

Quality Testing Comparison

As part of sustainability and cost-reduction strategies, some hospitals have started using Nellcor™ pulse oximetry sensors reprocessed by a third party. These reprocessed sensors are not Nellcor™ sensors and are not affiliated with or supported by Medtronic.

While cost is certainly an ongoing consideration, performance is the true test of a sensor's viability and value. Medtronic wanted to see how Stryker™* reprocessed sensors compared to Nellcor™ remanufactured pulse oximetry sensors in terms of quality and performance.

Remanufacturing $\neq$ Reprocessing

In the Medtronic remanufacturing process, a sensor is assembled the same way as a new sensor. Optical testing is used to confirm sensors meet quality and calibration specifications.

- ✓ **Only Medtronic** has the proprietary algorithm to check wavelengths and accuracy.
- ✗ **Stryker™* reprocessed sensors** can only check to see if the LED turns on; they can't tell if it has deteriorated over time or if the LED wavelength has shifted outside the calibration.

Remanufactured like new.
Reliable every time.

This testing comparison showed that Stryker™* reprocessed sensors do not offer the same functionality and usability as Medtronic Nellcor™ remanufactured sensors.

- There are major differences in remanufacturing versus reprocessing.
- Due to out-of-the-box failures, a hospital may experience significant waste, thereby minimizing or negating any cost savings.
- Be aware of how this can affect sensor performance, cost, and patient care.



Accuracy

Signal strength

Sensor retention

Tests included:

Visual inspection
Functional optical check
Sensor thickness
Initial peel force
Bend test

160 sensors tested:

40 MAXAR vs 40 Stryker™* A
40 MAXNR vs 40 Stryker™* N

Test result highlights ----->

Visual inspection

A failed visual inspection would not pass Medtronic inspection criteria.



Sensors that **failed visual inspection**

Stryker™ N

20% failed



KEY TAKEAWAY

At the visual inspection rate seen in this analysis, **a hospital would have to purchase up to 20% more sensors to compensate for quality issues.**

Optical strength

Sensors that failed the Medtronic optical signal strength test would be discarded by Medtronic.



Sensors that **failed the Medtronic optical signal strength test**

Stryker™ A

10% failed

Stryker™ N

5% failed

Stryker™ reprocessed sensors had **up to 37% weaker optical signals** compared to Nellcor™ remanufactured sensors.

KEY TAKEAWAY

Stryker™ reprocessed sensors may not meet the needs in challenging conditions when an accurate and timely pulse oximetry reading is needed the most.

Sensor adherence and accuracy



Bend Force: Extra bandage layers on several reprocessed sensors require more force to bend, which can lead to poor sensor adherence.



Peel Force/Stickiness: A stronger peel force is problematic for neonatal, frail, and compromised patients as this may lead to discomfort and skin damage.



Thickness: An extra bandage layer can cause greater thickness between optical components that can adversely affect signal strength, resulting in more dropouts and alarms.

	Bend Force	Peel Force	Thickness
Stryker™ A compared to MAXAR	49.5% more force	No significant difference	0.85 mm thicker
Stryker™ N compared to MAXNR	26.4% more force	49% stronger	0.23 mm thicker

KEY TAKEAWAY

Stryker™ reprocessed sensors were found to be less agile, less flexible, and less likely to conform to the application site, which may result in poor performance – more dropouts, more alarms, and reduced sensor life – and could lead to more waste.

Consider how these results may affect costs and workflow.
Visit [Medtronic.com/NellcorSustainability](https://www.Medtronic.com/NellcorSustainability).

The Nellcor™ pulse oximetry monitoring system should not be used as the sole basis for diagnosis or therapy and is intended only as an adjunct in patient assessment.

Based on internal test report #RE00369279, Remanufactured Sensor Evaluation Report.

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