

Accuracy Performance of the Medtronic NexSensor™ for 6 Days in an Inpatient Setting Using Abdomen and Buttocks Insertion Sites

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Abstract

Background:

Users of continuous glucose monitoring are concerned with product accuracy and choice of insertion site. The Medtronic NexSensor™ was evaluated for accuracy during 6 days of wear when inserted in the abdomen and buttocks areas.

Methods:

Adults (ages 18–75) with type 1 diabetes wore two sensors simultaneously for 6 days, one each inserted in the abdomen and buttocks. Subjects underwent a frequent blood sampling study for 12 hours, during which time reference blood glucose values were obtained every 15 minutes and compared to sensor values.

Results:

Sixty-three subjects were enrolled, and 61 subjects completed the study. The mean agreement rate between sensor and blood glucose values was 75.5% [95% confidence interval (CI), 69.5, 81.4] at the abdomen site, 73.8% (95% CI, 68.8, 78.8) at the buttocks site, and 75.6% (95% CI, 70.8, 80.4) when sensor and reference data were combined between sites. Over 90% of paired sensor-reference values on Clarke error grids were within the A and B ranges. The mean absolute relative differences were 17.1% at the abdomen site, 16.5% at the buttocks site, and 16.8% when sites were combined.

Conclusion:

The NexSensor was accurate for inpatient, frequent-sample testing for 6 days when inserted into the abdomen and buttocks. The results of this study also provide evidence that both the abdomen and buttocks are suitable as sensor insertion sites.

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Abbreviations: (A1C) glycated hemoglobin, (ARD) absolute relative difference, (CEG) Clarke error grid, (CGM) continuous glucose monitoring, (CI) confidence interval

Keywords: accuracy, blood glucose, continuous glucose monitoring, subcutaneous glucose sensor

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