**Handout 3: Update on Marcus, Day 2**

Marcus was seen in the Emergency Room. Blood was drawn for a variety of tests. His heart rate was 78, blood pressure was 85/50, respiration was 12, and temperature was 100.5. He was lethargic but conscious and given IV fluids. His lungs were clear, with no wheezing or rales; heart – regular rhythm and a 3/6 systolic murmur; abdomen – soft and non-tender; musculoskeletal – thin/muscular, extremities appear long; Eye – pupils equal, round, and reactive.

Marcus was quickly transferred to the ICU to rule out a possible heart attack and to be followed for evidence of organ failure possibly due to dehydration and other life threatening illnesses. He is in critical condition.

Ultrasound ordered – final report is pending.

Blood work results that are available:

* Hemoglobin: 14.2 (normal)
* Creatinine: 1.1, 1.8, 2.0, 1.6, 1.2 (nl 0.6-1.3)
* Troponin and CPK-MB: normal level three times
* CPK total: 205, 165, 150 (nl 24-195)
* ALT Liver Test: 50, 82, 155, 113, 61 (nl 10-55)
* Glucose: 95, 115, 110 (nl 65-120)
* Vitamins: B12, A, and D (all normal)

While in the ICU no cardiac arrhythmias have been detected and his pulse has been normal.

**Teacher Interpretation Laboratory Results**

Even though Marcus’ blood work was normal on arrival at the emergency room, several of the tests needed to be repeated over time due to his cardiac arrest - found not breathing and had no pulse on the field.

Hemoglobin was normal which suggested the cause of his arrest was not a sickle cell trait crisis due to dehydration and extreme exertion. However, the hemoglobin value alone did not definitely rule out sickle cell trait.

Creatinine is a measure of kidney function which was normal on arrival at the emergency room. It then became elevated but returned toward normal indicating that there was probably no permanent kidney damage.

Troponin and CPK-MB are the blood tests used to confirm cardiac muscle damage as seen with a heart attack or myocardial infarction. These needed to be repeated over time and by remaining normal indicated no permanent heart damage.

CPK is a muscle enzyme that can increase with skeletal or cardiac muscle damage. Marcus’ initial CPK was only very slightly elevated and quickly returned to normal which indicated probable muscle exertion and no muscle damage or sickle trait crisis.

ALT is a liver enzyme that increased modestly over the time while Marcus was in the hospital then returned to normal which indicated only temporary insult to the liver during the cardiac arrest and not permanent damage.

Glucose remained normal throughout the hospitalization which indicated no diabetes or hypoglycemia.

Vitamin levels were normal indicating no nutritional problems related to these vitamins.