

Guide to Continuous Glucose Monitor (CGM) Data Visualizations

CGM-Style Visualizations

Overview

The Overview report offers a concise summary of glucose control, allowing for a quick assessment without the need to immediately analyze detailed data.

Note: The graph aggregates glucose readings into 15-minute intervals.

Daily View

The Daily View report offers an in-depth analysis of a patient’s glucose data for individual days. It allows users to:

- **Assess** glucose fluctuations throughout the day.
- **Pinpoint** specific times or events that contribute to glucose fluctuations.
- **Understand** how daily activities, meals, or medications influence glucose levels.
- **Detect** recurring patterns on specific days of the week.
- **Investigate** anomalies or unusual glucose events on particular days.

Comparison

The Comparison report allows users to analyze changes in diabetes management across two time periods. This side-by-side comparison helps with:

- **Evaluating** overall progress in glucose management.
- **Visualizing** specific changes, such as the impact of medication adjustments.
- **Monitoring** improvements in both short-term and long-term diabetes management.

Note: The graphs aggregate glucose readings into 15-minute intervals.

Overlay

The Overlay report displays seven days of blood glucose readings on a single 24-hour graph. It allows users to:

- **Identify** consistent patterns at the same times on multiple days.
- **Visualize** day-to-day variability in glucose levels.
- **Detect** specific time periods where glucose levels tend to rise or fall.

The primary purpose of the Overlay report is to provide insight into the frequency, duration, and intensity of glucose patterns, particularly hypoglycemia and hyperglycemia.

Profile

The Glucose Profile report is a standardized, single-page report that offers a comprehensive overview of glucose management, modeled after the proprietary Ambulatory Glucose Profile (AGP) report. The report has several key components, including:

- **Glucose Profile:** Offers a 24-hour view of glucose patterns, which combines data from multiple days. It displays the 5th (5%), 25th (25%), 50th (50%), 75th (75%), and 95th (95%) percentiles.
- **Glucose Metrics:** Displays average glucose levels, the glucose management indicator (GMI), and glucose variability.
- **Daily Glucose Charts:** Presents single-day glucose charts for more detailed analysis.
- **Time in Range:** Visualizes the percentage of time spent in various glucose ranges using color-coded bars. Each 1% equates to approximately 15 minutes within a specific glucose range.

Note: The graph uses readings aggregated into one-hour intervals.

Data Analysis Style Visualizations

Range and Variation

This visualization presents two key metrics for assessing blood glucose stability: Time in Range (TIR) and Coefficient of Variation (CV).

Time in Range (TIR)

- Displays the percentage of time blood glucose levels stayed within the target range of **70-180 mg/dL**.
- The standard TIR goal is **70% or higher**.

Coefficient of Variation (CV)

- Measures glucose variability. It's the standard deviation divided by the average glucose ($[\text{Standard Deviation}]/[\text{Average Glucose}]$).
- A CV of **less than 36%** is generally considered ideal for maintaining consistent blood glucose levels.

Variation by Time of Day

This visualization presents Coefficient of Variation (CV) by time of day. It provides a way to quickly assess patterns in glucose variability throughout the day.

Time in Tight Range (Experimental)

This visualization presents two experimental metrics for assessing blood glucose stability: Revised Time in Range (RTIR) and Time in Tight Range (TITR).

Revised Time in Range (RTIR)

- Displays the percentage of time blood glucose levels stayed within the target range of **70-180 mg/dL**.
- The TIR goal is **98% or higher**.

Time in Tight Range (TITR)

- Displays the percentage of time blood glucose levels stayed within the target range of **70-140 mg/dL**.
- The TIR goal is **80% or higher**.

The revised TIR and TITR set more stringent standards for glycemic control. These changes make it more challenging to meet the goals but aim to reduce the risks associated with blood glucose fluctuations.

Common Measures

Glucose Metrics

Displays key measurements for the selected date range, including the following:

Average Glucose

The mean of all glucose readings from the selected date range.

Coefficient of Variation (CV)

The glucose standard deviation divided by the mean glucose. CV is a standardized measure that assesses the magnitude of glucose variability.

Glucose Management Indicator (GMI)

An approximation of the A1C level expected, based on average glucose measured by CGM. GMI is derived from at least 12 days of CGM data and is displayed when the selected date range is 14 days or more.

Standard Deviation (SD)

Represents glycemic variability by showing how much CGM readings rise and fall from the average.

Sensor Usage

The number of readings divided by the number of expected readings for the selected period, displayed as a percentage.

Days with CGM Data

The number of days for the selected time period with at least 50% sensor readings.

Time in Range

Displays the percentage of time that glucose levels fall within the specified ranges. Data is shown both as text and in a stacked bar graph.

Very High: Above 250 mg/dL

High: 181-250 mg/dL

In Range: 70-180 mg/dL

Low: 54-69 mg/dL

Very Low: Below 54 mg/dL