1

CGM Data Analysis: Begin With Core Metrics

- Data sufficiency
- Glucose statistics
- Times-in-ranges metrics

CGM Data Analysis: Data Sufficiency

- Ideally 14 days of data
- › 70% of data from 14 days

AGP Report

Name

MRN

GLUCOSE STATISTICS AND TARGETS

26 Feb 2019 - 10 Mar 2019	**13 days**
% Time CGM is Active	**99.9%**

Glucose Ranges	**Targets** [% of Readings (Time/Day)]
Target Range 70-180 mg/dL	Greater than 70% (16h 48min)
Below 70 mg/dL	Less than 4% (58min)
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Above 250 mg/dL	Less than 5% (1h 12min)

Each 5% increase in time in range (70-180 mg/dL) is clinically beneficial.

Average Glucose	**173 mg/dL**
Glucose Management Indicator (GMI)	**7.6%**
Glucose Variability	**49.5%**

Defined as percent coefficient of variation (%CV); target ≤36%

TIME IN RANGES

Very High (>250 mg/dL) **20%** (4h 48min)

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Very Low (<54 mg/dL) **6%** (1h 26min)

CGM Data Analysis: Glucose Statistics

Rapid assessment of glycemic variability

AGP Report

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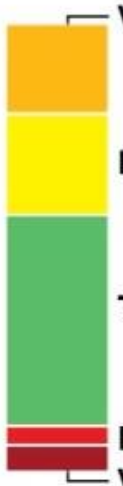

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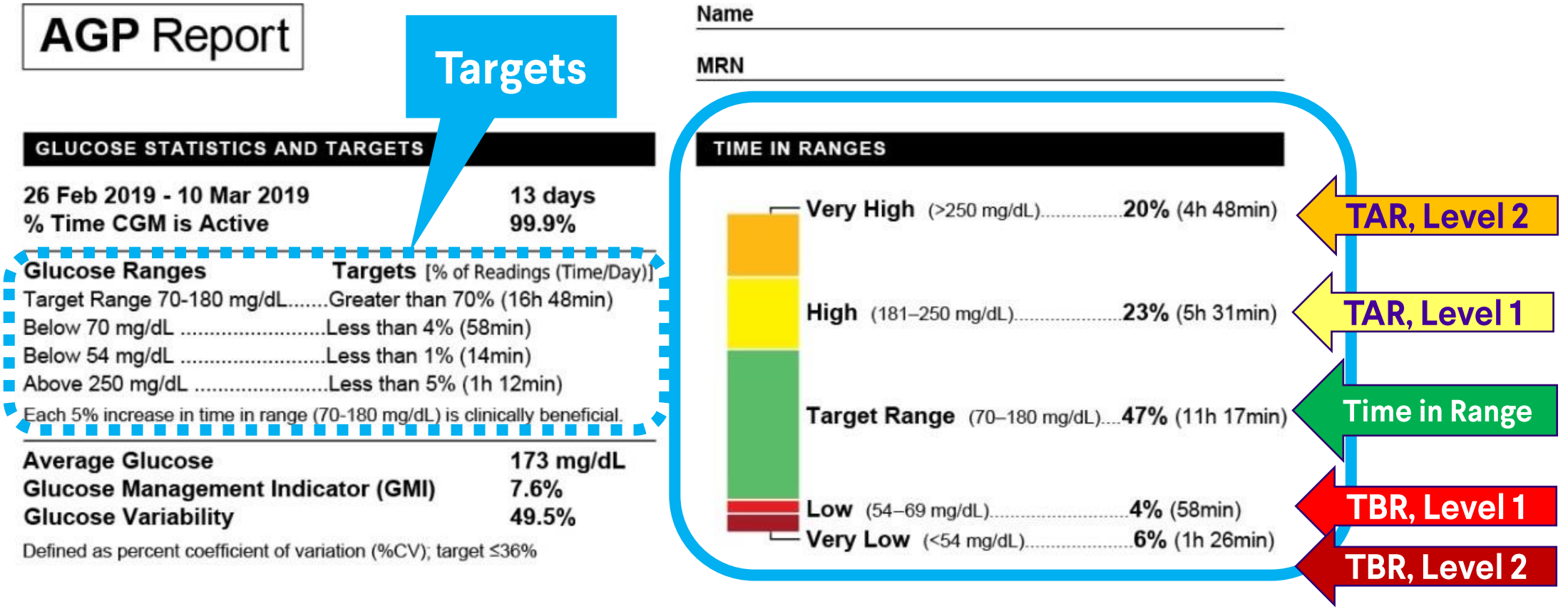
CGM Data Analysis: Time-in-Ranges Metrics

Aim for *"More Green, Less Red"*



2

Note Patient Factors That Affect AGP

Ask the patient: *"What do you see in your AGP in terms of glucose patterns?"*

Name, age, and weight

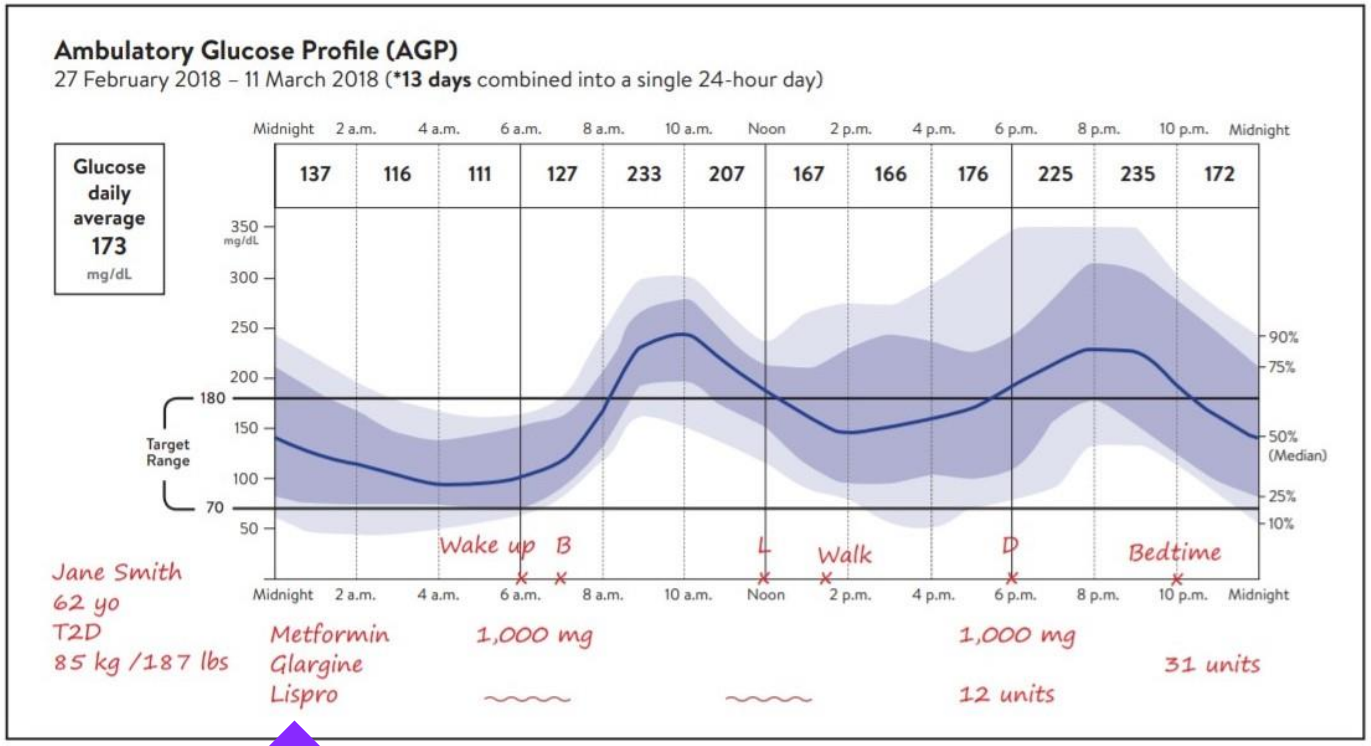
Type of diabetes

Medications (dose, timing)

Times for waking/bedtime

Times for meals/snacks

Exercise



Write notes on a printed copy of the AGP

Adapted from: http://www.agpreport.org/agp/sites/default/files/CGM_Clinical_Guide_AGP.pdf

3

Review Time in Range (TIR)

Is TIR at the patient's individualized target based on age and comorbidities?

AGP Report

Name _____

MRN _____

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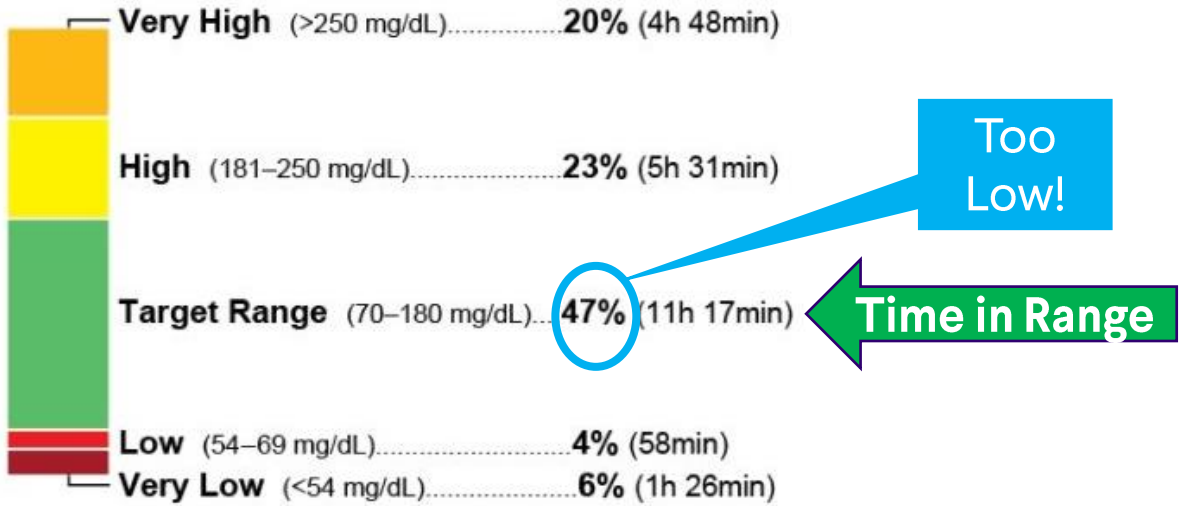

4

Review Time Below Range (TBR)

Identify hypoglycemia

AGP Report

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MRN

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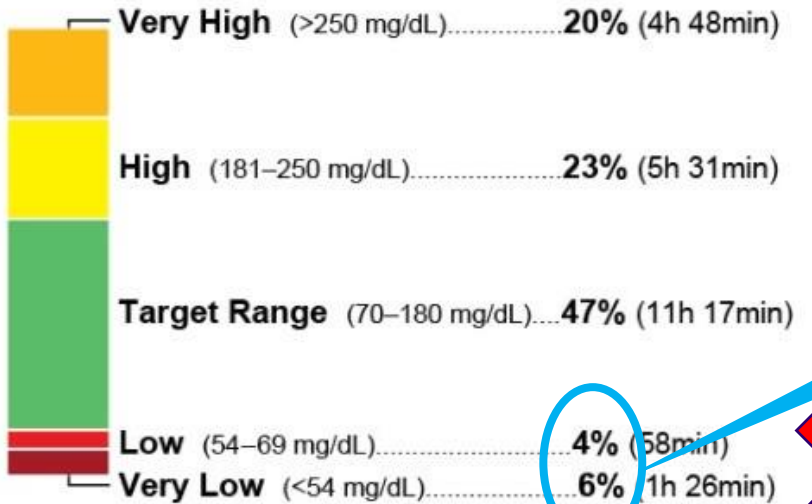


Too High!

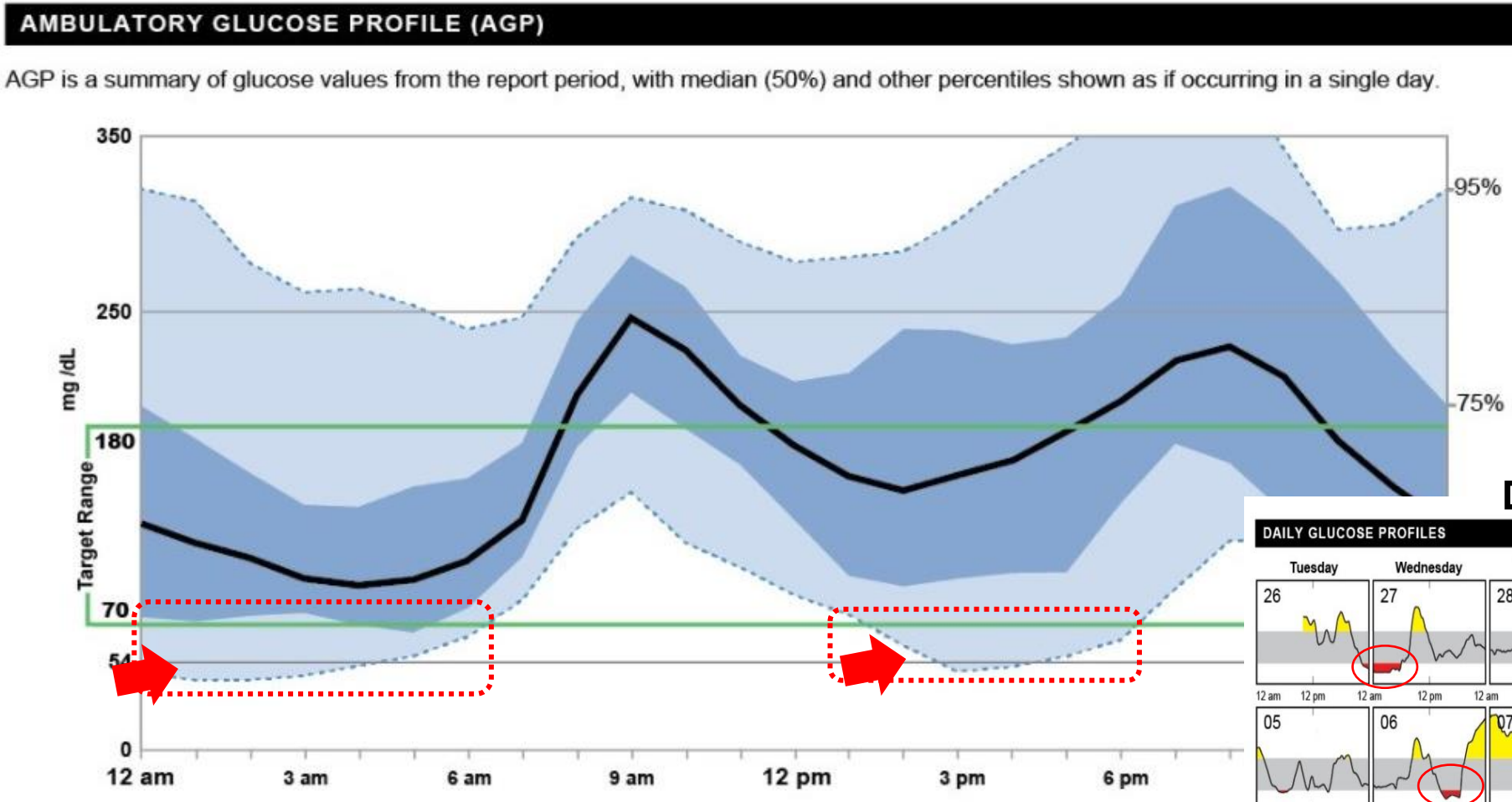
TBR, Level 1

TBR, Level 2

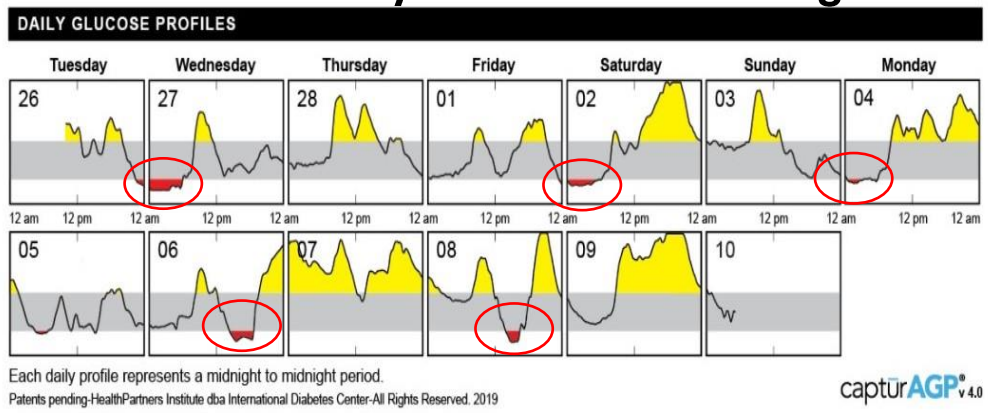
AACE

Review Time Below Range (TBR)

Look for trends or patterns of hypoglycemia and when the greatest glycemic variability is occurring



Daily Views Provide Insight



5

Review Time Above Range (TAR)

Quantify Level 1 and Level 2 hyperglycemia

Look for patterns of high glucose levels

AGP Report

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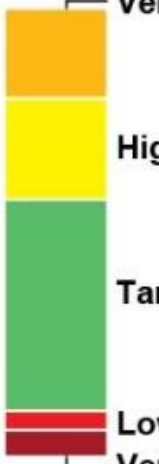

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Too High!

TAR, Level 2

TAR, Level 1

AACE

6 Use the AGP to Identify Patterns of High Glucose Variability (GV)

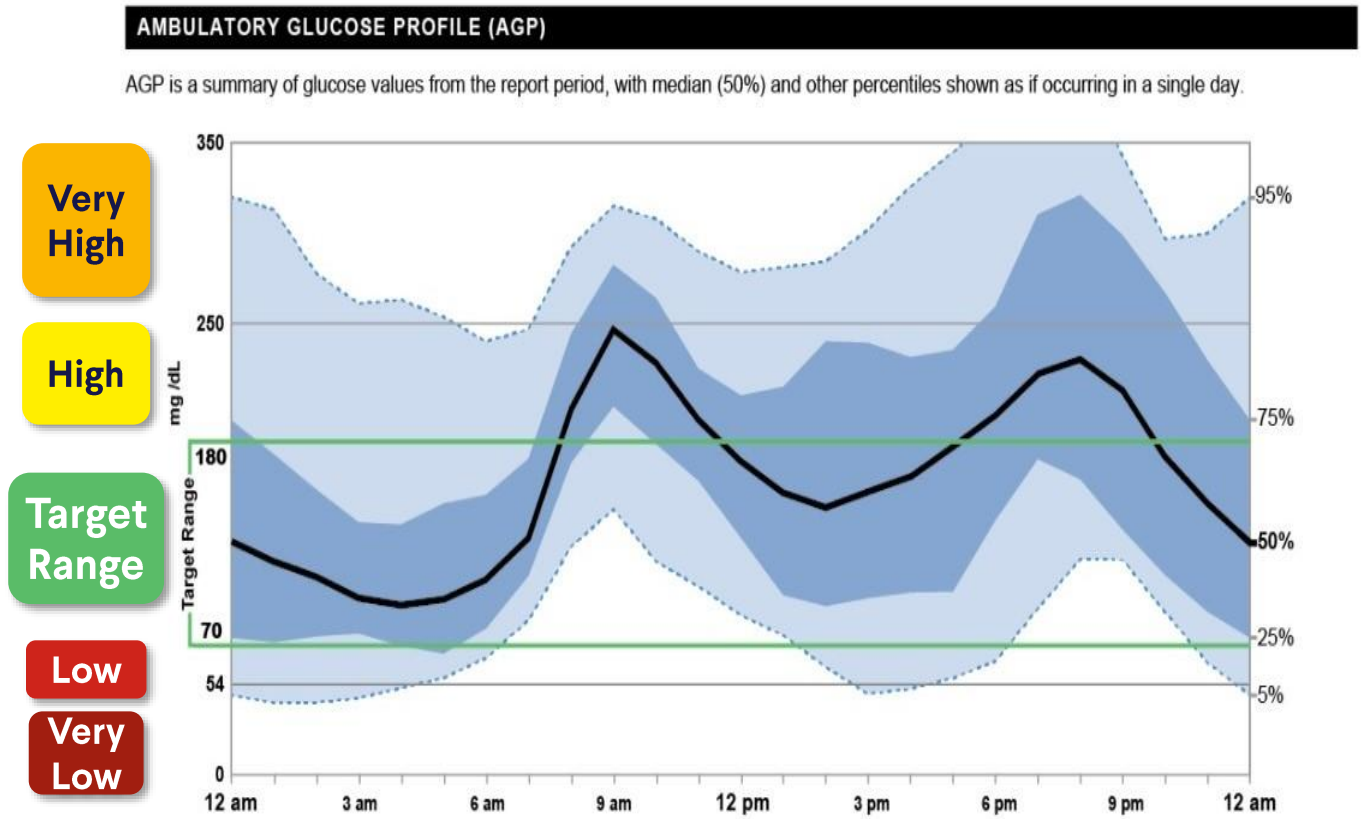
How much of the data falls within the target range?

Are there specific times of day with greater variability?

GV is about <u>timing</u> or <u>amount</u>

- Timing: insulin and meals; weekday/weekend; snacks, exercise, stress
- Amount: insulin; insulin:carb ratio; exercise intensity

Discuss with patient what might be contributing to wide variability in glucose levels

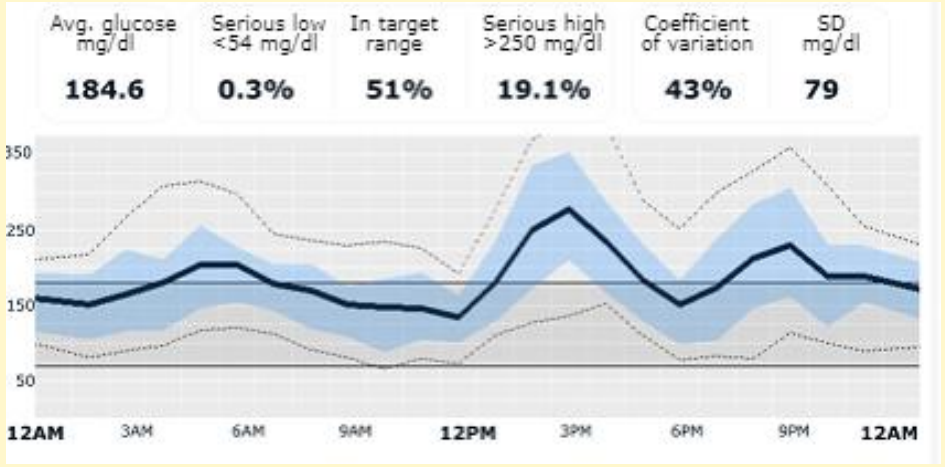


7

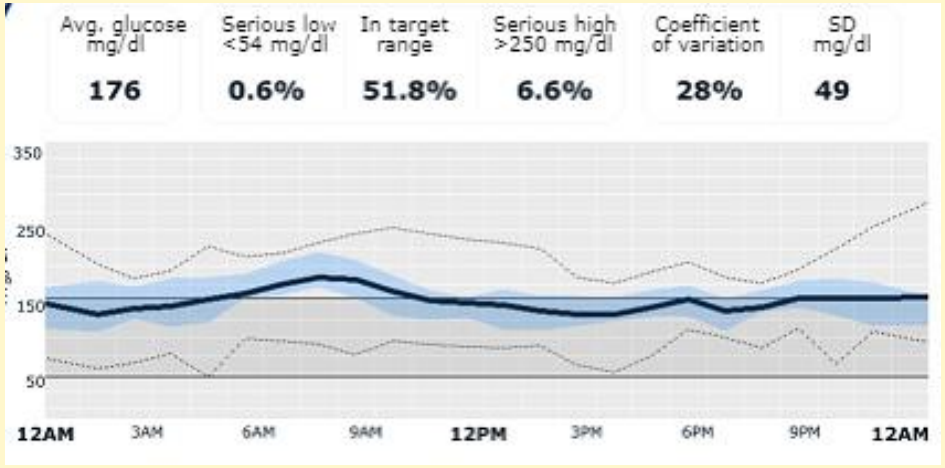
Refer to Previous CGM Data and AGP

- How do current patterns compare with previous results?
- Note patterns that have improved and patterns to work on
- Reinforce successful strategies and positive improvements
- Solicit ideas for further improvements
- Reminders about targets

1 Month ago



Current



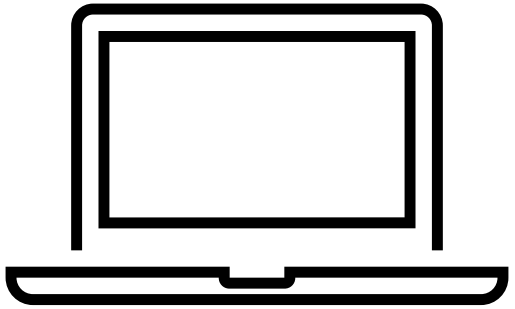
8

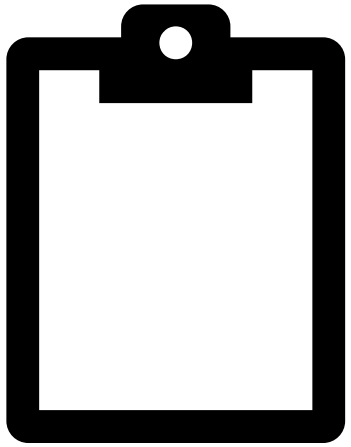
Develop an Action Plan

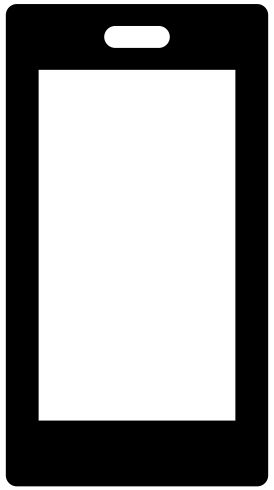
- Use shared decision-making
- Always treat hypoglycemia first
- Encourage lifestyle changes in addition to medication adjustments

9 Document the Patient Visit

- Give the patient a copy of the AGP report with written notes
- Provide the patient with a copy of the Action Plan
- Confirm understanding of the follow-up plan of when to call the diabetes care team if concerns arise
- Scan or snip AGP Report into patient's EMR







Adapted from:

Aleppo G. Clinical application of time in range and other metrics. *Diabetes Spectr*. 2021;34:109-118. https://pubmed.ncbi.nlm.nih.gov/34149251/

Aleppo G, Webb K. Continuous glucose monitoring integration in clinical practice: a stepped guide to data review and interpretation. *J Diabetes Sci Technol*. 2019;13:664-673. https://pubmed.ncbi.nlm.nih.gov/30453772/

Continuous Glucose Monitoring Clinical Guide. Step-by-step instructions for interpreting the data. http://www.agpreport.org/agp/sites/default/files/CGM_Clinical_Guide_AGP.pdf