

Declining Hemoglobin Status Pre-Empted Before Routine Tests

Masimo SpHb Alerts Nurse to Patient's Unexpected Post-Op Hemoglobin Drop

Location	Emory University Orthopedic and Spine Hospital
Clinician Reporting	Katrina Hamilton, RN, CNOR
Patient Event	Hemoglobin Falls Rapidly and Unexpectedly Post-Surgery

> The Situation

A 53-year old African American male patient was admitted to the hospital for hip replacement surgery. He had a variety of health issues including HIV and was undergoing kidney dialysis. The Masimo® noninvasive hemoglobin (SpHb®) sensor was placed on the patient and read 10.3 g/dL pre-op, which was low but not enough to cause concern. Once in the OR, the SpHb sensor read 10.5 g/dL. After sedation and in the early stages of surgery the patient reading was in the 9.5 g/dL range and dropped to 8.7 g/dL about 2 hours into the surgery and stayed in the 8.5 to 9.0 g/dL range. Throughout the surgery, Masimo SpHb continued to track his hemoglobin levels accurately—providing continuous real-time feedback.



> The Problem

After surgery the patient was transported to the PACU. His hemoglobin reading was low at 8.8 g/dL, however not critically low. After about an hour, as the patient was being discharged from PACU, an alarm on the Masimo Radical-7™ Pulse CO-Oximeter sounded. To the nurse's surprise, the flashing "low SpHb" indicator showed a hemoglobin of 6.1 g/dL. She immediately ordered an invasive blood test (H&H), which came back with a hemoglobin of 6.0 g/dL, confirming the noninvasive SpHb measurement. The decision was made to admit the patient to ICU for overnight observation and a blood transfusion was done later that same evening. After receiving the blood transfusion, the patient was stabilized and improved quickly enough to be transferred out of the ICU to a standard patient room the following morning.

> The Masimo Difference

Because the patient had not sustained a large blood loss during the surgery (he lost between 300 to 400 cc's), there was no indication to collect an H&H level until the Radical-7 alarm sounded. Without the alarm, the hemoglobin level would only have been checked during routine labs the next morning. But by this time, the patient's hemoglobin could have dropped to a life-threateningly low level. As a dialysis patient, the prolonged decrease in oxygen would have compromised tissue perfusion, oxygenation, and a cascade of other issues. However, continuous SpHb measurements enabled PACU nurses to respond immediately and without time-consuming invasive measures.

"This was the first day we used the Masimo SpHb and the results confirmed its value. The product is right there, noninvasive and accurate."

— Katrina Hamilton, RN, CNOR