Technology has transformed the practice of medicine and surgery in particular over the last several decades. This change in practice has allowed diagnostic and therapeutic tests to be performed less invasively. Hemoglobin monitoring remains one of the most commonly performed diagnostic tests in the United States. Recently, non-invasive hemoglobin monitoring technology has gained popularity. The aim of this article is to review the principles of how this technology works, pros and cons, and the implications of non-invasive hemoglobin technology particularly in trauma surgery.