Minding the Gaps in Continuous Glucose Monitoring: A Method to Repair Gaps to Achieve More Accurate Glucometrics

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Abstract

Estimation of glycemic variability requires frequent measures of glucose and is greatly aided by continuous glucose monitoring (CGM); however, under real-world conditions, missing data or “gaps” of ≥ 10 minutes can occur in CGM data, affecting the reliability of certain estimates. Thus, we determined the magnitude of the gap problem as observed in a cohort of patients with type 2 diabetes and demonstrated an approach to fill the gaps. The approach takes the difference between readings before and after a gap and distributes the difference equally across the number of missing readings, as determined by the sensor’s setting for reading frequency. The approach is easy to implement, conservative, and improves estimation of variability measures that reference time, namely, mean of daily differences and continuous overlapping net glycemic action.