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UNIVERSITY OF MICHIGAN
EMERGENCY MEDICINE AND
PROJECT HOPE
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TRAINING PROGRAM

MODULE ~ 2

Antoinette A. Bradshaw, PhD,
MS, BSN, RN

ASSESSMENT AND RESUSCITATION



Emergency Care

Episodic and crisis-oriented care provided to patients with serious or potential life-threatening injuries or illnesses.

PRIORITIES & MAJOR GOALS OF EMERGENCY MANAGEMENT

~

To preserve life

**To prevent deterioration before more
definitive treatment can be given**

To restore the patient to useful living

Emergency Assessment Systematic Approach

~

The primary and secondary surveys provide the emergency nurse and physician with a methodical approach to help identify and prioritize patient needs.

~

Injuries to face, neck and chest that impairs respiration are the highest priorities!

Primary Assessment

Airway

Breathing

Circulation

Disability (Neurological Status)

Airway

The protection and maintenance of a clear passageway for gases (principally oxygen and carbon dioxide) to pass between the lungs and the atmosphere.

Breathing

Inflation and deflation of the lungs (respiration) via the airway.

Circulation

Providing an adequate blood supply to tissue, especially critical organs, so as to deliver oxygen to all cells and remove metabolic waste, via the perfusion of blood throughout the body.

AVPU Scale

A system by which a first aider, ambulance crew or health care professional can measure and record a patient's responsiveness, indicating their level of consciousness. (LOC)

Neurological Status

Alert

Voice

Pain

Unresponsive

BLS

Basic life support consists of a number of life-saving techniques focused on the "ABC"s of emergency care:

Assess the patient's level of consciousness (LOC) by asking loudly "Are you okay?"

Instructing someone to call for help. If outside of the hospital call for EMS and if an AED is available, it should be retrieved and prepared for use.

**If the patient has no
suspected cervical spine
trauma, open the airway using
the head-tilt/chin lift
maneuver.**

Airway/Cervical Spine Protection



Spinal Cord Stabilization



Soft Cervical Collar



Rigid Collars



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If the patient has suspected neck trauma, the airway should be opened with the jaw thrust technique. If the jaw-thrust is ineffective at opening/maintaining the airway, a very careful head-tilt/chin-lift should be performed.

Jaw Thrust Technique

The practitioner uses their thumbs to physically push the posterior (back) aspects of the mandible upwards. When the mandible is displaced forward, it pulls the tongue forward and prevents it from occluding (blocking) the entrance to the trachea, helping to ensure a patent (secure) airway

Look, listen, and feel for
breathing for at least 5 seconds
and no more than 10 seconds.

If the patient is breathing normally, then the patient should be placed in the recovery position, monitored and transported. Do not continue the BLS sequence.

If the patient is not breathing, unresponsive or only gasping, once the airway is secured, give 2 rescue/artificial breaths. Verify that the chest rises and falls.

If chest does not rise and fall,
reposition the airway using the
appropriate technique and try
again.

**If ventilation is still
unsuccessful and the patient
is unconscious.....**

It is possible that they have a foreign body in their airway.

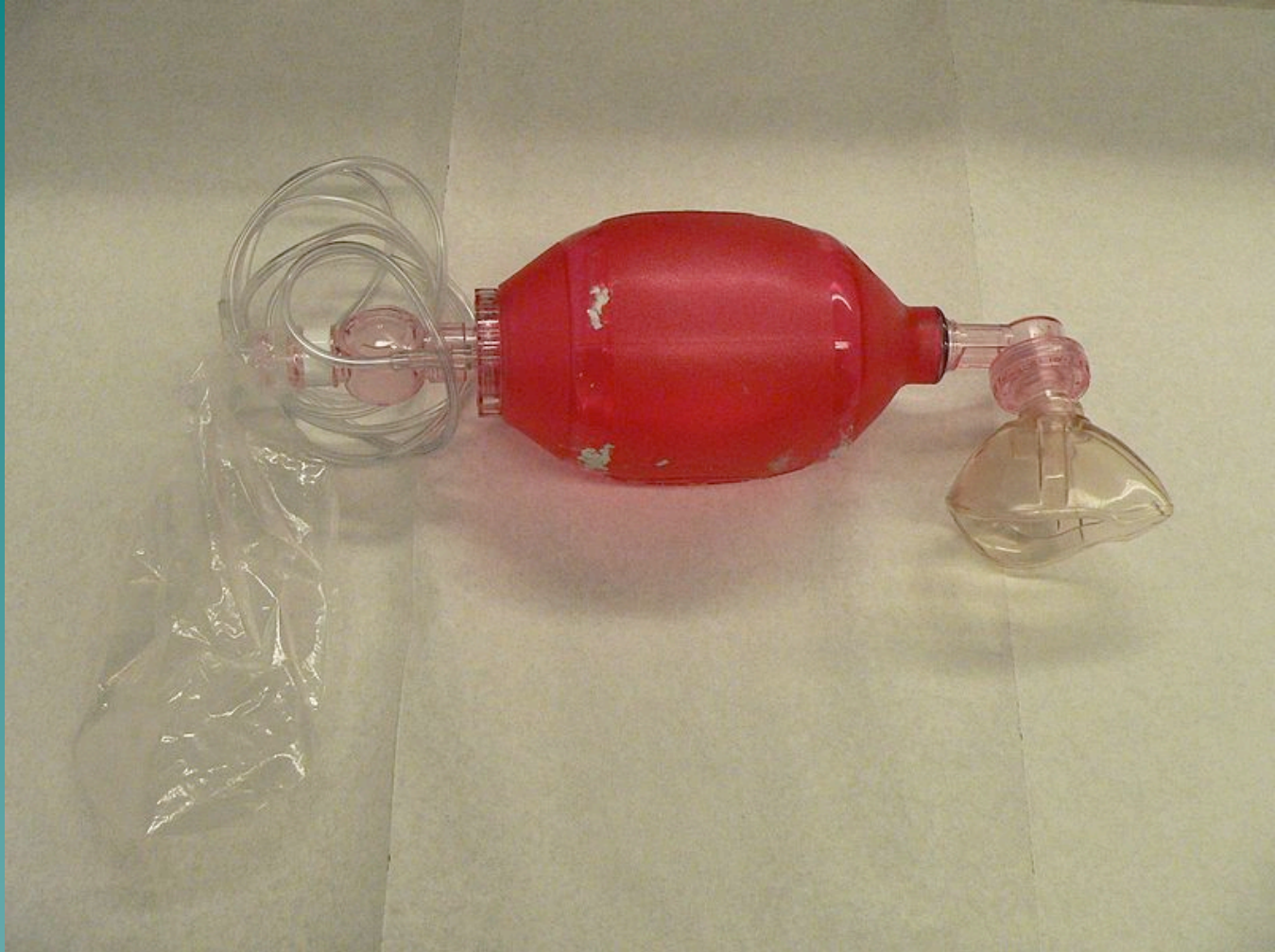
Removal of Debris



Mouth to Mouth Technique



A disposable BVM Resuscitator



Adjuncts to airway management

There are a variety of artificial airways which can be used to keep a pathway between the lungs and mouth/nose.

The most commonly used in long term or critical care situations is the endotracheal tube, a plastic tube which is inserted through the mouth and into the trachea, often with a cuff which is inflated to seal off the trachea and prevent any vomit being aspirated into the lungs.

In some cases, a laryngeal mask airway (LMA) is a suitable alternative to an endotracheal tube, and has the advantage of requiring a lower level of training than an ET tube. It is a supraglottic airway developed by a British Anesthesiologist.

In the case of a choking patient,
laryngoscopy or even
bronchoscopy may be
performed in order to visualize
and remove the blockage.

An oropharyngeal airway or nasopharyngeal airway can be used to prevent the tongue from blocking the airway. When these airways are inserted properly, the rescuer does not need to manually open the airway with a head tilt/chin lift or **jaw-thrust** maneuver. Aspiration of blood, vomitus, and other fluids can still occur with these two adjuncts.

Circulation

If the ventilations are successful,
assess for the presence of a pulse at
the carotid artery.

If a pulse is detected, then the patient should continue to receive artificial ventilation's at an appropriate rate.

Average Respiratory Rates By Age:

Newborns: 30-40 breaths per minute

Less Than 1 Year: 30-40 breaths per minute

1-3 Years: 23-35 breaths per minute

3-6 Years: 20-30 breaths per minute

6-12 Years: 18-26 breaths per minute

12-17 Years: 12-20 breaths per minute

Adults Over 18: 12–20 breaths per minute

Otherwise, begin CPR at a ratio of 30:2 compressions to ventilation's at 100 compressions/minute for 5 cycles.

Compressions



After 5 cycles of CPR, the BLS protocol should be repeated from the beginning, assessing the patient's airway, checking for spontaneous breathing, and checking for a spontaneous pulse. Laypersons are commonly instructed not to perform re-assessment, but this step is always performed by healthcare professionals.

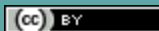
If an AED/defibrillator is available after 5 cycles of CPR, it should be attached, activated, and (if indicated) defibrillation should be performed. If defibrillation is performed, 5 more cycles of CPR should be immediately repeated before re-assessment.

BLS protocols continue until (1) the patient regains a pulse, (2) the rescuer is relieved by another rescuer of equivalent or higher training, (3) the rescuer is too physically tired to continue CPR, or (4) the patient is pronounced dead by a medical doctor.

**At the end of five cycles of CPR,
always reassess for a shockable
rhythm, and if indicated, prepare
for defibrillation. Repeat
assessment before doing
another five cycles.**

The CPR cycle is often abbreviated as 30:2 (30 compressions, 2 ventilation's or breaths).

Infant CPR



The U.S. Army, flickr

Note CPR for **infants and children** uses a 15:2 cycle when **two** rescuers are performing CPR (but still uses a 30:2 if there is only one rescuer). Two person CPR for an infant also requires the "two hands encircling thumbs" technique for the rescuer performing compressions.

The GCS or Glasgow Coma Scale is the most widely used scoring system used in quantifying level of consciousness following traumatic brain injury. It is used primarily because it is simple, has a relatively high degree of reliability and because it correlates well with outcome following severe brain injury.

The neurological scale aims to give a reliable, objective way of recording the conscious state of a person for initial as well as subsequent assessment

The scale comprises three tests: eye, verbal and motor responses. The three values separately as well as their sum are considered. The lowest possible GCS (the sum) is 3 (deep coma or death), while the highest is 15 (fully awake person).

GCS is the scale used by nurses, first aid, EMS and doctors as being applicable to all acute medical and trauma patients in hospitals as well as in monitoring chronic patients in intensive care.

Eye Opening

1. Does not open eyes
2. Opens eyes in response to painful stimuli
3. Opens eyes in response to voice
4. Opens eyes spontaneously
5. N/A
6. N/A

Verbal

1. Makes no sounds
2. Incomprehensible sounds
3. Utters inappropriate words
4. Confused, disoriented
5. Oriented, converses normally
6. N/A

Motor

1. Makes no movements
2. Extension to painful stimuli
(decerebrate response)
3. Abnormal flexion to painful stimuli
(decorticate response)
4. Flexion / Withdrawal to painful stimuli
5. Localizes painful stimuli
6. Obeys commands

~GCS Interpretation~

Individual elements as well as the sum of the score are important.

14-15 Normal/mild dysfunction

11-13 Moderate to severe dysfunction

10 or less: Severe dysfunction

If nothing proves to be
imminently life threatening then
you can proceed to a more
detailed, focused secondary
assessment.

Secondary Assessment

Should be brief, thorough,
systematic assessment
designed to identify all injuries.

The Steps Include:

Exposure/Environmental Controls

Full Set of Vital Signs

Give Comfort Measures

History and Head to Toe Assessment

Inspect Posterior Surfaces

Exposure/Environmental Considerations

Remove clothes and keep
patient warm

Full Set of Vital Signs

Blood Pressure

Pulse/Heart Rate

Respiratory Rate

Temperature

Pain

Assessing Pain

Onset
Provocation
Quality
Radiation
Severity
Time/Duration



 stovak, flickr

COLDERRA Pain Questions

Characteristics

Onset

Location

Duration

Exacerbation

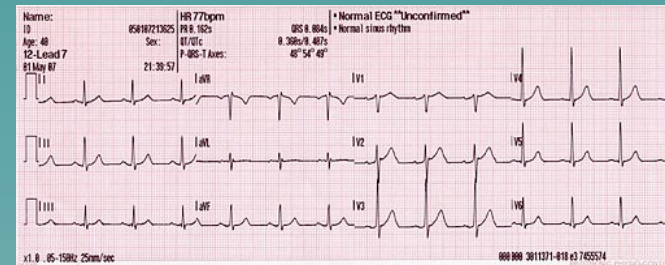
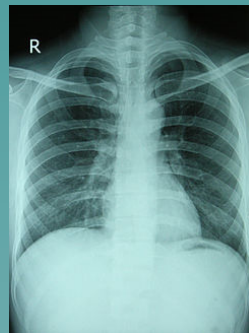
Radiation

Relief

Associated Signs and Symptoms

Five Interventions

Oxygen Administration
Diagnostics
(X-rays/Labs/EKG)
Appropriate Monitoring
Control Bleeding
Pain Management



**Give comfort measures and
facilitate family presence**

**Empathize, encouragement
and support patient & family**

~

**Keep patient and family
informed about treatment and
communicate care plan**

History



History

Symptoms

Allergies

Medications

Past Medical History

Last Oral Intake

Events Leading up to the Illness or Injury

Anatomical Planes

Anterior ~ Front

Posterior ~ Back

Midline ~ line drawn through nose
and umbilicus

Midclavicular ~ Middle of the
clavicle, parallel to the midline

Midaxillary ~ In the middle of the
axilla, parallel to the midline

Directional Terms for Assessment

Right

Left

Lateral

Medial

Superior

Inferior

Proximal

Distal

Dorsal

Ventral

Palmar

Plantar

Abdominal Quadrants

RUQ

LUQ

LLQ

LUQ

Focused Assessment Practices

Background

Skin

Head/Face

Neck

Neurologic

Cardiovascular

Respiratory

Gastrointestinal

Urinary

Reproductive

Musculoskeletal

Background

Biographical Data

Chief Complaint

Medications

PMH

Family History

Social History

Skin

Itching/Dryness

Color/Temperature

Ask about changes in bathing,
soaps or lotions

Observe for rashes

Lacerations

Cuts/Sores/lesions

Prior healed incisions

Head/Face


Often c/o Headaches, Vertigo, Syncope. Ask about change in vision, hearing, tinnitus, nasal snoring & last dental exam.

Facial Inspection

Head shape, characteristics of facial features. Palpate the head for evidence of skull fracture, look for open wounds or hematomas. Look behind the ears for bruising (this is called Battle's sign and indicates a fracture through the base of the skull).

Facial Inspection continued

Look around the eyes for bruising (bruising that completely circles around the eye on one or both sides is called “raccoon” eyes and is a sign of skull fracture, bruising that is only under the eyes is associated with a nasal fracture or a facial bone fracture under the eye. Note any cut or wound on the face.

A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Eye Inspection

- ◆ **Assess to see if the eyes appear to protrude abnormally from the skull (indicates a hematoma behind the eye).**
- ◆ **Assess the whites (conjunctiva) of the eyes for redness in thin lines (irritated blood vessels of the eye) could indicate a foreign body in the eye) or bleeding under the conjunctiva (subconjunctival hemorrhage)**
- ◆ **Also assess the pupil to see if it reacts (non-reactive pupils indicate a potential head injury).**


Eye Assessment

- ◆ **Assess the eyes for movement in upward, rightward, downward and leftward directions (if the eyeball cannot move in every direction then you must suspect either a facial fracture that has trapped one of the eye muscles preventing it from working or bleeding behind the eyeball).**
- ◆ **Check vision by holding fingers a few feet away from the patient and ask them to count fingers.**

Eye Inspection

- ◆ **Assess for black material coming out of the eye (this indicates a globe rupture and should be treated with antibiotics like an open fracture).**
- ◆ **Look at the colored part of the eye called the iris for a hyphema (blood layering in the front part of the eye).**


Ear Assessment

- ◆ Look in the ears assessing for blood in the canal, clear fluid draining from the ear (sign of a skull fracture and spinal fluid leak) or blood behind the tympanic membrane (hemotympanum) (a sign of skull fracture).
 - ◆ Look for ecchymosis behind the ear (battle's sign ~ also a sign of fracture of the base of the skull).
 - ◆ Check to see if eardrum is intact or if you see cerumen or drainage from ears.
- 
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Mouth and Buccal Mucosa

- ◆ Have the patient open the mouth to look inside. Note any loose teeth or missing teeth. (an avulsed tooth ~ a tooth that was knocked out during the current trauma.
- ◆ If teeth are missing or broken you should describe which tooth is broken.

Mouth and Buccal Mucosa

- ◆ **Note any intra-oral lacerations, any wounds to the tongue and any hematoma under the tongue (a sign of a jaw fracture).**
 - ◆ **Palpate the mandible and then have the patient bite down and see if the teeth align normally (if abnormal can indicate a mandible fracture).**
- 
- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Nose Inspection

- ◆ **Assess the nose for patency of airway, bleeding or leakage of clear fluid (a sign of skull fracture).**
- ◆ **Assess the septum (middle wall of the nose) for a hematoma (blood clot that compress the cartilage of the nose and cause it to necrose, the treatment of this is to drain the hematoma to be done by a doctor).**
- ◆ **Palpate the face looking for fractures.**

Examine eye movement, pupil response, drainage, color.

Pupils

Equal

Round

React


Light Reactivity

Accommodation

Neck

- ◆ Reassess the neck by noting the position of the trachea (shifting of the trachea to one side indicates a problem with the lung on the opposite side of the chest).
- ◆ Palpate lymph nodes, thyroid, carotid pulses and feel for enlarged nodules.
- ◆ Assess for any air under the skin, which feels like crackling under the skin (called crepitus) this indicates an injury to the esophagus, trachea or lung).

Neck continued

- ◆ **If they are not intoxicated and don't have a major other injury then you can ask them to turn their neck from side to side and then touch the chin to their chest.**
 - ◆ **If they can do both of those and have no tenderness, it is very unlikely that they have a neck fracture.**
 - ◆ **Never move the patient's neck for them. If a fracture is present and you move the neck, you will injure the spinal cord.**
- 
- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Neurologic

Changes in Mental Status,
cognition, sleeping patterns,
seizures, paresthesias

Exam: Mental status, orientation
to person, place and time and
responsiveness to language
stimulation

Cardiovascular

Palpitations, chest pain & cold
extremities

Exam: Heart sounds, pulses,
edema, nailbeds for cyanosis or
clubbing

Respiratory

Cough, Shortness of breath,
hemoptysis

Exam: Anterior/posterior chest for
respiratory effort, symmetry of
effort, lung sounds for wheezing,
rhonchi & stridor

All lung fields should be clear

Gastrointestinal

- ◆ **Assess the GI area for obvious bruising or open wounds.**
- ◆ **Gently palpate the abdomen in all 4 quadrants, finally perform more deep palpation.**
- ◆ **If the patient has tenderness, (tightening of the abdominal muscles to prevent you from irritating the injured organs) correlate the tenderness with the anatomy.**

Genitourinary

Ask about nocturia, dysuria,
urgency or hesitancy

Observe patient's hygiene, skin
condition, lesions, drainage, etc.

Reproductive

Impotence (men)

Menstrual history (women)

Examine for lesions, discharge
and odors

Examine the pelvis by pressing directly down on the pelvis, press in from the sides and finally press down over the pubis. If the pelvis move with compression, the patient has a pelvic fracture and needs to have the pelvis immobilized.

Musculoskeletal

- ◆ **Musculoskeletal exam starts with examining the extremities to note any obvious deformities.**
- ◆ **Then continue by palpating each extremity from the most proximal aspect (meaning near the torso to the most distal aspect (the toes and fingers)).**
- ◆ **Look for point tenderness, which is focal tenderness at one spot (sign of a fracture).**

**Look for open wounds or bruising.
Feel for possible from the opposite
side of the bruise. Finally, if the limb
appears uninjured then passively
move all joints of the extremity.
Limits of ROM & change in gait
Also check for symmetry of right
and left sides, muscle strength,
signs of DVT and distal pulses**

Inspection of posterior surfaces and/or Logroll



Nursing Analysis & Differential Nursing Diagnoses (Possible explanation for the problem)

Collaborative Problems requiring Team Interventions

Discussion

Planning Implementation/Interventions

Be Proactive and Assertive
within Nursing Scope!

Intubated patient suddenly deteriorates

Displaced Tube

Obstruction of Tube

Pneumothorax

Equipment Failure

What medications should you anticipate and prepare if the doctors are discussing intubation?

What would you begin to prepare for if you received a patient with a pneumothorax or hemothorax?

Chest Tube

Supplies Needed?

Emergency Intubation Equipment Preparations

Appropriate size ET Tube

Suction

Laryngoscope

Lubricant

Stethoscope

Stylet

Tape

NG Tube

10cc & 20cc Syringe

Customer Service

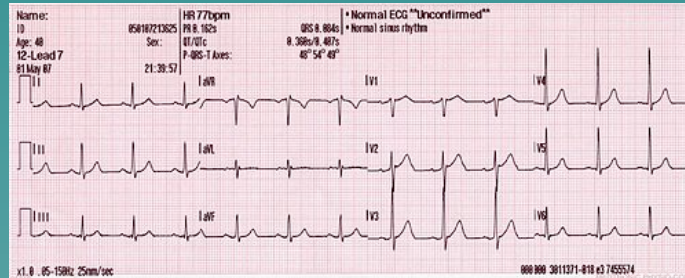
5 things that we can do to be more customer focused

1. Address patient by name
2. Introduce yourself to pt & family
3. Address language barriers
4. Include patient and family in care
5. Communicate and update patient and family (explain care)

Evaluation and Ongoing Monitoring



 jasleen_kaur, flickr



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 Jeremy Brooks, flickr

Documentation of Nursing Assessment and Care

Document, Document,
Document!!

Why is Documentation Important?

Effective Communication

Saves Time

Fewer Errors

Legal Considerations

Professionalism

Medication Administration

Name of Medication

Dosage of Medication

Date & Time of Administration

Route of Administration

Reaction to Medication (if any)

Initial Entry

Additional Documentation Examples for Discussion

Chest Tube Output
Elevated Temperature
Color of Urine Changed from
Yellow to Bright Red
CHI LOC Decreased
No Pedal Pulses with Femur
Fracture

~Review~

Stabilize suspected Cervical Spine Injuries

ABC

Control hemorrhage & its consequences

Prevent and treat shock, maintain or restore effective circulation

Splint suspected fractures and protect wounds with sterile dressings

Monitor patient's vital sign, neurological state, to guide in decision making


Subjective Data Collection

Objective Data Collection

Age Related Considerations

*Pediatrics



 treehouse1977, flickr

*Geriatrics



 dyniss, flickr

Q & A

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