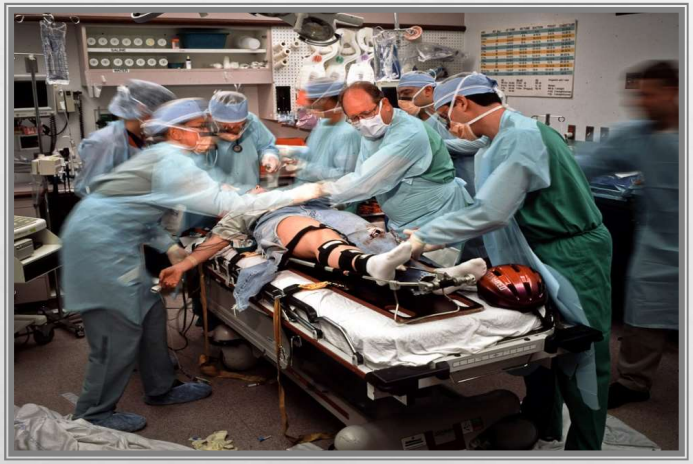
- Dermatitis, rhinitis, conjunctivitis, cramps, hives and severe itching

Can cause anaphylaxis, death

TREATMENT/PREVENTION OF AGITATING ALLERGY:

- NEEDS TO BE TREATED IMMEDIATELY
- IF PATIENT HAS LATEX ALLERGY, REMOVE LATEX FROM EXAM ROOM
- USE ONLY NON-LATEX GLOVES (VINYL, NITRILE)
- WASH DOWN THE ROOM BEFORE THE PATIENT ENTERS

MEDICAL EMERGENCY:
HEAD & SPINAL TRAUMA CONSIDERATIONS; FRACTURES



TRAUMA

A PHYSICAL INJURY OR WOUND CAUSED BY EXTERNAL FORCE OR VIOLENCE

- **SUDDEN, UNEXPECTED, DRAMATIC, FORCEFUL OR VIOLENT EVENT**

TRAUMA—HEAD INJURIES

A HEAD INJURY IS ANY TRAUMA THAT INJURES THE SCALP, SKULL, OR BRAIN *(EXAMPLE: CONCUSSION)*

- **CLOSED**
- **OPEN (PENETRATING)**

COMMON CAUSES:

- ACCIDENTS AT HOME, WORK, OUTDOORS OR WHILE PLAYING SPORTS
- FALLS
- PHYSICAL ASSAULT
- TRAFFIC ACCIDENTS

MOST OF THESE INJURIES ARE MINOR BECAUSE THE SKULL PROTECTS THE BRAIN. HOWEVER, SOME INJURIES ARE SEVERE ENOUGH TO REQUIRE A STAY IN THE HOSPITAL

SYMPTOMS ASSOCIATED WITH HEAD INJURIES:

- DROWSINESS, SLURRED SPEECH
- ABNORMAL BEHAVIOR
- DEVELOPS A SEVERE HEADACHE OR STIFF NECK
- LOSES CONSCIOUSNESS, EVEN BRIEFLY
- VOMITS MORE THAN ONCE (COULD CHANGE WITH PATIENT POSITION)
- SEIZURES
- VISUAL DISTURBANCES; UNEQUAL PUPIL DILATION

STEPS TO TAKE WITH A *MILD* HEAD INJURY:

- OBSERVE ADULTS/CHILDREN AFTER INJURY FOR INCREASED SYMPTOMS

STEPS TO TAKE WITH A *MODERATE/SEVERE* HEAD INJURY:

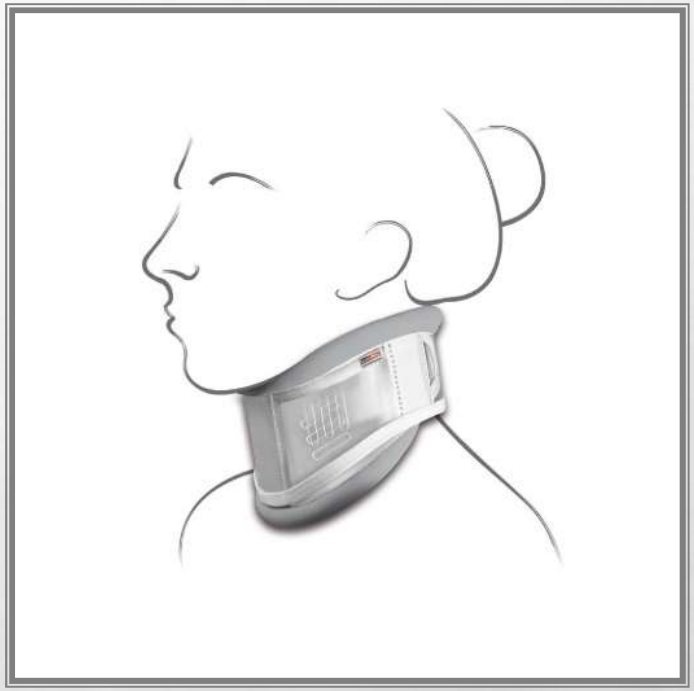
- CHECK PERSONS AIRWAY, BREATHING, CIRCULATION
- STABILIZE HEAD/NECK
- STOP ANY BLEEDING
- APPLY ICE PACKS TO SWOLLEN AREAS

DO NOT:

- WASH A HEAD WOUND THAT IS DEEP OR BLEEDING A LOT
- REMOVE ANY OBJECT STICKING OUT OF A WOUND
- MOVE THE PERSON UNLESS ABSOLUTELY NECESSARY
- SHAKE THE PERSON IF HE OR SHE SEEMS DAZED
- PICK UP A FALLEN CHILD WITH ANY SIGN OF HEAD INJURY
- DRINK ALCOHOL WITHIN 48 HOURS OF A SERIOUS HEAD INJURY

IMMOBILIZATIONS:

- CERVICAL COLLAR
  - LIMITS PATIENT MOBILITY
  - CANNOT BE REMOVED BY RADIOLOGIC TECHNOLOGIST/STUDENT
  - PHYSICIAN MUST CLEAR THE C-SPINE FOR REMOVAL



TRAUMA—SPINAL INJURIES

INJURY THAT CAN CAUSE LOSS OF MOVEMENT (PARALYSIS) BELOW THE SITE OF INJURY

COMMON CAUSES:

- BULLET OR STAB WOUND
- TRAUMATIC INJURY TO THE FACE, NECK, HEAD, CHEST, OR BACK *(EXAMPLE: CAR ACCIDENT)*
- DIVING ACCIDENT
- ELECTRIC SHOCK
- EXTREME TWISTING OF THE MIDDLE OF THE BODY
- LANDING ON THE HEAD DURING A SPORTS INJURY
- FALL FROM A GREAT HEIGHT

SYMPTOMS OF SPINAL INJURY:

- HEAD THAT IS IN AN UNUSUAL POSITION
- NUMBNESS OR TINGLING THAT SPREADS DOWN AN ARM/LEG
- WEAKNESS
- DIFFICULTY WALKING
- PARALYSIS (LOSS OF MOVEMENT) OF ARMS OR LEGS
- NO BLADDER OR BOWEL CONTROL
- SHOCK
- LACK OF ALERTNESS (UNCONSCIOUSNESS)
- STIFF NECK, HEADACHE, OR NECK PAIN

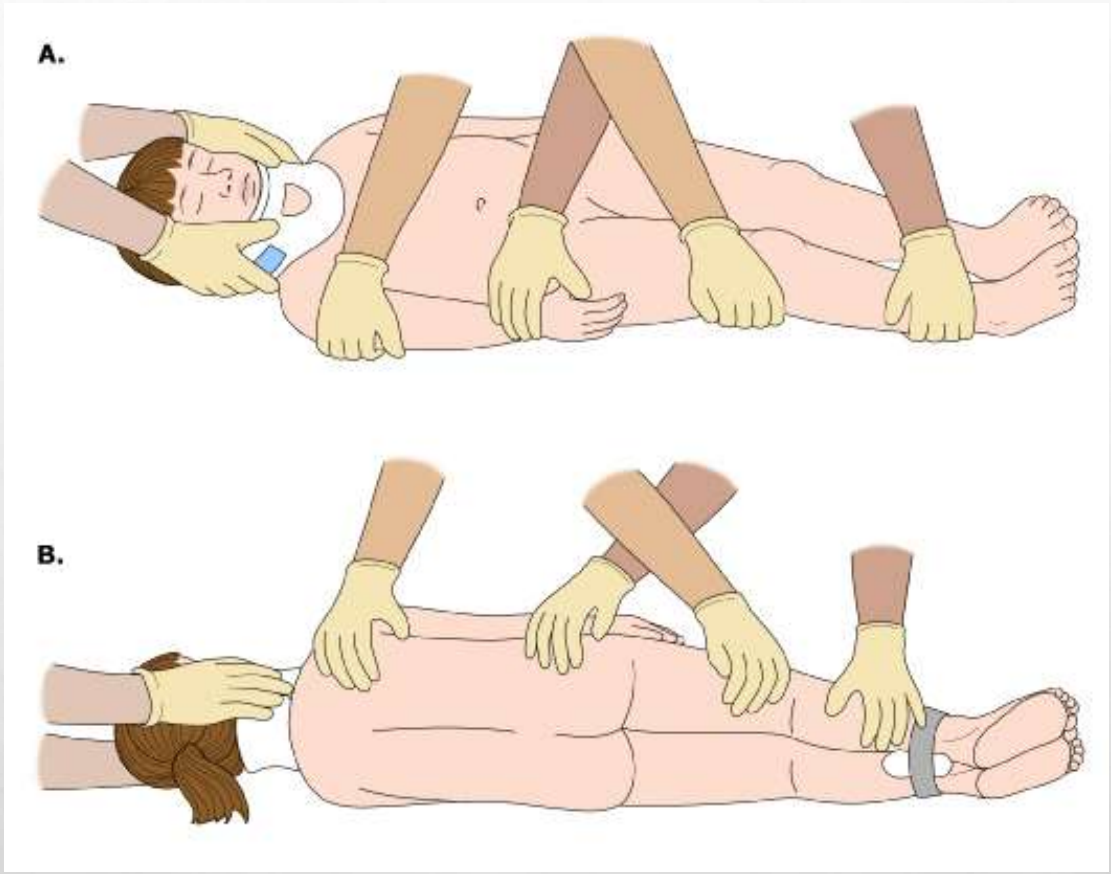
STEPS TO TAKE WITH A SPINAL INJURY:

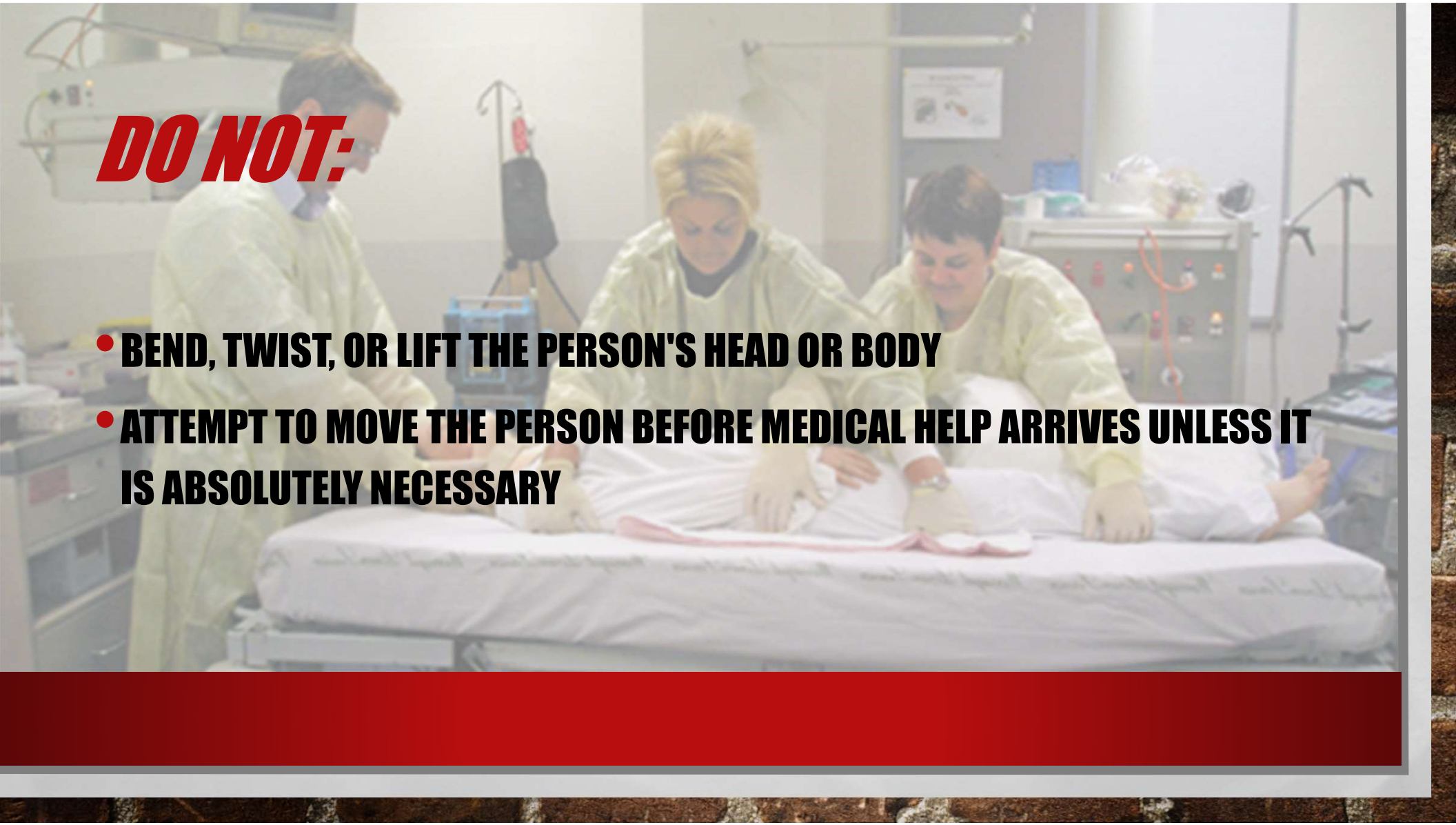
- NEVER MOVE ANYONE WHO YOU THINK MAY HAVE A SPINAL INJURY
- HOLD THE PERSON'S HEAD AND NECK IN THE POSITION IN WHICH THEY WERE FOUND
- DO NOT ALLOW THE PERSON TO GET UP AND WALK UNASSISTED
- IF THE PERSON IS NOT ALERT OR RESPONDING TO YOU:
  - CHECK THE PERSON'S BREATHING AND CIRCULATION. IF NECESSARY, BEGIN RESCUE BREATHING AND CPR

STEPS TO TAKE WITH A SPINAL INJURY: *(CONTINUED)*

- ***DO NOT*** ROLL THE PERSON OVER UNLESS THE PERSON IS VOMITING OR CHOKING ON BLOOD, OR YOU NEED TO CHECK FOR BREATHING. IF YOU NEED TO ROLL THE PERSON OVER:
  - LOG ROLL:
    - ✓ TWO PEOPLE ARE NEEDED
    - ✓ ONE PERSON SHOULD BE LOCATED AT THE PERSON'S HEAD; THE OTHER AT THE PERSON'S SIDE
    - ✓ KEEP THE PERSON'S HEAD, NECK, AND BACK IN LINE WITH EACH OTHER WHILE YOU ROLL HIM OR HER ONTO ONE SIDE

***NOT IN OUR SCOPE OF PRACTICE TO STABILIZE C-SPINE*


A.
B.



DO NOT:

- BEND, TWIST, OR LIFT THE PERSON'S HEAD OR BODY
- ATTEMPT TO MOVE THE PERSON BEFORE MEDICAL HELP ARRIVES UNLESS IT IS ABSOLUTELY NECESSARY

IMMOBILIZATIONS:

- CERVICAL COLLAR
  - PLACES TRACTION ON CERVICAL SPINE
  - PREVENTS LIFE-THREATENING MOVEMENT
  - MUST REMAIN ON WHILE IMAGES ARE TAKEN
    - (SEE PAGE 168 IN TEXTBOOK)
  - MAY NEED TO ALTER WAY FILMS ARE TAKEN

    (MOVE EQUIPMENT INSTEAD OF HEAD)

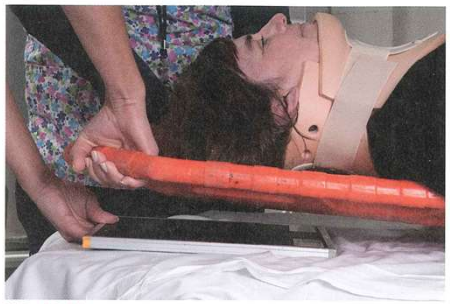


FIG. 14-11 Patient on backboard positioned for acanthoparietal projection with cervical collar in place.

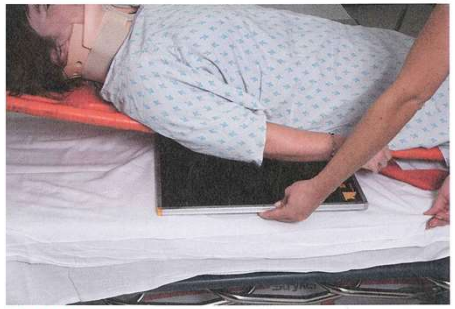
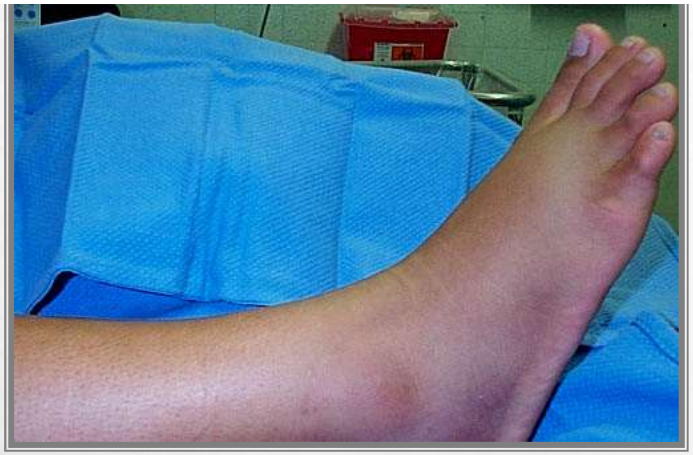
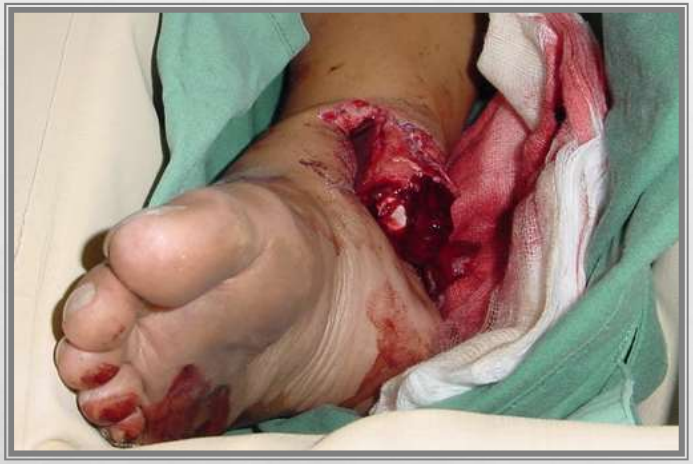


FIG. 14-10 Patient on backboard with grid cassette placed under backboard for anteroposterior lumbar spine image.

IMMOBILIZATIONS: (CONTINUED)

- BACKBOARD / SPINEBOARD
  - SUPPORTS ENTIRE BODY
    - PELVIS INJURY
    - HIP INJURY
    - LOWER EXTREMITY INJURY
  - USUALLY RADIO-TRANSLUCENT
  - IMAGE RECEPTOR CAN BE PLACED DIRECTLY BELOW BACKBOARD
  - CAN BE USED TO MOVE PATIENT ONTO X-RAY TABLE

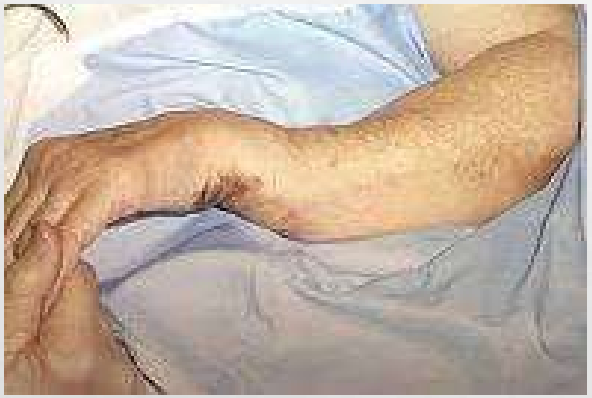




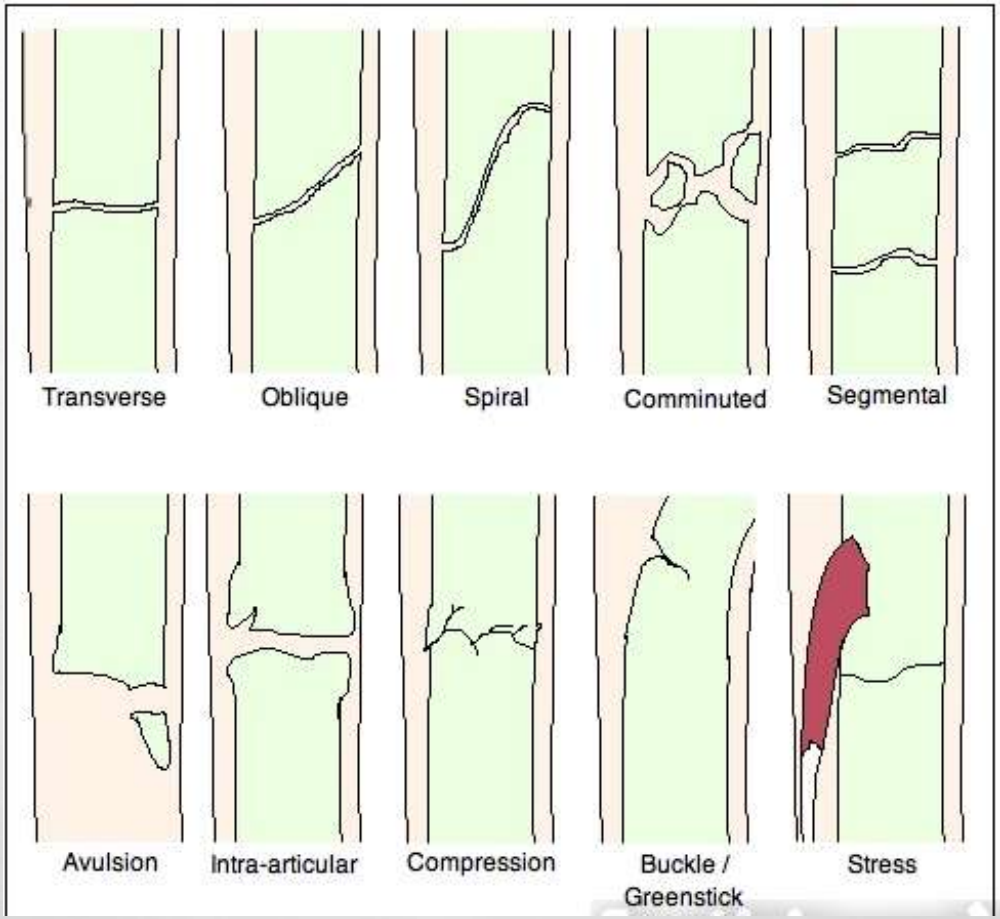
TRAUMA—FRACTURES

- **COMPOUND (OPEN) FRACTURE:** BROKEN BONE BREAKS THROUGH THE SKIN TISSUE
  - FRACTURE IS CLEARLY VISIBLE
- **CLOSED (SIMPLE) FRACTURE:** A FRACTURE THAT CAUSES LITTLE OR NO DAMAGE TO THE SURROUNDING TISSUE

SIGNS OF CLOSED FRACTURE:

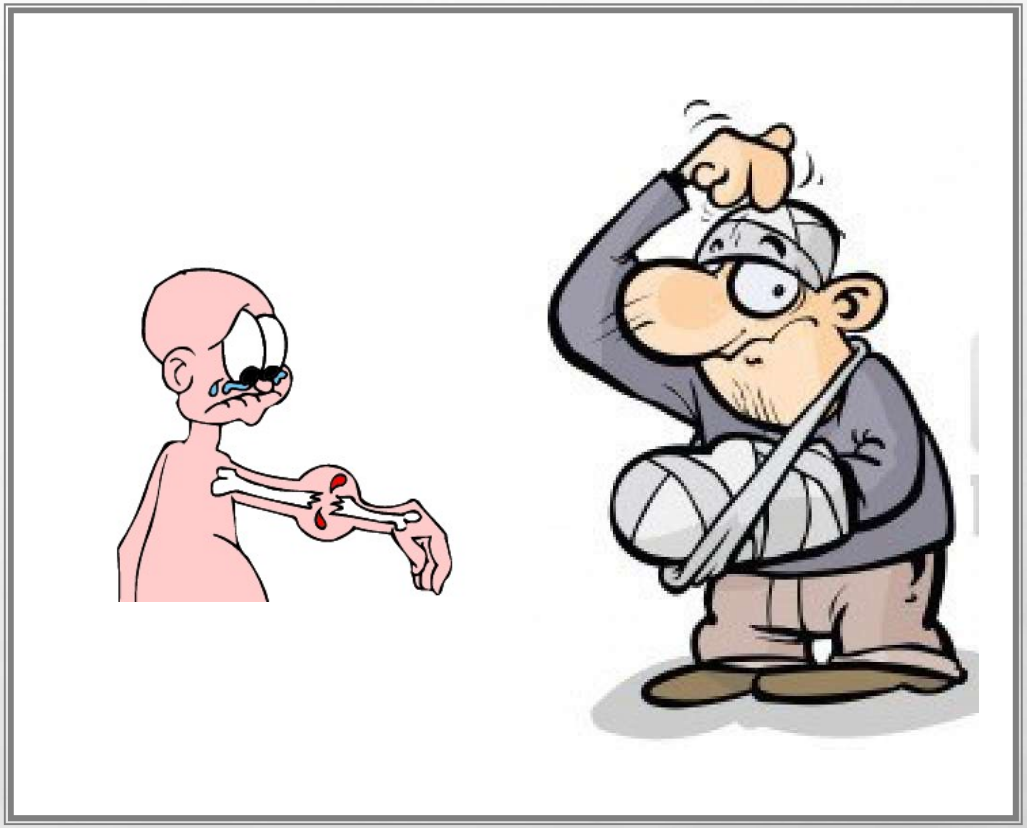


- LIMITED OR NO MOVEMENT OF A LIMB
- SWELLING, PAIN AND BRUISING AT INJURY SITE
- LOSS OF FEELING AT INJURY AND DISTAL TO INJURY
- NO PULSE DISTAL TO INJURY
- ***ECCHYMOSIS***-OOZING OF BLOOD FROM A VESSEL INTO A TISSUE
- ***CREPITIS***- "GRATING" FEELING/SOUND WHEN LIMB IS MOVED


Transverse
Oblique
Spiral
Comminuted
Segmental
Avulsion
Intra-articular
Compression
Buckle / Greenstick
Stress

COMMON CAUSES:

- HIGH ENERGY INJURIES
  - CAR CRASHES
  - FALLS
  - SPORTS INJURIES

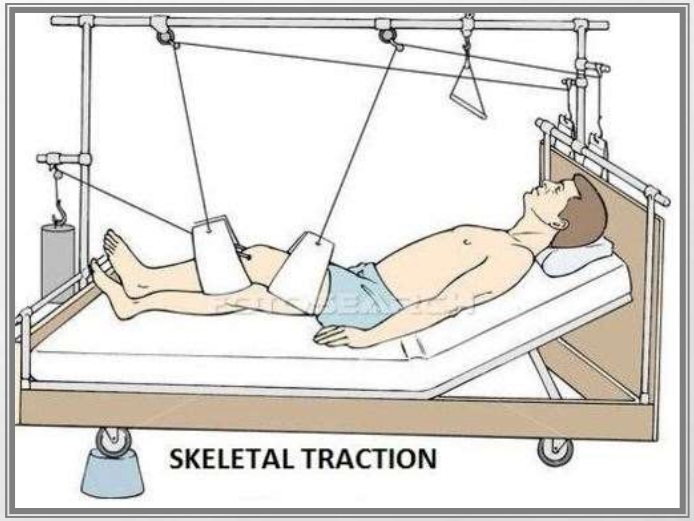


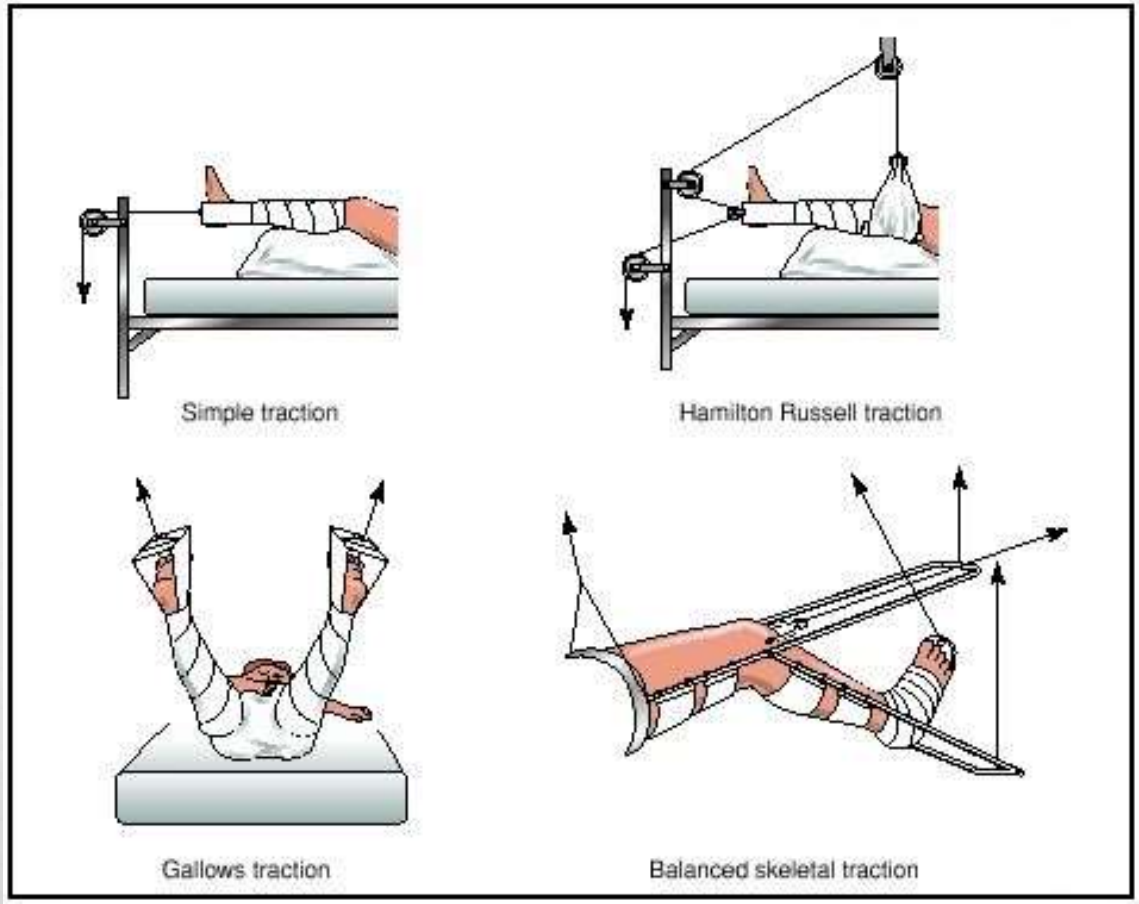
IMMOBILIZATIONS:

- TRACTION
- TRACTION SPLINT
- AIR SPLINTS/CASTS
- LEG/ARM IMMOBILIZERS
- BACK BRACES
- CASTS

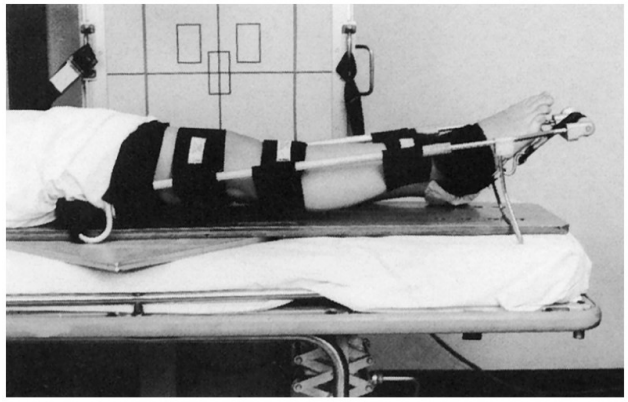
IMMOBILIZATIONS-- TRACTION

- **NEVER** REMOVE TRACTION APPARATUS!
- **NEVER** RELIEVE THE PULL OF TRACTION!
  - MAY MISALIGN A REDUCED FRACTURE
- IF YOU NEED HELP WITH A TRACTION DEVICE, TALK TO THE PATIENT'S NURSE




Simple traction
Hamilton Russell traction
Gallows traction
Balanced skeletal traction

IMMOBILIZATIONS– TRACTION SPLINTS



- USED ON LOWER EXTREMITIES
- EXERT STEADY FORCE ON LIMB
  - APPLY PRESSURE AGAINST PELVIS AND GROIN
- CONTAIN RADIOPAQUE MATERIALS
  - STILL NEED TO REMAIN IN PLACE FOR EXAM DURING TRAUMA (NEED OKAY FROM MD TO REMOVE)

IMMOBILIZATIONS– AIR SPLINTS/CASTS

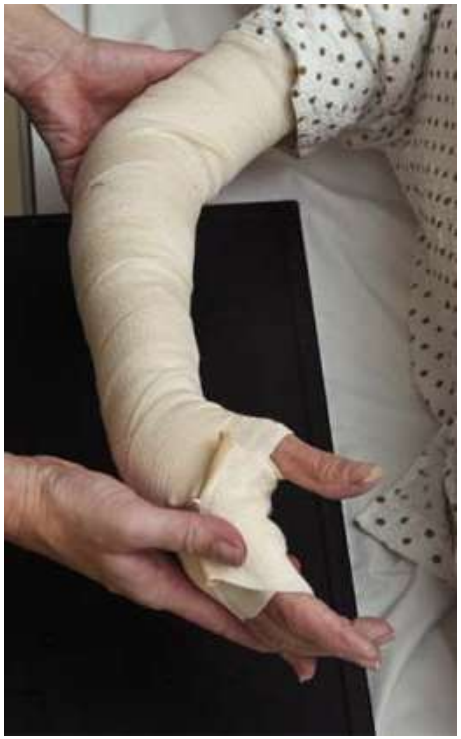
- AIR SPLINT (INFLATION SPLINT)
  - INFLATABLE PLASTIC CUFF
  - PLACED OVER AFFECTED LIMB THEN INFLATED
  - PROVIDES STABILITY DURING TRANSPORTATION
  - RADIOLUCENT
    - CAN REMAIN ON WHILE FILMS ARE TAKEN

IMMOBILIZATIONS– EXTREMITY IMMOBILIZERS

- **DO NOT** REMOVE IMMOBILIZER UNLESS OK'D BY MD
- DOCUMENT IMMOBILIZATION IF PRESENT (ARTIFACT)

IMMOBILIZATIONS– BACK BRACES

- ORDER REQUIRED FOR REMOVAL
- LOG ROLL TECHNIQUES MUST BE FOLLOWED WHEN MOVING THE PATIENT



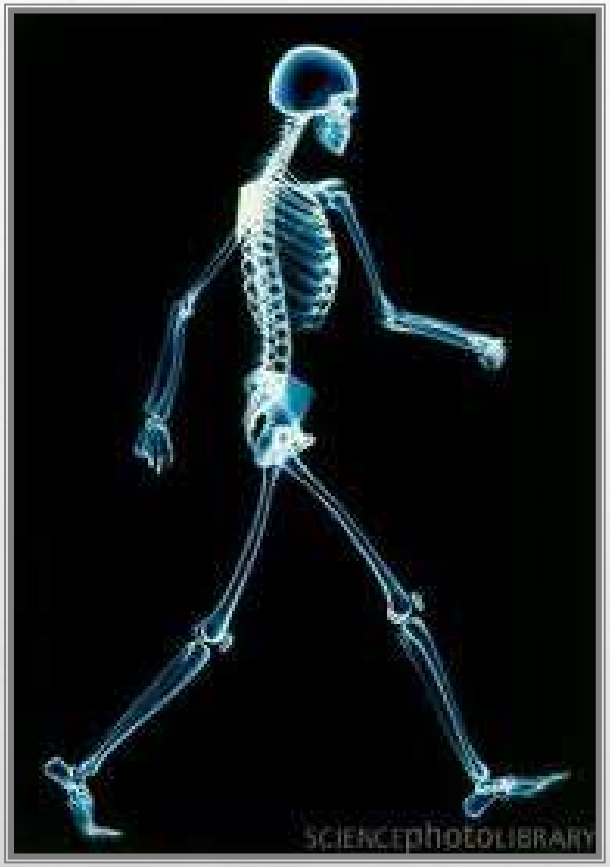
IMMOBILIZATIONS– CASTS

- PLASTER VS. FIBERGLASS
- SUPPORT BOTH JOINTS WHILE MOVING CAST

CAST COMPLICATIONS

- COLDNESS IN DIGITS
- NUMBNESS
- BURNING OR TINGLING
- SWELLING
- SKIN COLOR CHANGES (CYANOSIS)
- INABILITY TO MOVE DIGITS
- DECREASE IN OR ABSENCE OF PULSES

***IF ANY OF THESE CONDITIONS OCCUR CAST MAY NEED TO BE REMOVED



CONCLUSION

- MONITOR YOUR PATIENT AT ALL TIMES
- KNOW THAT IN TRAUMA, SPLINTS AND IMMOBILIZERS MUST OFTEN STAY IN PLACE
  - CONTINUE THE IMMOBILIZATION DURING THE PROCEDURE
  - IMPORTANT TO ASK QUESTIONS IF UNSURE!
    - MD CLEARANCE NEEDED—DOCUMENT!