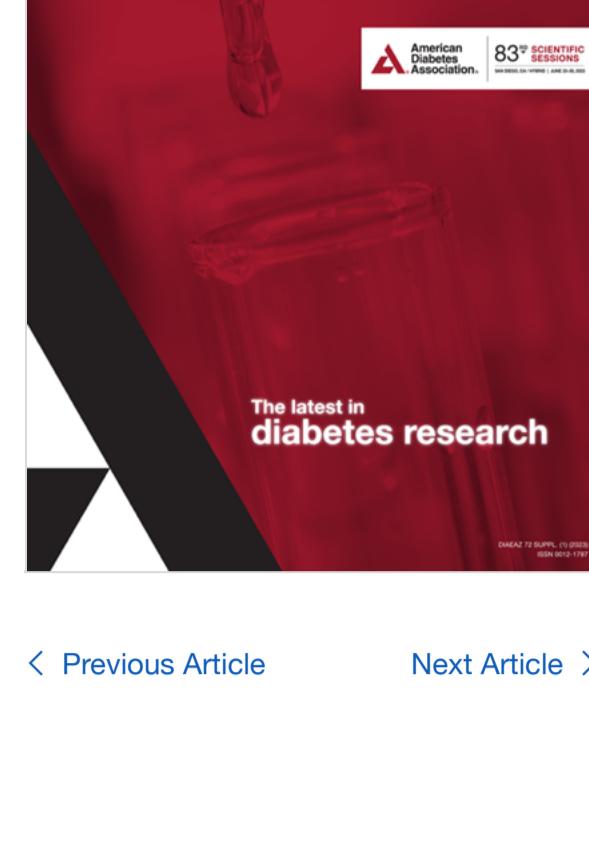


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119-LB: Preliminary Accuracy Analysis of a Noninvasive Optical Glucose Sensing Prototype FREE

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Background: As the use of CGM in type 1 Diabetes (T1D) becomes more prevalent, it is important to develop less invasive technologies to improve diabetes health outcomes and reduce burden. Optical glucose sensing (OGS) offers a non-invasive option to measure sub-dermal glucose levels by shining a laser beam of light onto the skin. The aim of this study was to gather preliminary data on the accuracy of OGS technology using a prototype device.

Methods: Eighteen adults with T1D (32 ± 11 yrs.; 83% white, 17% Latinx) using Dexcom G6 or Libre CGM used an OGS prototype device for 5 days, scanning the palm of their hand up to eight times per day to measure glucose levels. Paired CGM values obtained from Clarity or Libreview CSV files were used for comparison. Outliers due to user-error were removed by leave-one-out cross-validation (20% of values).

Results: Paired CGM and OGS values ($n=599$) resulted in a MARD of $19\% \pm 13\%$ with 99% of values within the Clarke Error Grid A&B Zones (Figure 1). The % within 15/15, 20/20, or 30/30 were 44%, 59%, and 80%, respectively.

Discussion: OGS may be a promising, non-invasive alternative to current CGM devices on the market. Further research and development of the sensing algorithm is needed to lower the MARD closer to current factory calibrated CGMs. In addition, increased recruitment of people with diabetes who have darker skin tones is needed to evaluate accuracy across all populations.

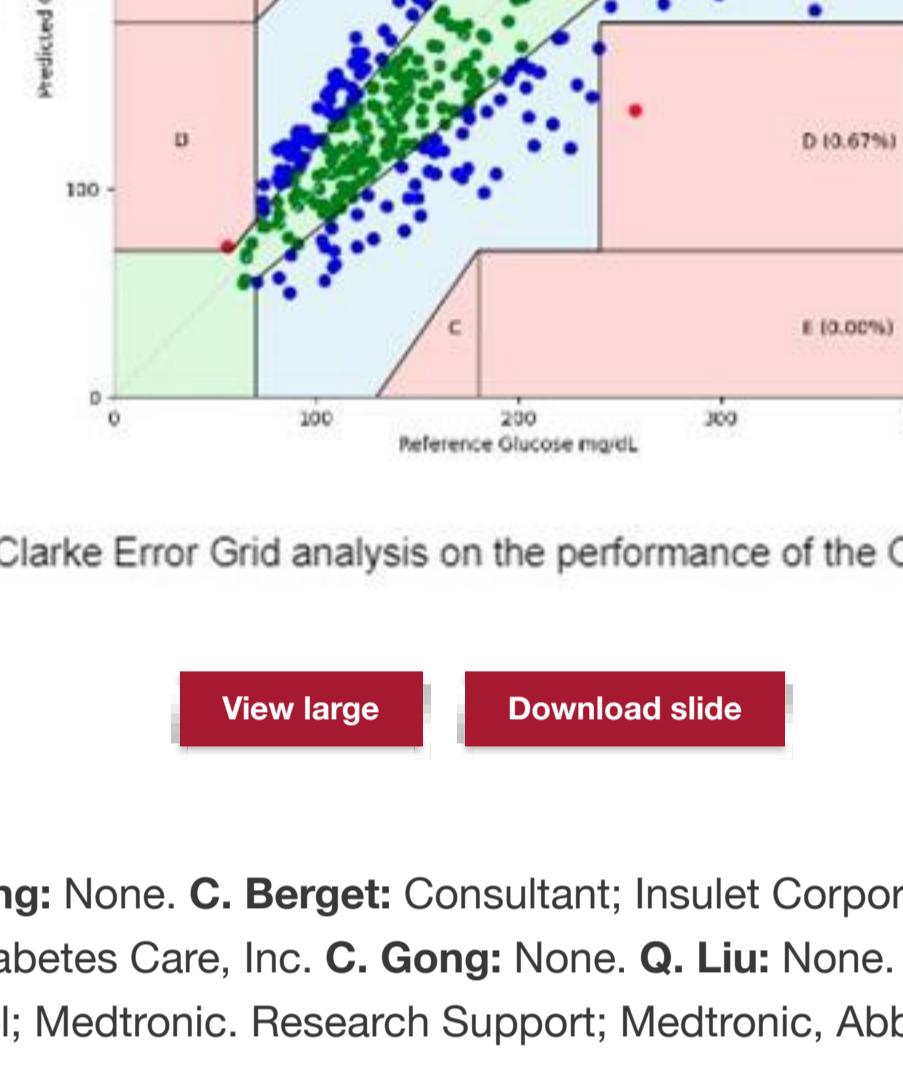


Figure 1. Clarke Error Grid analysis on the performance of the OGS prototype.

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Disclosure

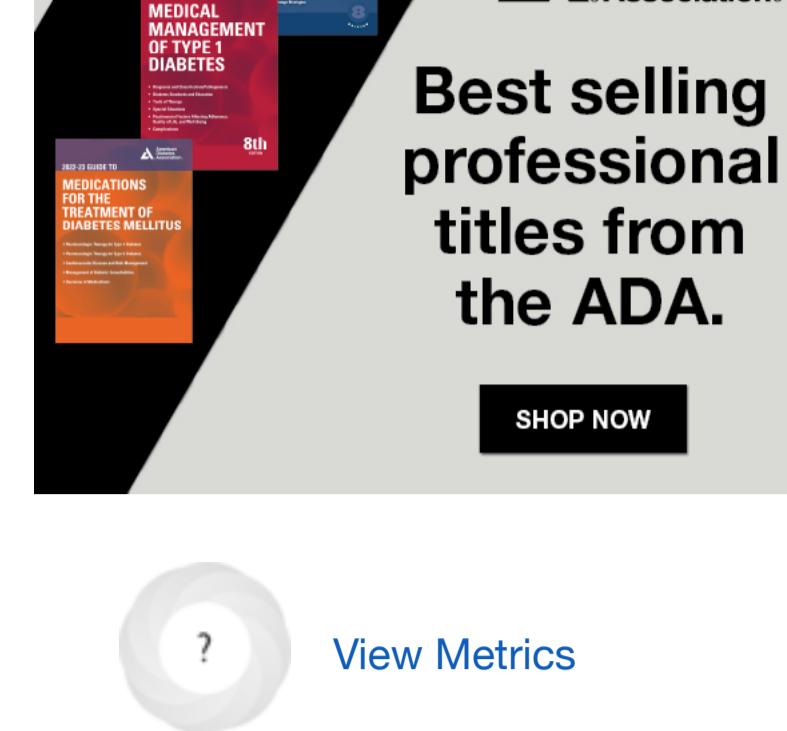
L. Geiser: None. **H. Leung:** None. **C. Berget:** Consultant; Insulet Corporation, Dexcom, Inc. Other Relationship; Tandem Diabetes Care, Inc. **C. Gong:** None. **Q. Liu:** None. **X. Zhou:** None. **G. P. Forlenza:** Advisory Panel; Medtronic. Research Support; Medtronic, Abbott. Consultant; Dexcom, Inc. Research Support; Dexcom, Inc. Consultant; Insulet Corporation. Research Support; Insulet Corporation. Consultant; Tandem Diabetes Care, Inc. Research Support; Tandem Diabetes Care, Inc. Consultant; Lilly Diabetes.

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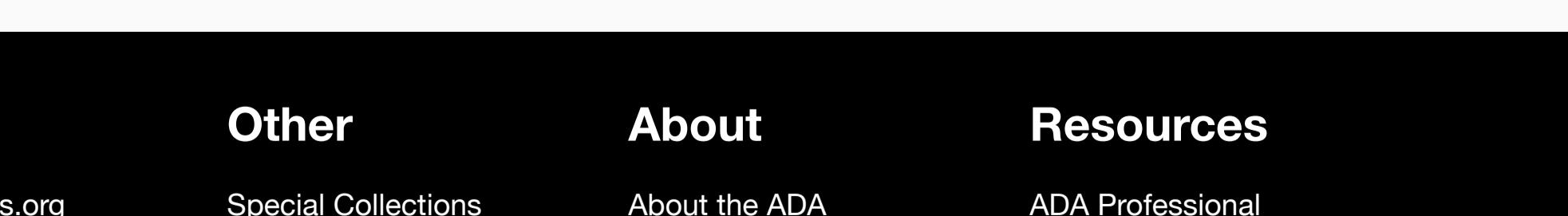
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