

# Screen View Frequency and Alert Settings Affect Glycemic Control in Children and Adolescents Using Real-Time Continuous Glucose Monitoring

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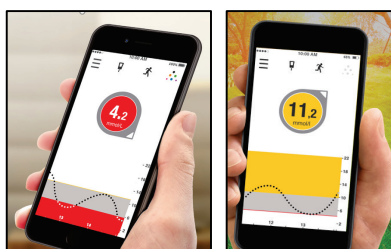
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## Background and Aims

- Behaviors prompted by continuous glucose monitoring (CGM) screen views and alerts may improve outcomes.
- We examined whether the rate of screen views and individualized alert settings were correlated with sensor glucose (SG) values in children and adolescents.

## Methods

- Data from 136 children ages 2-11 years and 40 adolescents ages 12-17 years were extracted from an anonymized database of customers using Dexcom CGM systems who requested technical assistance.
- A separate analysis of 142 children and adolescents examined effects of hypo- and hyperglycemia alerts.

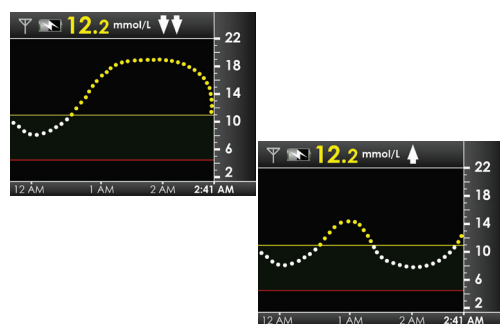


**Figure 1.**

Default CGM display with point estimates and trending information

**Figure 2.**

Information provided by trend arrows is independent of the current glucose concentration estimate, and factors into treatment decisions. Survey respondents would give less insulin in response to rapidly-falling glucose concentrations (Pettus, *Endocr Pract.* 2015;21:613-620).

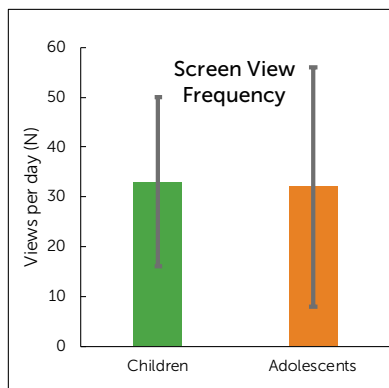


## Results

- Screen view frequency was 33±17 times per day (children) and 32±24 times per day (adolescents) (Figure 3). The mean (±SD) sensor glucose (SG) was 10.2±1.8 mmol/L (children) and 9.2±1.7 mmol/L (adolescents).
- In both groups, less-frequent screen views (<16/day) were associated with higher least-squares mean SG levels than higher-frequency screen views (>36/day) (children, 10.4 vs. 9.7 mmol/L, respectively; adolescents, 10.0 vs. 9.0 mmol/L, respectively) (Figure 4).
- Children and adolescents who set hypoglycemia alerts showed an association between lower (<4.4 mmol/L) thresholds and lower mean SG values (9.3 vs. 10.1 mmol/L). Those with hyperglycemia alerts set to <11.1 mmol/L had lower mean SG values than those with hyperglycemia alerts set to ≥11.1 mmol/L (8.8 vs. 10.0 mmol/L, respectively) (Figure 5).

**Figure 3.**

Daily screen view frequency and sensor glucose values (mean ±SD) among children and adolescents



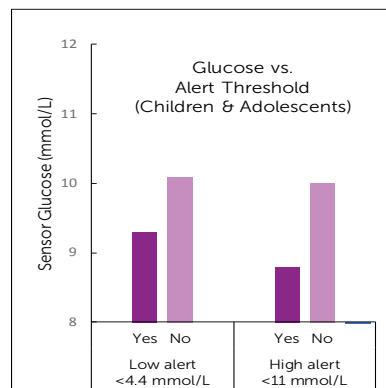
**Figure 4.**

Sensor glucose associated with less-frequent (<16/day) and more-frequent (>36/day) screen views



**Figure 5.**

Effect of hypoglycemia alert set to <4.4 mmol/L and hyperglycemia alert set to <11.1 mmol/L



## Summary

- More-frequent screen views were associated with lower mean sensor glucose values, suggesting that real-time CGM data contribute to timely and appropriate treatment decisions.
- Lower threshold alert levels for both hypoglycemia and hyperglycemia were associated with lower mean SG values.
- The extent to which device interactions and alert settings facilitate or reflect diabetes-related treatment decisions warrants further study.