

# Hospital Triage

Name \_\_\_\_\_ Period \_\_\_\_\_

You and your partners are a team of physicians in the emergency room of Desert Metropolitan Hospital. It is about 8:30 pm on a Friday in July. You have been busy, as you usually are on summer weekends. Unfortunately, you are about to become even busier. You have just received a flurry of calls from local paramedics, and now you and your colleagues are preparing for an influx of patients suffering from a variety of illness and trauma injuries. The influx includes a helicopter carrying Monique and an ambulance carrying Nelson, the two canyon hikers discussed in the scenario, *A Sweltering Experience*.

Because there are many patients and only a handful of doctors, you cannot treat every patient at the same time. In the activity, *Hospital Triage*, your first task is to assess the severity of each patient's condition and establish a "priority for treatment," which is called triage. Triage is a process used in emergency rooms as well as in battlefields and disaster areas to assign the order for assisting patients and maximizing medical efficiency and success. You will need to use everything you currently know about the body's normal homeostatic mechanisms to complete the triage. Keep in mind that there is not a single "right" answer for your medical team. The most important measure of your success in this Explore-Explain activity will be your team's ability to explain the treatment choices that you will make.

## Part A Triage in the Emergency Room

When you visit your doctor's office, a medical professional first measures and records your vital signs including temperature, blood pressure, heart rate and breathing rate. Have you ever considered what your vital signs tell the doctor? Vital signs are body characteristics that can be measured quickly. They provide important information about major body systems. This information is particularly important for quickly determining when patients are experiencing severe trauma.

Read through the *Glossary of Vital Signs* in preparation for interpreting your patients' conditions.

### ***Glossary of Vital Signs***

Vital signs are body characteristics that can be measured quickly. They provide important information about major body systems:

**Pulse** is the rate of the heart's beating. It provides clues to how well the heart is functioning. It also indicates how well the blood is carrying oxygen and other important substances to the tissues including brain tissues.

**Blood pressure** is another indicator of circulation. It is measured at an artery and is usually represented as two numbers such as 125/85 (read as "125 over 85"). The first number (**systolic pressure**) is a measurement of the force of blood against the walls of the arteries, veins, and chambers of the heart as the heart contracts. The second number (**diastolic pressure**) is a measurement of the lowest pressure reached as the heart relaxes.

**Body temperature** can indicate how the body is responding to a disruption in homeostasis. An elevated body temperature may indicate a fever generated by the body to fight an infection. A low core body temperature indicates hypothermia or shock.

**Breathing rate** reflects how well oxygen is being delivered to the body it also is associated with heart rate and circulation.

**Breathing sounds** refer to the specific sounds identified in the lungs when a person takes a breath. These sounds should be observed with a stethoscope and recorded when taking a patient's respiratory rate. The presence of altered breathing sounds may suggest some form of respiratory complications. The five common breathing sounds include: clear, wheeze, stridor, stertor and crackle.

A clear breath is produced by the free-flow of air throughout an unobstructed respiratory tract (airway).

A wheeze is a high-pitched sound produced by a narrowed or obstructed airway. They can be heard best during exhalation and are commonly associated with conditions such as asthma and emphysema.

A stridor is a higher pitched —wheeze-like sound heard when a person inhales; usually due to a blockage of air flow in the trachea or larynx. A stridor can be present as a result of laryngitis, tonsillitis or allergic reactions.

A stertor is described as a snoring sound with heavy breathing heard during both inhalation and exhalation that usually arises from the vibration of fluid or blockage around the throat (pharynx). A stertor can be a result of conditions such as pneumonia or bronchitis.

A crackle is a brief, discontinuous, rattling sound caused by the explosive opening of the small airways. Crackles are normally a result of inflammation or infection of the lung's airways and more common during the inhalation than exhalation. A crackle can also be a sign of pneumonia or chronic obstructive pulmonary disorder (COPD).

**Oxygen saturation** (SpO<sub>2</sub>) is a measurement of the amount of oxygen carried by the red blood cells throughout the body. As blood is pumped from the heart into the body, it passes through the lungs where oxygen molecules bind to red blood cells. The percentage of red blood cells that are fully saturated with oxygen is called blood oxygen saturation. A standard blood oxygen saturation reading is between 95-100%.

Taken together, vital signs give the physician a quick view of a patient's internal state, even if the patient is unconscious and cannot explain how he or she feels. These measurements vary over a relatively narrow range in healthy people, indicating that the body normally has precise control of internal conditions. When the vital signs are far outside the normal ranges, homeostasis usually is disrupted in the patient. Under these

circumstances, the vital signs are direct indicators of problems with internal systems that are involved in maintaining homeostasis. Vital signs, however, usually do not indicate the precise cause of the disruption of homeostasis.

What determines the value of a “normal” vital sign? In figure 6.4 “normal” is defined by averaging the values found in healthy people. Occasionally, healthy individuals have normal reading that are outside of these average ranges. For example highly trained athletes may have low resting heart rates. Normal ranges of vital signs also vary by sex and age. Many young people have systolic blood pressure lower than 100 millimeters of mercury (mm Hg). In general, blood pressure is evaluated in relation to other vital signs and the patient’s age and condition. For the purposes of this activity, assume that the normal state for each patient is within the normal ranges listed in the table.

Figure 6.4







Vital sign	Normal range	Serious range	Critical range
Blood pressure	110/70–140/90 mm Hg (systolic/diastolic)	90–100 mm Hg systolic	< 90 mm Hg systolic
Resting pulse rate	60–100 beats/min	< 60 or > 100 beats/min	< 50 or > 120 beats/min
Temperature	37°C (98.6°F)	39°C–40°C (102.2°F–104°F)	> 40°C (> 104°F)
Breathing rate	10–20 resp/min	< 10 or > 20 resp/min	< 10 or > 30 resp/min

*Key:* mm Hg = millimeters of mercury, a measure of pressure; < is less than; > is greater than; resp/min = respirations per minute.

*Note:* The figures quoted above are simplified from those used by medical personnel.

1. Visit each vital sign station to measure and record your own vitals.

### Explore Your Own Vital Signs

Vital Sign	Definition	Standard Range	Your Vitals
<b>Temperature</b> 	The measurement between heat lost and heat produced by the body	98.6 °F (37.0°C)	
 <b>Heart Rate/Pulse</b>	The number of times the heart beats per one minute	60-100 beats per minute	
 <b>Respiratory Rate</b>	The number of breaths taken per one minute	10-18 breaths per minute	
<b>Breathing Sounds</b> 	The specific sounds identified in the lungs when a person takes a breath	Clear and unobstructed during both inhalation and exhalation	Clear Obstructed <ul style="list-style-type: none"> <li>○ Wheeze</li> <li>○ Stridor</li> <li>○ Sterdor</li> <li>○ Crackle</li> </ul>
<b>Blood Pressure</b> 	The force of circulating blood pushing against the walls of the blood vessels. Blood pressure readings consist of two numbers. The top number is the <b>systolic blood pressure</b> : the highest level the blood pressure reaches when the heart beats (contracts). The bottom number is diastolic blood pressure: the lowest level the blood pressure reaches as the heart relaxes between beats.	110/70 – 140/90 mmHg  systolic/diastolic	
<b>Oxygen Saturation</b> 	The measurement of the amount of oxygen carried by the red blood cells throughout the body.	97-99%	