The human heart...

- beats almost 100,000 times per day.
- pumps about 2,000 gallons of blood per day.
- weighs between 7 and 15 ounces.
- has a beating sound due to the opening and closing of the valves.

Pulmonary veins (from lungs)

Figure 4.2 Structure of the Heart

The heart's function is to pump oxygen-rich blood to all other areas of the body.

> Inferior vena cava

Anatomy and Physiology

The heart, along with a complex network of blood-carrying vessels, comprise the cardiovascular system. The function of the heart is to deliver blood rich in oxygen and nutrients to all the cells and organs of the body and to remove carbon dioxide. The heart is an organ comprised of muscle surrounded by a sac-like membrane called the **pericardium**. It is divided into four chambers, separated down the middle by the septum.

Blood is brought into and carried away from the heart by a series of veins and arteries, and blood flow through the heart is regulated by four valves.

Blood Flow through the Heart

Superior and inferior vena cava (veins) bring deoxygenated (rich in carbon dioxide) blood from the body to the right atrium.

Blood passes through the tricuspid valve to the right ventricle.

Blood passes through the pulmonary valve and to lungs through pulmonary arteries.

Blood is oxygenated in the lungs and is carried back to the heart through pulmonary veins.

(5) Oxygenated blood moves into the left atrium.

Blood moves through the mitral valve into the left ventricle.

Oxygenated blood is pumped out through the aortic valve to the aorta and to the rest of the body.

* On Call

Your patient is a 55-year-old woman. She is presenting as cool and clammy. She is complaining of shortness of breath and pain in her back and stomach. Her vitals are the following: pulse, 96; blood pressure, 90/55.

- 1) What other vitals should you obtain?
- 2) Based on symptoms and vitals, what is the best plan of treatment for your patient?



