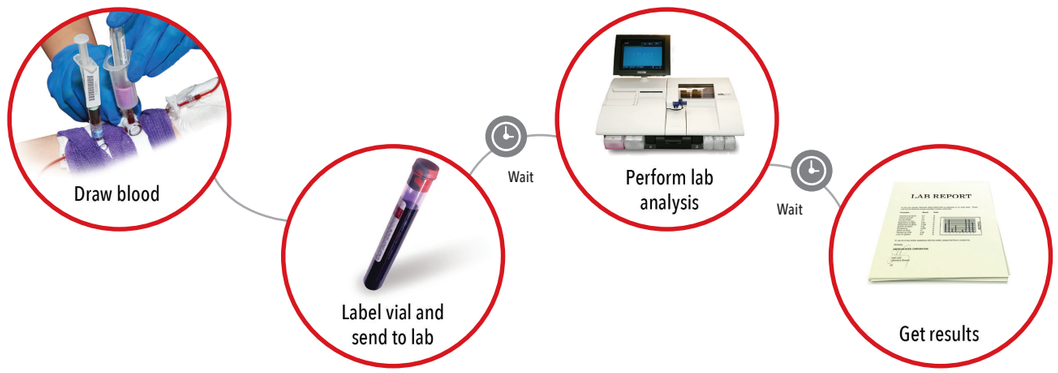
Noninvasive and Continuous Haemoglobin (SpHb®) Monitoring

Real-time visibility to changes, or lack of changes, in haemoglobin between invasive blood samples

Masimo

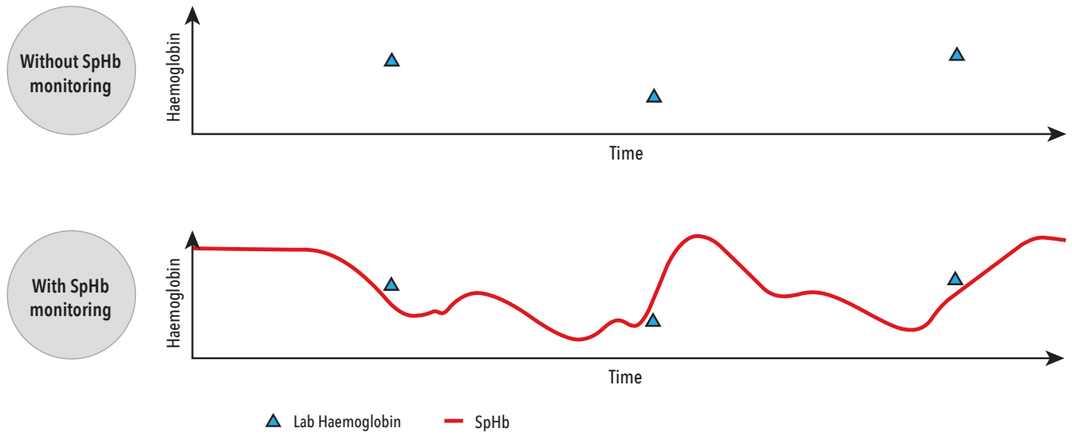
Traditional methods have limitations

Without SpHb, clinicians are often limited to invasive blood samples, which provide intermittent and delayed laboratory haemoglobin results



SpHb monitoring provides valuable real-time insights

SpHb can be used in conjunction with traditional laboratory methods to obtain real-time visibility to changes, or lack of changes, in haemoglobin between invasive blood samples

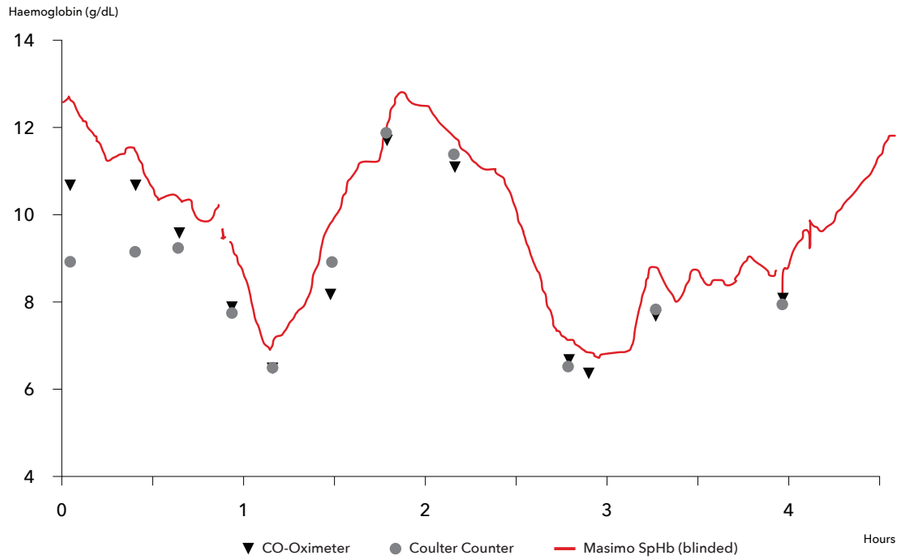


SpHb trend monitoring may provide additional insight between invasive blood samples when:

> The SpHb trend is stable and the clinician may otherwise think haemoglobin is dropping
> The SpHb trend is rising and the clinician may otherwise think haemoglobin is not rising fast enough
> The SpHb trend is dropping and the clinician may otherwise think haemoglobin is stable

Clinical case: Increased visibility between invasive blood samples

SpHb was retrospectively obtained for the surgical case shown below, in which clinicians could not assess the haemoglobin trend between invasive blood samples during the procedure[1]



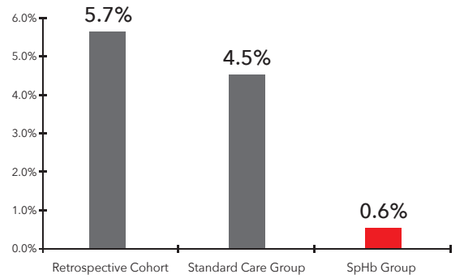
SpHb may help clinicians manage blood transfusions and related costs

Studies have shown that SpHb may help clinicians reduce blood transfusions in both low and high blood loss surgeries[2, 3]

> A randomised trial of 327 patients undergoing elective orthopaedic surgery, conducted at Massachusetts General Hospital (MGH), found that the use of continuous, noninvasive haemoglobin monitoring reduced the rate of transfusions when compared to standard care without continuous, noninvasive haemoglobin monitoring[2]

> A comparative study of 237 hip surgery patients with and without continuous SpHb monitoring demonstrated that real-time SpHb monitoring led to a financial savings of €20.83 per patient, amounting to an estimated savings of €1.736M nationally[3]

% of Patients Receiving RBC Transfusion[2]

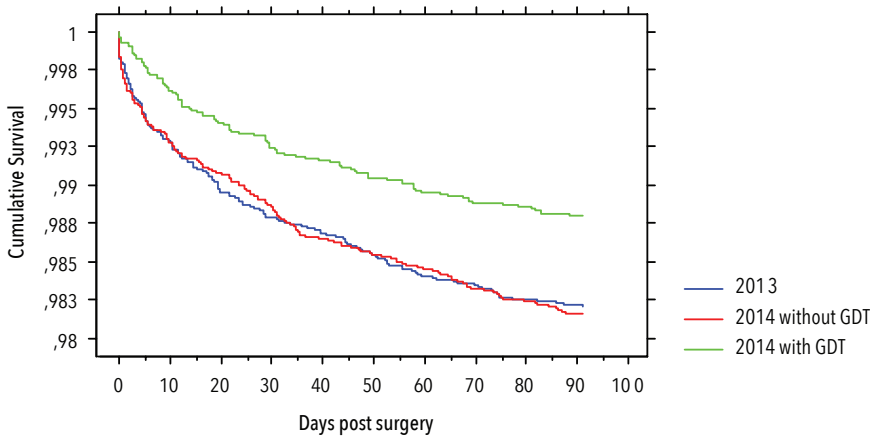


Savings Per Patient in Euros

Clinical decisions regarding red blood cell transfusions should be based on the clinician's judgment considering among other factors: patient condition, continuous SpHb monitoring, and laboratory diagnostic tests using blood samples.

SpHb supports clinicians in improving patient outcomes

A single-center quality program involving 18,716 patients, conducted in Limoges, France, demonstrated that monitoring with SpHb and PVi integrated in a vascular filling algorithm was associated with earlier transfusion and reduced 30- and 90-day mortality by 33% and 29%, respectively on a whole hospital scale[4]



Kaplan–Meier curves estimates of survival at 90 days with the severity of surgery as covariable

SpHb monitoring across the continuum of care

Monitoring haemoglobin continuously and noninvasively through different care areas

Upgradable rainbow SET™ technology platform

Masimo rainbow SET is a noninvasive monitoring platform featuring Masimo SET® Measure-through Motion and Low Perfusion™ pulse oximetry with the option to measure multiple additional parameters

- > Oxygen Saturation (SpO_2)
- > Pulse Rate (PR)
- > Perfusion Index (Pi)
- > Pleth Variability Index (PVi®)
- > Total Haemoglobin (SpHb)
- > Methaemoglobin (SpMet®)
- > Oxygen Reserve Index (ORi™)
- > Oxygen Content (SpOC™)
- > Carboxyhaemoglobin (SpCO®)
- > Acoustic Respiration Rate (RRa®)
- > Respiration Rate from the Pleth (RRp™)

Specifications

TOTAL HAEMOGLOBIN (SpHb)	
Measurement Range	0 – 25 g/dL
Accuracy Range	8 – 17 g/dL
Accuracy (ARMS[5]) (Adults/Infants/Paediatrics)	1 g/dL
Accuracy (ARMS) (Neonates)	2 g/dL

[1] Peiris P. et al. Proceeding for the Society for the Advancement of Blood Medicine 2010 Annual Meeting. Abs 4091. [2] Ehrenfeld et al. *J Blood Disorders Transf.* 2014. 5:9. [3] Ribed-Sánchez B, et al. *Sensors* (Basel). 2018 Apr 27;18(5). pii: E1367. [4] Cros et al. *J of Clinical Monitoring and Computing*. Aug 2019. [5] ARMS accuracy is a statistical calculation of the difference between device measurements and reference measurements. Approximately two-thirds of the device measurements fell within ± ARMS of the reference measurements in a controlled study.

SpHb monitoring is not intended to replace laboratory blood testing. Blood samples should be analysed by laboratory instruments prior to clinical decision making.

For professional use. See instructions for use for full prescribing information, including indications, contraindications, warnings, and precautions.

Masimo U.S.
Tel: 1 877 4 Masimo
info-america@masimo.com

Masimo International
Tel: +41 32 720 1111
info-international@masimo.com

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