

Noninvasive Monitoring by Photoplethysmography.

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Abstract

The photoplethysmogram (PPG) is a noninvasive circulatory signal related to the pulsatile volume in tissue and is displayed by many pulse oximeters. The PPG is similar in appearance to the invasive arterial waveform, but is noninvasive and ubiquitous in hospitals. There is increasing interest in seeking circulatory information from the PPG and developing techniques for a wide variety of novel applications. This article addresses the basic physics of photoplethysmography, physiologic principles behind pulse oximetry operation, and recent technological advances in the usefulness of the PPG waveform to assess microcirculation and intravascular fluid volume monitoring during intensive care.