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EMERGENCY PREPAREDNESS POLICIES & PROCEDURES

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We do not set practice standards. We offer this only to educate and inform.
Thank you to my mentor

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A medical emergency has been defined as the onset of a medical/health condition manifesting itself in acute symptoms of sufficient severity that the absence of immediate attention could reasonably result in (1) permanently placing the patient's health in jeopardy, (2) causing other serious health consequences, (3) causing serious impairment to bodily functions, or (4) causing serious and permanent dysfunction of any bodily organ or part.


• At times, recognizing an emergency is difficult.
• Common indicators or “red flags”—unusual and sudden signs, symptoms, and/or behavior, such as unconsciousness, slurred speech, or difficult breathing—can alert those present to an emergency.
• First aid is the initial aid or emergency care administered to an acutely ill or severely injured person before emergency medical service (EMS) is obtained.

The importance of the attitudes, knowledge, and skills of students with respect to first aid and basic life support (BLS) procedures, such as cardiopulmonary resuscitation (CPR), has long been recognized by the chiropractic profession.

As early as 1918, first aid coursework was provided in the chiropractic EDUCATION program.

Every chiropractor is likely to encounter potential traumatic and medical emergencies at some point in his or her professional life.

Sports injuries, complications of spinal manipulation, and medical illness can happen in chiropractic settings regardless of such attempts to prevent them as preparticipation screening and screening for "red flags" of potential medical and traumatic conditions.

Like other primary care health care providers, chiropractic practitioners have a duty to their patients during emergencies. Chiropractors and staff must develop competencies in recognizing, assessing, and managing emergency potential medical and traumatic conditions in chiropractic on-field and in-office settings, including complications of spinal manipulation.

The principal aims of first aid and/or emergency care in chiropractic settings are as follows:

1. To save life
2. To protect the unconscious
3. To prevent further injury
4. To prevent injury or illness from becoming worse
5. To prevent or minimize infection for open injuries (in on-field sports settings)
6. To promote recovery.

The legal responsibilities of practicing chiropractors from this perspective are as follows:

1. To recognize an accident or emergency and respond to it appropriately
2. To access an illness or injury quickly and safely and activate EMS if indicated
3. To give early, appropriate, and adequate care in a sensible order of priority
4. To monitor and record the patient's vital signs
5. To arrange for transportation of the patient to his or her home, to the care of a medical practitioner, or, if necessary, to a hospital
6. To remain calm and to reassure and communicate with the patient until EMS is obtained
7. To document and transmit a report on the incident
8. To follow the case.

The risk of serious complications of spinal manipulation is extremely low. Evidence from recent studies suggests that spinal adjustments by qualified chiropractors are safe.

There are, however, very rare potential adverse effects of spinal manipulation, such as verteobasilar injury, phrenic nerve palsy or diaphragmatic paralysis and cauda equina syndrome.

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8. To follow the case.
According to studies conducted at RAND (Santa Monica, Calif) on the appropriateness and efficacy of manipulation for problems in cervical spine and low back pain, the estimated risk of serious complications is much lower for manipulation of cervical spine and 1 per 100 million manipulations for lumbar manipulation.

The best evidence indicates that cervical manipulation for neck pain is much safer than the use of nonsteroidal anti-inflammatory drugs by a factor of as much as several hundred.

Prevention of complications from treatment is facilitated when good professional judgment is exercised and quality care is provided. Complications such as vertebral artery dissection can occur spontaneously, with trivial trauma or with major trauma, or arise as a result of spinal manipulation.


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Safety: The Cornerstone of the Patient Experience in an Emergency

When Doctors of Chiropractic think of patient safety, they often think about maintaining safe office layouts or treatment plans. But it can also mean knowing what to do when a patient has a potential adverse reaction to care or is experiencing an emergency.

For instance:

- A chiropractic assistant is performing manual therapies when the patient reports feeling dizzy, faint or lightheaded upon sitting up.

- The receptionist notices a patient nodding off in the reception area, walking clumsily to the front desk, or otherwise speaking, moving or acting in an erratic manner.

- The Doctor is out at lunch and a patient comes early for their appointment they sudden collapse, with no pulse and is not breathing.
A Team Approach Is Essential

- As a starting point, it is crucial for the staff to know what to do.
- The entire team—from the front desk employees to the doctors—should be trained on patient safety.
- Patient safety protocols should be in place so staff members know when to attend to the patient and when to advise the doctor.
- They must be able to recognize when a patient's behavior is outside the norm.
- They should know when to calm the patient, secure the patient's surroundings and call for emergency assistance.

Once notified of a potential patient emergency, the doctor should begin by checking the patient’s vitals:

- Are they within normal limits?
- Is the patient demonstrating labored or painful breathing?
- Has the patient become injured or is an existing injury a factor?

Vital Signs (Body Temperature, Pulse Rate, Respiration Rate, Blood Pressure)

- What are vital signs?

Vital signs are measurements of the body's most basic functions. The 4 main vital signs routinely checked by healthcare providers include:
  - Body temperature
  - Pulse rate
  - Breathing rate (respiration)
  - Blood pressure

Vital signs help detect or monitor medical problems.

What is body temperature?

- The normal body temperature of a person varies depending on gender, recent activity, food and fluid consumption, time of day, and, in women, the stage of the menstrual cycle.
- Normal body temperature can range from 98.6°F to 99°F for a healthy adult.
- A person's body temperature can be taken in any of the following ways:
  - Orally. Temperature can be taken by mouth using either the classic glass thermometer, or digital thermometers that use an electronic probe to measure body temperature.
  - Rectally. Temperatures taken rectally tend to be 0.5°F to 0.7°F higher than temperatures taken by mouth. This is more common in babies because their body doesn’t regulate temperature the way an older child or adult’s body does.
  - Armpit (axillary). Temperatures can be taken under the arm using a thermometer. Temperatures taken axillary tend to be 0.3°F to 0.4°F lower than those temperatures taken by mouth.
What is body temperature?

- **By ear.** A special thermometer can quickly measure the temperature of the eardrum, which reflects the body’s core temperature (the temperature of the internal organs).
- **By skin.** A special thermometer can quickly measure the temperature of the skin on the forehead.
- **Internally.** This method is common in people who are critically ill in an intensive care unit. The temperature can be measured by probes that are placed in the esophagus, heart, or bladder.
- Body temperature may be abnormal due to **fever** (high temperature) or **hypothermia** (low temperature).

> A fever is indicated when body temperature rises about 1 degree or more over the normal temperature of 98.6 °F, according to the American Academy of Family Physicians. Hypothermia is defined as a drop in body temperature below 95 °F.

What is the pulse rate?

- The pulse rate is a measurement of the heart rate. This is the number of times the heart beats per minute. As the heart pushes blood through the arteries, the arteries expand and contract with the flow of the blood. Taking a pulse not only measures the heart rate, but also can indicate the following:
  - Heart rhythm
  - Strength of the pulse
- The normal pulse for healthy adults ranges from 60 to 100 beats per minute. The pulse rate may fluctuate and increase with exercise, illness, injury, and emotions. Females ages 12 and older, in general, tend to have faster heart rates than do males. Athletes, such as runners, who do a lot of cardiovascular conditioning, may have heart rates near 40 beats per minute with no problems.

How to check your pulse

- As the heart forces blood through the arteries, you feel the heartbeat forces pressing on the arteries, which are located near the surface of the body. The pulse can be felt by putting your fingers on the outside of your neck, the inside of your elbow, at the wrist, or in the groin.
- The pulse can be felt on the side of the neck, on the inside of the elbow, at the wrist, or in the groin. Close your fingers together, but not so close as to press too hard. Never press on the pulse in both sides of the lower neck at the same time.
- When taking your pulse:
  - Start counting the pulse when the clock’s second hand is on the 12.
  - Count your pulse for 60 seconds or for 15 seconds and then multiply by 4 to calculate beats per minute.
  - When counting, don’t watch the clock continuously, but concentrate on the beats of the pulse.

What is the respiration rate?

- The respiration rate is the number of breaths you take each minute. The rate is usually measured when you are at rest. It simply involves counting the number of breaths for one minute by counting how many times your chest rises. Respiration rates may increase with exercise, fever, illness, and with other medical conditions. When checking respiration, it is important to also note whether you have any trouble breathing.
- Normal respiration rates for an adult person at rest range from 12 to 20 breaths per minute.
What is blood pressure?

• Blood pressure is the force of the blood pushing against the artery walls during contraction and relaxation of the heart. Each time the heart beats, it pumps blood into the arteries. It results in the highest blood pressure as the heart contracts. When the heart relaxes, the blood pressure falls.

• Two numbers are recorded when measuring blood pressure.

  • The higher number is called systolic pressure. It refers to the pressure inside the artery when the heart contracts and pumps blood through the body.

  • The lower number is called diastolic pressure. It refers to the pressure inside the artery when the heart is at rest and is filling with blood.

• High blood pressure directly increases the risk of heart attack, heart failure, and stroke. With high blood pressure, the arteries may have an increased resistance against the flow of blood.

  • This causes the heart to work harder to circulate the blood.

• Blood pressure is categorized as normal, elevated, or stage 1 or stage 2 high blood pressure:

  • Normal: blood pressure is systolic of less than 120 and diastolic of less than 80 (120/80)

  • Elevated: blood pressure is systolic of 120 to 129 and diastolic less than 80

  • Stage 1 high blood pressure is systolic is 130 to 139 or diastolic between 80 to 89

  • Stage 2 high blood pressure is when systolic is 140 or higher or the diastolic is 90 or higher

Guiding the Patient

• In the meantime, assess the patient’s state of mind and other factors:

  • Have they felt this way before?

  • Do they know where they are?

  • Are they experiencing any visual disturbances or paresthesia?

  • Have they eaten today?

  • Is the patient a diabetic or taking any medication?

• There are times, of course, when a patient will insist on leaving the office without support. There’s only so much you can do to control the situation. However, having an office policy and safety protocol, ensuring everyone is trained on an ongoing basis and documenting thoroughly are key.

• If the records detail the patient’s history and examination, and if informed consent remains ongoing, effective decision making should naturally follow. This will better enable you to deliver essential care to the patient.

• Another important aspect of maintaining patient safety is effective communication and involvement. By using clear language that is tailored to the patient’s level of understanding, providing specific, follow-up instructions, and involving patients in the decision-making process, you help them be active participants in their care and safety.
Red Flags

- Progressive neurological disorders
- Cauda equina syndrome
- Bone weakening disorders; i.e., acute spinal fracture, spinal infection, spinal or extra-vertebral bony malignancies
- Tumor
- Articular derangements indicating instability; i.e., active avascular necrosis in weight-bearing joints

Compliance Program Manual for the Chiropractic Office

- If you see Medicare or Medicaid patients, this manual is **REQUIRED BY LAW**. Do you have your Corporate Compliance Manual?
- Medicare can now ask for records from up to FIVE years ago.
- Other insurances, such as Blue Cross, may request records from up to three years ago. Are you complaint?
- The OIG stated that a compliance program (different from HIPAA) is a mitigating factor against fines and/or jail time. Fraud is an intent or a reckless disregard for compliance.
- If you show a good faith effort for compliance, this is your proof that you attempted to be compliant. Do you have your proof?
- If you have a completed Compliance Manual done in keeping with the OIG Recommendations, it may be your bullet proof vest!

Seven Elements of a Compliance Program

1. Designate a compliance officer;
2. Conduct comprehensive training and education;
3. Implement written policies and procedures;
4. Conduct auditing and internal monitoring;
5. Develop accessible lines of communication;
6. Enforcing standards through well-publicized disciplinary guidelines; and
7. Responding promptly to detected offenses and undertaking corrective actions.
8. Check the OIG Exclusion List

Policy and Procedure
Shock

- is the state of insufficient blood flow to the tissues of the body as a result of problems with the circulatory system. Initial symptoms of shock may include weakness, fast heart rate, fast breathing, sweating, anxiety, and increased thirst.

Introduction

- Shock (hypoperfusion) describes a state of collapse and failure of the cardiovascular system.
- In the early stages, the body attempts to maintain homeostasis.
- As shock progresses, blood circulation slows and eventually ceases.

Shock can occur because of medical or traumatic events.

- Heart attack
- Severe allergic reaction
- Motor vehicle crash
- Gunshot wound
Pathophysiology (1 of 13)
- Perfusion is the circulation of an adequate amount of blood to meet the cell's current needs.
- The body is perfused via the circulatory system.
- Organs, tissues, and cells must have adequate oxygenation or they may die.

Pathophysiology (2 of 13)
- In cases of poor perfusion (shock):
  - Transportation of carbon dioxide out of tissues is impaired.
  - Results in a dangerous buildup of waste products, which may cause cellular damage.

Pathophysiology (3 of 13)
- Shock refers to a state of collapse and failure of the cardiovascular system that leads to inadequate circulation.
  - Shock is an unseen life threat caused by a medical disorder or traumatic injury.
  - If the conditions causing shock are not promptly addressed, death may soon occur.

Pathophysiology (4 of 13)
- Cardiovascular system consists of three parts:
  - Pump (heart)
  - Set of pipes (blood vessels or arteries)
  - Contents (the blood)
These three parts can be referred to as the "perfusion triangle."
- When a patient is in shock, one or more of the three parts is not working properly.

Blood pressure is the pressure of blood within the vessels at any moment in time.
- Systolic: peak arterial pressure
- Diastolic: pressure in the arteries while the heart rests between heartbeats

Pulse pressure is the difference between the systolic and diastolic pressures.
- Pulse pressure signifies the amount of force the heart generates with each contraction.
- A pulse pressure less than 25 mm Hg may be seen in patients with shock.

Blood flow through the capillary beds is regulated by the capillary sphincters.
- Under the control of the autonomic nervous system
- Capillary sphincters respond to other stimuli:
  - Heat
  - Cold
  - The need for oxygen and waste removal
Perfusion requires more than just having a working cardiovascular system.
- Adequate oxygen exchange in the lungs
- Adequate nutrients in the form of glucose in the blood
- Adequate waste removal, primarily through the lungs

Mechanisms are in place to help support the respiratory and cardiovascular systems when the need for perfusion of vital organs is increased.
- Mechanisms include the autonomic nervous system and hormones.

Hormones are triggered when the body senses pressure falling.
- Cause an increase in:
  - Heart rate
  - Strength of cardiac contractions
  - Peripheral vasoconstriction

Together, these actions are designed to
- Maintain pressure in the system
- Sustain perfusion of all vital organs
- It is this response that causes all the signs and symptoms of shock.
Causes of Shock (1 of 3)

- Shock can result from bleeding, respiratory failure, acute allergic reactions, and overwhelming infection.
- Damage occurs because of insufficient perfusion of organs and tissues.

Causes of Shock (2 of 3)

- Causes of shock include:
  - Cardiogenic shock
  - Sepsis
  - Anaphylactic shock
  - Trauma
  - Hypovolemic shock

Causes of Shock (3 of 3)

Cardiogenic Shock (1 of 4)

- Caused by inadequate function of the heart
- A major effect is the backup of blood into the lungs.
- Resulting buildup of pulmonary fluid is called pulmonary edema.

Table 12-1: Causes of Shock

<table>
<thead>
<tr>
<th>Cause</th>
<th>Type of Shock</th>
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<tbody>
<tr>
<td>Pump Failure</td>
<td>Cardiogenic shock</td>
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<tr>
<td></td>
<td>Distributive shock</td>
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<tr>
<td></td>
<td>Sepsis</td>
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<tr>
<td></td>
<td>Anaphylactic shock</td>
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<tr>
<td>Prior Nosal Punction</td>
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<tr>
<td>Low Fluid Volume</td>
<td>Hypovolemic shock</td>
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<td></td>
<td>Hemorrhagic shock</td>
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<tr>
<td></td>
<td>Non-hemorrhagic shock</td>
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</tbody>
</table>

Cardiogenic Shock (2 of 4)

- Causes of shock include:
  - Cardiogenic shock
  - Sepsis
  - Anaphylactic shock
  - Trauma
  - Hypovolemic shock

Cardiogenic Shock (3 of 4)

- Caused by inadequate function of the heart
- A major effect is the backup of blood into the lungs.
- Resulting buildup of pulmonary fluid is called pulmonary edema.
Cardiogenic Shock (2 of 4)

- Edema is the presence of abnormally large amounts of fluid between cells in body tissues, causing swelling.

Cardiogenic Shock (3 of 4)

- Pulmonary edema leads to impaired respiration, which may be manifested by:
  - An increased respiratory rate
  - Abnormal lung sounds

Cardiogenic Shock (4 of 4)

- Cardiogenic shock develops when the heart cannot maintain sufficient output to meet the demands of the body.

Obstructive Shock (1 of 4)

- Caused by a mechanical obstruction that prevents an adequate volume of blood from filling the heart chambers.
- Three of the most common examples:
  - Cardiac tamponade
  - Tension pneumothorax
  - Pulmonary embolism
Obstructive Shock (2 of 4)

- Cardiac tamponade
  - Collection of fluid between the pericardial sac and the myocardium (pericardial effusion) becomes large enough to prevent ventricles from filling with blood.
  - Caused by blunt or penetrating trauma.
  - Signs and symptoms are referred to as Beck triad.

Obstructive Shock (3 of 4)

- Tension pneumothorax
  - Caused by damage to lung tissue.
  - The air normally held within the lung escapes into the chest cavity.
  - The lung collapses, and air applies pressure to the organs, including the heart and great vessels.

Obstructive Shock (4 of 4)

- Pulmonary embolism
  - A blood clot that blocks the flow of blood through pulmonary vessels.
  - If massive:
    - Can result in complete backup of blood in the right ventricle.
    - Leads to catastrophic obstructive shock and complete pump failure.

Distributive Shock (1 of 11)

- Results from widespread dilation of small arterioles, small venules, or both.
- The circulating blood volume pools in the expanded vascular beds.
- Tissue perfusion decreases.
Distributive Shock (2 of 11)

• Septic shock
  • Occurs as a result of severe infections in which toxins are generated by bacteria or by infected body tissues.
  • Toxins damage vessel walls, causing increased cellular permeability.
  • Vessel walls leak and are unable to contract well.

Distributive Shock (3 of 11)

• Septic shock (cont'd)
  • Widespread dilation of vessels, in combination with plasma loss through the vessel walls, results in shock.

Distributive Shock (4 of 11)

• Neurogenic shock
  • Usually the result of high spinal cord injury
  • Causes include:
    • Brain conditions
    • Tumors
    • Pressure on the spinal cord
    • Spina bifida

Distributive Shock (5 of 11)

• Neurogenic shock (cont'd)
  • Muscles in the dilated vessel walls are cut off from the nerve impulses that cause them to contract.
Anaphylactic shock

- Occurs when a person reacts violently to a substance to which he or she has been sensitized.
- Sensitization means becoming sensitive to a substance that did not initially cause a reaction.
- Each subsequent exposure tends to produce a more severe reaction.

Four categories of exposure include:

- Injections (tetanus antitoxin, penicillin)
- Stings (wasps, bees, hornets, ants)
- Ingestion (fish, shellfish, nuts, eggs, medication)
- Inhalation (dust, pollen, mold)

Develops within minutes or even seconds of contact with substance

Second phase reaction can occur 1 to 8 hours after initial reaction.

Signs are very distinct.

Cyanosis (blue discoloration of skin) is a late sign.
Distributive Shock (10 of 11)

- Psychogenic shock
- Caused by a sudden reaction of the nervous system.
- Produces temporary, generalized vascular dilation
- Results in fainting (syncope)
- Some causes are serious and others are not.

Using Epinephrine Pens

- Will help someone with a severe allergic reaction breathe more easily
- Contains a small amount of medicine that can be injected through clothing
- Takes several minutes before the medicine starts to work
- Injection is given in the side of the thigh

EPI Pens
Child (EPI Jr) VS Adult Dose

Call EMS
Distributive Shock (11 of 11)

- Psychogenic shock (cont’d)
- Life-threatening causes include irregular heartbeat and brain aneurysm.
- Non-life-threatening events include receipt of bad news or experiencing fear or unpleasant sights (such as blood).

Hypovolemic Shock (1 of 2)

- Result of an inadequate amount of fluid or volume in the circulatory system
- Hemorrhagic causes and nonhemorrhagic causes
- Occurs with severe thermal burns
- Intravascular plasma is lost.

Hypovolemic Shock (2 of 2)

- Dehydration, the loss of water or fluid from body tissues, can cause or aggravate shock.
- Fluid loss may be a result of severe vomiting and/or diarrhea.

Respiratory Insufficiency (1 of 3)

- A patient with a severe chest injury may be unable to breathe in an adequate amount of oxygen.
- An insufficient concentration of oxygen in the blood can produce a life-threatening situation as rapidly as vascular causes of shock.
Respiratory Insufficiency (2 of 3)

- Anemia is an abnormally low number of red blood cells.
- Hypoxia occurs because blood is unable to deliver adequate amounts of oxygen to the tissues.

Respiratory Insufficiency (3 of 3)

- Certain types of poisoning may affect the ability of cells to metabolize or carry oxygen:
  - Carbon monoxide poisoning
  - Cyanide poisoning

The Progression of Shock (1 of 4)

- The stages in the progression of shock:
  - Compensated shock: early stage when the body can still compensate for blood loss
  - Decompensated shock: late stage when blood pressure is falling
  - No way to assess when effects are irreversible
  - Must recognize and treat shock early

The Progression of Shock (2 of 4)

- Signs and symptoms
The Progression of Shock (3 of 4)
• Blood pressure may be the last measurable factor to change in shock.
• When a drop in blood pressure is evident, shock is well developed.
• Particularly true in infants and children
• Expect shock in many emergency medical situations

The Progression of Shock (4 of 4)
• Also expect shock if a patient has any one of the following conditions:
  • Multiple severe fractures
  • Abdominal or chest injury
  • Spinal injury
  • A severe infection
  • A major heart attack
  • Anaphylaxis

Scene Size-Up
• Scene size-up
  • Be alert to potential hazards to your safety.
  • Use gloves and eye protection for trauma scenes or if bleeding is suspected.
  • In incidents involving violence, make sure police are on scene.

Primary Assessment (1 of 5)
• Primary assessment
  • Perform a rapid exam
  • Determine the level of consciousness
  • Identify and manage life-threatening concerns
  • Determine priority of the patient and activate EMS
Primary Assessment (cont’d)
• Provide high-flow oxygen to assist in perfusion (not in scope for most DC’s).
• For hypoperfusion: systolic blood pressure below 90 mm Hg or a decrease in mean blood pressure by 30 mm Hg.
• Did you activate EMS?

Primary Assessment (cont’d)
• Form a general impression.
• Assess the airway to ensure it is patent.
• Assess breathing.
• An increased respiratory rate is often an early sign of impending shock.
• Assess patient’s circulatory status.

Primary Assessment (cont’d)
• A rapid pulse suggests compensated shock.
• In shock or compensated shock, the skin may be cool, clammy, or ashen.
• Assess for and identify any life-threatening bleeding and treat it at once.

Emergency Medical Care for Shock (1 of 3)
• As soon as you recognize shock, begin treatment.
• ACTIVATE EMS
• Control all obvious bleeding.
• Make sure the patient has an open airway.
• Maintain manual in-line stabilization if necessary, and check breathing and pulse.

26-1: Performing Manual In-Line Stabilization (1 of 2)
1. Place the end of your finger into the base of the skull and place your palm into the base of the skull on the other side.
2. Support the lower jaw with your other hand and gently push the head back. This will open up the airway. Support the head with your palm and extend the neck as needed only. Mandibu also helps.
Emergency Medical Care for Shock (2 of 3)

- As soon as you recognize shock, begin treatment. (cont'd)
  - Comfort, calm, and reassure the patient.
  - Never allow patients to eat or drink anything prior to being evaluated by a physician.
  - If spinal immobilization is indicated, splint the patient on a backboard.
  - Provide oxygen and monitor patient's breathing. (if allowed by your scope of practice)

Emergency Medical Care for Shock (3 of 3)

- As soon as you recognize shock, begin treatment. (cont'd)
  - Place blankets under and over the patient.
  - Do not give the patient anything by mouth, no matter how urgently you are asked.
  - Accurately record the patient's vital signs approximately every 5 minutes throughout treatment and transport.

Breathing Emergency's and CPR

Introduction

- The principles of basic life support (BLS) were introduced in 1960.
- Specific techniques have been revised every 5 to 6 years.
- The most recent review was conducted by the International Liaison Committee on Resuscitation (ILCOR).
Elements of BLS (1 of 8)

- Noninvasive emergency lifesaving care
- Used to treat medical conditions including:
  - Airway obstruction
  - Respiratory arrest
  - Cardiac arrest

Elements of BLS (2 of 8)

- Focus is on the ABCs
  - Airway (obstruction)
  - Breathing (respiratory arrest)
  - Circulation (cardiac arrest or severe bleeding)

Elements of BLS (3 of 8)

- Ideally, only seconds should pass between the time you recognize a patient needs BLS and the start of treatment.
  - Permanent brain damage is possible if brain is without oxygen for 4 to 6 minutes.

Elements of BLS (4 of 8)

- Time is critical!
Elements of BLS (5 of 8)

- Cardiopulmonary resuscitation (CPR)
- Used to establish circulation and artificial ventilation in a patient who is not breathing and has no pulse

Elements of BLS (6 of 8)

- CPR steps
  1. Restore circulation (perform chest compressions).
  2. Open the airway.
  3. Restore breathing (provide rescue breathing).

Elements of BLS (7 of 8)

- BLS differs from advanced life support (ALS)
- ALS involves:
  - Cardiac monitoring
  - Intravenous fluids and medications
  - Advanced airway adjuncts

Elements of BLS (8 of 8)
The System Components of CPR

- AHA's chain of survival
- Recognition and activation of the emergency response system
- Immediate, high-quality CPR
- Rapid defibrillation
- Basic and advanced emergency medical services
- Advanced life support and post-arrest care
- If any one of the links in the chain is absent, the patient is more likely to die.

Assessing the Need for BLS

- Always begin by surveying the scene.
- Complete primary assessment as soon as possible.
  - Evaluate ABCs.
  - Determine unresponsiveness.
  - Responsive patient does not need CPR.
  - ACTIVATE EMS
- Basic principles of BLS are same for infants, children, and adults.
- Although cardiac arrest in adults usually occurs before respiratory arrest, the reverse is true for infants and children.
Assessing the Need for BLS

Automated External Defibrillation (1 of 3)

- Vital link in the chain of survival
- Automated external defibrillator (AED) should be applied to cardiac arrest patients as soon as available
- If you witness cardiac arrest, begin CPR and apply the AED as soon as it is available.

Automated External Defibrillation (2 of 3)

- Children
  - Apply after first five cycles of CPR
  - Manual defibrillator preferred for infants 1 month to 1 year
  - If unavailable, use pediatric-sized pads and dose-attenuating system.
  - If neither is available, then use an AED with adult-sized pads with anterior-posterior placement.

Automated External Defibrillation (3 of 3)

- Special situations
  - Pacemakers and implanted defibrillators
  - Wet patients
  - Transdermal medication patches
Positioning the Patient

- For CPR to be effective, patient must be supine on firm, flat surface.
- Must be enough space for two rescuers to perform CPR
- Log roll patient onto long backboard.

Check for Breathing and a Pulse (1 of 5)

- Quickly check for breathing and a pulse.
- Visualize the chest for signs of breathing.
- Palpate for a carotid pulse.

Check for Breathing and a Pulse (2 of 5)

- Provide external chest compressions.
  - Apply rhythmic pressure and relaxation to lower half of sternum.
  - Heart is located slightly to left of middle of the chest between sternum and spine.
  - Compressions: squeeze heart, acting as a pump to circulate blood.

Check for Breathing and a Pulse (3 of 5)

- Administer chest compressions (cont'd)
  - Allow the chest to completely recoil between compressions.
  - Proper hand positioning is crucial.
  - Injuries can be minimized by proper technique and hand placement.
Check for Breathing and a Pulse (4 of 5)

Check for Breathing and a Pulse (5 of 5)

Opening the Airway and Providing Artificial Ventilation (1 of 7)

• If you determine that the patient is adequately breathing, and there are no signs of injury to the head, spine, hip, or pelvis, place the patient in the recovery position.
  • Maintains clear airway
  • Allows vomitus to drain from mouth
  • Roll the patient as a unit.

Opening the Airway and Providing Artificial Ventilation (2 of 7)

Head tilt–chin lift maneuver
Jaw thrust maneuver
The combination of lack of oxygen and too much carbon dioxide in the blood is lethal.

- Provide slow, deliberate ventilations that last 1 second.
- If patient is not breathing, ventilations can be given by one or two EMS providers.
- Use a barrier device.

For a patient with a stoma, place a BVM or pocket mask device directly over the stoma.

- Artificial ventilation may result in gastric distention.
- Stomach becomes filled with air
- Have a suction unit available in case patient vomits.
Opening the Airway and Providing Artificial Ventilation (7 of 7)

One-Rescuer Adult CPR
- Single rescuer gives both chest compressions and artificial ventilations.
- Ratio of compressions to ventilations is 30:2.

Two-Rescuer Adult CPR
- Always preferable to one-rescuer CPR
  - Less tiring: Rescuer doing compressions can be switched
  - Facilitates effective chest compressions
  - Switching rescuers during CPR is critical to maintain high-quality compressions.
  - Recommended to switch positions every 2 minutes.

Devices and Techniques to Assist Circulation (1 of 4)
- Active compression-decompression CPR
  - Involves compressing the chest and then actively pulling it back up to its neutral position.
- Impedance threshold device (ITD)
  - Valve device placed between endotracheal tube and BVM
  - Limits air entering lungs during recoil phase between chest compressions.
Devices and Techniques to Assist Circulation
(3 of 4)
- Mechanical piston device
- Depresses sternum via compressed gas-powered or electric-powered plunger
- Load-distributing band CPR or vest CPR
- A circumferential chest compression device composed of constricting band and backboard
- Manual chest compressions remain the standard of care.

Devices and Techniques to Assist Circulation
(4 of 4)

Infant and Child CPR (1 of 5)
- Cardiac arrest in infants and children follows respiratory arrest.
- Airway and breathing are the focus of pediatric BLS.
Infant and Child CPR (2 of 5)
• Causes of child respiratory problems:
  • Injury
  • Infections
  • Foreign body
  • Submersion
  • Electrocution
  • Poisoning/overdose
  • SIDS

Infant and Child CPR (3 of 5)
• Determine unresponsiveness.
  • Gently tap on the shoulder and speak loudly.
  • Check for breathing and a pulse.
  • Assessment can occur simultaneously.
  • Should take no longer than 10 seconds

Infant and Child CPR (4 of 5)
• Foreign body obstruction in children is common.
  • Place an unresponsive, breathing child in the recovery position.
  • The techniques for opening the airway are modified for pediatric patients.
  • Place a wedge under the upper chest and shoulders when supine.

Infant and Child CPR (5 of 5)
• Provide rescue breathing.
  • Not breathing and has a pulse:
    • 1 breath every 3 to 5 seconds
  • Not breathing and no pulse:
    • 2 breaths after every 30 compressions
Interrupting CPR (1 of 2)

- CPR is a crucial, lifesaving procedure.
- Provides minimal circulation and ventilation until the patient can receive defibrillation, ALS treatment, and definitive care at the ED.
- If no ALS available at scene:
  - Provide transport per local protocols.
  - Consider requesting ALS rendezvous en route to hospital.

Interrupting CPR (2 of 2)

- Try not to interrupt CPR for more than a few seconds.
- Chest compression fraction:
  - The total percentage of time during a resuscitation attempt in which chest compressions are being performed.
  - Should be at least 60%.

When Not to Start CPR (1 of 3)

- If the scene is not safe.
- If the patient has obvious signs of death:
  - Rigor mortis (stiffening of body).
  - Dependent lividity (body turns blue after death).
  - Putrefaction or decomposition of body.
  - Evidence of non survivable injury.

When Not to Start CPR (2 of 3)

- If the patient and physician have previously agreed on do not resuscitate (DNR) orders:
  - Can be complicated issue.
  - Advanced directives expressing patient’s wishes may be hard to find.
  - When in doubt, begin CPR.
When to Stop CPR

- Once you begin CPR, continue until (STOP acronym):
  - S: Patient starts breathing and has a pulse
  - T: Patient is transferred to another provider of equal or higher-level training
  - O: You are out of strength
  - P: Physician directs to discontinue

"Out of strength" does not just mean tired, but physically unable to continue.

Introduction (1 of 3)

- Cardiovascular disease has been the leading killer of Americans since 1960.
- Accounts for 1 of every 3 deaths

Introduction (2 of 3)

- Chiropractors help reduce deaths by:
  - Encouraging healthy lifestyle
  - Early access to medical care
  - More CPR training of laypeople
  - Increased use of evolving technology in dispatch and cardiac arrest response
  - Public access to defibrillation devices
  - Recognizing need for advanced life support (ALS)
• Heart’s job is to pump blood to supply oxygen-enriched red blood cells to tissues.
• Divided into left and right sides.

• One-way valves keep blood flowing in the proper direction.
• Aorta, body’s main artery, receives blood ejected from left ventricle.

• Heart’s electrical system controls heart rate and coordinates atria and ventricles.
  - Automaticity allows spontaneous contraction without a stimulus from a nerve source.
  - If an impulse arrives from the SA node, the other myocardial cells will contract.
  - If no impulse arrives, the other cells are capable of creating their own impulses and stimulating a contraction.

• Autonomic nervous system (ANS) controls involuntary activities.
  - The ANS has two parts:
    - Sympathetic nervous system
    - Parasympathetic nervous system
  - Slows various bodily functions.
• The myocardium must have a continuous supply of oxygen and nutrients to pump blood.
• Increased oxygen demand by myocardium is supplied by dilation (widening) of coronary arteries.
• Stroke volume is the volume of blood ejected with each ventricular contraction.

Coronary arteries are blood vessels that supply blood to heart muscle.
• Coronary arteries start at the first part of the aorta:
  • Right coronary artery
  • Left coronary artery

Arteries supply oxygen to different parts of the body:
• Right and left carotid
• Right and left subclavian
• Brachial
• Radial and ulnar
• Right and left iliac
• Right and left femoral
• Anterior and posterior tibial and peroneal

Arterioles and capillaries are smaller vessels.
• Capillaries connect arterioles to venules.
• Venules are the smallest branches of the veins.
  • Vena cava return blood to the heart.
  • Superior vena cava
  • Inferior vena cava
Anatomy and Physiology (13 of 17)

- Blood consists of:
  - Red blood cells, which carry oxygen
  - White blood cells, which fight infection
  - Platelets, which help blood to clot
  - Plasma, which is the fluid cells float in

Anatomy and Physiology (14 of 17)

- Blood pressure is the force of circulating blood against artery walls.
  - Systolic blood pressure
    - The maximum pressure generated by left ventricle
  - Diastolic blood pressure
    - The pressure against artery walls while the left ventricle is at rest

Anatomy and Physiology (15 of 17)

- A pulse is felt when blood passes through an artery during systole.
  - Peripheral pulses felt in the extremities
  - Central pulses felt near the body’s trunk

Anatomy and Physiology (16 of 17)

- Carotid
- Femoral
- Brachial
- Radial
- Posterior tibial
- Dorsalis pedis

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Anatomy and Physiology (17 of 37)

- Cardiac output is the volume of blood that passes through the heart in 1 minute.
- Heart rate × volume of blood ejected with each contraction (stroke volume)
- Perfusion is the constant flow of oxygenated blood to tissues
- Requirements of good perfusion
- If perfusion fails, cellular and eventually patient death occur.

Pathophysiology (3 of 22)

- Chest pain usually stems from ischemia, which is decreased blood flow.
- Ischemic heart disease involves a decreased blood flow to one or more portions of the heart.
- If blood flow is not restored, the tissue dies.

Pathophysiology (2 of 22)

- Atherosclerosis is the buildup of calcium and cholesterol in the arteries.
- Can cause occlusion of arteries
- Fatty material accumulates with age.

Pathophysiology (3 of 22)

- A thromboembolism is a blood clot floating through blood vessels.
- If a clot lodges in a coronary artery, acute myocardial infarction (AMI) results.
Pathophysiology (4 of 22)

- Coronary artery disease is the leading cause of death in the United States.
- Controllable AMI risk factors:
  - Cigarette smoking, high blood pressure, high cholesterol, high blood glucose level (diabetes), lack of exercise, and obesity
- Uncontrollable AMI risk factors:
  - Older age, family history, atherosclerotic coronary artery disease, race, ethnicity, and being male

Pathophysiology (6 of 22)

- Angina pectoris occurs when the heart’s need for oxygen exceeds supply.
  - Crushing or squeezing pain
  - Does not usually lead to death or permanent heart damage
  - Should be taken as a serious warning sign

Pathophysiology (7 of 22)

- Unstable angina
  - In response to fewer stimuli than normal
- Stable angina
  - Is relieved by rest or nitroglycerin
- Treat angina patients like AMI patients.

Pathophysiology (8 of 22)

- AMI pain signals actual death of cells in heart muscle.
  - Once dead, cells cannot be revived.
  - “Clot-busting” (thrombolytic) drugs or angioplasty within the first few hours prevent damage.
  - Immediate transport is essential.
Pathophysiology (9 of 22)

- Signs and symptoms of AMI
  - Weakness, nausea, sweating
  - Chest pain, discomfort, or pressure
  - Lower jaw, arm, back, abdomen, or neck pain
  - Irregular heartbeat and syncope (fainting)
  - Shortness of breath (dyspnea)
  - Nausea/vomiting
  - Pink, frothy sputum
  - Sudden death

Pathophysiology (10 of 22)

- AMI pain differs from angina pain
  - Not always due to exertion
  - Lasts 30 minutes to several hours
  - Not always relieved by rest or nitroglycerin
  - AMI patients may not realize they are experiencing a heart attack.

Pathophysiology (11 of 22)

- AMI and cardiac compromise physical findings:
  - Fear, nausea, poor circulation
  - Faster, irregular, or bradycardic pulse
  - Decreased, normal, or elevated blood pressure
  - Normal or rapid and labored respirations
  - Patients express feelings of impending doom.

Pathophysiology (12 of 22)

- Three serious consequences of AMI:
  - Sudden death
  - Resulting from cardiac arrest
  - Congestive heart failure (CHF)
Pathophysiology (13 of 22)
- Dysrhythmia: heart rhythm abnormalities
- Premature ventricular contractions
- Tachycardia
- Bradycardia
- Ventricular tachycardia
- Ventricular fibrillation

Pathophysiology (14 of 22)
- Defibrillation restores cardiac rhythms.
  - Can save lives
  - Initiate CPR until a defibrillator is available.
- Asystole
  - Absence of all heart electrical activity
  - Reflects a long period of ischemia
  - Nearly all patients will die.

Pathophysiology (15 of 22)
- Cardiogenic shock
  - Often caused by heart attack
  - Heart lacks the power to force enough blood through circulatory system
  - Inability to oxygenate body tissues causes organs to malfunction.
  - Often caused by a heart attack
  - Heart lacks the power to pump
  - Recognize shock in its early stages.

Pathophysiology (16 of 22)
- Congestive heart failure
  - Often occurs a few days following heart attack
  - Increased heart rate and enlargement of left ventricle no longer make up for decreased heart function
  - Lungs become congested with fluid
  - May cause dependent edema.
• Hypertensive emergencies
  • Systolic pressure greater than 180 mm Hg
  • Common symptoms
  • Sudden, severe headache
  • Strong, bounding pulse
  • Ringing in the ears

• Hypertensive emergencies (cont’d)
  • Common symptoms
  • Nausea and vomiting
  • Dizziness
  • Warm skin (dry or moist)
  • Nosebleed
  • Altered mental status
  • Sudden pulmonary edema

If untreated, can lead to stroke or dissecting aortic aneurysm.

Aortic aneurysm is weakness in the wall of the aorta.
• Susceptible to rupture
• Dissecting aneurysm occurs when inner layers of aorta become separated.
• Primary cause: uncontrolled hypertension
Pathophysiology (21 of 22)

- Aortic aneurysm (cont'd)
  - Signs and symptoms
  - Sudden chest pain
  - Comes on full force
  - Different blood pressures
  - Transport patients quickly and safely.

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Scene Size-up

- Scene safety
  - Ensure the scene is safe.
  - Follow standard precautions.
  - Nature of illness (NOI)
  - Obtain clues the scene, patient, family members, bystanders

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Primary Assessment (1 of 2)

- Form a general impression.
  - If unresponsive and not breathing, begin CPR and call for AED.
  - ACTIVE EMS
  - Airway and breathing
    - Oxygen saturation less than 95%: apply oxygen with non-rebreathing mask at 15 L/min (if permitted by state law)
    - Not breathing or inadequate breathing: 100% oxygen with BVM (if permitted by state law)
    - Pulmonary edema: BVM or CPAP (if permitted by state law)
Primary Assessment (2 of 2)
• Circulation
  • Check pulse, skin, capillary refill.
  • Consider treatment for cardiogenic shock.
• Transport decision
  • Decision based on ability to stabilize life threats during primary assessment
  • Transport in a stress-relieving manner.

History Taking (1 of 2)
• Investigate the chief complaint (e.g., chest pain, difficulty breathing).
• Obtain a SAMPLE history from a responsive patient.
  • Use OPQRST.

Secondary Assessment
• Physical examination
  • Focus on cardiac and respiratory systems.
  • Circulation
  • Respiration
  • Vital signs
  • Measure and record the patient’s vital signs.
  • If available, use pulse oximetry.
Reassessment

- Reassess vital signs at least every 5 minutes or when patient’s condition changes significantly.
- Sudden cardiac arrest is always a risk.
- If cardiac arrest occurs, perform CPR immediately until an AED is available.
- Reassess your interventions.
- Communication and documentation

Diabetes

Introduction

- Endocrine system influences nearly every cell, organ, and bodily function.
- Endocrine disorders can have many signs and symptoms.
- Hematologic emergencies
  - Difficult to assess and treat
  - Your actions may save a life.

Anatomy and Physiology (1 of 2)

- Endocrine system is a communication system that controls functions inside the body.
- Endocrine glands secrete messenger hormones.
- Endocrine disorders are caused by an internal communication problem.
Anatomy and Physiology (2 of 2)

- Glucose metabolism
  - The brain needs glucose and oxygen.
  - Insulin is necessary for glucose to enter cells.
  - The pancreas produces glucagon and insulin.
  - Stores and secretes insulin and glucagon in response to the blood glucose level.

Pathophysiology (3 of 2)

- Diabetes mellitus impairs the body’s ability to use glucose for fuel.
- Without treatment, blood glucose levels become too high.
- In severe cases, may cause life-threatening illness, coma, and death.
- Complications include blindness, cardiovascular disease, and kidney failure.

Pathophysiology (2 of 2)

- You need to know signs and symptoms of blood glucose that is:
  - High (hyperglycemia)
  - Low (hypoglycemia)
  - Hyperglycemia and hypoglycemia can occur with diabetes mellitus type 1 and type 2.
- All hypoglycemic patients require prompt treatment.

Diabetes Mellitus Type 1 (3 of 5)

- Autoimmune disorder where the immune system produces antibodies against the pancreatic beta cells
- Missing the pancreatic hormone insulin
- Onset usually happens from early childhood through the fourth decade of life.
- Patient must obtain insulin from an external source.
Diabetes Mellitus Type 1 (2 of 5)
• Many people with type 1 diabetes have an implanted insulin pump.
  • Continuously measures glucose levels and provides an adjustable infusion of insulin
  • Can malfunction and diabetic emergencies can develop
• Always inquire about the presence of an insulin pump.

Diabetes Mellitus Type 1 (3 of 5)
• Most common metabolic disease of childhood
• New-onset patient symptoms:
  • Polyuria
  • Polydipsia
  • Polyphagia
  • Weight loss
  • Fatigue

Diabetes Mellitus Type 1 (4 of 5)
• Patient’s blood glucose level is above normal
  • Kidney’s filtration system becomes overwhelmed and glucose spills into the urine.
  • Glucose is unavailable to cells.
    • Body turns to burning fat.
    • Produces acid waste (ketones)
    • Kidneys cannot maintain acid–base balance.
    • Kussmaul respirations result

Diabetes Mellitus Type 1 (5 of 5)
• If fat metabolism and ketone production continue, diabetic ketoacidosis (DKA) can develop.
• May present as generalized illness
  • DKA can result in death.
    • Obtain patient’s history and presentation.
    • Obtain a glucose level.
    • Generally higher than 400 mg/dL.
Diabetes Mellitus Type 2 (1 of 3)

- Caused by resistance to the effects of insulin at the cellular level
- An association between obesity and increased resistance to the effects of insulin
- Pancreas produces more insulin to make up for the increased levels of blood glucose and dysfunction of cellular insulin receptors.
- Insulin resistance can sometimes be improved by exercise and dietary modification.

Diabetes Mellitus Type 2 (2 of 3)

- Oral medications used to treat type 2 diabetes
  - Some increase secretion of insulin and pose a high risk of hypoglycemic reaction.
  - Some stimulate receptors for insulin.
  - Others decrease the effects of glucagon and decrease the release of glucose stored in the liver.
- Injectable medications and insulin are also used for type 2 diabetes.

Diabetes Mellitus Type 2 (3 of 3)

- Often diagnosed at a yearly medical examination from complaints related to high blood glucose levels, including:
  - Recurrent infection
  - Change in vision
  - Numbness in the feet

Symptomatic Hyperglycemia (1 of 3)

- Occurs when blood glucose levels are high
- Patient is in a state of altered mental status resulting from several combined problems.
- In type 1 diabetes, leads to ketoacidosis with dehydration from excessive urination
- In type 2 diabetes, leads to a nonketotic hyperosmolar state of dehydration
Symptomatic Hyperglycemia
(2 of 3)

- Hyperosmolar hyperglycemic nonketotic syndrome (HHNS)
  - When blood glucose levels are not controlled in diabetes mellitus type 2
- Key signs and symptoms

Symptomatic Hypoglycemia
(1 of 3)

- Acute emergency where a patient’s blood glucose level drops and must be corrected swiftly
- Can occur in patients who inject insulin or use oral medications
- When insulin levels remain high, glucose is rapidly taken out of the blood.
- If glucose levels fall, there may be an insufficient amount to supply the brain.

Symptomatic Hyperglycemia
(3 of 3)

- Higher glucose levels in the blood cause the excretion of glucose in the urine.
- Patient increases fluid intake.
- Patient cannot drink enough fluid to keep up with the exceedingly high glucose levels in the blood.
- Urine becomes dark and concentrated.
- Patient may become unconscious or have seizure activity due to severe dehydration.

Diabetic keto-acidosis (DKA)

DKA or Hyperglycemia coma is defined when blood sugar >300mg/dl.
- Primarily seen in T1DM - can be seen in T2DM.
- DKA is responsible for more than 160,000 hospital admission each year.

Symptomatic Hypoglycemia
(2 of 3)

- Mental status declines.
- Patient may become aggressive or display unusual behavior.
- Unconsciousness or permanent brain damage can quickly follow.
- Hypoglycemia develops much more quickly than hyperglycemia.
- Signs and symptoms of hypoglycemia
Symptomatic Hypoglycemia

- Hypoglycemia is quickly reversed by giving the patient glucose.

Scene Size-up

- Scene safety
  - Patients with diabetes may use syringes.
  - Be alert for clues.
  - Use standard precautions.
  - Question bystanders on events leading to your arrival.
  - Keep open the possibility that trauma may have occurred.
  - Determine MOI/NOI.

Primary Assessment (3 of 3)

- Form a general impression.
- Airway and breathing
  - Patients showing signs of inadequate breathing, a pulse oximetry level less than or equal to 94%, or altered mental status should receive high-flow oxygen (12 to 15 L/min via nonrebreathing mask, if within scope of practice).

Primary Assessment (3 of 3)

- Airway and breathing (cont'd)
  - Hyperglycemic patients may have Kussmaul respirations and sweet, fruity breath.
  - Hypoglycemic patients will have normal or shallow to rapid respirations.
  - Manage respiratory distress.
Primary Assessment (3 of 3)

- Circulatory status
  - Dry, warm skin: hyperglycemia
  - Moister, pale skin: hypoglycemia
  - Rapid, weak pulse: symptomatic hypoglycemia

- Transport decision
  - Activate EMS

History Taking (1 of 2)

- Investigate chief complaint.
- Obtain history of present illness from responsive patient, family, or bystanders.
- If patient has eaten but not taken insulin, hyperglycemia is more likely.
- If patient has taken insulin but not eaten, hypoglycemia is more likely.
- Carefully observe signs and symptoms, determine whether hypo- or hyperglycemic.

History Taking (2 of 2)

- SAMPLE history—ask the patient:
  - Do you take insulin or pills to lower blood sugar?
  - Do you wear an insulin pump?
  - Have you taken your usual insulin dose or pills today?
  - Have you eaten normally today?
  - Have you had any illness, unusual amount of activity, or stress?

Secondary Assessment (1 of 3)

- Physical examination
  - Assess unresponsive patients from head to toe.
  - When you suspect a diabetes-related problem, focus on mental status, ability to swallow, and ability to protect airway.
  - Obtain a Glasgow Coma Scale score.
Secondary Assessment (2 of 3)

• Vital signs
  • Use a glucometer, if available and protocols allow. (Within scope of practice)
  • Hypoglycemia: Respirations are normal to rapid, pulse is weak and rapid, and skin is typically pale and clammy with a low blood pressure
  • Hyperglycemia: Respirations may be deep and rapid; pulse may be rapid, weak, and thready; and skin may be warm and dry with a normal blood pressure

Reassessment (1 of 3)

• Interventions
  • Reassess patient with diabetes frequently.
  • For hypoglycemic, conscious patients who can swallow:
    • Encourage patient to take glucose tablets or drink juice containing sugar.
    • Administer gel preparation or sugar drink (if protocols allow).
    • Provide rapid transport.

Emergency Medical Care for Diabetic Emergencies (1 of 2)

• Giving oral glucose (Scope of practice)
  • Three types of oral glucose:
    • Rapidly dissolving gel
    • Large chewable tablets
    • Liquid formulation
  • Accu-Chek® Aviva used with permission of Roche Diagnostics.

Emergency Medical Care for Diabetic Emergencies (2 of 2)

• Oral glucose (cont’d)
  • Contraindications: inability to swallow and unconsciousness
  • Wear gloves before putting anything in patient’s mouth.
  • Follow local protocols for glucose administration.
  • Reassess frequently.
  • Provide transport.
The Presentation of Hypoglycemia (1 of 4)

- Seizures should be considered very serious.
- Hypoglycemia is a possible cause of seizures.
- May indicate a potentially life-threatening underlying condition
- Management

The Presentation of Hypoglycemia (2 of 4)

- Altered mental status
- May be caused by other conditions
- May be caused by diabetes complications
- Use the mnemonic ADIOL-TIPS
- Management

The Presentation of Hypoglycemia (3 of 4)

- Misdiagnosis of neurologic dysfunction
- Symptoms mistaken for intoxication
- A patient with diabetes confined by police is at risk.
- Look for emergency medical identification.
- Perform blood glucose test at scene (if protocols allow).
- Diabetes and alcoholism can coexist in a patient.

The Presentation of Hypoglycemia (4 of 4)

- Relationship to airway management
- May not have a gag reflex
- Vomiting or tongue may obstruct airway.
- Carefully monitor airway.
- Place patient in lateral recumbent position.
- Make sure suction is available.