The Maryland Fire and Rescue Institute of the University of Maryland is the State’s comprehensive training and education system for all emergency services.

The Institute plans, researches, develops, and delivers quality programs to enhance the ability of emergency service providers to protect life, the environment, and property.
Objective

The learners will be able to discuss changes made to the Maryland protocols over the last three years.

Overview

• 2018 changes in protocol
  ➢ General Patient Care Protocols
  ➢ Treatment Protocols
  ➢ BLS Pharmacology
  ➢ Procedures
  ➢ Pilot Program
  ➢ Optional Supplemental Program
Overview

• 2017 changes in protocol
  ➢ General Patient Care Protocols
  ➢ Treatment Protocols

• 2016 changes in protocol
  ➢ General Patient Care Protocols
  ➢ Treatment Protocols
  ➢ BLS Pharmacology

Special Notice

This course is not a substitute for taking the mandatory protocol update course.

2018 Protocol Updates
2018 Protocol Updates

General Patient Care

2017: “...greater than 13 years...”

Page 30: Cardiac Arrest

Obtain a contact telephone number

Page 35: History and Physical Examination
2018 Protocol Updates
Treatment Protocols

IX. CARDIAC EMERGENCIES: NON-ARREST CARDIAC GUIDELINES (REV “18”)

Page 51: Non-Arrest Cardiac Guidelines

Page 63: Cardiac Arrest

Numerous revisions to entire protocol

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Treatment Protocols

e) On-scene resuscitation: patients who are found in arrest or who arrest prior to transport and are attended to by BLS providers must only be resuscitated in place with minimal movement, no attempts at patient loading, and no attempts at transport until the following have been accomplished:

1) Medical Etiologies
   a) The patient has received a minimum of five two-minute cycles of rhythm interpretation and chest compressions.
2) Trauma Etiologies
   a) Penetrating trauma patients should receive the indicated reversible causes treatments listed in section B5B–Trauma Protocol: Trauma Arrest, lines a) through h) of Treatment, while loading and preparing for immediate transport.

b) Blunt trauma patients should receive all indicated reversible cause treatments listed in section B5B–Trauma Protocol: Trauma Arrest, lines a) through h) of Treatment, while on scene before termination of resuscitative or transport if BLS-C is achieved.

Page 63: Cardiac Arrest
Return of Spontaneous Circulation

1. Initiate General Patient Care.
2. Transportation
   a. If patient is alert, in stable condition, and able to follow commands, transport to the nearest hospital.
   b. If patient is unresponsive or experiencing severe traumatic injury, transport to the nearest trauma center.
   c. If patient is experiencing severe respiratory distress or cardiac arrhythmias, transport to the nearest hospital with cardiac care capabilities.
3. Treatment
   a. If patient is experiencing significant bleeding, apply pressure or use tourniquets to control bleeding.
   b. If patient is experiencing severe pain, administer analgesics as prescribed.
   c. If patient is experiencing seizures, administer anti-convulsants as prescribed.
4. Monitor vital signs and assess for any changes in condition.

References to the booklet removed

Pages 74-77, 80, 83: EMS DNR/MOLST

Overdose/Poisoning: Ingestion

c) If patient has respiratory depression with decreased LOC, constricted pupils, and provider suspects an opioid/narcotic overdose:
   - Administer naloxone 2 mg IN, dividing administration of the dose equally between the arms to a maximum of 1 mL per arm. OFF, administer 4 mg/0.1 mL IN in one arm. (NEW 18)
Treatment Protocols

2018 Protocol Updates

BLS Pharmacology

2018

BLS Pharmacology

be transported.

PROVIDERS MUST CONTACT A BASE STATION PHYSICIAN FOR PATIENTS WISHING TO REFUSE TRANSPORT AFTER BLS ADMINISTRATION OF NALOXONE.

i) Dosage
(1) Adult: Administrator 2 mg IN, dividing administration of the dose equally between the two sites to a maximum of 1 mL per site, OR administer 1 mg/0.1 mL in one site.
(2) Pediatric (child aged 28 days to adult): Administrator 2 mg IN, dividing administration of the dose equally between the two sites to a maximum of 1 mL per site, OR administer 4 mg/0.1 mL in one site.
(3) Repeat as necessary to maintain respiratory activity.

Added EMR to the Public Safety Protocol

Page 193: Naloxone
Treatment Protocols

Transportation Disposition

Priority 2 patients shall be triaged according to the Maryland Medical Protocols to the closest appropriate hospital-based emergency department, designated trauma or designated specialty referral center unless otherwise directed by IRS system medical consultation. (Refer Priority 2 patients may be referred to a freestanding emergency medical facility. [NEW 17])

EMS DNR and MOLST

Maryland Medical Orders for Life-Sustaining Treatment (MOLST)

Copy of the Maryland EMS DNR Order Form (including an electronic copy on a computer or device for patient care decisions. The sending facility is required to provide a copy of the EMS DNR Order or MOLST to the transport crew (listed in the instructions of the MOLST form and COMAR 10.01.21.01) [NEW 17]

CO/Smoke Inhalation

Treatment Protocols

1. Inhaled General Anesthetic
2. Carbon Monoxide (CO) Exposure
3. Inhalation or smoke inhalation
4. Respiratory Arrest
5. Cardiac Arrest
6. Abnormal Electrocardiographic Changes
7. Seizures
8. Hypoxia
9. Hypercarbia
10. Respiratory Failure

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**Treatment Protocols**

**Syncope (NEW '17)**

1. Initiate General Patient Care.
2. Presentation:
   A patient of greater than 24 months of age who has had a loss of consciousness associated with an inability to maintain posture. The patient may require immediate resuscitation and complete resuscitation without medical intervention. For children less than 24 months of age, refer to ALPR Protocol.
3. Treatment:
   a) Place patient in position of comfort.
   b) Perform Cincinnati Syncope Scale. If any segment is positive, go to Stroke Management Emergency Protocol.

**Trauma Protocol: Sexual Assault (NEW '17)**

1. Initiate General Patient Care.
2. Presentation:
   Patient may present with no overt evidence of trauma, or may present with the following:
   a) Abrasions, contusions, superficial lacerations
   b) Signs of forceful contact:
   c) Petechiae of the face and conjunctiva, secondary to strangulation
   d) Papillary edema, including stomatitis, broken teeth, swollen jaw, or extravasation
   e) Vaginal or rectal bleeding or pus

**2016 Protocol Updates**

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2016 Protocol Updates
General Patient Care

Conducted Electrical Weapon Darts

Leave darts in place
Stabilize darts if impaled in certain areas
Transport to the nearest facility
Assess for Excited Delirium Syndrome

Communications

2. All Priority 1 patients require on-line medical consultation through EMRC on a recorded line or phone.
2016 Protocol Updates

2016 Protocol Updates

Treatment Protocols

No longer limits out-of-state EMS/DNRs

Page 74: EMS DNR/ MOLST Reciprocity

Treatment Protocols

All near-drowning patients are transported

Page 103: Near-Drowning

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Care within the first hour after delivery

Page 112: Newly Born

A potentially life-threatening condition

Page 127: Excited Delirium Syndrome (ExDS)

Facial Droop
- Absent 0
- Present 1

Arm Drift
- Absent 0
- Drifts down 1
- Falls rapidly 2

Grip strength
- Normal 0
- Weak grip 1
- No grip 2

Pages 152 & 153: Stroke
Treatment Protocols

2016 Protocol Updates

BLS Pharmacology

Auto-injector
- Adult: 0.3 mg
- Pediatric: 0.15 mg

Dose
- Patients 5 years of age and greater
  - Adult: 0.3 mg
  - Patients less than 5 years of age
    - Pediatric: 0.15 mL

Page 192: Epinephrine Auto-Injector
Review

• 2018 changes in protocol
  ➢ General Patient Care Protocols
  ➢ Treatment Protocols
  ➢ BLS Pharmacology
  ➢ Procedures
  ➢ Pilot Program
  ➢ Optional Supplemental Program

Objective

The learners will be able to discuss changes made to the Maryland protocols over the last three years.
“All men make mistakes, but a good man yields when he knows his course is wrong, and repairs the evil. The only crime is pride.”

– Sophocles (Antigone)

**Objective**

The learners will be able to discuss the principles and concepts of crew resource management in emergency medical services.
Introduction

Overview
- Introduction
- Human factor
- Crew resource management
- Teamwork
- Communication
- Situational awareness
- Decision making
- Workload (task) management
- Summary

An Avoidable Tragedy

Titanic, Giant White Star Liner, Sinks After Collision With Iceberg on Her Maiden Voyage, and 1,800 Lives Are Reported Lost in World's Greatest Marine Disaster

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Introduction

- Are made by people
- Can range in severity
- Are not random

Errors

NIOSH

Are made by people
Can range in severity
Are not random

One Career Fire Fighter Dies and Another is Seriously Injured in a Single Vehicle Rollover Crash—Georgia

August 10, 2009

SUMMARY

On December 31, 2008, a 24-year-old male career fire fighter (the victim) was fatally injured and another fire fighter (officer) was seriously injured after the victim lost control of the fire truck he was driving, struck a utility pole, and overturned in a ditch. The fire truck, with a crew of three fire fighters, was...

Learn from previous events

Adopt changes in approach

Adopt the concept of CRM

Unacceptable Losses

The Human Factor

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The Human Factor

June 18, 2007: Charleston (SC) FD

- Fire was in an enclosed loading dock
- A door was opened
- Fire spread into showroom
- The fire overwhelmed crews
- Exterior crews broke windows
- Nine firefighters died

The Human Factor

October 24, 1997: District of Columbia FD

- Fire consumed much of the building
- Engine crews evacuated building
- Crew's officer was not with them
- Crew made reports of missing officer
- Officer was found dead in basement

The Human Factor


- "Nose gear down" light not illuminated
- Pilot was troubleshooting gear failure
- Crew notified the pilot of low fuel levels
- Pilot did not respond to warnings
- Plane ran out of fuel and crashed
- Gear had been down the entire time
The Human Factor


- Catastrophic engine failure mid-flight
- Engine controls used by crew to land
- Crash landed at Sioux City, Iowa, airport
- 111 killed
- 184 survived

Firefighter On-Duty Fatalities: Causes

- Sudden cardiac death: 56%
- Internal trauma: 22%
- Asphyxiation/Smoke inhalation: 14%
- Other: 5%
- Burns: 3%
- Struck by incident: 6%
- Fire progression or Explosion: 8%
- Lost in structure: 5%
- MVC: 15%

Firefighter On-Duty Fatalities: Nature

- Sudden cardiac death: 56%
- Other: 5%
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- Burns: 3%
- Internal trauma: 22%
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- Struck by incident: 6%
- Fire progression or Explosion: 8%
- Lost in structure: 5%
- MVC: 15%

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The Human Factor

Fatality Statistical Differences

Failures in communication
Poor decision making
Lack of situational awareness
Insufficient task allocation
Failures in leadership

Contributing Factors in LODDs

The Human Factor

Responder and Flight Crew Similarities

The crew is comprised of a leader and followers.
Crew members function best when they work as a team.
Mundane tasks are interspersed with stressful ones.
Crew members will sometimes work with unfamiliar people.
The Human Factor

“An unintended act (either of omission or commission) or one that does not achieve its intended outcome, the failure of a planned action to be completed as intended (an error of execution), the use of a wrong plan to achieve an aim (an error of planning), or a deviation from the process of care that may or may not cause harm to the patient.”

– Makary, 2016

The Human Factor

Medical Errors

The Human Factor

Impact of Medical Errors

The Human Factor

EMS Environment Prime for Error

Ed Edahl/FEMA

- 250,000 U.S. deaths yearly from errors
- 3rd leading cause of death, if tracked
- 45% of EMTs have identified errors
- $30 million paid by liability insurance

Distractions

Multiple simultaneous demands on providers

Fatigued and sleep-deprived providers
Causative Factors of Error

- Restricted vision
- Increased fatigue
- Distractions
- Presence of distractions
- Lack of equipment familiarity
- Development of stress
- Emotional impacts

Contextual Factors

- Time sensitivity
- Broad presentations
- Limited resources
- Few providers

The Human Factor

- Lack of communication
- Complacency
- Lack of knowledge
- Distraction
- Lack of teamwork
- Fatigue
- Lack of resources
- Pressure
- Lack of assertiveness
- Stress
- Lack of awareness
- Norms

Dupont’s Dirty Dozen

Coming to Terms with the Problem

- Develop a culture of acceptance
- Understand how human errors occur
- Develop a culture of error reporting
- Develop a culture of safety

Develop a culture of safety
Crew Resource Management

Definition

A systematic team-oriented approach that recognizes the inherent presence of human error and, through the optimum use of all available resources – equipment, procedures and people – will promote safety while enhancing the efficiency of crew performance.

Origin of CRM

- Humans were to blame for most incidents
- Changes were made to the industry
- The basis of CRM was founded
- Began as “Cockpit Resource Management”
History and Background

Robert L. Helmreich, PhD

- Was the principal investigator for a Univ. of Texas project on behavior
- Studied behavior in aviation
- Studied behavior in medicine
- Developed CRM based on this

Focus on Skill Development

- Technical
  - Focuses upon the procedural skills
- Non-Technical
  - Addresses the deleterious effects on performance

What CRM is NOT

- Not a quick fix to safety
- Not a stand-alone program
- Not a passive classroom experience
- Not leadership behavioral control
- Not management by committee
- Not an undermine to authority
Crew Resource Management

- Flat Hierarchy
- Communication
- Appreciative Inquiry
- Sterile Cockpit

Elements of CRM

Communication is closed-loop.

A structure that allows a follower to question a leader.

Occurs during a critical procedure.

Use of a checklist is paramount.

---

Crew Resource Management

- Workload allocation
- Critical decision making
- Communication
- Situational awareness
- Teamwork
- Reduction in errors
- Debriefing

Principles of CRM

---

Teamwork
Teamwork

A group of people working together towards a common goal.

Leader: Authority
- Ensures safety of the team
- Fosters effective communication
- Establishes tasks
- Elicits team input

Leader: Mentor
- Develops future leaders
- Creates sense of commitment
- Is self-confident
- Shows technical competence

Groups have more benefits than individuals do.
Teamwork

In a low-risk situation
Use “Appreciative Inquiry”

In a high-risk situation
Use the “This is Stupid” technique

Leader: Conflict Resolution

Teamwork

Identifies objectives
Evaluates risk versus gain
Implements an action plan
Evaluates the effectiveness of the plan

Leader: Mission Analysis

Teamwork

Works with the leader
Respects the leader’s position
Performs a self assessment of physical and mental fitness and limitations of memory

Followers: Self Assessment

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## Teamwork

### Hazardous Attitudes

<table>
<thead>
<tr>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being “anti-authority”</td>
</tr>
<tr>
<td>Being impulsive</td>
</tr>
<tr>
<td>Feeling invulnerable</td>
</tr>
<tr>
<td>Exhibiting machismo</td>
</tr>
<tr>
<td>Feeling resigned</td>
</tr>
<tr>
<td>Apathetic towards task completion</td>
</tr>
<tr>
<td>Exhibiting “Airshow syndrome”</td>
</tr>
</tbody>
</table>

### Followers: Self Assessment

<table>
<thead>
<tr>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respects authority</td>
</tr>
<tr>
<td>Evaluates personal safety</td>
</tr>
<tr>
<td>Evaluates crew safety</td>
</tr>
<tr>
<td>Accepts authority</td>
</tr>
<tr>
<td>Knows limits of authority</td>
</tr>
<tr>
<td>Supports leader success</td>
</tr>
<tr>
<td>Has good communication skills</td>
</tr>
</tbody>
</table>

### Adapts

<table>
<thead>
<tr>
<th>Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a learning attitude</td>
</tr>
<tr>
<td>Keeps ego in check</td>
</tr>
<tr>
<td>Balances assertion and authority</td>
</tr>
<tr>
<td>Accepts orders</td>
</tr>
<tr>
<td>Demands clear tasks</td>
</tr>
<tr>
<td>Admits errors</td>
</tr>
<tr>
<td>Provides feedback</td>
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</tbody>
</table>

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Communication

Principles & Components

Exchange of Ideas, Information, Instruction

Done in an effective and timely manner
Made up of several components
Considered the cornerstone of CRM

Sender Errors

- Did not establish time frame
- Omitted information
- Provided biased or weighted info
- Assumed message was dependent on words only
- Was unwilling to repeat info
- Was disrespectful
Communication

Receiver Errors

- Listened with a preconceived notion
- Was poorly prepared
- Thought ahead of the sender
- Missed non-verbal signals
- Did not ask for clarification

Communication

Filters and Roadblocks

- Sticks stubbornly to first impressions
- Blames others when a message is misunderstood
- Withholds certain information that may be beneficial
- Regards a particular member of the team as infallible

Communication

Filters and Roadblocks

- Ignores one member of the team due to prejudice
- Is complacent
- Displays a reckless attitude
Communication

Inquiry
Advocacy
Listening
Conflict

Specialized Skillset

Decision Making

Principles & Components

Decision Making

Recognize the problem
Analyze the situation
Consider goals

Look for alternatives
Consider consequences
Select best alternative

Act upon decision
Accept responsibility
Evaluate the results

Steps of Decision Making

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### Decision Making

**Unilateral**
One person makes the decision without input

**Collaborative**
One person makes the decision with others' input

**Consultative**
There is a team effort to devise a conclusion / decision

---

**Decision Making**

- **Non-life Threatening**
- **Life Threatening**

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**Factors that Affect Decision Making**

- Information
- Urgency
- Experience
- Knowledge

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### Decision Making

**Mistakes: Unintentional**
- Misses a step in a procedure
- Mixes up the step in a procedure
- Cannot remember the steps

### Decision Making

**Mistakes: Deliberate**
- Misapplication of a rule, policy, or procedure
- Lack of knowledge about the gravity of a situation
- Purposely violating policy to save time
- Defending freelancing on scene

### Decision Making

**Mistakes: Inexperienced Leader**
- Action is not chosen because the possibility is not recognized
- The action is chosen despite an unknown possible outcome
- Information collected cannot be used
- The importance of information is under- or overestimated
- A course of action is considered on impulse
- A choice is not made due to uncertainty
**Decision Making**

- Determine the problem
- Evaluate the scope of the problem
- Consider available options for mitigation
- Identify the most appropriate action
- Do the most appropriate action
- Evaluate the effectiveness of actions

**Successful Decision Making**

**Situational Awareness**

- Principles & Components

**Continuous Scene Assessment**

Situational awareness is the ability to evaluate an event or situation and constantly monitor it for improvement or deterioration.
Situational Awareness

Relates to Cognitive Psychology

- Attention
- Perception
- Information processing
- Decision making

Basic Levels of Failure

01. Failure to correctly perceive the situation
02. Failure to comprehend
03. Failure to project situation in the future

Failure to comprehend

Forms of Stress

Physical
- Noise
- Vibration
- Heat
- Cold
- Fatigue

Social/Psychological
- Fear
- Anxiety
- Uncertainty
- Mental load
- Time pressure
- Perceived pressure

Workload
Situational Awareness

Impact of Stress on SA:
- Information intake is reduced
- Working memory is reduced
- Hearing is reduced
- Peripheral vision is reduced
- Decisions may be inappropriate
- Information that contradicts may not be considered
- Information that supports the decision only is considered

Situational Awareness

Maintaining SA:
- Predetermine member roles
- Develop a plan and assign responsibilities
- Ask the team for input
- Rotate attention, don't fixate
- Monitor and evaluate current status

Situational Awareness

Maintaining SA:
- Plan ahead, consider contingencies
- Focus on details and scan the big picture
- Create reminders
- Watch for clues for loss of SA
- Speak up when SA breaks down
Situational Awareness

- Ambiguity
- Fixation
- Confusion
- Failure to focus on the patient
- Failure to look around
- Failure to meet time requirements

Loss of SA

Staff Sgt. Alexandre Montes/US Air Force

Situational Awareness

- Failure to adhere to SOPs
- Failure to comply with limitations, protocols, standards of care
- Failure to resolve discrepancies

Loss of SA

Staff Sgt. Alexandre Montes/US Air Force

Workload Management

Principles & Components
Workload Management

Definition

The process of organizing tasks to ensure equitable work distribution.

Team Member Subjectivity

- Nature of the task
- Circumstances of the task
- Qualifications of each team member
- Well-being of each team member

Workload Assignment

1. Plan and Prioritize
2. Recognize the workload
3. Delegate
Error Management Principles & Components

Errors in the Workplace

1 Fatality
10 Lost time injuries
100 Minor injuries
1,000 Near misses
10,000 Unsafe acts

Error Management

Six Tenants of Error Avoidance

01 Maintain a high level of proficiency
02 Follow standard operating procedures
03 Minimize distractions
04 Plan ahead
05 Maintain situational awareness
06 Effectively use all resources

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Error Management

Keys to Error Management

- Acknowledge
- Minimize barriers
- Communicate
- Follow SOPs
- Ask, “Is this sensible?”

Summary

- CRM is proven to be successful
- The team leader retains authority
- Technical proficiency is essential
- CRM will never eliminate all errors
- CRM is just one tool
- Success is the result of teamwork
Review

- Introduction
- Human factor
- Crew resource management
- Teamwork
- Communication
- Situational awareness
- Decision making
- Workload (task) management
- Summary

Objective

The learners will be able to discuss the principles and concepts of crew resource management in emergency medical services.
Objective

The learners will be able to identify the key components of the response to an active assailant incident.

Overview

- The Active Assailant Incident
- Terminology
- Injuries and TECC
- Phases of Response
- Summary
Phases of Response

Dispatch

Phases of Response

Command Structure

Phases of Response

Tactical and Specialty Teams
Summary

- An incident can happen anywhere
- EMS must consider its own safety
- Law enforcement will take the lead
- Local jurisdictions should have plans
### Review

- The Active Assailant Incident
- Terminology
- Injuries and TECC
- Phases of Response
- Summary

### Objective

The learners will be able to identify the key components of the response to an active assailant incident.

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Lesson 2-1: Therapeutic Communication

Objective

The learners will be able to effectively communicate with different individuals under different circumstances.

Overview

- Introduction
- Foundational Communication
- The Helping Interview
- Special Patient Populations
- Individuals with Disabilities
Introduction

Origins of Communication

- Latin for "commūnicāre"
- Signs and symbols shared
- Visual, auditory, biochemical means

Therapeutic Communication

Occurs between someone from a "helping profession" and a patient.
Introduction

Hearing
- Passive requiring no effort
- Physical involving sound waves

Listening
- Conscious choice

Hearing versus Listening

Levels of Hearing and Listening

01 Non-listener
02 Passive listener
03 Listener
04 Active listener

Process of Listening

Receive
Select
Interpret
Understand
Evaluate
Resolve
Foundations to Communication

Effective Listening Rules

- Stop talking
- Put the speaker at ease
- Pay attention to non-verbal language
- Listen for what is not said
- Be aware of "tune out" words
- Concentrate on "hidden" emotional meanings
- Be patient
- Hold your temper
- Empathize with the speaker

Know exactly what the other person is saying

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**Foundations to Communication**

**Keys to Effective Communication**
- Encourage questions
- Ask questions
- Paraphrase what you heard
- Open the door to two-way communication
- Consider the sender/receiver's strengths and weaknesses

**Communicate to be understood**
- Do not be thrown off course by words that affect you emotionally
- Be open to feedback
- Be an active listener

**Foundational Communication**

**Proxemics**
- Intimate: 0–2 feet
- Personal: 2–4 feet
- Social: 4–12 feet
The Helping Interview

Three Components

01 Orientation
02 Identification
03 Resolution

Orientation

- Greet your patient
- Provide your name and level of training
- Address the patient formally
- Be aware of your tone and voice
The Helping Interview

Identification

Share observations
Acknowledge feelings
Clarify and validate
Reflect and paraphrase

Interview Questions

Questions and how they are asked is a skill

Closed-Ended Questions

What is your primary complaint?
Do you have any nausea, shortness of breath, arm or jaw pain?
**Open-Ended Questions**

Could you describe your chest pain? How does this pain feel in comparison to your last heart attack? What were you doing when the pain began?

**Helpful Strategies**

- Focus
- Voice observations
- Avoid clichés
- Avoid contradicting
- Clarify
- Summarize
- Avoid advising
- Never threaten

**Special Populations**
Special Patient Populations

Pediatrics: Young Children

Afraid of who they do not know
Afraid of what they do not understand
Intimidated by size of others
Limited in their communication skills

Pediatrics: Adolescents

Period of transition
- Fight for independence
- Aware of their changing bodies
- Wary of adults

Communication that is respectful
- Protect their privacy
- Allow them to feel comfortable to ask questions
- Treat them with dignity
- Avoid the use of slang
**Special Patient Populations**

**Geriatrics**

- Empathize with their fears
- Address them formally
- Show them respect
- Provide them more time to answer

**Special Patient Populations**

**Geriatrics**

- Understand their reluctance to explain
- Appreciate their difficulty to communicate
- Communicate directly with them
- Inform them of what is being done

**Special Patient Populations**

**Angry Patients**

- Factors that cause anger can differ
- Threats
- Obstacles
- Statement
- Feelings of anger are often temporary
Special Patient Populations

Angry Patients: De-escalation

Do not take it personally
Be patient
Remain non-judgmental
Avoid the phrase “calm down”
Does not actually help

Talk to the patient
Done by the calmest provider
Speak softly
Patient may follow

Use the patient’s name
Makes it personal
Use the jury test
How does it look to the general public
Special Patient Populations

Cultural Differences: Personal Space

- Middle Easterner and Latin Americans: Very close
- Mainstream Americans: One arm length
- Asian: Over an arm length

Cultural Differences: Touching and Disrobing

- May be taboo in certain ethnicities

Cultural Differences: Gestures
Individuals with Disabilities

Engage the patient
Relax
Ask questions
Offer assistance
Offer to shake hands
Treat adults as adults

General Communication Techniques

Individuals with Disabilities

Causes of blindness or visual impairment
- Congenital
- Acquired
Comparison of visual distances

Blindness and Vision Impairment
**Individuals with Disabilities**

**Vision Impairment: Blind vs. Visual Impairment**

- **Legal blindness**
  - Sharpness of a person's vision
  - Significant loss to the field of vision

- **Vision impairment**
  - More common
  - May be corrected with glasses

**Vision Impairment: Communication**

- Feel comfortable, not overly conscious
- Use "people first" language
- Use descriptive language
- Speak normally
- Direct questions to the patient
- Avoid pointing

**Vision Impairment: Communication**

- Identify yourself
- Address the patient by name
- Introduce them to others
- Inform them when you leave
- Offer to assist as necessary
Individuals with Disabilities

20+ million in the US have hearing loss
Accessibility to healthcare difficult

Hearing Impairment

Individuals with Disabilities

Make yourself visible
Speak normally
Position yourself to facilitate communication
Consider background noise
Reduce gesturing

Hearing Impairment: Communication

Individuals with Disabilities

Prepare to repeat yourself
Wait for the patient
Ensure you have the patient’s attention
Ask if they understand

Hearing Impairment: Communication
Individuals with Disabilities

Not all deaf have speech impairments
Not all speech impaired are deaf
Adapt communication methods

Speech Impairment

Ask the patient to repeat his or herself
Be patient
Ask closed-ended questions
Concentrate on what the patient is saying
Do not finish their sentences
Consider the use of writing

Speech Impairment

Do not stand over the patient
Do not lean on their wheelchair
Do not pat them on their head or shoulder
Do not assume they want to be pushed

Mobility impaired

Do offer assistance
Individuals with Disabilities

- Consider moving to a quiet area
- Prepare to repeat yourself
- Offer assistance completing forms
- Provide extra time for decision-making

Cognitive Impairments

Individuals with Disabilities

- Wait for them to accept assistance
- Be patient, flexible, and supportive
- Take time to understand them
- Make sure they understand you

Cognitive Impairments

Summary
The Keys to Success

- Understanding
- Caring
- Compassion
- Empathy
- Support
- Advocacy

Review

- Introduction
- Foundational Communication
- The Helping Interview
- Special Patient Populations
- Individuals with Disabilities

Objective

The learners will be able to effectively communicate with different individuals under different circumstances.
Objective

The learners will be able to discuss the components of medication administration as it pertains to the Emergency Medical Responder (EMR).

Overview

• Medical abbreviations
• Units of measurement
• Conversion of weight
• Medication administration
Medical Abbreviations

Acceptable Abbreviations?

Diverse terminology
Numerous abbreviations

Approved Abbreviations

EMS list of approved abbreviations is rare
Lists may be specialty-dependent
Abbreviation use will lead to errors
Medical Abbreviations

**Routes of Administration**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>Endotracheal</td>
</tr>
<tr>
<td>IC</td>
<td>Intracardiac</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>IN</td>
<td>Intranasal</td>
</tr>
<tr>
<td>IO</td>
<td>Intraosseous</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>PO</td>
<td>Orally</td>
</tr>
<tr>
<td>PR</td>
<td>Per Rectum</td>
</tr>
<tr>
<td>SC / SQ</td>
<td>Subcutaneous</td>
</tr>
<tr>
<td>SL</td>
<td>Sublingual</td>
</tr>
</tbody>
</table>

**Frequency of Administration**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>q</td>
<td>Every</td>
</tr>
<tr>
<td>qh</td>
<td>Every hour</td>
</tr>
<tr>
<td>qd</td>
<td>Every day</td>
</tr>
<tr>
<td>qhs</td>
<td>Every night at sleep</td>
</tr>
<tr>
<td>BID</td>
<td>Twice daily</td>
</tr>
<tr>
<td>TID</td>
<td>Three times daily</td>
</tr>
<tr>
<td>QID</td>
<td>Four times daily</td>
</tr>
<tr>
<td>q5 min</td>
<td>Every 5 minutes</td>
</tr>
<tr>
<td>prn</td>
<td>As needed</td>
</tr>
</tbody>
</table>

**Units of Measurement**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>cc</td>
<td>Cubic Centimeter</td>
</tr>
<tr>
<td>ml</td>
<td>Milliliter</td>
</tr>
<tr>
<td>g</td>
<td>Gram</td>
</tr>
<tr>
<td>gtt(s)</td>
<td>Drop(s)</td>
</tr>
<tr>
<td>kg</td>
<td>Kilogram</td>
</tr>
<tr>
<td>L</td>
<td>Liter</td>
</tr>
<tr>
<td>μg</td>
<td>Microgram</td>
</tr>
<tr>
<td>mcg</td>
<td>Microgram</td>
</tr>
<tr>
<td>mEq</td>
<td>Millequivalent</td>
</tr>
<tr>
<td>mg</td>
<td>Millgram</td>
</tr>
<tr>
<td>lb or #</td>
<td>Pound</td>
</tr>
<tr>
<td>m</td>
<td>Meter</td>
</tr>
<tr>
<td>U</td>
<td>Units</td>
</tr>
</tbody>
</table>
Arrive on scene to find a 57-year-old male sitting on the edge of his bed at home. The patient appears conscious and alert but with obvious shortness of breath noted. 

History of Present Illness: The patient is currently complaining of a 5/10 chest pain (pressure) that began suddenly while he was sleeping. He stated that in addition to his chest pain (pressure), his associated symptoms and pertinent negatives are shortness of breath with increasing dyspnea on exertion but without any nausea or vomiting, loose bowel movements, or abnormal intake or output.

Student Activity 3-1.1

Student Activity 3-1.1
He stated that it has been occurring at intermittent times (for) 3 evenings, often wakes with paroxysmal nocturnal dyspnea. He stated that he was seen at his primary care physician 2 weeks ago and given a new prescription that he takes 3 pills, 20 milligrams each, 3 times a day by mouth after meals but has had difficulty because of dysphagia (trouble swallowing) that he stated he is experiencing.

Medical Abbreviations

Student Activity 3-1.1

Units of Measurement

...give 3 mg/kg of Drug Red IM to your patient.

Introduction
Units of Measurement

1 centi- = 1000 micro-

Conversion to a Lower Unit

Activity 3-1.2

<table>
<thead>
<tr>
<th>Problem</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 132 cm</td>
<td>1.32 m</td>
</tr>
<tr>
<td>2) 643 g</td>
<td>0.643 kg</td>
</tr>
<tr>
<td>3) 93 mL</td>
<td>0.093 L</td>
</tr>
<tr>
<td>4) 24 cg</td>
<td>240,000 mcg</td>
</tr>
<tr>
<td>5) 46 L</td>
<td>46,000 mL</td>
</tr>
<tr>
<td>6) 2 kg</td>
<td>2,000,000 mg</td>
</tr>
<tr>
<td>7) 83 hm</td>
<td>830,000 cm</td>
</tr>
<tr>
<td>8) 4325 mm</td>
<td>4.325 m</td>
</tr>
</tbody>
</table>

Conversion of Weight
Conversion of Weight

I weigh 236 pounds...

Introduction

Conversion of Weight

1 kg = 2.2 pounds

\[
\frac{50 \times 2.2}{110 \text{ lbs}}
\]

Converting Kilograms to Pounds

Units of Measurement

| 1) 34 kg = 74.8 or 75 lbs |
| 2) 20 kg = 44 lbs |
| 3) 6.8 kg = 14.96 or 15 lbs |
| 4) 15.8 kg = 34.76 or 35 lbs |
| 5) 100 kg = 220 lbs |
| 6) 226 kg = 497.2 or 497 lbs |
| 7) 90.8 kg = 199.76 or 200 lbs |
| 8) 57.9 kg = 127.38 or 127 lbs |

Activity 3-1.3A
Conversion of Weight

2.2 pounds = 1 kg

Converting Pounds to Kilograms

Units of Measurement

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>98 lbs = 44.54 or 45 kg</td>
</tr>
<tr>
<td>2</td>
<td>354 lbs = 160.9 or 161 kg</td>
</tr>
<tr>
<td>3</td>
<td>5.25 lbs = 2.38 or 2 kg</td>
</tr>
<tr>
<td>4</td>
<td>198.5 lbs = 90.23 or 90 kg</td>
</tr>
<tr>
<td>5</td>
<td>73 lbs = 33.18 or 33 kg</td>
</tr>
<tr>
<td>6</td>
<td>105.3 lbs = 47.86 or 48 kg</td>
</tr>
<tr>
<td>7</td>
<td>32 lbs = 14.55 or 15 kg</td>
</tr>
<tr>
<td>8</td>
<td>10.4 lbs = 4.73 or 5 kg</td>
</tr>
</tbody>
</table>

Medication Administration
**Medication Administration**

**Deltoid Injection**
- 1 inch below the Acromion Process
- Center of the muscle
- 3 years of age and older
- 1 mL is the maximum dose

**Vastus Lateralis Injection**
- Anterior and middle third of the thigh
- Volume is up to 4 mL
Medication Administration

01 Identify the location

02 Clean the site with alcohol

03 Inject at a 90° angle

04 Pull the plunger back, look for blood

05 Depress the plunger

Procedure

Withdraw the needle

06 Dispose of the needle immediately

07 Rub with alcohol or gauze

08 Muscular

09 Subcutaneous

10 Cover the injection site

11 Document time, location, effects

Medication Administration

Immediately dispose of the EpiPen in an approved container

EpiPen®

Except in needle protection:

- After EpiPen® removal, the needle need not be automatically re-energized
- Use the brown needle covering the needle when necessary

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Medication Administration

Intranasal Administration

Used for local or systemic effects
- Vascular area

Used for potent medications
- Volumes that are smaller
- Effects that are seen in under 5 minutes

Mucosal Atomization Device (MAD)

Maximum 1 mL per nostril

Summary
Summary

- Medications are not natural
  - They can and do cause harm
- Patients must always be reassessed
- Documentation is necessary
  - Needs to be proper & thorough

Review

- Medical abbreviations
- Units of measurement
- Conversion of weight
- Medication administration

Objective

The learners will be able to discuss the components of medication administration as it pertains to the Emergency Medical Responder (EMR).
The learners will be able to defend the proper care of the patient who has suffered a concussion.

Overview

- Introduction
- Epidemiology
- Field Assessment
- Field Management
- Second Impact Syndrome
Case Study

…respond to the ice rink for a 32-year-old male who fell and struck his head. Patient is conscious at this time.

What should you take into consideration?

Case Study

1. What tools do you have to evaluate?
2. How do you know the patient is safe to return to play?
3. Does this patient need transport?

How will you manage this patient?

Introduction
Introduction

Athletes and Head Injuries

Sending players back into the game right away is not in their best interest.

Introduction

Concussion is defined as a complex pathophysiological process involving the brain, induced by traumatic biomechanical forces. Several common features that incorporate clinical, pathologic and biomechanical injury constructs may help in defining the nature of a concussive head injury include:

1. Concussion may be caused either by a direct blow to the head, face, neck or elsewhere on the body with an "impulsive" force transmitted to the head.
2. Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.

Features of a Concussion

1. Is caused by a direct blow to the head or body
2. Results in rapid onset of short-lived neuro-function
3. Results in neuropathological changes
4. Does not show as abnormal on standard imaging studies
5. Results in a graded set of clinical symptoms
**Introduction**

Concussions linked to chronic problems
Morbidity increases with more injuries
Intracranial bleeding not required
Concussions not less severe than mild TBI

**Traumatic Brain Injury (TBI)**

---

**Grades of Concussion Severity**

<table>
<thead>
<tr>
<th>Severity</th>
<th>Grade 1: Mild</th>
<th>Grade 2: Moderate</th>
<th>Grade 3: Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. Cantu Guidelines (2001)</td>
<td>Post-traumatic amnesia &lt; 30 min No loss of consciousness</td>
<td>Loss of consciousness of 5 minutes or Amnesia lasting 30 min to 24 hours</td>
<td>Loss of consciousness of 5 minutes or Amnesia &gt; 24 hours</td>
</tr>
<tr>
<td>Colorado Medical Society</td>
<td>Confusion No loss of consciousness</td>
<td>Confusion Post-traumatic amnesia No loss of consciousness</td>
<td>Any loss of consciousness</td>
</tr>
<tr>
<td>American Academy of Neurology</td>
<td>Confusion Symptoms last &lt; 15 min No loss of consciousness</td>
<td>Symptoms last &gt; 15 min No loss of consciousness</td>
<td>Loss of consciousness</td>
</tr>
</tbody>
</table>

---

**Common Terminology**

**Simple**
- Resolves without complications within 10 days

**Complex**
- Symptoms persist beyond 10 days or Additional symptoms present
Introduction

Time of Brain Injury

Paint

Preserved memories Lost memories New information

Retrograde amnesia Anterograde amnesia

Almost always some form of amnesia

Concussive Amnesia

Epidemiology

Concussion Numbers

>300,000 from sports yearly

3.8 million from recreation and sports

8.9% of all high school athletic injuries

250,000 children transported yearly

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Epidemiology

Public Awareness: Education

Epidemiology

Public Awareness: NFL Lawsuits

Epidemiology

Public Awareness: Athlete Injuries
Epidemiology

Boys are 70% of the concussions
Ages 10–19 are 70% of the concussions
Playground injuries are young children
Sports injuries are older children

Pediatric Concussions

Epidemiology

Hospital Admissions

153,000 (2001)
250,000 (2009)

Diagnosis versus Admission

Assessment & Management
Assessment and Management

Life-Threats to Airway and Breathing

- Airway Patent?
- Maintained?
- Breathing Adequacy?

Life-Threats to Circulation

- C-Spine Protection needed?
- Matching pulses?
- Condition of the skin?
- External hemorrhage?

Mechanism of injury

- Did the patient sustain a blow to the head?
- How did it happen?
- Where was the impact?
- Was protective equipment in place?

AAA: TRAUMA PROTOCOL: SPINAL PROTECTION
1. Initiate General Patient Care
2. Presentation (NEW 1/16)
   a) "Full Spinal protection" refers to the act of protecting the spinal cord from further injury;
   b) "Spinal immobilization" is the act of placing a patient on a backboard with cervical collar for the purpose of trying to prevent excessive movement of the head and neck.

- Mechanism of injury
- Did the patient sustain a blow to the head?
- How did it happen?
- Where was the impact?
- Was protective equipment in place?
Assessment and Management

Helmet Removal

(1) If patient is wearing a helmet, the goals are assessment and management of the airway, breathing, and circulation followed by protection of the spinal column by maintaining neutral alignment of the spinal column.

(2) If patient is wearing helmet and no shoulder pads, removal of the helmet is indicated.

(3) If patient is wearing helmet with shoulder pads, removal of the helmet is acceptable only with concurrent removal of shoulder pads. Under these conditions, removal of the helmet is indicated for management of the airway or other facial trauma.

Helmet Removal

Assessment and Management

Associated Clinical Components

<table>
<thead>
<tr>
<th>CLINICAL DOMAIN</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>Headache, “in a fog,” emotional instability</td>
</tr>
<tr>
<td>Physical signs</td>
<td>Loss of consciousness (&lt; 10%) Amnesia</td>
</tr>
<tr>
<td>Behavioral changes</td>
<td>Irritability</td>
</tr>
<tr>
<td>Cognitive impairment</td>
<td>Slowed reaction times</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Drowsiness</td>
</tr>
</tbody>
</table>

Assessment and Management

Sport Concussion Assessment Tool 3

Contains a 22-point symptom checklist
Evaluates patients >13 years old
Provides a baseline if used before injury
Assessment and Management

Maddocks Questions

Sideline Assessment – child-Maddocks Score

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were you at school?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>What is your teacher's name?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>What do you think happened?</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Your Maddocks score</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maddocks score is valid for sideline diagnosis of concussion only and is not used for serial testing.

Assessment and Management

Standardized Assessment of Concussion

Balance Error Scoring System

Firm Surface

Double-leg stance Single-leg stance Tandem stance

Foam Surface

Double-leg stance Single-leg stance Tandem stance

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Assessment and Management

Concussion Management

Return to Play Guidelines

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
<th>Description</th>
<th>Time Frame</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No activity</td>
<td>Complete rest</td>
<td>Variable</td>
<td>Individual recovery</td>
</tr>
<tr>
<td>2</td>
<td>Light aerobic</td>
<td>Exercise walking</td>
<td>~15 minutes</td>
<td>Increase HR</td>
</tr>
<tr>
<td>3</td>
<td>Sport-specific</td>
<td>NON-CONTACT drills</td>
<td>30-60 minutes</td>
<td>Add movement &amp; Increase HR</td>
</tr>
<tr>
<td>4</td>
<td>Practice A</td>
<td>Full training drills</td>
<td>Full length practice</td>
<td>Increase physical &amp; cognitive load</td>
</tr>
<tr>
<td>5</td>
<td>Practice B</td>
<td>Full contact practice</td>
<td>Full length practice</td>
<td>Assess functional skills &amp; Restore confidence</td>
</tr>
<tr>
<td>6</td>
<td>Full return</td>
<td>Full game play</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Completion of stage 5 warrants re-evaluation by sports medicine specialist.

Assessment and Management

Rest from cognitive and physical activity
Assess for severe head injury
Remove from further play

Assessment and Management

ImPACT

https://www.impacttest.com/
Assessment and Management

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>SYMPTOMS/CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking</td>
<td>Memory &amp; reasoning</td>
</tr>
<tr>
<td>Sensation</td>
<td>Touch, taste, smell</td>
</tr>
<tr>
<td>Language</td>
<td>Communication, expression, understanding</td>
</tr>
<tr>
<td>Emotion</td>
<td>Depression, anxiety, personality changes, aggression, social inappropriateness</td>
</tr>
</tbody>
</table>

These symptoms can last weeks, months, or years!

Post-Concussion Syndrome

Second Impact Syndrome

Brain Has Yet to Heal

Acute and often fatal brain swelling

Brain reinjured before it is able to heal
Second Impact Syndrome

Physicians frequently miss

Concussions result in ~1.5 deaths/year

Numbers may be higher

Second Impact Syndrome

Boxing
Football
Hockey
Soccer
Baseball
Basketball
Skiing

Risks Higher in Certain Sports

Second Impact Syndrome

Injury

Decreased perfusion

Inflammation

Swelling

Cerebral Edema

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Second Impact Syndrome

- Loss of consciousness
- Memory impairment
- Disorientation
- Headache

Signs of Cerebral Edema

Second Impact Syndrome

- Compression into foramen magnum
- Hemiation progresses rapidly
- Becomes fatal if not treated

Initiation of Cerebral Hemiation

Second Impact Syndrome

- Prompt recognition and management
- Loss of autoregulation of cerebral perfusion within 3-5 min

Management of Cerebral Hemiation

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Concussion Summary

- Common in sports and recreation
- Injuries do not have to be visible
- Physical head strike not needed
- Key is recognition and treatment
- Brain vulnerable with second impact
- Management is prevention

Review

- Introduction
- Epidemiology
- Field Assessment
- Field Management
- Second Impact Syndrome
Objective

The learners will be able to defend the proper care of the patient who has suffered a concussion.