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- Cold illness can be either a local or a systemic problem.
- Local cold injuries include frostbite, frostnip, and immersion foot. Frostbite is the most serious because tissues actually freeze. All patients with a local cold injury should be removed from the cold and protected from further exposure.
- If instructed to do so by medical control, rewarm frostbitten parts by immersing them in water at a temperature between 100°F and 112°F (38°C and 44.5°C).
- The key to treating hypothermic patients is to stabilize vital functions and prevent further heat loss. Do not attempt to rewarm patients who have moderate to severe hypothermia because they are prone to developing arrhythmias.
- Do not consider a patient dead until he or she is warm and dead. Local protocol will dictate whether or not such patients receive cardiopulmonary resuscitation or defibrillation in the field.
- The body's regulatory mechanisms normally maintain body temperature within a very narrow range around 98.6°F (37°C). Body temperature is regulated by heat loss to the atmosphere via conduction, convection, evaporation, radiation, and respiration.
- Heat illness can take three forms: heat cramps, heat exhaustion, and heatstroke.
 - Heat cramps are painful muscle spasms that occur with vigorous exercise. Treatment includes removing the patient from the heat, resting the affected muscles, and replacing lost fluids.
 - Heat exhaustion is essentially a form of hypovolemic shock caused by dehydration. Symptoms include cold and clammy skin, weakness, confusion, headache, and rapid pulse. Body temperature can be high, and the patient may or may not still be sweating. Treatment includes removing the patient from the heat and treating for mild hypovolemic shock.
 - Heatstroke is a life-threatening emergency, usually fatal if untreated. Patients with heatstroke are usually dry and will have high body temperatures. Changes in mental status can include coma. Rapid lowering of the body temperature in the field is critical.
- The first rule in caring for drowning victims is to be sure not to become a victim yourself. Protect the spine when removing patients from the water because spinal cord injuries often occur in drownings. Be aware of the possibility of hypothermia.
- Injuries associated with scuba diving may be immediately apparent or may show up hours later. Patients with air embolism or decompression sickness may have pain, paralysis, or altered mental status. Be prepared to transport such patients to a recompression facility with a hyperbaric chamber.
- Poisonous spiders include the black widow spider and the brown recluse spider.
- Poisonous snakes include pit vipers and coral snakes.
- A person who has been bitten by a pit viper needs prompt transport; clean the bite area and keep the patient quiet to slow the spread of venom.
- Notify the hospital as soon as possible if a patient has been bitten by a coral snake; its venom can cause paralysis of the nervous system, and most hospitals do not have appropriate antivenin on hand.
- Patients who have been bitten by ticks may be infected with Rocky Mountain spotted fever or Lyme disease and should see a doctor within a day or two. Remove the tick using tweezers, and save it for identification.
- Always provide prompt transport to the hospital for any patient who has been bitten by a poisonous insect or animal. Remember that vital signs can deteriorate rapidly. Carefully monitor the patient's vital signs en route, especially for airway compromise.

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- Inside the uterus, the developing fetus floats in the amniotic sac. The umbilical cord connects the mother and fetus through the placenta. Eventually, contractions of the uterus will propel the neonate through the birth canal.
- Throughout pregnancy, the body changes to accommodate the fetus. The primary systems involved with these changes are the respiratory, cardiovascular, and musculoskeletal systems.
- As a result of enlargement of the uterus, a pregnant patient's respiratory capacity changes with increased respiratory rates and decreasing minute volumes.
- A pregnant patient's blood volume increases by as much as 50%, and the heart rate increases by 20%.
- Increased hormone levels affect the musculoskeletal system by making the joints more loose or less stable.
- The first stage of labor, dilation, begins with the onset of contractions and ends when the cervix is fully dilated. The second stage of labor, expulsion of the fetus, begins when the cervix is fully dilated and ends when the infant is born. The third stage of labor, delivery of the placenta, begins with the birth of the infant and ends with the delivery of the placenta.
- Once labor has begun, it cannot be slowed or stopped; however, there is usually time to transport the patient to the hospital during the first stage of labor. During the second stage of labor, you must decide whether to deliver the infant at the scene or transport the patient. During the third stage of labor, once the infant has been born, you will probably not transport the patient until the placenta has delivered.
- Complications of pregnancy include hypertensive disorders, bleeding, and diabetes.
- During a trauma call that involves a pregnant woman, you have two patients to consider: the woman and the unborn fetus. Any trauma to the woman will have a direct effect on the condition of the fetus.
- Abnormal or complicated deliveries include breech deliveries (buttocks first), limb presentations (arm, leg, or foot first), and prolapse of the umbilical cord (umbilical cord first). Quickly transport the patient with a limb presentation or prolapsed umbilical cord to the hospital.
- You should place a finger or hand into the vagina only to keep the walls of the vagina from compressing the infant's airway during a breech presentation or to push the infant's head away from the cord when the cord is prolapsed.
- Excessive bleeding is a serious emergency. Cover the vagina with a sterile pad; change the pad as often as necessary, and take all used pads to the hospital for examination.

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- Children are not only smaller than adults and more vulnerable, they are also anatomically, physiologically, and psychologically different from adults in some important ways.
- Infancy is the first year of life. If possible, allow the parent or caregiver to hold the infant during the assessment.
- The toddler is 1 to 3 years of age. Toddlers may experience stranger anxiety but may be able to be distracted by a special object (blanket) or toy.
- Preschool-age children are 3 to 6 years of age. Preschool-age children can understand directions and can identify painful areas when questioned. Tell these children what you are going to do before you do it. This action can help prevent the development of frightening fantasies.
- School-age children are 6 to 12 years of age. These children are familiar with the physical examination process. Talk about their interests to distract them during a procedure.
- Adolescents are 12 to 18 years of age. Respect the adolescent's modesty. Remember that even though this age group is physically similar to adults, adolescents are still children on an emotional level.

- General rules for dealing with pediatric patients of all ages include appearing confident, being calm, remaining honest, and keeping parents or caregivers together with the pediatric patient as much as possible.
- The growing bodies of the pediatric patient create some special considerations.
- The tongue is large relative to other structures, so it poses a higher risk of airway obstruction than in an adult.
- An infant breathes faster than an older child.
- Breathing requires the use of chest muscles and the diaphragm.
- The airway in a child has a smaller diameter than the airway in an adult and is therefore more easily obstructed.
- A rapid heart beat and blood vessel constriction helps pediatric patients to compensate for decreased perfusion.
- Children's internal organs are not as insulated by fat and may be injured more severely, and children have less circulating blood, so that, although children exhibit the signs of shock more slowly, they go into shock more quickly, with less blood loss.
- Children's bones are more flexible and bend more with injury and the ends of the long bones, where growth occurs, are weaker and may be injured more easily.
- Because a young child might not be able to speak, your assessment of his or her condition must be based in large part on what you can see and hear yourself. Families may be helpful in providing vital information about an accident or illness.
- Use the pediatric assessment triangle to obtain a general impression of the infant or child.
- You will need to carry special sizes of airway equipment for pediatric patients.
- Use a pediatric resuscitation tape measure to determine the appropriately sized equipment for children.
- The three keys to successful use of the bag-mask device in a child are: (1) have the appropriate equipment in the right size; (2) maintain a good face-to-mask seal; and (3) ventilate at the appropriate rate and volume.
- Signs of shock in children are tachycardia, poor capillary refill time, and mental status changes. You must be very alert for signs of shock in a pediatric patient because they can decompensate rapidly.
- Febrile seizures may be a sign of a more serious problem such as meningitis.
- The most common cause of dehydration in children is vomiting and diarrhea. Life-threatening diarrhea can develop in an infant in hours.
- Fever is a common reason why parents or caregivers call 9-1-1. Body temperatures of 100.4°F (38°C) or higher are considered to be abnormal.
- Trauma is the number one killer of children in the United States.
- A victim of sudden infant death syndrome (SIDS) will be pale or blue, not breathing, and unresponsive. He or she may show signs of postmortem changes, including rigor mortis and dependent lividity; if so, call medical control to report the situation.
- Carefully inspect the environment where a SIDS victim was found, looking for signs of illness, abusive family interactions, and objects in the child's crib.
- Provide support for the family in whatever way you can, but do not make judgmental statements.
- Any death of a child is stressful for family members and for health care providers. In dealing with the family, acknowledge their feelings, keep any instructions short and simple, use the child's name, and maintain eye contact.
- Be prepared to respond to philosophical as well as medical questions, in most cases by indicating concern and understanding; do not be specific about the cause of death.
- Be alert for signs of posttraumatic stress in yourself and others after dealing with the death of a child. It can help to talk about the event and your feelings with your EMS colleagues.

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- Although assessment of geriatric patients involves the same basic approach as that for any other patient, you must take a more wary approach.
- Assessing an elderly person can be challenging because of communication issues, hearing and vision deficits, alteration in consciousness, complicated medical history, and the effects of multiple medications.
- To obtain an accurate history for a geriatric patient, patience and good communication skills are essential. A slow, deliberate approach to the patient history, with one EMT asking questions, is generally the best strategy.
- With changes in the respiratory system, such as a decreased ability to cough, geriatric patients are more likely to present with pneumonia.
- Changes in the cardiovascular system can lead to atherosclerosis, aneurysm, stiffening heart valves, orthostatic hypotension, venous stasis, deep venous thrombosis, heart attack, heart failure, and stroke.
- Many patients do not present with the classic symptom of chest pain when experiencing a heart attack. Atypical presentations are seen mostly in women, elderly patients, and patients with diabetes.
- Dementia and delirium must be carefully evaluated in geriatric patients.
- As the body ages, the bones become more fragile. This leads to a higher risk of fracture in geriatric patients.
- Polypharmacy and changes in medications can cause serious problems for geriatric patients.
- Depression is treatable with medication and therapy but is a risk factor for suicide if it remains untreated in geriatric patients.
- The risk of serious injury or death is more common in elderly patients who experience a traumatic injury.
- When you treat a geriatric trauma patient, assess the injuries and carefully look for the cause of the injury. A medical condition such as fainting could actually be the cause of a fall. The injuries from the fall and the medical condition will need to be addressed.
- When responding to nursing and skilled care facilities, you should determine the patient's chief complaint on that day and what initial problem caused the patient to be admitted to the facility.

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- Medicine and medical technology continue to improve and the number of children and adults with chronic diseases or injuries who are living at home or in other environments outside of the hospital setting continues to grow.
- You may find children and adults who are living at home who depend on mechanical ventilators, intravenous pumps, or other medical devices to maintain their lives.
- Assess and care for patients with special needs in the same manner as all other patients.
- Developmental disability is caused by insufficient development of the brain, resulting in the inability to learn and socially adapt at a normal developmental rate.
- People with Down syndrome often have large tongues and small oral and nasal cavities, so intubation of these patients may be difficult.
- Visual impairments may be difficult to recognize. During your scene size-up, look for signs that indicate the patient is visually impaired, such as the presence of eyeglasses, a cane, or a service dog. Make yourself known when you enter the room, and introduce yourself and others in the room so that the patient can identify their placement and voices.
- Hearing impairment may range from a slight hearing loss to total deafness. Clues that a person could be hearing impaired include the presence of hearing aids, poor pronunciation of words, or failure to respond to your presence or questions.

- Cerebral palsy is associated with other conditions such as visual and hearing impairments, difficulty communicating, epilepsy, and mental retardation. Patients may also have an unsteady gait and may require the assistance of a wheelchair or walker.
- Patients with spina bifida will have either partial or full paralysis of the lower extremities, loss of bowel and bladder control, and an extreme allergy to latex products.
- Obese patients may be embarrassed by their condition or fearful of ridicule as a result of past experiences. If transport is necessary, plan early for extra help and do not be afraid to call for more help if necessary. In particular, send a member of your team to find the easiest and safest exit.
- Patients who depend on home automatic ventilators or those who have chronic pulmonary medical conditions may breathe through a tracheostomy tube.
- Patients who are on a mechanical ventilator at home cannot breathe without assistance. If the ventilator malfunctions, remove the patient from the mechanical ventilator and begin ventilations with a bag-valve-mask device.
- An apnea monitor is typically used when an infant is born prematurely, has severe gastroesophageal reflux that causes episodes of choking, or if there is a family history of sudden infant death syndrome or if the infant has experienced an apparent life-threatening event. The apnea monitor is designed to sound an alarm if the infant experiences bradycardia or if apnea occurs.
- An internal cardiac pacemaker is a device implanted under the patient's skin to regulate the heart rate.
- A left ventricular assist device is a special piece of medical equipment that takes over the function of either one or both heart ventricles. These types of devices are used as a bridge to transplantation while a donor heart is being located.
- Gastrostomy tubes are placed directly into the stomach for feeding in patients who cannot ingest fluids, food, or medication by mouth. These tubes may be inserted through the nose, mouth, or placed through the abdominal wall surgically.
- Shunts are tubes that extend from the brain to the abdomen to drain excess cerebrospinal fluid that may accumulate near the brain.
- A colostomy or ileostomy is a section of small or large intestine that is surgically attached to the abdominal wall and allows for elimination of waste products. Urine and/or feces are expelled and collected into a clear external bag or pouch, which is emptied or changed frequently. You and your team may be called on to assist a patient who is terminally ill. Terminally ill patients may be in a hospice facility or at home.

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- Today's ambulances are designed according to strict government regulations based on national standards.
- The six-pointed Star of Life® emblem identifies vehicles that meet federal specifications as licensed or certified ambulances.
- An ambulance call has nine phases:
 - . Preparation for the call
 - . Dispatch
 - . En route
 - . Arrival at scene
 - . Transfer of the patient to the ambulance
 - . En route to the receiving facility (transport)
 - . At the receiving facility (delivery)
 - . En route to the station
 - . Postrun

- Certain items, like sterile gloves, must be available on the ambulance at all times, as dictated by state and jurisdictional requirements.
- Every ambulance must be staffed with at least one EMT in the patient compartment whenever a patient is being transported. However, two EMTs are strongly recommended. Some services may operate with a non-EMT driver and a single EMT in the patient compartment.
- Check all medical equipment and supplies at least daily, including all the oxygen supplies, the jump kit, splints, dressings and bandages, backboards and other stabilization equipment, and the emergency obstetric kit.
- During the postrun phase, you should complete and file any additional written reports and inform dispatch of your status, location, and availability. Perform a routine inspection to ensure that the ambulance is ready to respond to the next call.
- Learning how to properly operate your vehicle is just as important as learning how to care for patients when you arrive on the scene.
 - The first rule of safe driving in an emergency vehicle is that speed does not save lives; good care does.
 - The second rule is that the driver and all passengers must wear seatbelts and shoulder restraints at all times.
- Air ambulances are used to evacuate medical and trauma patients.
 - There are two basic types of air medical units: fixed-wing and rotary-wing, otherwise known as helicopters.
 - A medical evacuation is commonly known as a medivac and is generally performed exclusively by helicopters.

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- You must always be prepared, mentally and physically, for any incident that requires rescue or extrication.
- Vehicle safety systems, such as shock-absorbing bumpers and air bags, protect your patients but also have the potential to injure rescuers.
- The ten phases of extrication are:
 - Preparation
 - En route to the scene
 - Arrival and scene size-up
 - Hazard control
 - Support operations
 - Gaining access
 - Emergency care
 - Removal of the patient
 - Transfer of the patient
 - Termination
- The rescue team is responsible for securing and stabilizing vehicles, providing safe entrance and access to patients, extricating patients, and protecting patients during extrication.
- EMS personnel are responsible for assessment, medical care, triage, packaging, and transport of patients.
- In some situations, the patient can only be reached by teams trained in special technical rescues. Situations requiring specialized teams include:
 - Cave rescue
 - Confined space rescue
 - Cross-field and trail rescue (park rangers)
 - Dive rescue
 - Lost person search and rescue
 - Mine rescue

- . Mountain-, rock-, and ice-climbing rescue
- . Ski slope and cross-country or trail snow rescue (ski patrol)
- . Structural collapse rescue
- . Special weapons and tactics (SWAT)
- . Technical rope rescue (low- and high-angle rescue)
- . Trench rescue
- . Water and small craft rescue
- . White-water rescue

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- The National Incident Management System (NIMS) provides a consistent nationwide template to enable federal, state, and local governments, as well as private-sector and nongovernmental organizations, to work together effectively and efficiently. The NIMS is used to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism and hazardous materials (HazMat) incidents.
- The major NIMS components are command and management, preparedness, resource management, communications and information management, supporting technologies, and ongoing management and maintenance.
- The purpose of the incident command system is ensuring responder and public safety; achieving incident management goals; and ensuring the efficient use of resources.
- Preparedness involves the decisions made and basic planning done before an incident occurs.
- Your agency should have written disaster plans that you are regularly trained to carry out.
- At incidents that have a significant medical factor, the incident commander should appoint someone as the medical group or branch leader. This person will supervise the primary roles of the medical group: triage, treatment, and transport of the injured.
- A mass-casualty incident refers to any call that involves three or more patients, any situation that places such a great demand on available equipment or personnel that the system would require a mutual aid response, or any incident that has a potential to create one of the previously mentioned situations.
- The goal of triage is to do the greatest good for the greatest number. This means that the triage assessment is brief and the patient condition categories are basic.
- There are four basic triage categories that can be recalled using the mnemonic IDME:
 - . Immediate (red)
 - . Delayed (yellow)
 - . Minimal (green; hold)
 - . Expectant (black; likely to die or dead)
- A disaster is a widespread event that disrupts functions and resources of a community and threatens lives and property.
- Many disasters, such as a drought, may not involve personal injuries.
- When you arrive at the scene of a HazMat incident, you must first step back and assess the situation. This can be very stressful, particularly if you see a patient.
- A valuable resource for determining what the hazardous material is and what you should do is CHEMTREC.

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- As a result of the increase in terrorist activity, it is possible that you, the EMT, could witness a terrorist event. You must be mentally and physically prepared for the possibility of a terrorist event.

- Types of groups that tend to use terrorism include violent religious groups/doomsday cults, extremist political groups, technology terrorists, and single-issue groups.
- A weapon of mass destruction (WMD) is any agent designed to bring about mass death, casualties, and/or massive damage to property and infrastructure (bridges, tunnels, airports, and seaports). These can be biologic, nuclear, incendiary, chemical, and explosive weapons (B-NICE).
- Indicators that may give you clues as to whether the emergency is the result of a terrorist attack include the type of location, type of call, number of patients, victims' statements, and preincident indicators.
- If you suspect that a terrorist or a weapon of mass destruction event has occurred, ensure that the scene is safe. If you have any doubt that it may not be safe, do not enter. Wait for assistance.
- Terrorists may set secondary devices that are designed to explode after the initial bomb, thus injuring responders and media coverage. Constantly assess and reassess the scene for safety.
- Chemical agents are manufactured substances that can have devastating effects on living organisms.
- The route of exposure is how the agent most effectively enters the body.
- Biologic agents are organisms that cause disease.
- Biologic agents include viruses such as smallpox and those that cause viral hemorrhagic fevers; bacteria such as those that cause anthrax and plague; and neurotoxins such as botulinum toxin and ricin.
- Nuclear or radiologic weapons can create a massive amount of destruction.
- Ionizing radiation is energy that can enter the human body and cause damage.
- Explosive and incendiary devices come in various shapes and sizes. It is important to be able to identify an object you believe is a potential device and notify the proper authorities, while safely evacuating the area.

Assessment in Action

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