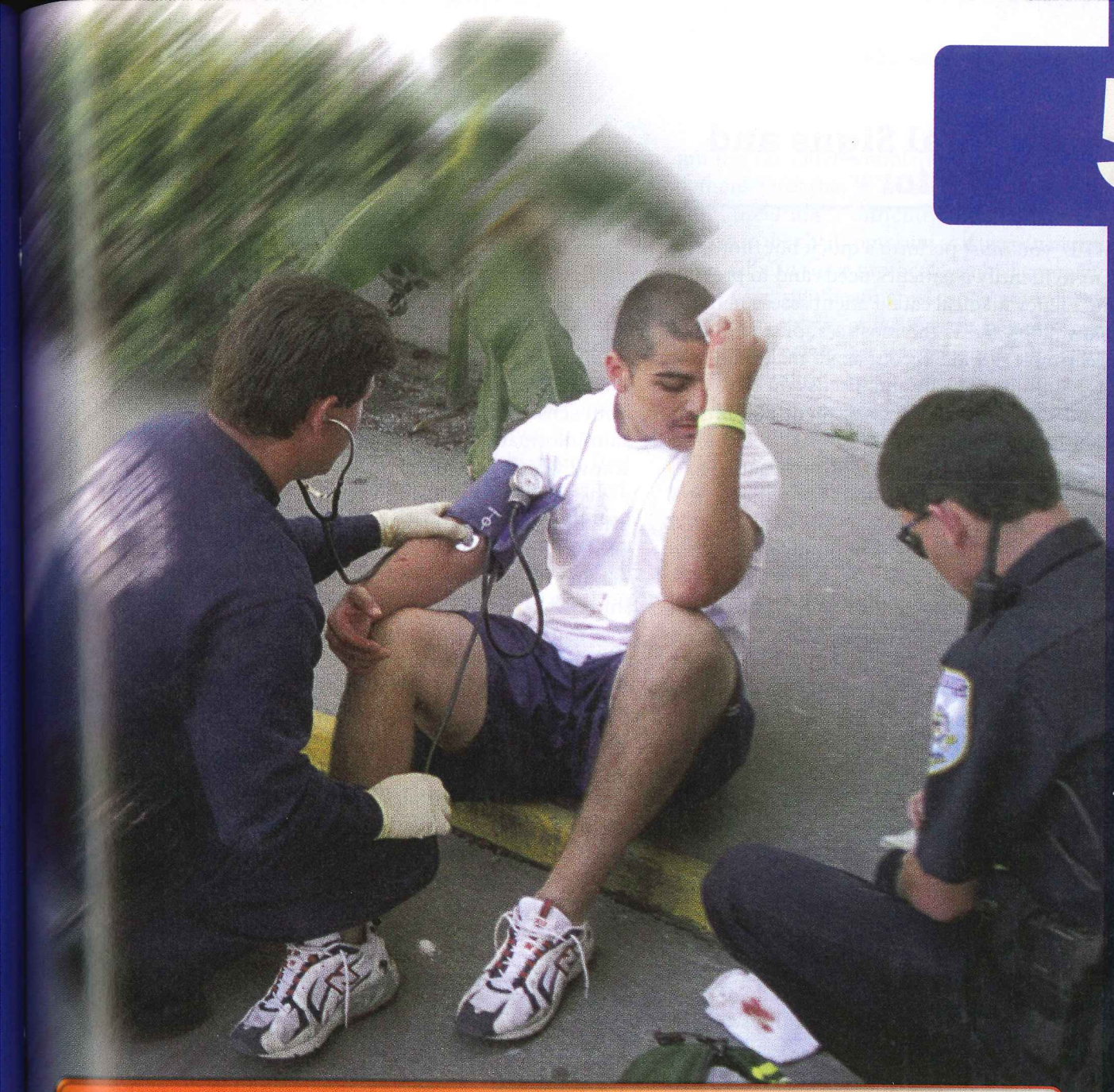

5 Baseline Vital Signs and SAMPLE History

You are the Provider

You are dispatched to a lounge at the airport for a patient with chest pain. Upon arrival you find a 34-year-old woman sitting on a bench complaining of chest pain. She is pale and diaphoretic. Her pulse is 110 beats/min and her blood pressure is 148/84 mm Hg. She is breathing 24 times a minute, with shallow respirations and increased work of breathing. She tells you she is having sharp pain on the left side of her chest and it hurts more every time she breathes in. She denies having any history of heart disease, and the only medication she reports taking is birth control pills.

This chapter will teach you how to obtain and evaluate a patient's baseline vital signs and the SAMPLE history, which are part of the patient assessment process. It will also help you answer the following questions:

1. Why are serial vital signs necessary when caring for seriously ill or injured patients?
2. How can the SAMPLE history you obtain be of value to the emergency department staff at the receiving hospital?

Baseline Vital Signs and SAMPLE History

As an EMT-B, you must perform a quick but thorough assessment to identify a patient's needs and to provide proper emergency medical care. Patient assessment includes many steps and is the most complex skill that you will learn in the EMT-B course. To make the task easier, it is helpful to identify and discuss the key components and skills of patient assessment before you learn the entire process.

As you begin your assessment, you must gather and record some key information about the patient. You will also need to obtain and evaluate the patient's vital signs. The injuries, illnesses, or symptoms that lead to the call to 9-1-1 and the history of what occurred before and since the call was made are key pieces of information that you will have to obtain by asking a series of questions. You must also learn about the patient's medical history and overall health. Bring the necessary equipment for assessment and care to the patient.

This chapter begins by defining the chief complaint and signs and symptoms. It then explains specific information about the patient that you need to obtain at the start of the assessment and why you need it. It also describes each of the vital signs and provides a step-by-step explanation of how to obtain each. Both normal and abnormal vital signs are discussed. The chapter includes a description of the SAMPLE history. Keep in mind that although the DOT National Standard Curriculum separates baseline vital signs and SAMPLE history from patient assessment, they are all a seamless part of the general patient assessment process. They are presented early in your training to allow you plenty of time to practice these skills before learning the complete patient assessment.

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Gathering Key Patient Information

During the assessment, you will be using a variety of your senses and a few basic medical instruments to obtain information about your patient. You will need to know which questions to ask and how to ask them (Figure 5-1 ▼). By using your deductive powers, you will be able to interpret the meaning and implications of the information that you have gathered. When assessing the patient, you will have to look, listen, feel, and think.

You will need to obtain the patient's name so that you can properly address the patient. The lead EMT should always introduce himself or herself and his or her partner(s) to the patient. Unless an adult patient is a close friend or relative of yours, you should address him or her as "Mr," "Ms," "Miss," or "Mrs," followed by the patient's last name. You may ask the patient how he or she wants to be addressed. Often, relatives or staff members of a nursing home or other extended care facility address geriatric patients by their first names. You should not use such a familiar mode

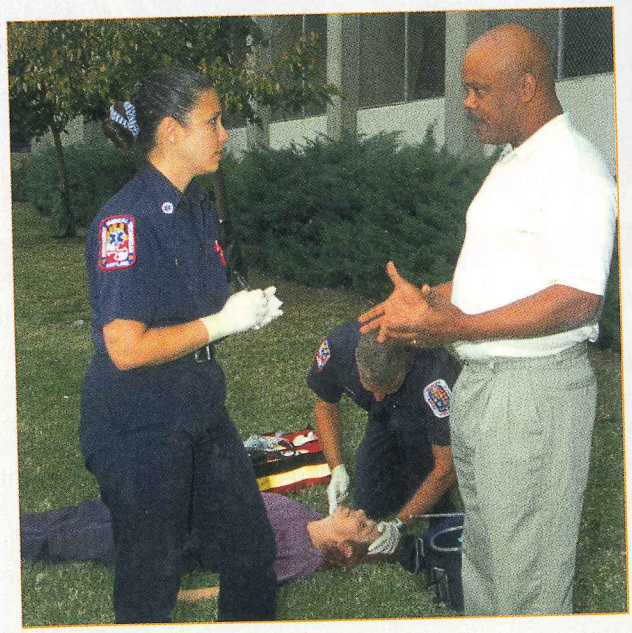


Figure 5-1 You must know how to gather information about the patient by using your senses and by asking relevant questions.

EMT-B Tips

Write the patient's name down to help you remember it.

of address. If the patient's name is difficult to pronounce, you can simply say "Sir" or "Ma'am" instead, to convey a similar respectful and professional manner.

You should try to address children by their first name, especially the name they are customarily called, such as "Johnny," "Betty," or "Joey." Even infants and toddlers who do not yet respond verbally can recognize their name and may be less anxious when it is used.

If an unaccompanied patient is unable to give you his or her name, you should look in his or her wallet or purse for a driver's license or other piece of identification that will tell you the patient's name. At the same time, you should check for any hospital identification or medical alert card. Always look for patient identification in the presence of another EMT or law enforcement officer at the scene. You should also be aware of emerging technologies that enable medical practitioners to access patient information digitally, such as Global MED-NET and OnStar. These technologies will enable EMS providers to obtain histories and medications from a central database while assessing their patient.

Age and gender are also important considerations in assessing a patient. Some conditions and illnesses are found predominantly in younger patients; others are commonly found only in older patients. Some conditions are prevalent in a certain age group in adult men but in a different age group in women. Some are more prevalent in one gender, and some are limited exclusively to either male or female patients. In addition, the normal range of some of the vital signs will be different for different age groups of children, adults, and older patients.

Chief Complaint

The reason for a call to 9-1-1 is vital information. This reason is called the patient's chief complaint. In the most literal definition, chief complaints are the major signs and symptoms that the patient reports when asked, "What seems to be the matter?" or "What's wrong?" A patient who responds "My chest hurts" is stating the chief complaint. What you see must also be considered in determining the chief complaint. If the patient's response demonstrates that he or she is having significant difficulty breathing, "difficulty breathing" should be included in the chief complaint as if the patient had reported it verbally. In some protocols, a chief complaint also includes any significant gross, apparent injuries.

The problems or feelings the patients report to you, such as, "I feel dizzy," "My leg hurts," or "Ow, that hurts a lot!" are called symptoms (Figure 5-2A ▼). These cannot be felt or observed by others. The severity of a symptom is subjective because it is based on the patient's interpretation and tolerance. Signs are objective conditions that can be seen, heard, felt, smelled, or measured by you or others (Figure 5-2B ▼). Wounds, external bleeding, marked deformities, respirations, and pulse are all signs.

Signs and symptoms that occurred before you arrived, such as dizziness that resulted in a loss of

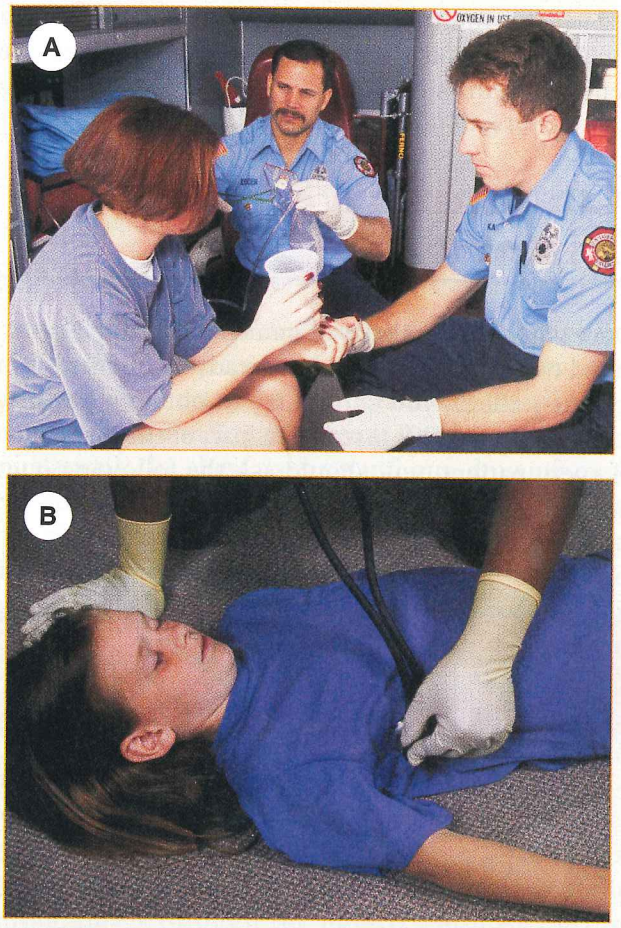


Figure 5-2 **A.** A symptom is a subjective condition that the patient feels and tells you about. **B.** A sign is an objective condition that you can observe about the patient.

EMT-B Tips

Obtaining the respirations or pulse rate

When obtaining a patient's respirations or pulse rate, count the number of breaths or beats in a 30-second period and then multiply by 2. This method produces a significantly more reliable figure than you would get if you counted for only 15 seconds and multiplied by 4. With either method, the result will always be an even number.

consciousness, may be reported by the patient or others at the scene. Because signs and symptoms are essential to understanding the sequence of events and may include signs that are no longer present, they are important parts of the patient history. You should always report how and/or when the signs and symptoms began. This information is important because the reason that signs and symptoms develop often differs, depending on the situation.

Obtaining a SAMPLE History

Once you have stabilized all immediate life threats, provided emergency care, and are ready to further examine the patient, you should try to obtain a key brief history, or SAMPLE history. As part of the assessment of every patient, you should ask the following questions, using the word SAMPLE as a guideline:

- **S**igns and Symptoms of the episode: What signs and symptoms occurred at onset of the incident? Does the patient report pain?
- **A**llergies: Is the patient allergic to any medication, food, or other substance? What reactions did the patient have to any of them? If the patient has no known allergies, you should note this on the run report as "no known allergies" or "NKA."
- **M**edications: What medications was the patient prescribed? What dosage was prescribed? How often is the patient supposed to take the medication? What prescription, over-the-counter medications, and herbal medications has the patient taken in the last 12 hours? How much was taken and when?
- **P**ertinent past history: Does the patient have any history of medical, surgical, or trauma occurrences? Has the patient had a recent illness or injury, fall, or blow to the head?
- **L**ast oral intake: When did the patient last eat or drink? What did the patient eat or drink, and how much was consumed? Did the patient take any drugs or drink alcohol? Has there been any other oral intake in the last 4 hours?
- **E**vents leading to the injury or illness: What are the key events that led up to this incident? What occurred between the onset of the incident and your arrival? What was the patient doing when this illness started? What was the patient doing when this injury happened?

OPQRST

Another mnemonic device that can be very helpful in remembering questions you should ask in obtaining a patient history is OPQRST. This can be especially helpful when assessing for possible heart attack.

You are the Provider — Part 2

As you are preparing to transport your patient to the hospital, she states that it is becoming increasingly difficult to breathe. Her respirations increase to 34 breaths/min and are shallow and gasping. Even with high-flow oxygen via nonrebreathing mask, her oxygen saturation is only 90% and her capillary refill time is 4 seconds. She is extremely anxious and is having a hard time sitting still.

3. Is there anything in your repeat assessment of vital signs that can help you determine the cause of her distress?
4. What are your treatment priorities?

O = **O**nset, that is, when did the problem begin and what caused it?

P = **P**rovocation or **P**alliation, that is, does anything make it feel better? Worse?

Q = **Q**uality, that is, what is the pain like? Sharp, dull, crushing, tearing?

R = **R**egion/**R**adiation, that is, where does it hurt? Does the pain move anywhere?

S = **S**everity, that is, on a scale of 1 to 10, how would you rate your pain?

T = **T**iming of pain, that is, has the pain been constant, or does it come and go? How long have you had the pain (often answered under "O," onset).

With practice, you will be able to obtain, document, and report a meaningful brief history. Be sure to ask the patient and bystanders for information. If the patient is unconscious, look for a medical identification tag or for a medical information card in the patient's wallet or purse. Always look for patient identification in the presence of another EMT or law enforcement officer at the scene.

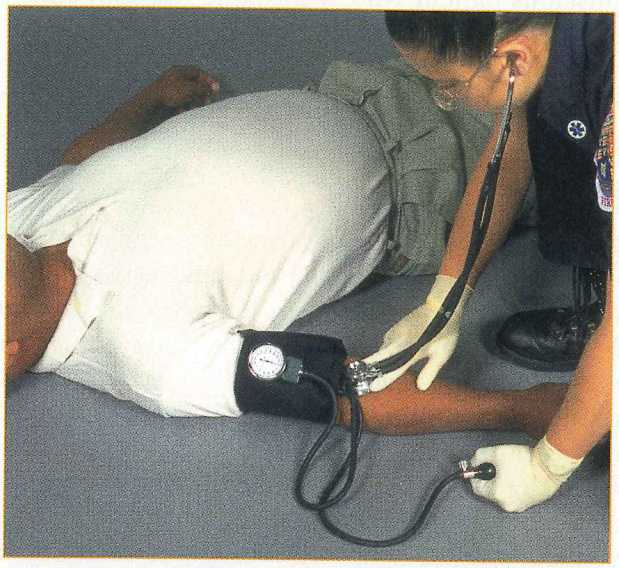


Figure 5-3 Baseline vital signs are key signs that are used to establish the patient's initial condition.

Baseline Vital Signs

The initial assessment is a rapid evaluation of the patient's general condition to identify any potentially life-threatening conditions. The brain and other vital organs require constant oxygen. Significant problems with breathing or circulation must be considered potentially life-threatening conditions. A critical problem or deficit in any of the body's other vital systems or functions will progressively affect and be reflected by changes in the respiratory, circulatory, and central nervous systems. Therefore, the status of these systems serves as your guideline for evaluating and measuring the patient's general condition.

Vital signs are the key signs that are used to evaluate the patient's condition. The first set of vital signs that you obtain is called the baseline vital signs. By periodically reassessing the vital signs and comparing the findings with the baseline set, you will be able to identify any trends in the patient's condition, particularly whether the patient's condition is becoming worse Figure 5-3 ▶.

Because key indicators include a quantitative (numeric) objective measurement, you will always include the patient's respirations, pulse, and blood pressure when taking and evaluating the vital signs. Other key indications of the patient's respiratory, cardiovascular, and central nervous system status included in the baseline vital signs are an evaluation of the following:

- Skin temperature and condition in adults
- Capillary refill in children
- Pupillary reaction
- Level of consciousness

Respirations

A patient who is breathing without assistance is said to have spontaneous respirations or spontaneous breathing. Each complete breath includes two distinct phases: inspiration and expiration. During inspiration (inhalation), the chest rises up and out, drawing oxygenated air into the lungs. During expiration (exhalation), the chest returns to its original position, releasing air with an increased carbon dioxide level out of the lungs. Inhalation and exhalation times occur in a 1:3 ratio; the active inhalation phase lasts one third the amount of time of the passive exhalation phase.

Breathing is a continuous process in which each breath regularly follows the last with no notable interruption. Breathing is normally a spontaneous, automatic process that occurs without conscious thought, visible effort, marked sounds, or pain. You will assess breathing by watching the patient's chest rise and fall, feeling for air through the mouth and nose during exhalation, and listening to breath sounds with a stethoscope over each lung. Chest rise and breath sounds should be equal on both sides of the chest. A

conscious patient who is speaking has spontaneous respirations.

When assessing respirations, you must determine the rate, quality (character), and depth of the patient's breathing.

Rate

Respirations are determined by counting the number of breaths in a 30-second period and multiplying by 2. The result equals the number of breaths per minute. For accuracy, you should count each breath at the same point in its cycle. This is most easily done by counting each peak chest rise. Although you can see peak chest rise, it is easier to place your hand on the patient's chest and feel it. However, be aware that a conscious patient who knows that you are evaluating his or her breathing will often override the automatic rate and depth by breathing more slowly and deeply. To prevent this from happening, you should check respirations in a conscious, alert patient without making the patient aware of what you are evaluating. This can be easily done by first taking a radial pulse and then, without releasing the wrist or otherwise suggesting a change, counting the chest rise that you see or feel as the patient's forearm rises and falls with the movement of the chest (Figure 5-4 ▼). If the patient coughs, yawns, sighs, or talks during the 30-second period, you should wait a few seconds and start again. (Table 5-1 ▶) shows the normal range of respiratory rates of patients who are at rest.

Figure 5-4 Assess respirations in a conscious patient by first taking a radial pulse and then, without releasing the patient's wrist, counting the chest rise and fall for 30 seconds.

TABLE 5-1 Normal Ranges for Respirations

Age	Range, breaths/min
Adults	12 to 20
Children	15 to 30
Infants	25 to 50

Note: These ranges are per the US DOT 1994 EMT-Basic National Standard Curriculum. Ranges presented in other courses may vary.

Quality

You can determine the quality or character of respirations as you are counting. (Table 5-2 ▼) shows four ways in which the quality or character can be described.

Rhythm

While counting the patient's respirations, you should also note the rhythm. If the time from one peak chest rise to the next is fairly consistent, respirations are considered regular. If respirations vary or change frequently, they are considered irregular. When you document the vital signs, be sure to note whether the patient's respirations were regular or irregular.

Effort

Normally, breathing is an effortless process that does not affect a patient's speech, posture, or positioning. Speech is a good indicator of whether a conscious patient is having difficulty breathing. A patient who can speak smoothly without unusual extra pauses is

TABLE 5-2 Characteristics of Respirations

Normal	Breathing is neither shallow nor deep Equal chest rise and fall No use of accessory muscles
Shallow	Decreased chest or abdominal wall motion
Labored	Increased breathing effort Use of accessory muscles Possible gasping Nasal flaring, supraclavicular and intercostal retractions in infants and children
Noisy	Increase in sound of breathing, including snoring, wheezing, gurgling, crowing, grunting, and stridor

breathing normally. However, a patient who can speak only one word at a time or must stop every two to three words to catch his or her breath is having significant difficulty breathing. Patients who are having marked difficulty breathing will instinctively assume a posture in which it is easier for them to breathe. There are two common postures that indicate that the patient is trying to increase airflow. The first is called the tripod position. In this position, a patient sits leaning forward on outstretched arms with the head and chin thrust slightly forward and is having sufficient difficulty breathing that a significant conscious effort is required. The second is most commonly seen in children—the sniffing position. The patient sits upright with the head and chin thrust slightly forward, and the patient appears to be sniffing (Figure 5-5 ▶).

Breathing that becomes progressively more difficult requires progressively more effort. When you can see that effort, the patient's breathing is described as labored breathing.

Initially, labored breathing is characterized by the patient's position, concentration on breathing, and the increased effort and depth of each breath. As breathing becomes more labored, accessory muscles in the chest and neck are used, and the patient may make grunting sounds with each breath. In infants and small children, nasal flaring and supraclavicular and intercostal retractions (indentation above the clavicles and in the spaces between the ribs) are commonly associated with labored breathing. Sometimes the patient may be gasping.

Infants and small children will continue to have labored breathing for a sustained period, will then often become exhausted, and finally will no longer have the strength to maintain the necessary energy to breathe. In infants and small children, cardiac arrest is generally caused by respiratory arrest.

Figure 5-5 A patient in the sniffing position sits upright with the head and chin thrust slightly forward.

Noisy breathing

Normal breathing is silent or, in a very quiet environment, accompanied only by the sounds of air movement at the mouth and nose. Through a stethoscope, normal breath sounds include only the sound of air movement through the bronchi accompanied by a soft, low-pitched murmur. Breathing accompanied by other sounds indicates a significant respiratory problem. When the airway is partially obstructed by a foreign body or swelling, you may hear stridor, a harsh, high-pitched, crowing sound. If you can hear bubbling or gurgling, the patient probably has fluid in the airway. You may hear other sounds, like wheezes or snoring. The presence of any of these indicates that a serious respiratory problem exists. With a complete airway obstruction, the patient will not be able to move any air and will no longer be able to cough or talk. Sounds are caused by air moving through small spaces or fluid. If you hear nothing, the patient may be moving no air at all.

A patient who coughs up thick, yellowish or greenish sputum (matter from the lungs) most likely has an advanced respiratory infection. A patient with a chest injury may cough up blood or frothy whitish or pinkish foamlike sputum. A patient with congestive heart failure may also cough up frothy sputum. The presence of either substance, regardless of its cause, indicates

Pediatric Needs

Chest rise in a small child is less marked than that in an adult. However, a small child's abdomen moves more with each breath than an adult's does. Place your hands on the outer margin of the lower anterior chest to feel the chest wall and abdominal movement, and determine whether the depth is normal, shallow, or deep. In a patient of any age, if it is difficult to gauge the depth of breathing from the chest movement, note instead the amount of air that you feel is exhaled with each breath.

that an urgent, potentially critical cardiovascular and respiratory problem exists. The patient's condition may deteriorate rapidly to a point at which the patient can no longer breathe.

Depth

The amount of air that the patient is exchanging depends on both the rate and the tidal volume, the amount of air that is exchanged with each breath. The depth of the breath determines whether the tidal volume is normal, less than normal, or more than normal. Respirations are described as shallow when the movement of the chest wall and air that you feel exhaled with each breath is less than normal. Deep respirations occur when chest movement and exhaled air are significantly greater than normal. You should document when the patient's respirations are shallow or deep; however, you do not have to record a normal depth of breathing.

Pulse Oximetry

Pulse oximetry is a recent assessment tool used to evaluate the effectiveness of oxygenation. The pulse oximeter is a photoelectric device that monitors the oxygen saturation of hemoglobin (the iron-containing portion of the red blood cell to which oxygen attaches) in the capillary beds (Figure 5-6 ▼). Parts that make up the pulse oximeter include a monitor and sensing probe. The sensing probe clips onto a finger or ear lobe. The light source must have unobstructed access to a capillary bed, so fingernail polish should be removed. Results appear as a percentage on the display screen. Normally, pulse oximetry values in ambient air will vary depending on the altitude, with the majority being between 95% and 100%.

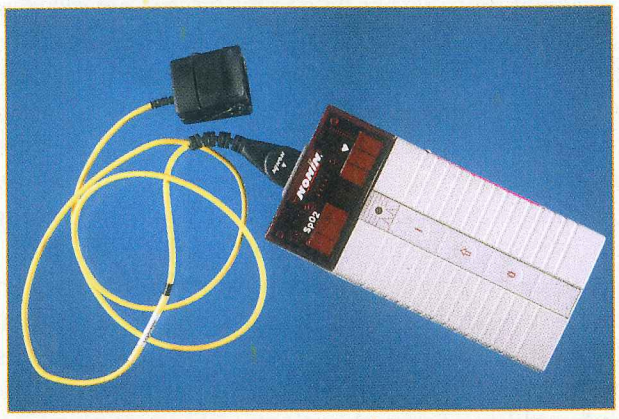


Figure 5-6 The pulse oximeter is a device that measures the saturation of oxygen in the blood as a percentage.

The goal of any oxygen therapy is to increase oxygen saturation to normal levels. This device is a useful assessment tool to determine the effectiveness of oxygen therapy, bronchodilator therapy, and use of the bag-valve-mask (or BVM) device in certain conditions. However, the pulse oximeter does not take the place of good assessment skills and should not prevent the application of oxygen to any patient who complains of difficulty breathing regardless of the pulse oximetry value.

Because the device presumes adequate perfusion and numbers of red blood cells, anything that causes vasoconstriction (narrowing of a blood vessel, such as with hypoperfusion or cold extremities) or loss of red blood cells (such as bleeding or anemia) will result in inaccurate or misleading values. The device also presumes that oxygen is saturating hemoglobin. Therefore, any chemical that displaces oxygen (such as carbon monoxide) will cause misleading values.

The pulse oximeter is a useful tool as long as the EMT-B remembers that the device is only a tool, not a substitute for a good assessment. The device should not be used when hypoperfusion or known anemia is present, carbon monoxide or exposure to other toxic inhalants has occurred, or the patient's extremities are cold.

It is essential to remember that rarely does one sign or symptom reveal to you the patient's status or underlying problem. Rather, it is the combination of many signs and symptoms that reveal the underlying problem or condition of your patient. Therefore, it is essential to have a basic understanding of the causes and presentations of medical emergencies so that you know what to look for.

For example, a patient with chest pain may be having a heart attack. He may also have sustained chest trauma, a lung infection, a pulmonary embolism, or a simple strained muscle in the chest. If he describes his pain as crushing, radiating down his left arm and up into his jaw, he is pale and soaked in sweat, the episode began while he was shoveling snow, and he has a history of coronary bypass surgery and has nitroglycerin in his pocket, your assessment will lean toward myocardial infarction. Therefore, it is essential to collect all pertinent information and be able to interpret how it fits together.

Pulse

With each heartbeat, the ventricles contract, forcefully ejecting blood from the heart and propelling it into the arteries. The pulse is the pressure wave that occurs as

each heartbeat causes a surge in the blood circulating through the arteries. The pulse is most easily felt at a pulse point where a major artery lies near the surface and can be pressed gently against a bone or solid organ. To palpate (feel) the pulse, hold together your index and long fingers and place their tips over a pulse point, pressing gently against the artery until you feel intermittent pulsations. Sometimes, you may have to slide your fingertips a little to each side and press again until you feel a pulse. When palpating a pulse, do not allow your thumb to touch the patient. If you do so, you may mistake the strong pulsing circulation in your thumb for the patient's pulse.

In responsive patients who are older than 1 year, you should palpate the radial pulse at the wrist (Figure 5-7A ▼). In unresponsive patients older than 1 year, you should palpate the carotid pulse in the neck (Figure 5-7B ▼). When palpating the carotid pulse, you should place the fingertips of your index and long fingers along the carotid artery in the groove between the trachea and the neck muscle. Use caution when palpating the carotid pulse in a responsive patient, especially an older patient. Only gentle pressure on one side of the neck should be used. Never press on the carotid arteries on both sides of the neck at the same time. Doing so can reduce circulation to the brain.

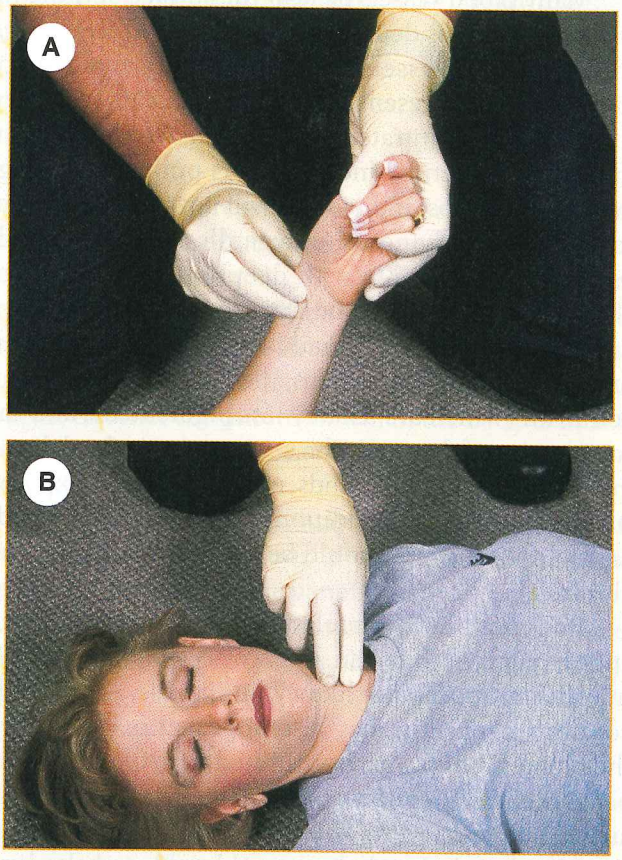


Figure 5-7 **A.** To palpate the radial pulse, place the tips of your first two fingers over the radial artery, pressing gently until you feel intermittent pulsations. **B.** To palpate the carotid pulse, place the tips of your first two fingers over the carotid artery, pressing gently until you feel intermittent pulsations.

In infants, both the radial and carotid pulses are difficult to locate. Because of the infant's soft, immature trachea, palpating the carotid pulse is not recommended. Palpate the brachial pulse, located at the medial area (underside) of the upper arm, in children younger than 1 year (Figure 5-8 ▼). With the infant lying supine, you can access the brachial pulse by elevating the arm over the infant's head. Because most infants have chubby arms, you need to press your adjacent fingertips firmly along the brachial artery, which lies parallel to the long axis of the upper arm, to be able to palpate the pulse.

Your first consideration when taking a pulse is to determine whether the patient has a palpable pulse or is pulseless. When taking the pulse, you should assess and report its rate, strength, and regularity.

Rate

To obtain the pulse rate in most patients, you should count the number of pulses felt in a 30-second period and then multiply by 2. A pulse that is weak and difficult to palpate, irregular, or extremely slow should be palpated and counted for a full minute.

A pulse rate is counted as beats per minute; however, in reporting the pulse rate, it is not necessary to state or write "beats per minute" after the number.

The pulse rate in most adults (at rest) averages around 72 beats/min. However, pulse rate can vary

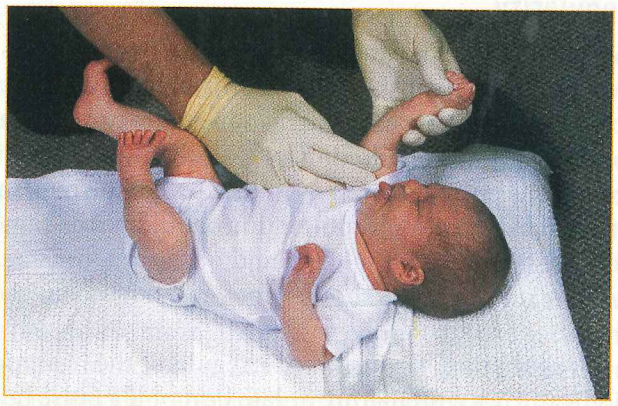


Figure 5-8 To palpate the brachial pulse in an infant, press firmly along the brachial artery at the underside of the upper arm.

TABLE 5-3 Normal Ranges for Pulse Rate

Age	Range, beats/min
Adults	60 to 100
Children	70 to 150
Infants	100 to 160

significantly from person to person. In the well-conditioned athlete or in individuals taking heart medications such as beta-blockers, the pulse rate may be considerably lower. A pulse rate between 60 and 100 beats/min is considered normal in adults. The average pulse rate in children is generally higher. Table 5-3 ▲ shows the normal ranges of pulse rates.

In assessing the pulse rate in an adult patient, a rate that is greater than 100 beats/min is described as tachycardia, and a rate of less than 60 beats/min is described as bradycardia.

Strength

You should always report the pulse's strength whenever reporting or recording the pulse. The pulse is generally palpated at the radial or carotid arteries in adults and at the brachial artery in infants, because it is normally strong and easily palpable at these locations. Therefore, if the pulse feels of normal strength, you should describe it as being strong. You should describe a stronger than normal pulse as "bounding" and a pulse that is weak and difficult to feel as "weak" or "thready." With a little experience, you will be able to make the necessary distinctions easily.

Regularity

When assessing the quality of the pulse, you must also determine whether it is regular or irregular. When the interval between each ventricular contraction of the heart is short, the pulse is rapid. When the interval is longer, the pulse is slower. No matter what the rate, the interval between each contraction should be the same, and the pulse that results should occur at a constant, regular rhythm. You should note and document this rhythm as regular.

The rhythm is considered irregular if the heart periodically has a premature or late beat or if a pulse beat is missed. Some individuals have a chronically irregular pulse; however, if an irregular pulse is found in a patient with signs and symptoms that suggest a cardiovascular problem, the patient likely needs advanced cardiac assessment and life support. Therefore, depending on your protocols, you should call for advanced life support (or ALS) backup, arrange for an intercept by paramedics, or initiate prompt transport to definitive care.

The Skin

The condition of the patient's skin can tell you a lot about the patient's peripheral circulation and perfusion, blood oxygen levels, and body temperature. When assessing the skin condition, you should evaluate its color, temperature, and moisture.

Color

Assessing the skin helps you to determine the adequacy of perfusion. Perfusion is the circulation of blood within an organ or tissue. Adequate perfusion meets the current needs of the cells; inadequate perfusion will cause cells and tissues to die.

Many blood vessels lie near the surface of the skin. The skin's color is determined by the blood circulating through these vessels and the amount and type of pigment that is present in the skin. Blood is red when it is adequately saturated with oxygen. As a result, skin in lightly pigmented individuals is pinkish. The pigmentation in most individuals will not hide changes in the skin's underlying color, regardless of the individual's race. In patients with deeply pigmented skin, changes in color may be apparent only in certain areas, such as the fingernail beds, the mucous membranes in the mouth, the lips, the underside of the arm and palm (which are usually less pigmented), and the conjunctiva of the eyes. The conjunctiva is the delicate membrane lining the eyelids, and it covers the exposed surface of the eye. In addition, the palms of the hands and soles of the feet should be assessed in infants and children.

Poor peripheral circulation will cause the skin to appear pale, white, ashen, or gray, possibly with a waxy translucent appearance like a white candle. Abnormally cold or frozen skin may also appear this way. When the blood is not properly saturated with oxygen, it appears bluish. Therefore, in a patient with insufficient air exchange and low levels of oxygen in the blood, the blood and vessels become bluish, and the lips, mucous membranes, nail beds, and skin over the blood vessels appear blue or gray. This condition is called cyanosis.

Figure 5-9 High blood pressure may cause the skin to be flushed and red.

High blood pressure may cause the skin to be abnormally flushed and red (Figure 5-9 ▲). In some patients with extremely high blood pressure, all the visible blood vessels will be so full that the skin will appear to be a dark reddish purple. A patient with a significant fever, heatstroke, sunburn, mild thermal burns, or other conditions in which the body is unable to properly dissipate heat will also appear to have red skin.

Changes in skin color may also result from chronic illness. Liver disease or dysfunction may cause jaundice, resulting in the patient's skin and sclera turning yellow. The sclera is the normally white portion of the eye, and may show color changes even before skin color change is visible.

Temperature

Normally, the skin is warm to the touch. When the patient has a significant fever, sunburn, or hyperthermia, the skin feels hot to the touch. The skin will feel cool when the patient is in early shock, has mild hypothermia, or has inadequate perfusion. The skin will feel cold when the patient is in profound shock, has hypothermia, or has frostbite. Body temperature is normally measured with a thermometer in the hospital.

Moisture

Dry skin is normal. Skin that is wet, moist (often called diaphoretic), or excessively dry and hot suggests a problem. In the early stages of shock, the skin will become slightly moist. Skin that is only slightly moist but not covered excessively with sweat is described as clammy, damp, or moist. When the skin is bathed in sweat, such as after strenuous exercise or when the patient is in shock, the skin is described as wet or diaphoretic.

Because the skin's color, temperature, and moisture are often related signs, you should consider them together. When recording or reporting your assessment of the skin, you should first describe the color, then the temperature, and last, whether the skin is dry, moist, or wet. For example, you could say or write, "Skin: pale, cool, and clammy."

Capillary Refill

Capillary refill is evaluated to assess the ability of the circulatory system to restore blood to the capillary system. When evaluated in an uninjured limb, capillary refill may reflect the patient's perfusion. It should be kept in mind, however, that capillary refill time can be affected by the patient's body temperature, position, preexisting medical conditions, and medications. To test capillary refill, place your thumb on the patient's fingernail with your fingers on the underside of the patient's finger and gently compress (Figure 5-10A ▶). The blood will be forced from the capillaries in the nail bed. When you remove the pressure applied against the tip of the patient's finger, the nail bed will remain blanched and white for a brief period. As the underlying capillaries refill with blood, the nail bed will be restored to its normal pink color.

Capillary refill should be prompt, and the nail bed color should be pink. With adequate perfusion, the color in the nail bed should be restored to its normal pink within 2 seconds, or about the time it takes to say "capillary refill" at a normal rate of speech (Figure 5-10B ▶). You should report and document the capillary refill as normal, "CRT < 2." You should suspect poor peripheral circulation when capillary refill takes more than 2 seconds or the nail bed remains blanched. In this instance, you should report and document the capillary refill as delayed or CRT > 2.

A bluish color may indicate that the capillaries are refilling with blood drawn from the veins rather

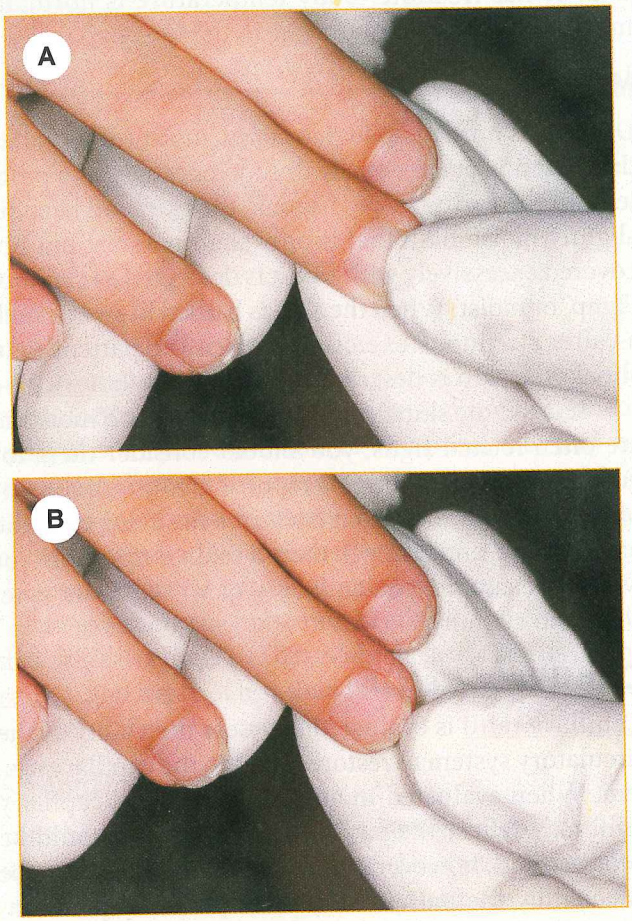


Figure 5-10 **A.** To test capillary refill, gently compress the fingertip until it blanches. **B.** Release the fingertip, and count until it returns to its normal pink color.

than with oxygenated blood from the arteries, making the test invalid. You should also consider the capillary refill test invalid if the patient is in or has been exposed to a cold environment or if the patient is older. In both situations, delayed capillary refill may be normal.

To assess capillary refill in older infants and children younger than 6 years, press on the skin or nail bed and determine how long it takes for the pink color to return. In newborns and young infants, press on the forehead, chin or sternum to determine capillary refill time. As with adults, normal capillary refill takes less than 2 seconds. However, it is a much more reliable indicator of cardiovascular status in children than it is in adults and should be recorded for all of your pediatric patients.

Blood Pressure

Adequate blood pressure is necessary to maintain proper circulation and perfusion of the vital organ cells. Blood pressure (BP) is the pressure of circulating blood against the walls of the arteries. A decrease in the blood pressure may indicate one of the following:

- Loss of blood or its fluid components
- Loss of vascular tone and sufficient arterial constriction to maintain the necessary pressure even without any actual fluid or blood loss
- A cardiac pumping problem

When any of these conditions occurs and results in a drop in circulation, the body's compensatory mechanisms are activated, the heart rate increases, and the arteries constrict. Normal blood pressure is maintained, and by decreasing the blood flow to the skin and extremities, available blood volume is temporarily redirected to the vital organs so that they remain adequately perfused. However, as shock progresses, and the body's defense mechanisms can no longer keep up, the blood pressure will fall. Decreased blood pressure is a late sign of shock and indicates that the critical decompensated phase has begun. Any patient with a markedly low blood pressure has inadequate pressure to maintain proper perfusion of all the vital organs and needs to have his or her blood pressure and perfusion restored immediately to a normal level.

You are the Provider — Part 3

As you are transporting your patient to the hospital, she becomes increasingly confused. Her respiratory rate decreases to 16 breaths/min, her pulse goes down to 60 beats/min, and her blood pressure is 120/64 mm Hg. She seems less anxious and appears to be relaxing.

5. Is your patient's condition improving?
6. What do these changes in vital signs mean? Should you change your treatment priorities?

When the blood pressure becomes elevated, the body's defenses act to reduce it. Some individuals have chronically high blood pressure from progressive narrowing of the arteries that occurs with age, and during an acute episode, their blood pressure may increase to even higher levels. Head injury or a number of other conditions may also cause blood pressure to rise to very high levels. Abnormally high blood pressure may result in a rupture or other critical damage in the arterial system.

You should measure blood pressure in all patients older than 3 years.

Blood pressure contains two key separate components: systolic pressure and diastolic pressure. Systolic pressure is the increased pressure that is caused along the artery with each contraction (systole) of the ventricles and the pulse wave that it produces. Diastolic pressure is the residual pressure that remains in the arteries during the relaxing phase of the heart's cycle (diastole), when the left ventricle is at rest. Systolic pressure represents the maximum pressure to which the arteries are subjected, and the diastolic pressure represents the minimum amount of pressure that is always present in the arteries.

Early blood pressure gauges contained a column of mercury and a linear scale that was graduated in millimeters. Even though different gauges are used today, the blood pressure is still measured in millimeters of mercury (mm Hg). Blood pressure is reported as a fraction in the form systolic pressure over diastolic pressure. Therefore, if the patient's systolic pressure is 120 and the diastolic pressure is 78, you would record it as "BP 120/78 mm Hg." You would report the patient's blood pressure verbally as "BP is 120 over 78."

Equipment for Measuring Blood Pressure

You will use a sphygmomanometer (blood pressure cuff) to apply pressure against the artery when measuring the blood pressure. The sphygmomanometer contains the following components:

- A wide outer cuff designed to be fastened snugly around the entire arm or leg
- An inflatable wide bladder sewn into a portion of the cuff
- A ball-pump with a one-way valve that allows air to enter and a turn-valve that can be closed or, when opened, will allow air to be released at a controlled speed from the cuff
- A pressure gauge calibrated in millimeters of mercury, which indicates the pressure that exists in the cuff that is being applied against the underlying artery

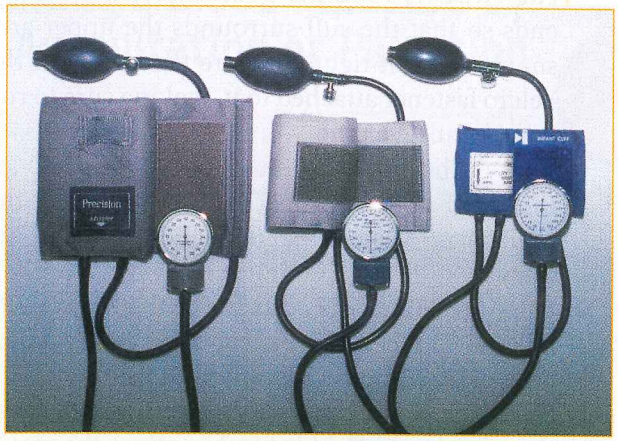


Figure 5-11 Three sizes of blood pressure cuffs: thigh, adult, and pediatric.

Most agencies carry at least three sizes of blood pressure cuffs: adult, thigh, and pediatric (Figure 5-11 ▲). The normal size cuff is designed to wrap around the arm 1 to 1.5 times and take up two thirds the length from the armpit to the crease in the elbow of most adults. Use a thigh cuff with patients who are obese or have exceptionally well-developed arm muscles or to take the blood pressure of the thigh in patients who have injuries in both arms. Use a small pediatric cuff with children and exceptionally small adults.

You must be sure to select the appropriately sized cuff. A cuff that is too small may result in falsely high readings; a cuff that is too large may result in falsely low readings.

Auscultation

Auscultation is the method of listening to sounds within the body with a stethoscope. You will usually measure blood pressure by auscultation (Skill Drill 5-1 ▶). Follow these steps:

1. **With the patient's arm extended** with the palm up, place the cuff so that it lies across the upper arm and is located with its distal edge about 1″ above the crease at the inside of the patient's elbow. Make sure the center of the inflatable bladder, which is usually marked by an arrow on the

cuff, lies over the brachial artery. Next, wrap the ends so that the cuff surrounds the upper arm snugly but not tightly. Secure the cuff with the Velcro fastener attached to it, making sure to rub your hand over the entire area where the two sides of the Velcro fastener are in contact. Once the cuff has been properly secured around the upper arm, the arm should be held at about the same level as the heart (**Step 1**).

2. **Palpate the brachial artery** (in the antecubital fossa, the anterior aspect of the elbow) to determine where to place the stethoscope (**Step 2**).
3. **Place the diaphragm of the stethoscope over the artery,** and hold it firmly against the artery with the fingers of your nondominant hand. Hold the rubber ball-pump in the palm of your other hand and the turn-valve between your thumb and first finger (**Step 3**).
4. **Close the valve tightly, and pump the ball-pump** until you no longer hear pulse sounds. Continue pumping to increase the cuff's pressure by an additional 20 mm Hg. Next, slowly turn the valve, opening it until air is steadily escaping from the cuff and you see the needle of the gauge slowly drop. Watch the gauge, and listen carefully. Note the patient's systolic pressure as the reading on the gauge at which the "taps" or "thumps" of the pulse waves can first be heard clearly. As the pressure in the cuff is progressively reduced, pulse sounds will continue for a time, then suddenly disappear. Note the patient's diastolic pressure as the reading on the gauge at which the sounds stopped (**Step 4**).
5. As soon as the pulse sounds stop, **open the valve, and release the remaining air quickly**. Once you have finished measuring the blood pressure, you should document your findings and the time at which the blood pressure was taken. Blood pressure is most often measured by auscultation with the patient in a sitting or semisitting position. Be sure to note whether a different method or position was used. Occasionally when a patient's blood pressure is very low, you will continue to hear pulse sounds from the reading at which they started all the way until the gauge has reached 0. When this occurs, you should record the diastolic pressure as "0" or "all the way down" to indicate that it was heard until the gauge read 0 (**Step 5**).

Palpation

The auscultation method may be difficult or impossible to use in a very noisy environment, leading to inaccurate findings. The palpation method, which is examination by touch that does not depend on your ability to hear sounds, should be used in these cases (Skill Drill 5-1, Step 6 ▶).

To measure blood pressure by palpation, secure the appropriately sized cuff around the patient's upper arm in the manner previously described. With your nondominant hand, palpate the patient's radial pulse on the same arm as the cuff, without moving your fingertips once you have located it, until you have completed taking the blood pressure. While holding the ball-pump in your other hand, close the turn-valve and slowly inflate the cuff until the pulse disappears and then continue to inflate another 30 mm Hg. As the cuff inflates, you will no longer feel the pulse under your fingertips. Open the turn-valve so that air slowly escapes from the cuff, and carefully observe the gauge. When you can again feel the radial pulse under your fingertips, you should note the reading on the gauge as the patient's systolic blood pressure. You will not be able to determine the diastolic pressure with this method. Next, open the turn-valve further, and completely deflate the cuff. Document your findings, including the time, and note that the pressure was taken by palpation. On your patient care report, you can record the blood pressure as "120/P" and verbalize it as "120 palpated."

Normal Blood Pressure

Blood pressure levels vary with age and gender. (Table 5-4 ▶) serves as a guideline for normal blood pressure ranges.

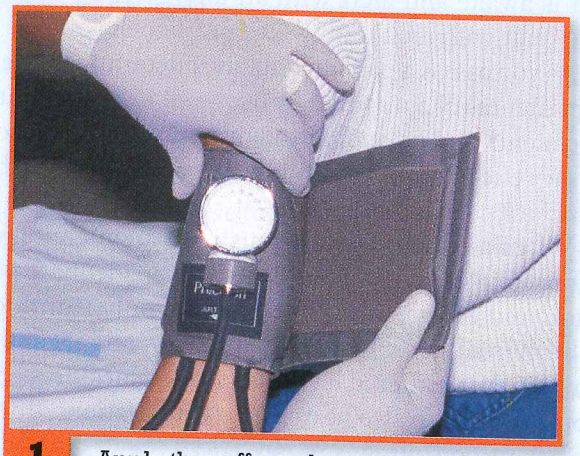
A patient has hypotension when the blood pressure is lower than the normal range and hypertension when the blood pressure is higher than the normal range.

EMT-B Tips

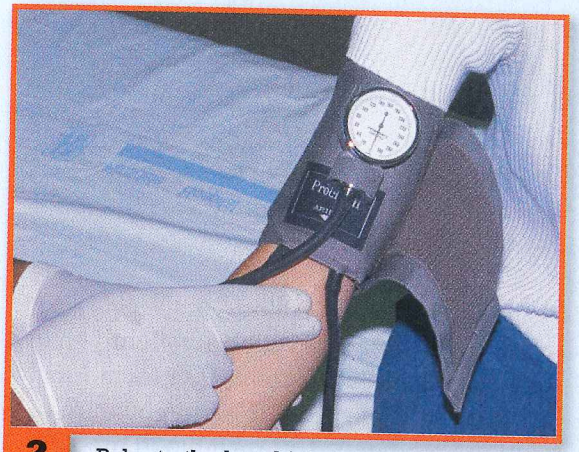
Record blood pressure readings with the time. Note the arm on which you took the measurement and the patient's position if other than sitting or semisitting. For a blood pressure by palpation, you can abbreviate: "120/P."

Skill Drill 5-1

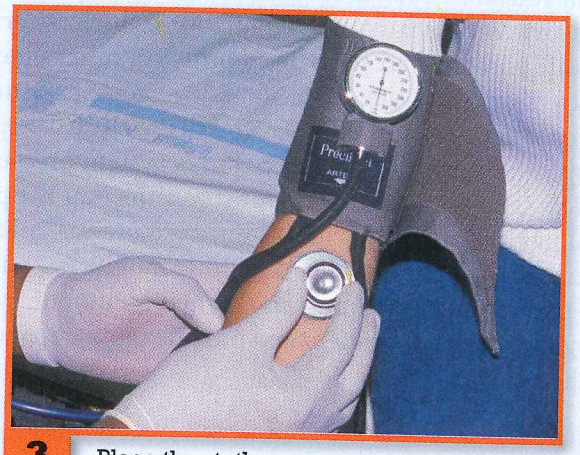
Obtaining a Blood Pressure by Auscultation or Palpation



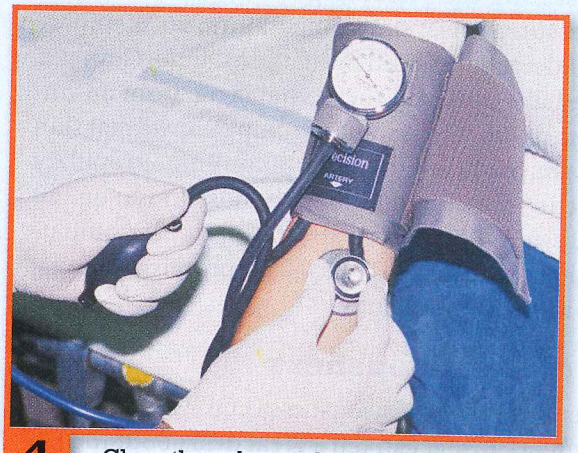
1 Apply the cuff snugly.



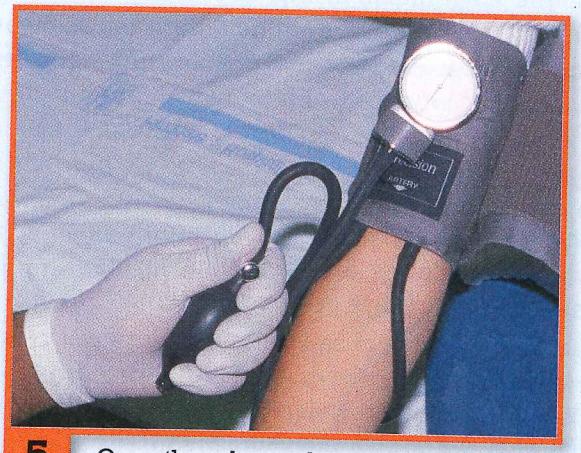
2 Palpate the brachial artery.



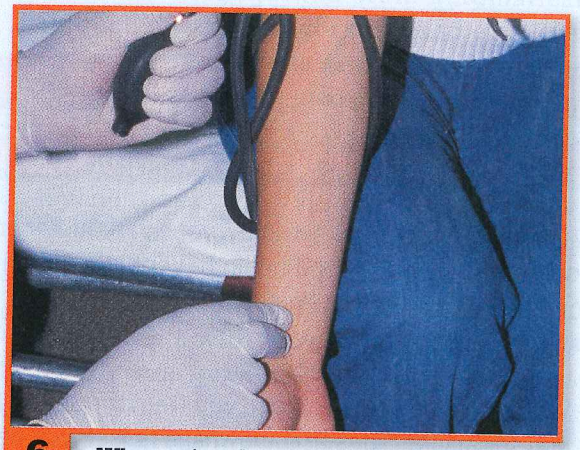
3 Place the stethoscope over the brachial artery, and grasp the ball-pump and turn-valve.



4 Close the valve, and pump to 20 mm Hg above the point at which you stop hearing pulse sounds. Note the systolic and diastolic pressures as you let air escape slowly.



5 Open the valve, and quickly release remaining air.



6 When using the palpation method, you should place your fingertips on the radial artery so that you feel the radial pulse.

TABLE 5-4 Normal Ranges for Blood Pressure

Age	Range, mm Hg
Adults	90 to 140 (systolic)
Children (ages 1 to 8 years)	80 to 110 (systolic)
Infants (newborn to age 1 year)	50 to 95 (systolic)

Typically, you will see children less frequently than adults; therefore, you might not remember the normal ranges for the various age groups. You might want to carry a chart with you that lists normal blood pressure ranges and other vital signs.

In assessing the patient's general circulation, the blood pressure, pulse, skin temperature, and capillary refill should not be assessed in an injured limb. However, once you have obtained these vital signs from an uninjured limb, you might want to compare the distal skin temperature, quality of the distal pulse, and/or capillary refill time in the injured limb with those found on the uninjured side. This information is useful in evaluating whether the injury may have compromised the circulation in the injured limb.

Level of Consciousness

The patient's level of consciousness (LOC) is considered a vital sign because it can tell a great deal about the patient's neurological and physiological status. The brain requires a constant supply of oxygen and sugar to function properly. An alteration in level of consciousness can be one of the first indications of hypoxia. In the early assessment, you need to ascertain only the gross level of consciousness by determining whether the patient is awake and alert with an unaltered LOC, conscious but with an altered LOC, or unconscious.

As you assess a patient, you must determine the appropriateness of a response by how well it demonstrates the patient's understanding and mental activity, not how well it reflects your definition of socially acceptable behavior.

When a patient is conscious with an altered level of consciousness, it may indicate that inadequate perfusion and oxygenation or a chemical or neurologic problem is adversely affecting the brain and its ability to function. An altered level of consciousness in a conscious patient can also be caused by medications, drugs, alcohol, or poisoning.

Your assessment of a patient who is unconscious when you arrive should be focused initially on problems with airway, breathing, and circulation, which are critical life threats, and then on identifying other emergency care that the patient may need. Sustained unconsciousness should warn you that a critical respiratory, circulatory, or central nervous system problem or deficit may exist, and you must assume that the patient has a potentially critical injury or potentially life-threatening condition. Therefore, after rapidly assessing the patient and providing emergency treatment, you should package the patient and provide rapid transport to the hospital.

Pupils

The diameter and reactivity to light of the patient's pupils reflect the status of the brain's perfusion, oxygenation, and condition. The pupil is a circular

You are the Provider — Part 4

As you pull into the hospital bay, your patient becomes unresponsive and apneic. You insert an oropharyngeal airway and begin to ventilate with a bag-valve-mask device. She is intubated in the emergency department and spends 2 weeks in the intensive care unit with a diagnosis of acute pulmonary embolism.

7. What clues were available to you from the scene, history, signs, symptoms, and ongoing assessment and serial vital signs that may have helped you determine what was wrong with your patient?
8. Did you treat her appropriately?
9. Had you realized the cause of her condition, would it have altered your treatment?

EMT-B Tips

AVPU scale

The AVPU scale is a rapid method of assessing the patient's level of consciousness using one of the following four terms:

A = Awake and Alert
V = Responsive to Verbal Stimuli
P = Responsive to Pain
U = Unresponsive

You should determine whether a patient is awake and alert. An awake and alert patient is oriented to person, place, time, and mechanism of injury or history of present illness. A patient who is not awake and alert but who is aroused and responds to your voice by opening his or her eyes, moaning, speaking, or moving is responding to verbal stimuli. A patient who does not respond to your normal speaking voice but who responds when you speak loudly is responding to loud verbal stimuli. Be sure to note how the patient responded. Tap a patient who is hearing impaired with your fingers repeatedly. If the patient responds, note that the patient is hearing impaired but responds to being tapped.

To determine whether a patient who does not respond to verbal stimuli will respond to a painful stimulus, you should gently but firmly pinch the patient's skin (Figure 5-12 ▶). A patient who moans or withdraws is responding to painful stimulus. Be sure to note the type and location of the stimulus and how the patient responded. Also use caution on the patient with a suspected neck or spinal injury.

Figure 5-12 To assess whether a patient will respond to a painful stimulus, gently but firmly pinch the patient's skin. This can be done at the neck or on the earlobe.

If the patient does not respond to a painful stimulus on one side, try to elicit a response on the other side. Note that a patient who remains flaccid without moving or making a sound with no indication of hearing you is unresponsive.

opening in the center of the pigmented iris of the eye. The pupils are normally round and of approximately equal size and serve as optical diaphragms, adjusting their size depending on the available light. In normal room light, the pupil appears to be midsize. With less light, the pupils dilate, allowing more light to enter the eye, making it possible to see even in dim light. With high light levels or when a bright light is suddenly introduced, the pupils instantly constrict, allowing less light to enter, protecting the sensitive receptors in the inner eye from damage (Figure 5-13A ▶). When a brighter light is introduced into one eye (or higher levels of light enter one eye only), both pupils should constrict equally to the appropriate size for the pupil receiving the most light.

In the absence of any light, the pupils will become fully relaxed and dilated (Figure 5-13B ▶). When light is introduced, each eye sends sensory signals to the brain indicating the level of light it is receiving. Pupil size is regulated by a series of continuous motor commands that the brain automatically sends through the oculomotor nerves to each eye, causing both pupils to constrict to the same appropriate size. Normally, pupil size changes instantly to any change in light level.

You must assume the patient has depressed brain function as a result of either central nervous system depression or injury if the pupils react in any of the following ways:

- Become fixed with no reaction to light
- Dilate with introduction of a bright light and constrict when the light is removed
- React sluggishly instead of briskly
- Become unequal in size (Figure 5-13C ▶)
- Become unequal in size when a bright light is introduced into or removed from one eye

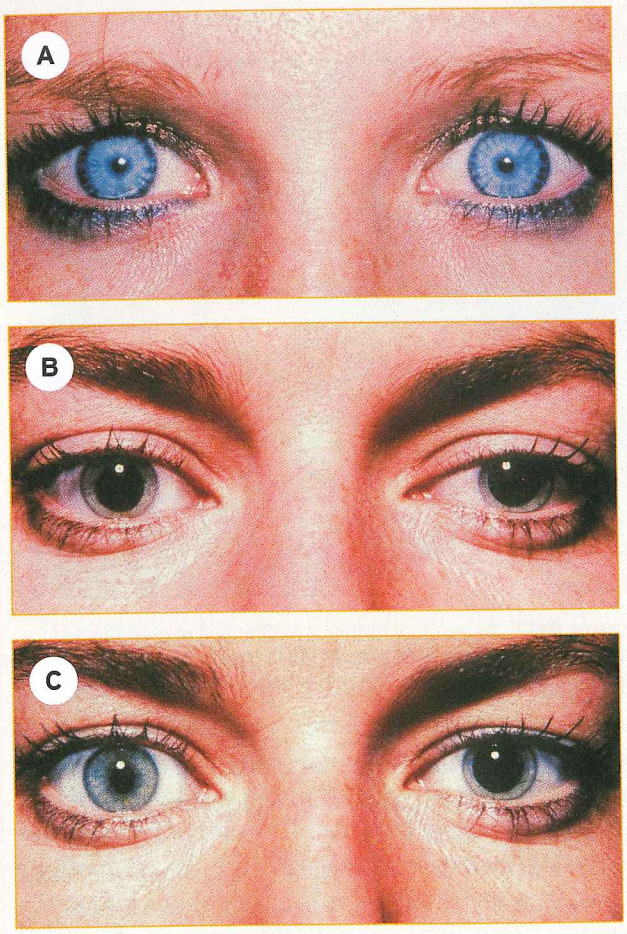


Figure 5-13 **A.** Constricted pupils. **B.** Dilated pupils. **C.** Unequal pupils.

Depressed brain function can be produced by the following situations:

- Injury of the brain or brain stem
- Trauma or stroke
- Brain tumor
- Inadequate oxygenation or perfusion
- Drugs or toxins (central nervous system depressants)

Opiates, which are one category of central nervous system depressants, cause the pupils to constrict so significantly, regardless of light, that they become so small as to be described as pinpoint. Intracranial pressure from intracranial bleeding may cause sufficient pressure against the oculomotor nerve on one side that the motor commands can no longer pass from the brain to that eye. When this occurs, the eye no longer receives commands to constrict, and its pupil becomes fully dilated and fixed. This is described as a blown pupil.

Pupils may be dilated, unequal as a result of medication placed into one or both eyes or from an injury or condition of the eye, or not reacting appropriately.

The letters PEARRL serve as a useful guide in assessing the pupils. They stand for the following:

P = Pupils
E = Equal
A = And
R = Round
R = Regular in size
L = react to Light

For patients with normal pupils, you can report "Pupils are equal, round, and regular in size, and react properly to light" or "pupils = PEARRL." Describe any abnormal findings using the longer form, such as "Pupils are equal and round, the left pupil is fixed and dilated, the right pupil is regular in size and reacts to light."

Reassessment of the Vital Signs

The vital signs that you obtain serve two important functions. The first set establishes an important initial measurement of the patient's neurological, respiratory, and cardiovascular systems and the quality of perfusion and oxygenation of the brain and other vital organs. The initial vital signs serve as a key baseline.

Throughout your care of the patient, you should monitor the patient's vital signs for any changes from your initial findings. You should reassess and record vital signs at least every 15 minutes in a stable patient and at least every 5 minutes in an unstable patient. You should also reassess and record vital signs following all medical interventions. This ongoing comparative assessment is an important indicator of whether your interventions have restored the patient's vital functions to an acceptable range or are at least preventing further deterioration. Reassessment also indicates whether you should consider more aggressive intervention whenever deterioration continues.

You are the Provider Summary

Frequently, a patient's medications and chief complaint provide valuable clues to the underlying condition. This information will greatly aid you in understanding the source and the severity of the patient's condition(s). You may be unable to obtain information from the patient's medical history either because there is no significant medical history or because the patient is unable to tell you.

Women who are 35 years of age and older who are taking birth control medication and smoke cigarettes are at especially high risk of experiencing embolisms. Becoming familiar with commonly prescribed medications and over-the-counter medications can provide important information about a patient's medical history. Sometimes patients will not know why they are taking certain medications, so it would be helpful for you to have a pocket guide on medications for quick and easy reference. Being able to sort through the clues from the emergency scene itself, from the patient's complaints, and from the patient's signs and symptoms and past medical history will all assist you in understanding the cause of your patient's problem and enable you to make appropriate, timely decisions about your patient's care.

Prep Kit

Ready for Review

- Whenever you are called to the scene of an illness or injury, you should find out the patient's chief complaint.
- Your assessment of the patient should include rapidly evaluating the patient's general condition and identifying any potentially life-threatening injuries or conditions.
- Baseline vital signs are the key signs that you will use to evaluate the patient's general condition.
- You will be assessing the patient's respirations, pulse, skin, blood pressure, level of consciousness, and pupils.
- After you have initially assessed the patient and obtained the baseline vital signs, you should reassess the patient for any changes from your initial findings.
- In addition to determining the chief complaint and assessing the patient's general condition, you should try to obtain a SAMPLE history from the patient or bystanders.
- By asking several important questions, you will be able to determine the patient's signs and symptoms, allergies, medications, pertinent past history, last oral intake, and the events leading up to the incident.

Vital Vocabulary

auscultation A method of listening to sounds within an organ with a stethoscope.

AVPU scale A method of assessing level of consciousness by determining whether the patient is awake and alert, responsive to verbal stimuli or pain, or unresponsive; used principally early in the assessment.

blood pressure (BP) The pressure of circulating blood against the walls of the arteries.

bradycardia Slow heart rate, less than 60 beats/min.

capillary refill The ability of the circulatory system to restore blood to the capillary system; evaluated by using a simple test.

chief complaint The reason a patient called for help. Also, the patient's response to questions such as "What's wrong?" or "What happened?"

conjunctiva The delicate membrane lining the eyelids and covering the exposed surface of the eye.

cyanosis A bluish-gray skin color that is caused by reduced levels of oxygen in the blood.

diaphoretic Characterized by profuse sweating.

diastolic pressure The pressure that remains in the arteries during the relaxing phase of the heart's cycle (diastole) when the left ventricle is at rest.

hypertension Blood pressure that is higher than the normal range.

hypotension Blood pressure that is lower than the normal range.

jaundice A yellow skin or sclera color that is caused by liver disease or dysfunction.

labored breathing Breathing that requires visibly increased effort; characterized by grunting, stridor, and use of accessory muscles.

OPQRST An abbreviation for key terms used in evaluating a patient's signs and symptoms: onset, provocation or palliation, quality, region/radiation, severity, and timing of pain.

Technology

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perfusion Circulation of blood within an organ or tissue.

pulse The pressure wave that occurs as each heartbeat causes a surge in the blood circulating through the arteries.

pulse oximetry An assessment tool that measures oxygen saturation of hemoglobin in the capillary beds.

SAMPLE history A brief history of a patient's condition to determine signs and symptoms, allergies, medications, pertinent past history, last oral intake, and events leading to the injury or illness.

sclera The white portion of the eye.

signs Objective findings that can be seen, heard, felt, smelled, or measured.

sniffing position An unusually upright position in which the patient's head and chin are thrust slightly forward.

spontaneous respirations Breathing in a patient that occurs with no assistance.

stridor A harsh, high-pitched, crowing inspiratory sound, such as the sound often heard in acute laryngeal (upper airway) obstruction.

symptoms Subjective findings that the patient feels but that can be identified only by the patient.

systolic pressure The increased pressure along an artery with each contraction (systole) of the ventricles.

tachycardia Rapid heart rhythm, more than 100 beats/min.

tidal volume The amount of air that is exchanged with each breath.

tripod position An upright position in which the patient leans forward onto two arms stretched forward and thrusts the head and chin forward.

vasoconstriction Narrowing of a blood vessel.

vital signs The key signs that are used to evaluate the patient's overall condition, including respirations, pulse, blood pressure, level of consciousness, and skin characteristics.

Points to Ponder

You respond to man who was mowing his lawn around noon on a hot August day. Upon your arrival you find a 54-year-old man who is complaining of chest pain and dizziness. You start a SAMPLE history while your partner obtains baseline vital signs. The patient states he has chest pain that radiates to the left arm and that he feels nauseous. The patient looks pale and diaphoretic. The pain is not reproducible with palpation. The patient has no allergies and takes nitroglycerin for angina. The patient states that he did not eat today and only had a cup of coffee this morning.

Your baseline vitals include a blood pressure of 168/92 mm Hg, a pulse rate of 180 beats/min, and respirations of 20 breaths/min. You move the patient to a cool area and his color returns to normal. Your partner takes another set of vital signs, indicating the patient's blood pressure is 152/88 mm Hg, his pulse is 120 beats/min, and his respirations are 20 breaths/min.

What is the patient's chief complaint? Which of the previous were signs and which were symptoms? What is most concerning about the vital signs? Is your patient's condition improving?

Issues: Recognizing an Emergency, Importance of Obtaining a SAMPLE History.

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