

Control of nocturnal hypoglycemia by CGM-based AI-enabled nocturnal hypoglycemia prediction

Use of the Night Low Predict feature is associated with lower odds of nocturnal hypoglycemia in people with diabetes, without raising odds of hyperglycemia, thereby offering valuable self-management support.

Background and aim

Nocturnal hypoglycemia is a common diabetes complication that may have severe or even fatal outcomes.

The Night Low Predict feature of the Accu-Chek® SmartGuide Predict app predicts the risk of a low glucose event over a 7-hour overnight period.

This analysis evaluated whether use of Night Low Predict lowered the odds of experiencing nocturnal hypoglycemia in real-world Accu-Chek SmartGuide Predict app users.

Methods

This retrospective analysis used aggregated data from 249 Accu-Chek SmartGuide Predict app users with type 1, type 2 or other diabetes types who registered between 1 October 2024 and 6 June 2025.

Outcomes included the odds of experiencing:

- Hypoglycemia of any severity (glucose <70 mg/dL)
- Level 2 (L2) events (glucose <54 mg/dL)
- Hyperglycemic events (glucose >180 mg/dL)
- Time below 70 mg/dL glucose (TB70)
- Time below 54 mg/dL glucose (TB54)
- Time above 180 mg/dL glucose (TAR)
- Time outside of range (glucose <70 mg/dL or >180 mg/dL).

Users must have experienced nocturnal hypoglycemia and used the Night Low Predict feature at least once.

Nights when predictions were received were compared with nights when predictions were not generated.

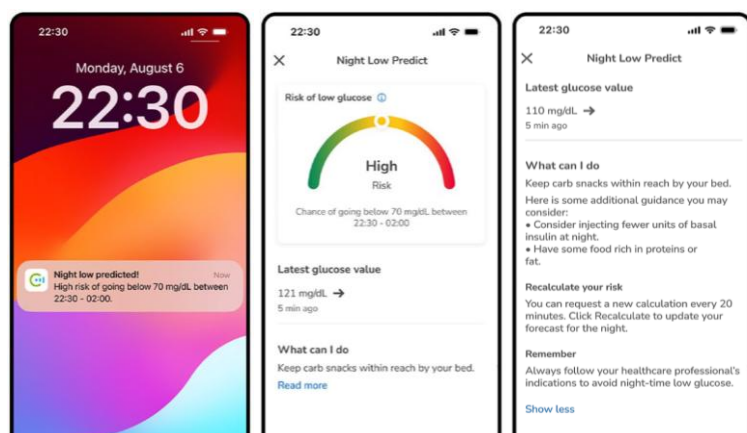


Figure 1. User interface, featuring from left to right:

- Push notification indicating a high risk of glucose levels dropping below 70 mg/dL between 22:30–02:00
- Dedicated screen presenting the predicted risk in a gauge format that is displayed when manually requesting a prediction or pressing on the push notification. The predicted risk gauge ranges from normal risk to very high risk. 'Normal' risk corresponds to less than 30% chance of nocturnal hypoglycemia, 'high' risk is between 30–60%, and 'very high' risk is above 60%
- Screen displaying recommendations that are shown following a high-risk notification.

The odds of nocturnal glycemic events were compared between nights with predictions and nights without predictions

Odds of experiencing nocturnal hypoglycemic and hyperglycemic events

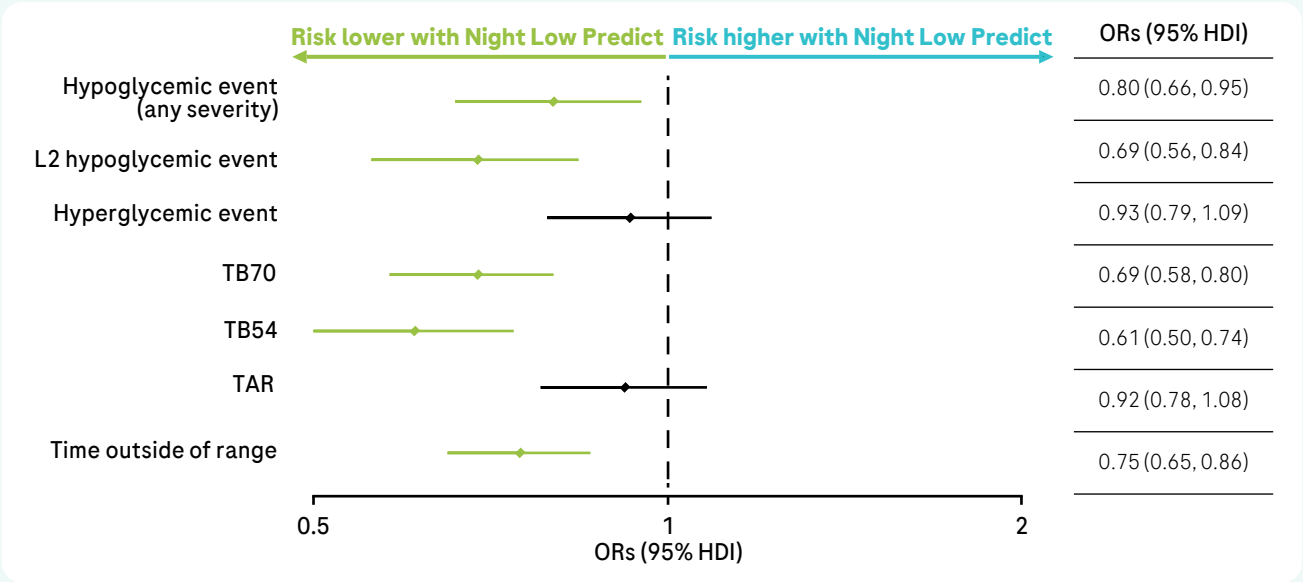


Figure 2. Analysis of nocturnal metrics as a function of Night Low Predict feature use. The forest plot represents the credible odds of experiencing nocturnal hypoglycemia or hyperglycemia in a given night. HDI, highest density interval; OR, odds ratio.

- In this retrospective analysis of real-world data from Accu-Chek SmartGuide Predict app users, Night Low Predict use was associated with clinically meaningful lower odds of experiencing nocturnal hypoglycemia on the nights when it was used compared with the nights when it was not used: 20% lower odds of hypoglycemic events of any severity and 31% lower odds of L2 hypoglycemic events.
- It is assumed that this improvement is related to users taking preventive action when they receive a notification at bedtime of a high or very high chance of nocturnal hypoglycemia, but user behaviour was not directly assessed in this analysis.
- Concerns that Night Low Predict use would lead to an increase in hyperglycemic events by encouraging bedtime snacking upon receipt of a notification were not realized; there was no credible evidence for an effect of Night Low Predict use on the odds of nocturnal hyperglycemia.

Summary of results

- Use of the Night Low Predict feature was associated with lower odds of experiencing nocturnal hypoglycemia.
- These findings suggest that use of the Night Low Predict feature can improve nocturnal glycemic control.

View the full publication



This summary is based on the publication ‘Bogaarts G, Mitter M, Bailey TS, Glatzer T, Theodorou D. Control of nocturnal hypoglycemia by CGM-based AI-enabled nocturnal hypoglycemia prediction: A retrospective analysis of real-world data. Diabetes Res Clin Pract. 2026. doi.org/10.1016/j.diabres.2026.113188.’ All unreferenced statements and figures are attributable to this publication.

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