UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE
"NICOLAE TESTEMIȚANU" DIN REPUBLICA MOLDOVA

MEDICO-LEGAL AND ETHICAL ISSUES. FIRST RESPONDER HYGIENE AND PROTECTION

Author: Emilian Bernaz,
Associate Professor, PhD
Emergency Medicine Department

Objectives:

1. Medico-legal and ethical issues
2. Patient rights
3. Patient death and emotional stages
4. First responder protection
5. Respondent's stress reaction
6. Security of the accident site

ETHICAL AND MEDICAL-LEGAL ISSUES

- Medical/legal and ethical issues can be a major concern for the Basic Emergency Care Worker.

- Every country has different laws and the degree to which these laws affect the caregiver vary. It is important to know the laws that govern the delivery of emergency care within the specific region the caregiver is operating.

- Ethical issues are also of concern to the emergency medical care worker. Societal mores, expectations and implications can affect the function of the emergency medical caregiver.

Scope of Practice

- The “scope of practice” refers to the competencies and accepted roles that define the function and abilities of the basic emergency medical care worker.
- The “scope of practice” is often legally defined and the emergency medical care worker is often under the supervision of an authorizing physician or health ministry.

Legal Duties

- ✓ Laws may establish the "scope of practice" for the emergency medical care worker. The basic emergency medical care worker may have legal responsibilities to the patient, medical director, and the public in the provision for the well-being of a patient by rendering necessary interventions as outlined in the "scope of practice."
- ✓ In the absence of legislation covering the scope of practice, accepted curricula should dictate the functioning of the emergency medical care worker.
- ✓ The "legal' basis to function as a Basic Emergency Medical Care Worker may be contingent upon medical direction. That functioning may also utilize medical direction. That direction may take place via telephone/radio communications, pre-approved standing orders or protocols, or direct supervision.

Medical Direction

- ✓ Medical direction of care for emergency medical services is usually established by the highest order of medically trained professionals, the physician.
- ✓ The physician must in turn follow best practices, the law, and accepted standard curricula in the establishment of medical direction.
- ✓ Medical direction can be given verbally via phone, radio, or in person. It may also be given through the use of pre-authorized written protocols or "standing orders." These orders may be specific or they may reference accepted standard curricula for direction.
- ✓ The emergency care worker has a responsibility to follow the direction and protocols established by the Medical Director.

Ethical Responsibilities

- Responsibilities and ethics can vary with societal variances. Some societies place the priority on individuals and some place it on the community. Regardless of the society, there are some universal ethical issues that should transcend the cultural boundaries.

Ethical Responsibilities

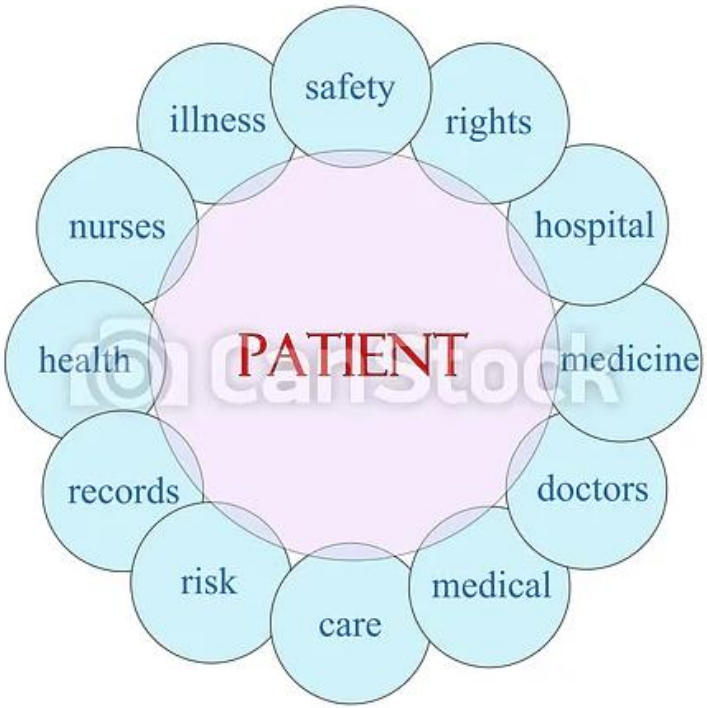
- The emergency medical caregiver should give priority to meeting the physical and emotional needs of the patient.
- The care given **should transcend** the orientation culturally, ethnically, tribally, or politically and the societal status or caste of the patient.
- The emergency care worker should not let these factors interfere with giving the best possible care to the patient nor have influence on caregiver's decision making.

Ethical Responsibilities

- There are powerful influences **to dissuade persons** from this orientation, but those taking this course should make all efforts to adopt a personal code of ethics that puts the patient's well being as a priority in the delivery of care regardless of their orientation or background.
- The emergency medical caregiver also has the obligation to practice and maintain their skills.
- Emergency medical services should have a system to critically review their performance, seeking ways to improve the delivery of care through better response times, patient outcomes and communication. Such a commitment requires honesty in reporting and evaluation.

Patient Rights

- Societal mores, laws, religious requirements and cultural historical practices influence patient rights. There are great variances from place to place.
- The intent of this text is to save lives and to care for all who are sick and injured in a proper, humane, and equitable manner.



Patient Rights

- Knowing that there are differences in the way that different societies treat individual members of that society, and in an attempt for this text to be universal, the author has adopted some basic elements that are held to be in the best interest of all patients as a whole.
- It is from the belief in the worth of all people that this book advocates the treatment of all patients with the best of care possible on an equitable basis and without regard for the patient's status or background.

Patient Rights
Advanced Directives

- ✓ The patient who is of a sound mind and of legal age of majority has a right to refuse treatment. This includes the right to refuse resuscitative efforts.
- ✓ The laws of a specific locale may have specific guidelines and/or laws for that refusal. That refusal may include pre-determined written directions such as "do-not-resuscitate" directions in the event of a medical catastrophe where the patient is unconscious or unable to communicate that decision.

Patient Rights
Advanced Directives

- These pre-arranged written directives are known as “Advanced Directives.” Advanced Directives are often developed when a patient has a terminal illness or when a patient as they age come to conclusions about what they **want done medically if certain life threatening events occur**.
- When there is doubt regarding a patient’s wishes and they are unable to communicate their wishes, the emergency medical care worker should implement resuscitative efforts.

Patient Rights
Advanced Directives

- No patient one other than the patient or in the case of a child, the parents (**within the confines of the law**), may refuse treatment on behalf of the patient. No one can refuse treatment for a patient if they are unconscious or unable to communicate except for a pre-arranged directive legally signed by the appropriate authorities and the patient.
- The laws of individual countries may give legal authorities greater jurisdiction, but the position of this text is that this should be the established practice.

Consent

- **Consent** is the permission granted to the emergency medical caregiver to give treatment to a patient. Consent is the basis for agreement between the caregiver and the patient.
- The elements of consent may vary according to the situation. The emergency medical care worker should have a basic understanding of consent and their obligations under the concept of consent.

Expressed Consent

- Consent is where the patient directly agrees to treatment and gives permission to proceed.
- **Consent can be expressed** non-verbally by action or allowing care to be rendered.
- Patients must be of legal age and able to make a rational decision to give consent.
- Consent must be obtained from every conscious, mentally competent adult before rendering treatment.

Informed Consent

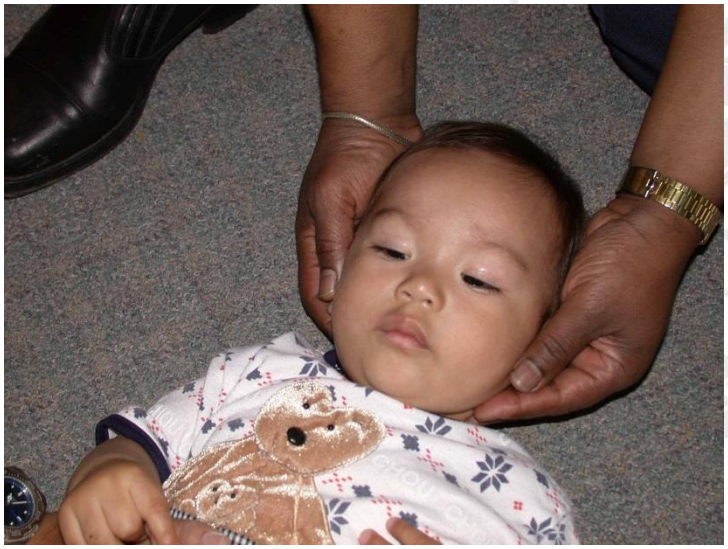
- The patient must be informed of the steps of the procedures and all related risks.
- The requirement of informed consent follows the rule that the greater the emergency the lesser the extent of the informed consent and conversely the greater that the procedure is elective or the risk of the procedure is higher, the greater is the need for the consent to be more fully informed.
- If the procedure is elective or of a high risk nature and time allows, it is advisable that permission be obtained in writing with the acknowledgement that consent is fully informed, listing out the elements of what was informed to the patient by the caregiver.

Implied Consent
Involuntary Consent

- In the event that the patient is unconscious or unable to communicate on their behalf, then consent is assumed for those patients requiring emergency care.
- **Consent is granted** for the patient on the basis that the patient if able to give permission would consent to emergency life saving care. Implied consent is effective only until patient no longer requires emergency care or regains competence to make decisions.
- Treatment is allowed in certain situations granted by authority of law. Those situations may include patients held for mental health evaluation or as directed by law enforcement personnel who have the patient under arrest.

Children and Mentally Incompetent Adults

- Consent for treatment must be obtained from the parent or legal guardian.
- There may be specific laws that acknowledge the age of when a child is considered a minor and when they are considered an adult.
- When a life-threatening situation exists and the parent or legal guardian is not available for consent, emergency treatment should be rendered based on implied consent.



Law Violations

- The caregiver may be acting illegally and face criminal charges if they touch a patient without their consent.

- In some judicial settings, provision of care without consent may constitute battery and transportation of a patient against their wishes might constitute false imprisonment.

- Consent must be obtained before touching the competent conscious patient, in both rendering care and transportation of the patient.

Refusals

- Adult rational patients have the right to refuse treatment, including emergency life-saving treatment.
- The patient also has the **right to withdraw** from treatment at any time. Acceptable refusals must be made by a mentally competent adult following the rules of expressed informed consent.
- The patient must be fully informed of and fully understand all the risks and potential consequences associated with refusal of treatment or transport.
- In locales where there is the potential for civil or legal action against the emergency care worker, the worker should have the patient sign a "release from liability" form releasing the emergency medical care workers and other emergency workers from liability acknowledging that the patient has been fully informed of the risks of their refusal.

Refusals

- Documentation is the key factor in protecting the emergency medical care worker from future problems resulting from the patient's refusal.
- The emergency medical care worker should have witnesses of the refusal sign the form and should document the mental status of the patient on that form or an accompanying medical report form.

- The emergency medical care worker should ensure that the patient is able to make a rational informed decision, is not under the influence of intoxicants such as drug or alcohol, and is not suffering from illness or injury that may compromise their judgement.

Refusals

- The care worker should inform the patient why they should seek further medical treatment and the potential consequences **of not seeking care**. They should consult their medical director if local protocols so direct.

- In the event that the patient is refusing care and is incompetent to make that decision, effort should be made to contact local law enforcement officials for assistance in getting the patient to care.

- The emergency medical care worker can also solicit help from the patient's family, friends, and neighbours to assist in the same way as law enforcement in getting the patient to further care as well. Locale protocol and **customs** should be followed in this.

Negligence

- Negligence is the deviation from the accepted standard of care resulting in further injury to the patient.
- Negligence can result **from malfeasance** (performing a wrongful or unlawful act), misfeasance (performing a legal act in a manner which is harmful or injurious), or from nonfeasance (failure to perform a required act or duty).
- Negligence can have both civil and criminal consequences, depending on the laws of the jurisdiction of the emergency medical care worker. It is an ethical duty of the emergency medical care worker to not be negligent in their care.

Negligence

- There are four components to negligence.
- There must exist a duty to act, a breach of duty, injury that is inflicted, and the breach must have caused or contributed to that injury.
- All four components must exist for negligence to be found.
- Negligence may not require a lot of proof in the situations where the injury could only have been caused by negligence or negligence is shown by **the fact that a statute** was violated and injury resulted.

Four Components of Negligence:

1. **Duty to act exists**
2. **Injury inflicted**
3. **Breach of duty occurred**
4. **Breach caused or contributed to the injury**

Protection against Negligence

The best protection by the emergency medical care worker against claims of negligence is by having appropriate education/training and continuing to upgrade skills through continuing education, having appropriate medical direction, utilizing accurate and thorough documentation, and by maintaining a professional attitude and **demeanor.**

Use of Force

- The use of force on an unruly, violent, or confused and resistant patient is only permissible in situations where failure to restrain would result in harm to the patient or others.

- **Restraint** should be done in a safe manner for all concerned and **should never be punitive.** The emergency medical care worker should involve law enforcement in these situations.

- The emergency medical care worker should also realize that threatening, attempting or causing fear of offensive physical contact with a patient or other individual (for example, threatening to restrain a patient unless he or she quiets down) can be considered assault and may be a civil or criminal violation.

Abandonment

- Abandonment is the termination of care when it is still needed and desired by the patient and without assuring that appropriate care continues to be provided by another qualified provider.
- Abandonment may occur in the prehospital setting or when the patient is delivered to a hospital or clinic.
- It is the responsibility of the emergency medical care worker that the patient's care be turned over to the receiving care giver and that they acknowledge assuming that care.

Crime Scene

- Emergency medical care of the patient is the emergency medical care worker's priority. The emergency medical care worker should only enter a crime scene to treat a patient.

- It is essential to protect themselves and other emergency personnel. They should not knowingly enter a crime scene unless it has been declared safe by law enforcement personnel. In the event that the care worker finds himself or herself unknowingly in a crime scene, they should notify law enforcement personnel.

- They should care for the patient as necessary and if personal safety allows. In the event that care is not needed, the caregiver should exit the scene the same way they entered, being careful to not disturb evidence.

Crime Scene

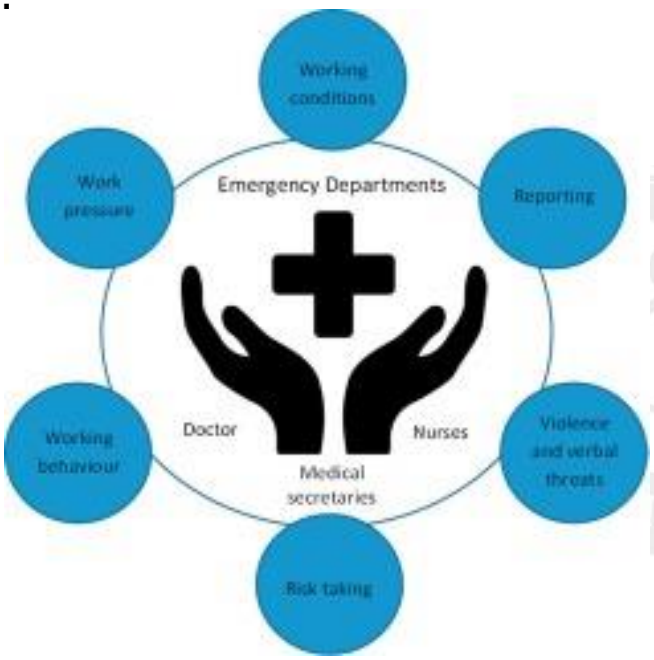
- They should observe and document any items moved or anything unusual at the scene.
- It is the responsibility of the emergency medical care worker to do their best in the preservation and protection of potential evidence.
- They should leave holes in clothing from bullet or stab wounds intact when removing it from the patient.
- They should maintain control of that evidence so the chain of evidence is preserved. They should not touch or move items at the scene unless necessary in the delivery of care.

Special Reporting Situations

- There may be legal requirements for special reporting situations by the emergency medical care worker.

- Common reporting situations include child, elderly or domestic abuse, certain crimes, and infectious disease exposures. They may also require the reporting of patient restraints and special incidents such as intoxication with injuries.

- It is the responsibility of the emergency medical care worker to know what their reporting requirements are.



Death and Dying

- The emergency worker will encounter “death and dying” situations. They will be called upon to intervene with people who are in the process of dying or with survivors of people who have died.

- These particular situations are emotionally challenging to the emergency worker. Having an understanding of the situation from the perspective of the dying patient, the surviving family or friends, and the impact on the emergency worker is important.

The Dying Patient

- The treatment of the dying patient differs between the acutely ill or traumatically injured and the terminally ill.
- For the acutely ill or traumatically injured patient, the goal is to prevent the death from occurring. The emergency worker may not have the time to address specific psychological and emotional needs of the patient whose life is threatened as they are focused on the medical intervention to save the patient's life.
- However, as the emergency worker addresses the priorities of care, their behavior will impact the patient's emotional and psychological needs.

The Dying Patient

- Respect is an essential characteristic for the intervention done by an emergency worker. The patient wants their privacy protected and even in the direst of circumstances they do not want anyone to compromise that level of respect.

- Maintaining the patient's level of modesty and protecting their vulnerability will assist the patient to be focused on their receiving of care as opposed to being distracted from it.

The Dying Patient

- An emergency worker's level of preparation and readiness prior to the emergency will give confidence to the patient, knowing that the caregiver is prepared to handle the situation.
- Proper hygiene, vehicle, equipment maintenance, and mastery of emergency medical techniques serve in providing the patient confidence in the emergency worker's ability to handle the crisis.
- The terminally ill patient is one whose death is predictable due to an underlying disease. A patient who is terminally ill often goes through emotional stages of dealing with **their impending death.**

The terminally ill patient
Denial

The first stage is called **Denial.**

- Denial, the "not me" stage, is a defense mechanism to **buffer** between the shock of dying and dealing with the illness or injury. They can't believe that it is truly happening to them.
- The denial stage can be a range of responses, from a momentary thought to one that **is pervasive** and/or intense.

The terminally ill patient
Anger

- The next stage is the **Anger** stage.
- Anger, the “why me” stage can also generate a range of emotional intensities. Often the anger is projected externally toward “God” or those around. The emergency worker can become a target of that anger.
- The Emergency care giver should not take it personally if they become a target of the patient’s anger. Having tolerance and being a good listener employs good communication skills, and **compassion.**

The terminally ill patient
Bargaining

The third stage is the **Bargaining** stage.

- Bargaining, the "OK, but first let me…." stage is an agreement that, in the patient's mind, will postpone the death for a short period of time.
- Often the bargaining is for a certain date or a certain accomplishment. An example might be, "OK, but let me at least live to see my child graduate."

The terminally ill patient
Depression

- The next stage is the **Depression** or “Grieving” stage.
- Depression, “OK, but I haven’t….” stage is the point where people are facing and grieving their actual and impending losses.
- It is characterized by sadness and despair. The patient will often be silent and retreat into their “own world” as this stage progresses.

The terminally ill patient
Acceptance

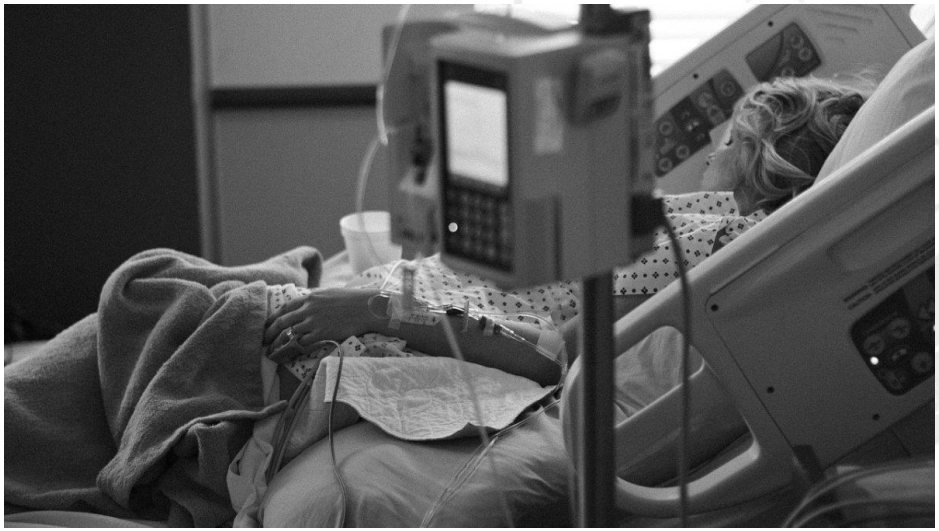
- The final stage is the **Acceptance** stage.
- Acceptance, the "OK, I accept that I am dying…." Stage is not necessarily a happy stage. The patient may accept their impending death but that does not imply they are happy about it.
- During this stage, the family may require equal or more emotional support than the patient.
- Family and friends may also undergo similar stages of grief, and they may react with a wide range of responses including rage, anger, denial or despair.

The terminally ill patient
Communication skills

- When approaching the dying patient or their family it is important to understand the typical responses you might encounter. Listen **empathetically**, use a gentle tone of voice, and let the patient and family know everything that can be done to help will be done.
- **Do not falsely reassure** and use good listening and communication skills. If appropriate, a reassuring touch may be valuable in certain situations. Comfort the family, and assist them by acquiring a support system of people who could help them cope with the situation beyond the response of the emergency care workers.

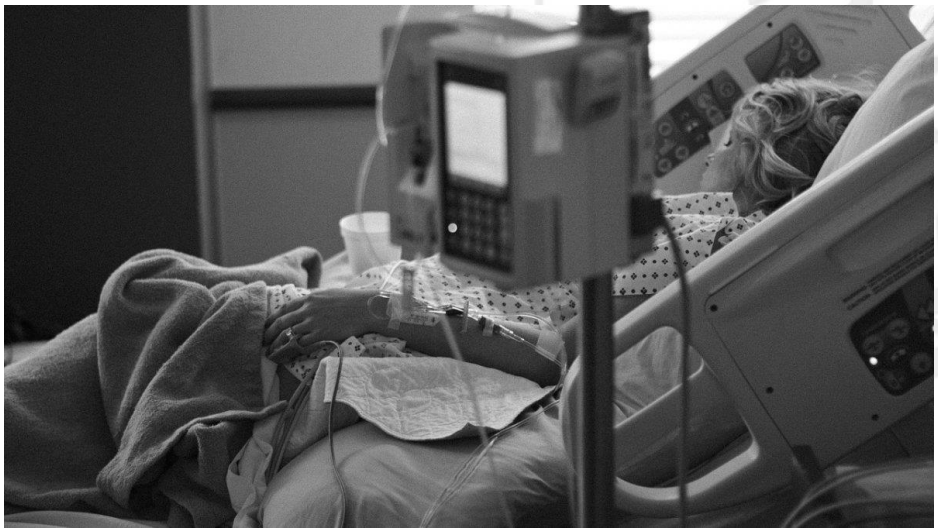
The Emergency Care Worker

- The effect of death and dying situations on an Emergency Care Worker can vary both from individual to individual as well as from situation to situation with the same individual.
- The effect is influenced by the degree of personalization of the death as well as the cumulative effect of stressors on the individual, the emergency worker's individual coping mechanisms and the circumstances of the incident.



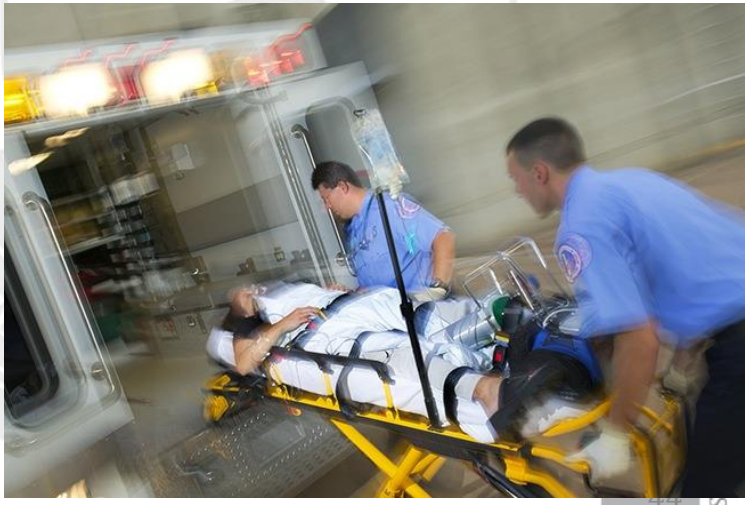
The Emergency Care Worker

- Pre-hospital emergency care workers encounter death and the dying patient on a regular basis. The very nature of our work draws us into that scenario. The degree of emotional exposure to the patient often determines the degree of effect on the emergency care worker.
- For caregivers who have long-term exposure or more intimate involvement with the patient, the grief process can be similar to those of family and friends. More often, the emotional contact is limited and the emergency caregiver deals with the dying situation by keeping involved in the technical nature of the work, shortening emotional involvement.



Critical Stress of the Emergency Worker
Critical Incidents

- In times of stress, a compromise in one of these three areas can precipitate a crisis.
- In the field of Emergency Medical Services, **Critical Incidents** occur. **Critical Incidents are events of such a magnitude that the normal coping skills of the emergency worker are not effective.**
- **The events are typically traumatic, emergent, powerful, and fit outside the normal range of human experience**. Examples of incidents that may produce a critical stress response include mass casualty situations, infant and child trauma, amputations, infant/child/elder/spouse abuse, or the death or injury of a co-worker or other public safety personnel.



Abnormal stress reactions

- The emergency worker may experience some abnormal stress reactions as a result of the **Critical Incident**. Such reactions are normal responses to abnormal events.
- There are increased events of depression, suicide, job change, divorce, and many other adverse reactions. As a result, the emergency worker involved in critical incidents requires accessible care readily available to preempt later adverse traumatic reactions.
- Critical Incident Stress Management is an emerging science to care for the emergency worker **who undergoes** a traumatic critical incident.

Abnormal stress reactions

Responses include*:*

- Irritability to co-workers, family and friends
- Inability to concentrate
- Difficulty sleeping/**nightmares**
- Anxiety
- Indecisiveness
- **Guilt**
- Loss of appetite
- Loss of interest in sexual activities
- Isolation
- Loss of interest in work

Abnormal stress reactions

- A good Critical Incident Stress Management Program includes Pre-incident stress education, on-scene peer support, one-on-one support, disaster support services, **defusing**, Critical Incident **Stress Debriefing**, follow up services, spouse/family support, community outreach programs, and other health and welfare programs such as wellness programs.
- Good Critical Incident Stress Management programs should be a proactively pre-planned response. Work shifts can be rearranged for persons at risk to allow for more time to relax with family and friends. Rotation of duty assignment to a less busy area may be helpful and appropriate.

Stress correction

- There are several things that an emergency care worker can do on their own. They can change their lifestyle to better handle stress with a change in diet:
-
- <u>Reduction of:</u>
- sugar
- caffeine
- alcohol

Stress correction

- ✓ The diet should also be healthy and well balanced. **Regular/increase exercise** has also been shown to be very effective in reducing stress. The emergency care worker can also reduce the impact of stress through the use of relaxation techniques such as meditation or visual imagery.
- ✓ The emergency care worker should develop a balanced approach to work, recreation, family, and health. Such an approach allows the worker to have better support and coping skills to deal with the inevitable stresses that accompany their work.

Protective Equipment

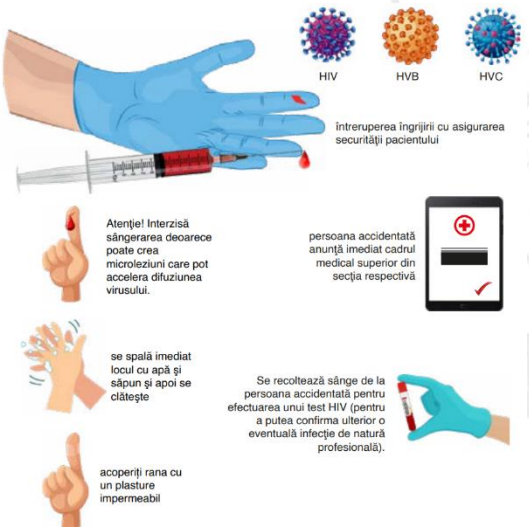
- Personal protective equipment, or PPE, is designed to protect emergency care workers from serious workplace injuries or illnesses resulting from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

- Besides face shields, safety glasses, helmets, and safety shoes, PPE includes a variety of devices and garments such as goggles, coveralls, gloves, vests, **earplugs**, and respirators

Blood Borne Pathogens

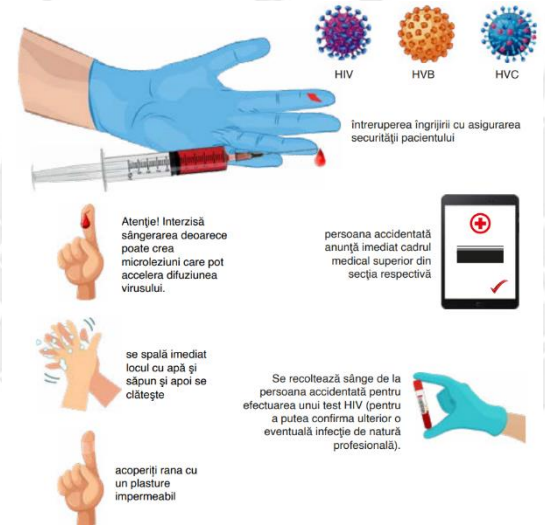
- Bloodborne pathogens are pathogenic microorganisms that are present in human blood and bodily fluids and can cause disease in humans.

- Some infections that can be transmitted through contact with blood and body fluids including AIDS/HIV, Hepatitis A, B, C, Staph and Strep infections, Gastroenteritis-salmonella, and shigella, Pneumonia, Syphilis, Tuberculosis, Malaria, Measles, Chicken Pox, Herpes, Urinary tract infections, and Blood infections. The greatest risks are from AIDS/HIV and Hepatitis B and C.



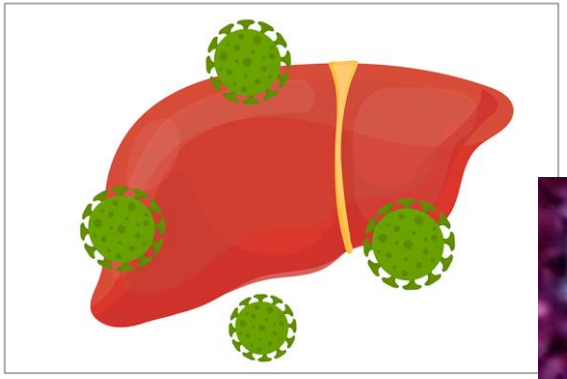
Universal Precautions

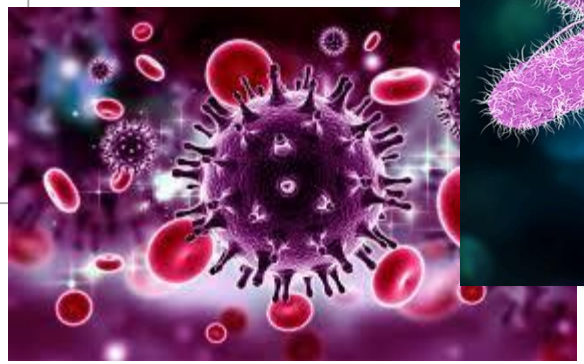
- ✓ Bloodborne Pathogen Standards require emergency care workers to observe Universal Precautions to prevent contact with blood or other potentially infectious materials **such as semen**, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

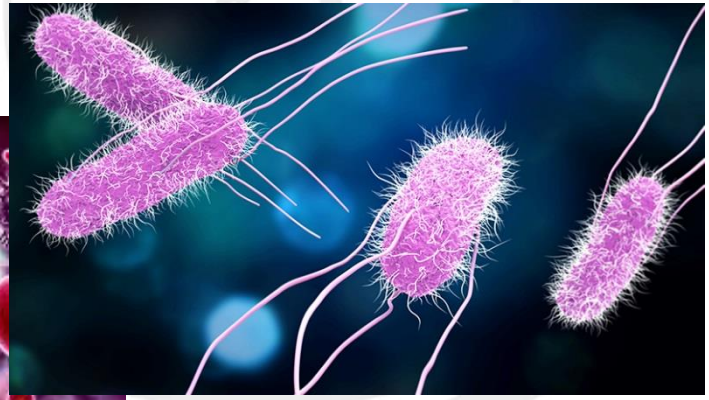


Airborne Hazards

- Transmission of disease such as tuberculosis may be transmitted to the emergency worker. Transmission of disease may be prevented by the use of a mask.
- The mask can be placed on the patient as well. With tuberculosis patients, High Efficiency Particulate Air masks should be used. In the event that these masks are not available, the care giver can place a mask both on the patient as well as themselves. They should avoid **prolonged confined** space exposure.







Scene Safety
Rescue

- When approaching an emergency scenario, the rescue worker should watch for and identify and reduce potential life threats. These include the presence of electrical hazards, fire, explosion or explosive potentials, and hazardous materials.
- Response by specialized rescue teams may be necessary for safe response and access to the patient. Specialized equipment and protective clothing such as hazardous materials suits or Self Contained Breathing Apparatus may be required.

Incident site security

- ✓ **Hazmat incidents** occur under a wide variety of conditions. For some of these situations there are special considerations and concerns.

- ✓ Listed below are some of these considerations and concerns for Hazmat incidents involving highway transport, rail transport, marine transport, fixed facilities, **pipelines,** radioactive materials, cryogenic tanks, chemical and biological terrorism and illegal or clandestine drug laboratories.

Incident site security

Environmental conditions

- ✓ Weather is an element that cannot be changed or controlled. That is why the effect it can have on the rescue intervention must be taken into account.
- ✓ Be dressed appropriately for the environmental conditions. Protect patients from moisture and protect them thermally.
- ✓ Be prepared for extreme temperatures, but avoid overheating or cold.
- ✓ Be prepared for precipitation.
- ✓ Be prepared for the consequences of strong winds.
- ✓ Darkness prevents you from seeing all the risks you are exposed to. Use emergency lights **or flashlights whenever** necessary.

Animals

- ✓ **Careful assessment of the work area can prevent unpleasant events!**
- ✓ Animals, whether domesticated, farmed or wild, can be encountered in a wide variety of cases.
- ✓ People travel with their animals and sometimes they too can be involved in the accident. Service dogs can be very possessive and protective of their owner.
- ✓ Wild animals can also be a danger, be aware of where they might be. The danger can also be represented **by bites or scratches.**

Hazardous materials

- ✓ To safely respond to hazardous material incidents, an individual must be trained and mentally prepared. What you don't know can kill you.
- ✓ Any substance (gas, liquid or solid) can be harmful and cause damage to people, property or the environment.

Highway Transport

- ✓ Accidents on highways involving trucks carrying hazardous materials are perhaps the most common cause of Hazmat incidents.
- ✓ Many of these incidents occur in heavily populated areas and may involve large quantities of hazardous materials. Shipping papers are kept in the truck cab, which may be inaccessible if there is a leak or fire.
- ✓ **Shipping papers** should include a contact telephone number for emergency information.

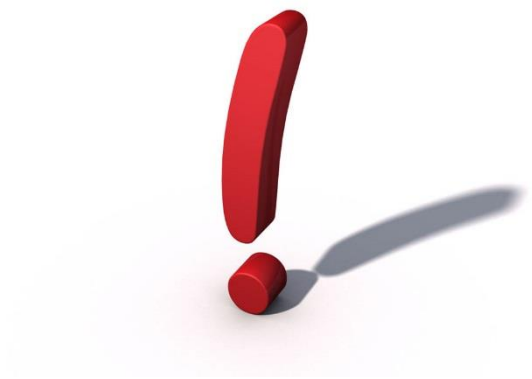
Highway Transport

- ✓ Vehicle placards may provide information on the nature of the cargo. Unfortunately, some trucks containing hazardous materials may not have placards.
- ✓ Trucks can carry dangerous amounts of hazardous materials and still be under the legal amount required to have a placard.
- ✓ Any truck or **van** should be assumed to contain hazardous materials. Until the cargo is identified all action should be undertaken from a safe distance..

Safety of the intervention site

- ✓ Remember that a dead or traumatized first responder is of no help to anyone. Protect yourself!
- ✓ Do not enter the contaminated area. Do not attempt to rescue victims who have been contaminated with highly toxic or hazardous materials.

Safety of the intervention site



- ✓ First responders, in addition, can take defensive measures, from a safe distance, that will control the release and prevent its spread. These actions aim to protect nearby people, property and the environment from the effects of **propagation.**
- ✓ In general, first responders are not trained to enter the hot zone and should not, unless they have had specific training in handling the material and the situation at hand.

Rail transport

- ✓ Dangerous incidents involving trains are often complicated by the number and large quantities of materials found in a single train. These materials can interact chemically if they come into contact with each other. This creates a major risk for personal injury and property damage, further complicating the problem.
- ✓ Rail incidents can also happen in relatively isolated areas that can limit the availability of personnel, equipment, and water. Transport documents must be found in the first locomotive.

Marine transport

- ✓ **: Shipboard** incidents in which land based responders are involved usually occur in heavily populated port areas.
- ✓ The quantities of hazardous materials involved can be very large, creating huge potential risks to adjacent populations and property. **Cargos** may also contain multiple chemicals with the possibility of chemical reaction.
- ✓ Most ships and barges will not be **labeled or placarded**. Shipping papers or manifests for cargo are usually located with the first officer on the bridge of a ship.

Fixed Facilities:

- ✓ Fixed facilities include both open facilities such as bulk liquid terminals and open processing areas, and closed facilities such as manufacturing or processing plants, laboratories, **warehouses**, and **retail establishments.**
- ✓ In general, the quantity of material in fixed facility incidents has the potential to be very large, particularly if there are large storage containers on site.
- ✓ Be aware that buildings or containers may have inaccurate placards. Fixed facilities are often in industrial zones and may have other hazardous materials sites located in close **proximity.** There may also be many people working on or close to the site.

Radioactive Materials:

- There are many radioactive materials in commerce, usually in small quantities. Larger quantities may be encountered at fixed facilities.
- All containers, including packages, vehicles, and rail cars, containing radioactive material should carry a warning label or placard. Buildings or containers at fixed facilities containing radioactive material should also carry appropriate warning labels. If such a label is present at the scene of an accident,
- First Responders should generally back off until trained personnel and appropriate equipment are available to assess the situation.

Cryogenic Gases:

- ✓ Cryogenic gases are gases shipped and stored refrigerated and under pressure. **Tank shape** and a visible vapor cloud upon release should alert the First Responder to the presence of a cryogenic gas.
- ✓ These gases, some of which are extremely flammable (hydrogen and liquid nitrogen gas) or toxic (chlorine), pose a major risk to the first responder.
- ✓ All of these gases are released from storage vessels at temperatures so low that they will instantly freeze unprotected tissues like skin and eyes.

Cryogenic Gases:

- ✓ The release of very small amounts of gas can produce large amounts of vapor. Leaking cryogenic containers should not be approached. To stop the leak, you need: trained personnel and appropriate equipment. Ignited materials must be allowed to burn until the release can be contained.

- ✓ **It is important** not to put water, fog or foam on cryogenic containers, or pools of cryogenic liquid, whether they are burning or not. The water will act as a heater, increasing evaporation or combustion. Water, foam and fog cannot extinguish a cryogenic fire.

Chemical and Biological Terrorism:

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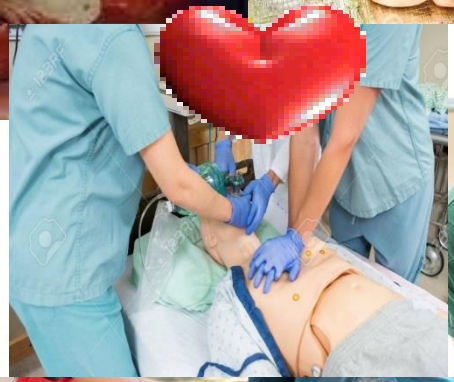
- Chemicals have been used in organized warfare since World War I. While biological agents such as highly infectious and toxic bacteria ("germ agents"), have been researched as potential war agents since the 1930's, they have never been used on a large scale.

- In recent years, **fears have mounted** that both chemical and biological agents could be used in terrorist actions against either civilian or military targets. In fact, chemical agents have now been used in such a fashion.

Chemical and Biological Terrorism:

- For this reason it is important that first responders become familiar with possible chemical agents involved in these incidents and how to appropriately respond. While biological agents, like germ agents, could be used in terrorist attacks, they would most likely unfold as an outbreak of a disease.
- It is unlikely that first responders will find themselves involved in these kinds of incidents because primarily public health authorities would then provide identification and response.
- Nuclear terrorism is also a possibility, however, response to nuclear accidents or events is beyond the scope of this lecture and the scope of training of most First Responders.




APPLE OF EYE of THE MEDICINE - IS THE EMERGENCY MEDICINE

ALL OF THEM "HIT THE GROUND RUNNING" –
THIS MEANS THAT THEY ARE THE BEST SPECIALISTS in THE WORLD