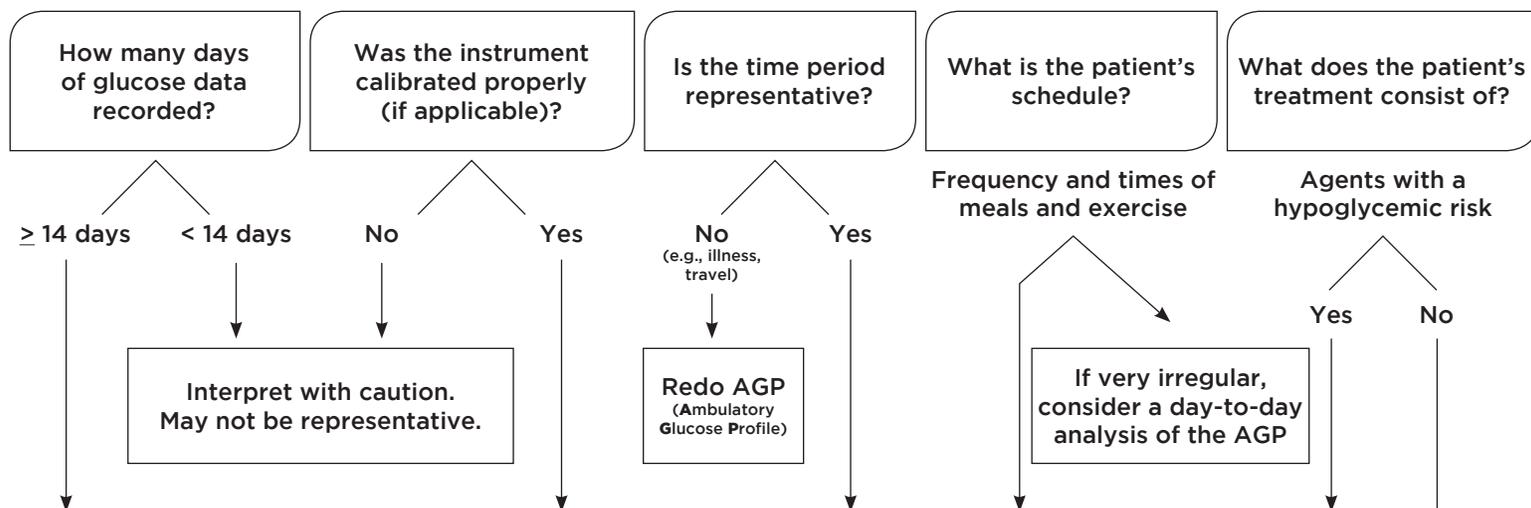


6-STEP ANALYSIS OF THE AMBULATORY GLUCOSE PROFILE

The following factors should be considered before interpreting an Ambulatory Glucose Profile



STEP 1

Assess the presence of hypoglycemic episodes
(the threshold should be individualized and is often 4.0 mmol/L)

1. Is the 25th percentile line close to or below the hypoglycemia threshold (1 day out of 4)?

STEP 2

Evaluate the glucose trend
(identify periods of instability)

1. Is the median glucose level stable throughout the day?
2. Is the median glucose level within the target range throughout the day?

STEP 3

Evaluate the blood glucose level variability
(identify the periods of greater variability)

1. Do at least 50% of the glucose levels (25th to 75th percentile) fall within the target range set for this patient?
2. Does the glucose level vary during the day (wide spread across percentile ranges)?

STEP 4

Summarize the interpretation of the ambulatory glucose profile

Describe the trends for each time period throughout the day, taking the patient's schedule into account:

STEP 5

Explore the behavioural causes

STEP 6

Adjust the pharmacological treatment as needed



IRCM

MONTREAL CLINICAL
RESEARCH INSTITUTE

CLINIC ASSOCIATED
WITH THE CHUM

Document created by the Diabetes Clinic of the Montreal Clinical Research Institute, with the support of an unrestricted grant from Abbott.

You can print and reproduce this document if you credit its source. However, this document may not be modified or used for commercial purposes without written authorization.

1. EXPLORE THE BEHAVIOURAL CAUSES

Consider the possibility of referring the patient to a member of the nursing staff, a nutritionist or a kinesiologist specialised in diabetes

Therapeutic Compliance

		Applicable to insulin therapy only
Therapeutic compliance	<input type="checkbox"/> Forgets to take his/her medications (or cannot afford them)	<input type="checkbox"/> Skips insulin boluses
Storage method and injection/insertion techniques	<input type="checkbox"/> Improper storage of medications (e.g., insulin and GLP-1 analogues) <input type="checkbox"/> Injectable treatments: improper needle-changing or injector pen use	<input type="checkbox"/> Insulin pumps: catheter changed too infrequently and/or wrong flush volumes <input type="checkbox"/> Lipodystrophy at the insulin insertion/injection sites
Treatment of hypoglycemic and hyperglycemic episodes	<input type="checkbox"/> Hypoglycemic episodes under- or overcorrected <input type="checkbox"/> Inappropriate choices for hypoglycemic episodes treatment (e.g., complex carbohydrates or high-fat or high-protein foods)	<input type="checkbox"/> Hyper or hypoglycemic episodes under- or overcorrected <input type="checkbox"/> Multiple boluses of insulin administered without taking the active insulin into account
Blood glucose measurement method	<input type="checkbox"/> Dirty hands causing false data <input type="checkbox"/> For certain continuous glucose monitors: calibration measurements during periods of high glycemic variability	

Nutrition

		Applicable to insulin therapy only
Meal composition	<input type="checkbox"/> ↑ intake of concentrated sugars and/or highly variable carbohydrate content <input type="checkbox"/> Meals very high in fat and/or protein (prolonged glycemic excursions) <input type="checkbox"/> Low dietary fibre intake <input type="checkbox"/> Meal regularity and presence of snacks	
Carbohydrate intake	<input type="checkbox"/> Does not recognize all the sources of carbohydrates	<input type="checkbox"/> Fixed insulin boluses with variable carbohydrate intake <input type="checkbox"/> Mistakes in carbohydrate counting
Alcohol consumption	<input type="checkbox"/> Alcohol consumption that is excessive or without food	<input type="checkbox"/> Insulin injection for the carbohydrates in alcoholic beverages
Timing of injection of prandial insulin		<input type="checkbox"/> Post-meal injection <input type="checkbox"/> Injection before the meal in a patient with significant gastroparesis

Physical Activity

*Applies mainly to insulin therapy

Explore the physical activity-related factors that could explain the trends identified in the AGP analysis:

Glucose level at the start of exercise	<input type="checkbox"/> Glucose level low or normal at the start of endurance exercise (risk of hypoglycemia) <input type="checkbox"/> Glucose level high at the start of anaerobic or intense exercise (e.g., a set of sprints), which can cause pronounced hyperglycemia
Active insulin	<input type="checkbox"/> Exercise within 2 hours following a prandial insulin bolus, with no adjustment for the insulin bolus (risk of hypoglycemia) <input type="checkbox"/> Excessive correction bolus for exercise-induced hyperglycemia (risk of hypoglycemia)
Type, intensity and duration of exercise	<input type="checkbox"/> Prolonged aerobic exercise with no carbohydrate intake (risk of hypoglycemia) <input type="checkbox"/> Intense or anaerobic exercise (risk of hyperglycemia) <input type="checkbox"/> Hypoglycemia long after exercise (replenishment of glycogen stores up to 12 hours post-exercise)

2. ADJUSTMENT OF PHARMACOLOGICAL TREATMENT

- Oral antidiabetic agent: dose or number of antidiabetic agents. Consider the agents in terms of their potency, their complementary mechanisms of action, and the risk of hypoglycemia.
- Insulin therapy: Adjust the treatment parameters according to whether there is a trend toward hypoglycemia or hyperglycemia:
 - Consider long and rapid-acting insulin analogues, which are associated with a lower risk of hypoglycemia.
 - Postprandial periods: consider changing the prandial insulin dose (fixed dose or insulin/glucose ratio).
 - Periods long after meals: consider changing the basal insulin dose.
 - Correction bolus: investigate the correction bolus habits or the insulin sensitivity factor.