FAQs
Edwards PediaSat Oximetry Catheter

What is the indication for use for the PediaSat catheter?
The PediaSat catheter is indicated for hemodynamic monitoring through oxygen saturation monitoring, pressure monitoring, and blood sampling in pediatric and adult patients.

On what age or size patients can the PediaSat catheter be used?
The PediaSat catheter is currently available in 4.5 Fr. (5 & 8cm) and 5.5 Fr. (8 & 15cm). Use current practice for catheter selection of same size central catheters.

How does the PediaSat catheter continuously measure oxygen saturation?
The PediaSat catheter uses reflection spectrophotometry to continuously measure oxygen saturations. Light is transmitted into the blood, reflected off red blood cells, and read by a photodetector in the optical module. The amount of light reflected depends on the concentration of oxygenated and deoxygenated hemoglobin in the blood.

What factors affect the PediaSat catheter oximetry readings?
Venous oxygen saturation is affected by the balance between oxygen delivery and consumption. Oxygen delivery is dependent upon cardiac output, hemoglobin, and arterial oxygenation. Oxygen consumption is affected by factors such as fever, sepsis, burns, trauma, muscle movement, stress and anxiety.

What is normal ScvO $_2$ in pediatrics?
A normal value for venous oxygen saturation in the superior vena cava (ScvO$_2$, central venous oxygen saturation) is approximately 70-85%. If a cyanotic cardiac lesion is present, normal ScvO$_2$ saturations can be approximately 35-55%.

Which monitors are approved for use with the PediaSat catheter?
The PediaSat catheter can be used with any Edwards oximetry monitor. Older generation monitors (Edwards Vigilance monitor, Edwards SAT-1 monitor, Edwards Explorer monitor) can only display the reading as SvO$_2$. Both the Edwards Vigileo monitor and Edwards Vigilance II monitor can display ScvO$_2$ or SvO$_2$ readings.

I’m using the Vigileo monitor with the PediaSat catheter; can I also use the Edwards FloTrac sensor for continuous cardiac output?
No, the FloTrac sensor is currently not indicated for use in pediatric patients.

Do I use the same technique to insert the PediaSat catheter as I would for my current central venous catheters?
Yes, use the same Seldinger technique that you are currently using.
How accurate is the PediaSat catheter against the laboratory co-oximeter?
The PediaSat catheter performs within ±2% in a range of 30-99% oxygen saturations in a laboratory setting. Studies are currently being performed to establish accuracy in the clinical setting.

How often do I need to calibrate?
After the initial in vitro calibration before that catheter is inserted into the patient, the calibration is good for 24 hours. After 24 hours an in vivo calibration should be performed daily. With significant shifts in hemoglobin (>1.8g/dl) or hematocrit (>6%), the hemoglobin or hematocrit should be updated with the HGB Update function.

Do I need to calibrate against a co-oximeter?
Yes, the PediaSat catheter should be calibrated against a measured and not a calculated measurement in order to achieve the most accurate readings.

Is there a special technique required when drawing blood for in vivo calibration?
Yes, blood should be drawn back slowly from the distal lumen, with clearing or waste volume to be at least 3 times the dead space (volume until blood is reached). Blood sample should also be drawn shortly after the “DRAW” button on the monitor is pressed, as this will time stamp the time at which the blood sample was drawn to calibrate the system.

If I unplug the optical module cable from the Edwards monitor, do I have to re-calibrate?
No, as long as the optical module is not disconnected from the PediaSat catheter the module will retain its calibration. When re-connecting to your monitor or connecting to another Edwards oximetry monitor, follow the prompts under the SvO₂ or ScvO₂ frame “Optical Module Recall” (Vigileo monitor or Vigilance II monitor), or under SvO₂ label “Transport” (Vigilance monitor).

Is the PediaSat catheter MRI compatible?
Yes, the catheter itself is MRI compatible but the optical module connected to the catheter is NOT MRI compatible. Please disconnect the optical module before entering the patient into the MRI suite.

What is SQI?
SQI stands for signal quality index. SQI continuously assesses the quality of the light signal from the PediaSat catheter. SQI ranges from 1 to 4.

- 1 = Normal
- 2 = Intermediate
- 3 = Poor
- 4 = Unacceptable

How do I troubleshoot a SQI of 3 or 4?
Attempt to troubleshoot the SQI when the patient is not agitated. An SQI of 3 or 4 can be caused by catheter tip occlusion, catheter tip up against a vessel wall, low blood flow at catheter tip, or catheter kinking/damage. Assess the distal tip waveform for appropriate waveforms and values. If the catheter is suspected to be against the vessel wall, this may be resolved by gently repositioning the patient. Fibrin build up may also create a higher SQI. If institutional protocols permit, confirm patency by first aspirating then gently flushing the distal lumen. Radiographic confirmation of catheter placement is also recommended to assure proper catheter placement.