



Review Report



A Review on Pulse Oximetry uses and limitations

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ABSTRACT

Pulse Oximetry, a noninvasive method for continuous monitoring of

blood saturation with oxygen. Since then it has gained recognition of medical specialists because of its simplicity and instantaneous presentation of information on the patient's blood oxygenation, which is of great importance in clinical urgencies. As a result, a trend is observed towards improved reliability of measured values of saturation and toward increased user comfort. An increasing number of physicians and medical engineers now consider the patient device combination as an integral system where deviations from normal conditions can be caused by biophysical and technical factors, for instance, by hardware or software failure. Therefore, the main goal is to trace the fault and to try to overcome it. If the fault is intolerable, the hospital physician should be supplied with information on the doubtfulness of the saturation recordings. In this review, we discuss how pulse oximeters are able to distinguish oxygenated hemoglobin from deoxygenated hemoglobin and how they are able to recognize oxygen saturation only from the arterial compartment of blood. Based on these principles, we discuss the various conditions that can cause spurious readings and the mechanisms underlying them.

Keywords: SpO₂, PPG signal, Pulse Oximetry, Hemoglobin.

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