Guide to Time in Range (TIR) and Coefficient of Variation (CV) Visualizations

https://jcst2d.com
https://jcsanalytics.com

Daily Views

Time in Range / Coefficient of Variation

Daily percentages for Time in Range and CV show what happened on each specific day.

- These values don't explain *why* they occurred.
- For example, 70 percent in range with a higher CV could reflect afternoon spikes, overnight stability, or a mix of both.
- Daily summaries highlight day-to-day differences.
- Only multi-day, hour-by-hour views reveal the underlying patterns that create those results.

Hourly Views by Day

Time in Range by Hour

Hourly Time in Range provides more context than a single daily value.

- On 11/28, thirteen hours stayed within 70 to 140 mg/dL.
- Hours after lunch and dinner lowered the overall percentage.
- This view identifies when glucose moved out of range.
- The pattern still varies day by day, and single-day views do not show the consistent trends that only appear when many days are combined.

Coefficient of Variation by Hour

Hourly CV shows how much glucose fluctuated throughout the day.

- On 11/28, variability stayed low overnight and through the morning.
- Variability increased in the afternoon and early evening.
- This highlights when glucose became more variable, but the pattern still changes from one day to the next.
- A single day's hourly CV provides helpful context, yet repeatable trends only emerge when many days are viewed together.

Multi-Day Hourly Views

Time in Range by Hour - Multi-Day Views

Combining 7, 14, 30, or 90 days smooths out day-to-day variation.

- This reveals the underlying structure of the day rather than the noise of any single day.
- Individual days may differ, but a consistent pattern emerges.
- The typical rhythm in this case shows steady overnight hours, mid-day dips, and a return to range in the evening.

CV by Hour - Multi-Day Views

Multi-day CV reduces noise present in single-day readings.

- It highlights the underlying pattern of glucose variability.
- Individual days may show sharp rises or dips.
- When 7, 14, 30, or 90 days are combined, a consistent trend becomes clear:
  low variability overnight, rising variability through the afternoon, and settling in the evening.
- This view shows the typical daily variability pattern rather than fluctuations from any single day.

https://public.tableau.com/views/ExampleTIRVisualizations/ExampleTimeinRangeandCoefficientofVariationCVVisualizations?:language=en-US&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link