

**Evaluation of circulatory state using pulse oximeter: 2. PI (perfusion index) x  
PVI (pleth variability index).**

[Article in Japanese]

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Pulse oximeter expressed by SpO<sub>2</sub> is used for monitoring respiratory state during operation and in ICU. Perfusion index (PI) and pleth variability index (PVI) as new indexes are calculated from pulse oximeter (Masimo SET Radical-7, Masimo Corp., USA, 1998) waveforms. And these indices were used as parameters to evaluate the circulatory state. For PI calculation, the pulsatile infrared signal is indexed against the nonpulsatile infrared signal and expressed as a percentage. It might thus be of future value in assessment of perioperative changes in peripheral perfusion. PVI is a measure of a dynamic change in PI that occurs during complete respiratory cycle. It might be thought that PVI, an index automatically derived from the pulse oximeter waveform analysis, had potentially clinical applications for noninvasive hypovolemia detection and fluid responsiveness monitoring.