



Diabetes in 2023 - Understanding the Acronyms

From GLP to SGLT2 and CGM to AGP and BeAM with TDD

MT Family Practice Annual Conference
June 23, 2023

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Disclosures

Justen Rudolph, MD - None

Learning Objectives

- Identify Role & Rationale for GLP1 analogs and SGLT2 inhibitors in the treatment of type 2 diabetes
- Understand CGMs and AGP report
- Identify when and how to start mealtime insulin



GLP-1 Agonists – Glucose Like Peptides



GLP Analogs – Glucagon-Like Peptides

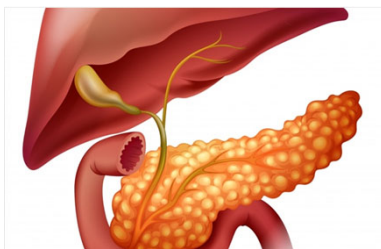
List of Drugs – Brand Names and Generic Names

- Byetta
- Bydureon
- Victoza
- Trulicity
- Ozempic
- Rybelsus (oral)
- Mounjaro (GLP/GIP)
- Exenatide
- Exenatide
- Liraglutide
- Dulaglutide
- Semaglutide
- Semaglutide
- Tirzepitide

GLP Analogs – Mechanism of Action

Pancreas/Liver

Decrease Glucagon
Glucose Dependent
Insulin Release



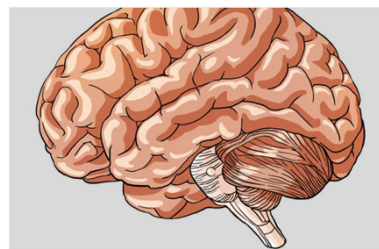
Gut

Delay Gastric Emptying



Brain

Increase Satiety



GLP Analogs – Glucagon-Like Peptides

Benefits

- Weight loss
- Feeling satiated
- Postprandial glucose control
- Easy dosing
- Low risk of hypoglycemia
- CV risk reduction

GLP Analogs – Glucagon-Like Peptides

Side Effects

- Thyroid Cancer
- Gastroparesis
- Pancreatitis ??
- Pregnancy/Breast Feeding

Contraindications

- Nausea – up to 60%
- Vomiting
- Bloating/Gas
- Diarrhea
- Constipation
- ~ 10% intolerable
- Can Dose Reduce



GLP Analogs – Glucagon-Like Peptides

Dosing - start low and go slow

- Exenatide (Byetta) – Bcise Pen - 2 mg weekly
- Lixenatide (Victoza) – start 0.6 mg daily, 1.2 and 1.8 mg dose
- Semaglutide (Ozempic)– start 0.25 mg weekly for 4 weeks, 0.5 mg, 1 mg; max 2 mg.
 - Use the 3ml pen
- Dulaglutide (Trulicity) – 0.75 mg weekly, 1.5 mg, 3 mg, 4.5 mg
- Oral Semaglutide (Rybelsus) – Start 3 mg, 7 mg, 14 mg.

GLP Analogs – Glucagon-Like Peptides

CV Outcome Trials

- Meta Analysis
- 8 CVOT trials
- Drugs used: Liraglutide, Dulaglutide, Semaglutide
- 14% reduction in 3 component MACE – CV death, Nonfatal MI, Nonfatal Stroke
– NNT 65 for 12- 18 mo.

Sattar N, Lee *Lancet Diabetes Endocrinol.* 2021; 9:653–662.



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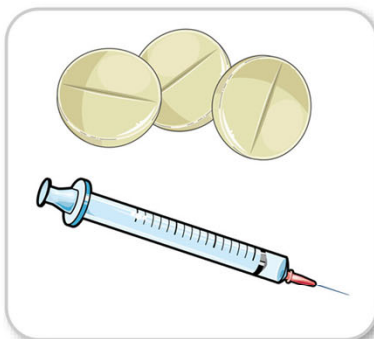
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GLP-1 receptor agonists

Effects on CV outcomes

(HR; 95%CI)

- MACE 0.86 (0.80 to 0.93)
- MI 0.90 (0.83 to 0.98)
- Stroke 0.83 (0.76 to 0.92)
- CV death 0.87 (0.80 to 0.94)



Effects on risk factors



glucose weight blood pressure
HbA1 ~ 1.5% ~ 4% ~ 3 mmHg

Side effects

- GI side effect
- Local reaction at injection side
- Use with caution in patients with history of pancreatitis

Patient profile

- ASCVD
- Overweight / obese
- High risk of stroke



Treatments aspects

- Start with low dose
- Increase dose slowly
- Use ≤ 32 gauge needle
- Adjust insulin / SU dose
- Recommend small meals

Marx; Circulation. 2022;146:1882–1894

GLP Analogs – Glucagon-Like Peptides

Bottom Line

- Excellent for glucose control and weight loss
- CV Risk Reduction
- Start Low and Go Slow
- Insurance Coverage Important
- Consider Reducing other glucose lowering agents

SGLT2 Inhibitors

SGLT2 Inhibitors - Gliflozins

- The Triple Effect

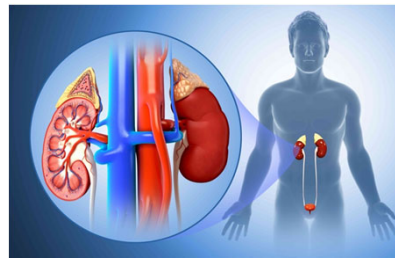
Diabetes



Heart Disease



CKD



SGLT2 Inhibitors

Positive Effects

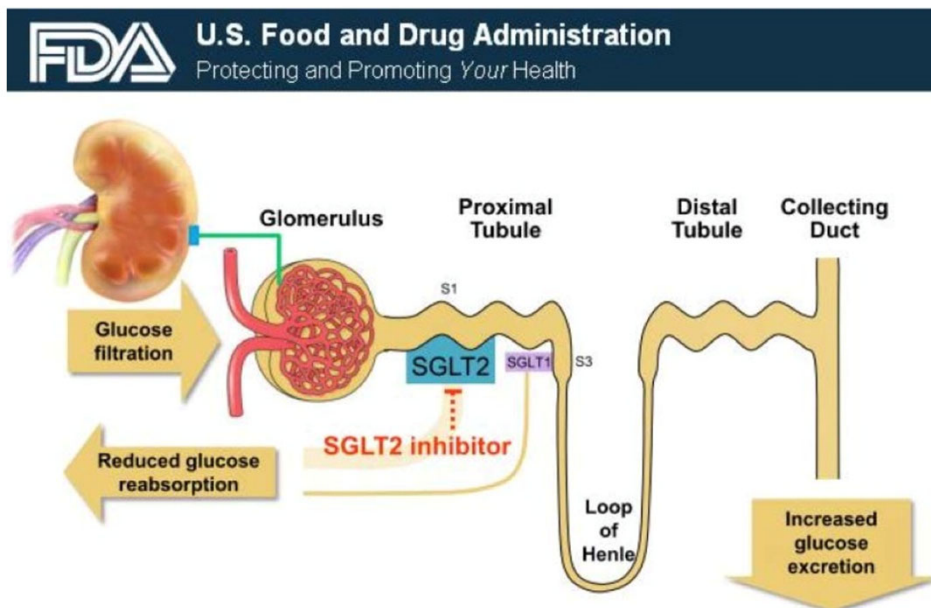
- Lower Sugars
 - Without Hypoglycemia
- Lower Weight
- Lower Blood Pressure
- Lower Heart Disease
- Lower Risk Heart Failure
- Lower risk of CKD Progression



SGLT2 Inhibitors

List of Drugs – Brand Names and Generic Names

- Jardiance
- Invokana
- Farxiga
- Steglatro
- Empagliflozin
- Canagliflozin
- Dapagliflozin
- Ertugliflozin



SGLT2 Inhibitors - Gliflozins

CVOT Data

Table 1. Cardiovascular Outcome Trials Involving Patients with Type 2 Diabetes.*

Variable	EMPA-REG OUTCOME	CANVAS Program	CREDESCENCE	DECLARE-TIMI 58	VERTIS CV	SCORED	All
Drug	Empagliflozin	Canagliflozin	Canagliflozin	Dapagliflozin	Ertugliflozin	Sotagliflozin	
No. of patients	7020	10,142	4401	17,160	8246	10,584	57,553
Atherosclerotic cardiovascular disease — % of patients	100	65.6	50.4	40.6	100	48.6	63.0
History of heart failure — % of patients	10.1	14.4	14.8	10.0	23.7	31.0	17.0
Outcomes — hazard ratio (95% CI) †							
Major adverse cardiovascular events	0.86 (0.74–0.99)	0.86 (0.75–0.97)	0.80 (0.67–0.95)	0.93 (0.84–1.03)	0.99 (0.88–1.12)	0.77 (0.65–0.91)	0.89 (0.84–0.94)
Cardiovascular death	0.62 (0.49–0.77)	0.87 (0.72–1.06)	0.78 (0.61–1.00)	0.98 (0.82–1.12)	0.92 (0.77–1.10)	0.90 (0.73–1.12)	0.86 (0.79–0.93)
Hospitalization for heart failure	0.65 (0.50–0.85)	0.67 (0.52–0.87)	0.61 (0.47–0.80)	0.73 (0.61–0.88)	0.70 (0.54–0.90)	0.67 (0.55–0.82)	0.68 (0.62–0.75)

* Data sources for the individual trials are as follows: EMPA-REG OUTCOME, Zinman et al.¹⁴; CANVAS Program, Neal et al.¹⁵; CREDESCENCE, Perkovic et al.¹⁶; DECLARE-TIMI 58, Wiviott et al.¹⁷; VERTIS CV, Cannon et al.¹⁸; and SCORED, Bhatt et al.¹⁹ Data are also based on a meta-analysis by McGuire et al.²⁰

† Hazard ratios are based on a time-to-first event analysis, except for SCORED, which estimated hazard ratios for major adverse cardiovascular events and hospitalization for heart failure on the basis of a total-event analysis. CI denotes confidence interval.

Braunwald, N Engl J Med 2022; 386:2024-2034



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SGLT2 Inhibitors - Gliflozins

CKD Data

- CREDESCENCE Trial – Canagliflozin
 - 4401 pts with Type 2 dm and albuminuric CKD GFR 30 – 90, on ACE or ARB
 - Primary Endpoint – composite ESRD, Doubling Cr, or Death d/t CV or Renal
 - 100 cana vs placebo
 - Stopped early at 2.6 yrs due to efficacy
 - 30% reduction in primary outcome (43 events/1000 pt-yrs vs 61)

Perkovic. N Engl J Med 2019; 380:2295-2306



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SGLT2 Inhibitors - Gliflozins

CKD Data

- DAPA-CKD Trial Dapagliflozin
 - 4304 pt with GFR 25-75 and ACR 200 – 5000, on ACE or ARB
 - 68% with Type 2 DM
 - Primary Outcome – sustained decline in GFR of 50%, ESRD, death from renal or CV cause
 - 10 dapa vs placebo
 - Results: Stopped early 2.4 yrs due to efficacy
 - 37% reduction in primary outcome (9.2% dapa vs 14.5% placebo)
 - NNT 19



Heerspink. N Engl J Med 2020; 383:1436-1446

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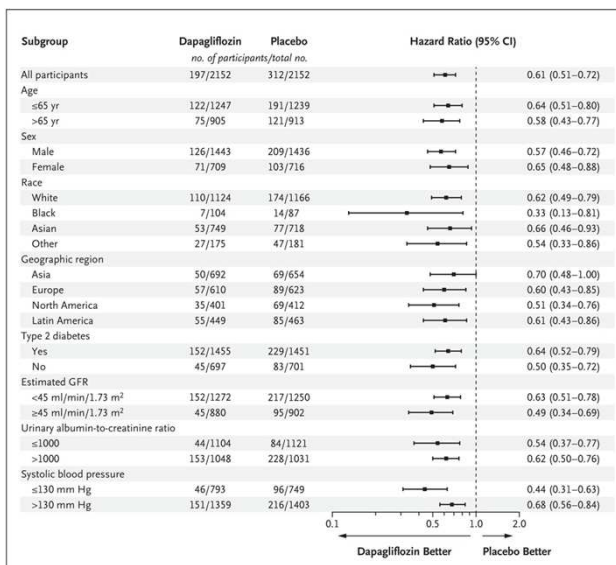
SGLT2 Inhibitors - Gliflozins

DAPA-CKD

Prespecified

Subgroup

Analysis



Heerspink. N Engl J Med 2020; 383:1436-1446

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SGLT2 Inhibitors - Gliflozins

ADA Statement 2023 Guidelines

“In sum, for people with type 2 diabete and diabetic kidney disease, use of an SGLT2 in hibitor is recommended to reduce CKD progression and cardiovascular events in people with an eGFR \geq 20ml/min/1.73m².”



EISayed. *Diabetes Care* 2023;46(Supplement_1):S191–S202



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SGLT2 Inhibitors - Gliflozins

Side Effects and Contraindications

- UTI & Yeast Infections
- Dehydration and AKI
- Euglycemic DKA – especially in Type 1 (not indicated for however)



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SGLT2 Inhibitors - Gliflozins

Practical Tips

- Stop 3 days prior to surgery
- Don't fret about > 1000 glucose on UA
- Drink Fluids
- Use in Heart Failure Patients & CKD
- Avoid using with recurrent UTIs
- Glucose lowering effects less if $GFR < 45$
- Cardiology and Nephrology may be prescribing
- Avoid with Type 1 Diabetes

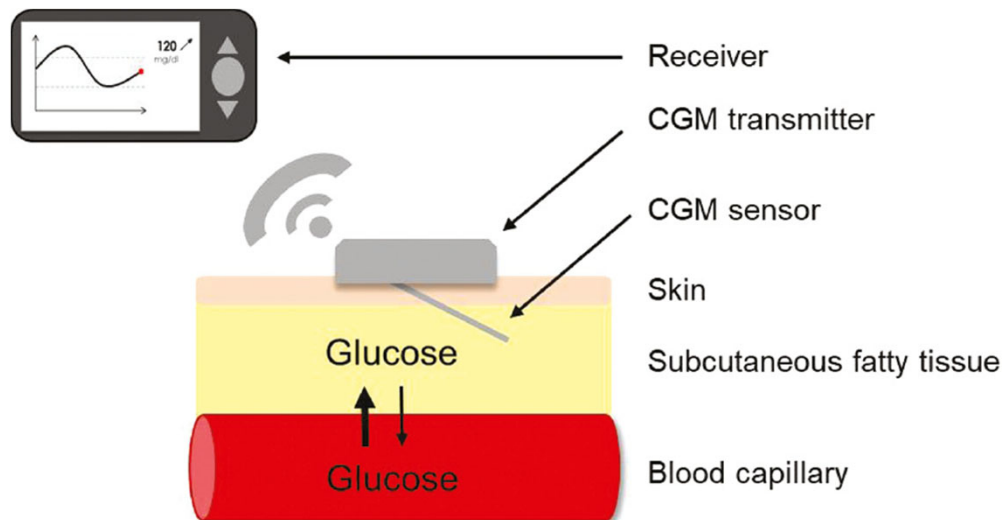


CGM

Continuous Glucose Monitors



CGM Explained



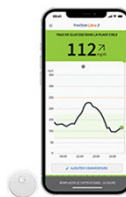
Freckmann, Guido. "Basics and use of continuous glucose monitoring (CGM) in diabetes therapy" *Journal of Laboratory Medicine*, vol. 44, no. 2, 2020, pp. 71-79. <https://doi.org/10.1515/labmed-2019-0189>



CGM Types



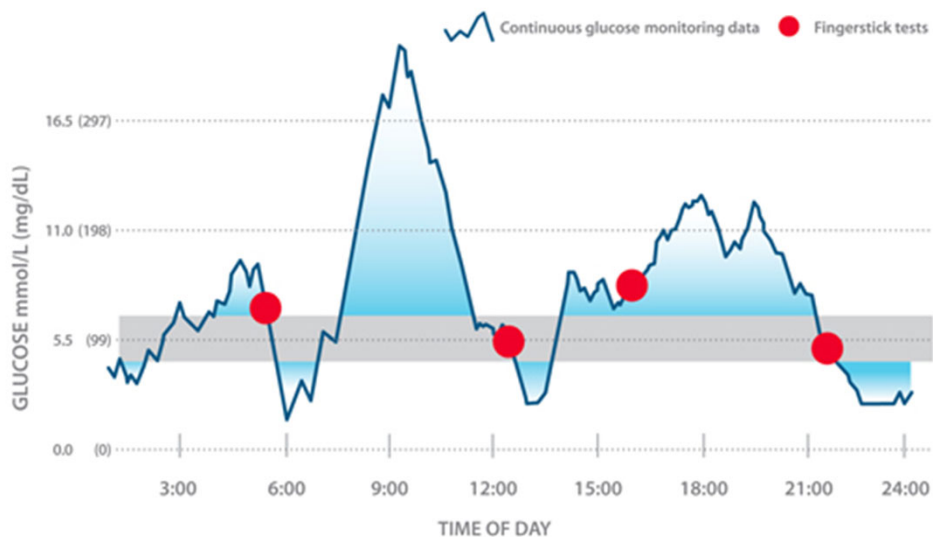
FREESTYLE LIBRE 3



FREESTYLE LIBRE 2



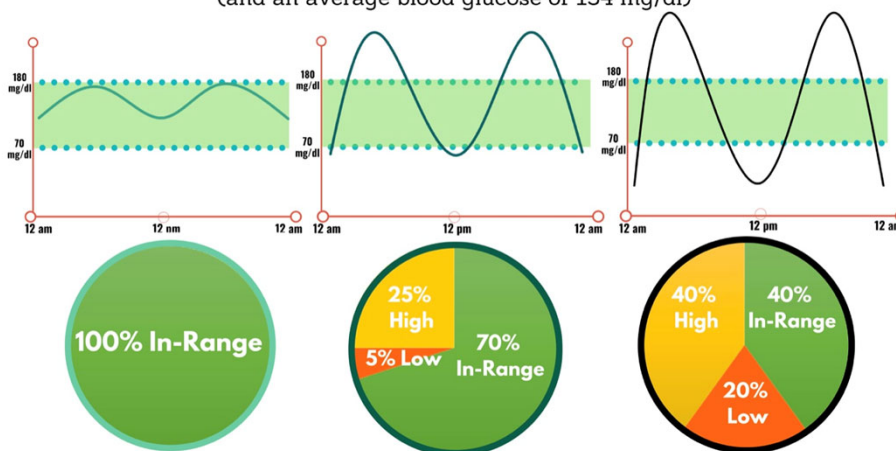
CGM Data



Beyond A1c

THE MANY FACES OF A 7% A1C

(and an average blood glucose of 154 mg/dl)



Adapted from <https://diatribe.org/foundation/beyonda1c>. 3/2023



“Single best medical intervention to enable lifestyle change I have ever seen.”
Quote 3/2023 retired surgeon living with type 2 diabetes

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CGM Uses and Insurance

Uses and Insurance

- Type 1 Diabetes
- Pregnancy
- Type 2 diabetes
 - Medicare 2023 Guidelines – DME coverage
 - One or more shots of insulin a day
 - “problematic hypoglycemia”
 - Commercial - Pharmacy benefit – eRx
- Athletes ??

CGM Uses and Insurance

Medicare Guidelines

• To be eligible for coverage of a CGM and related supplies, the beneficiary must meet all of the following initial coverage criteria (1)-(5):

1. The beneficiary has diabetes mellitus
2. The beneficiary's treating practitioner has concluded that the beneficiary (or beneficiary's caregiver) has sufficient training using the CGM prescribed
3. The CGM is prescribed in accordance with its FDA indications for use
4. The beneficiary for whom a CGM is being prescribed, to improve glycemic control, meets at least one of the the criteria:
 - a. The beneficiary is insulin-treated; OR
 - b. the beneficiary has a history of problematic hypoglycemia with documentation of at least one of the following:
 - a. Recurrent (more than one) level 2 hypoglycemic events (glucose <54mg/dL (3.0mmol/L)) that persist despite multiple (more than one) attempts to adjust medication(s) and/or modify the diabetes diabetes treatment plan; or,
 - b. A history of one level 3 hypoglycemic event (glucose <54mg/dL (3.0mmol/L)) characterized by altered altered mental and/or physical state requiring third-party assistance for treatment of hypoglycemia
5. Within six (6) months prior to ordering the CGM, the treating practitioner has an in-person or Medicare-approved telehealth visit with the beneficiary to evaluate their diabetes control and determined that criteria (1)-(4) above are met.

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From: Standards of Care in Diabetes—2023 Abridged for Primary Care Providers

AGP Report: Continuous Glucose Monitoring

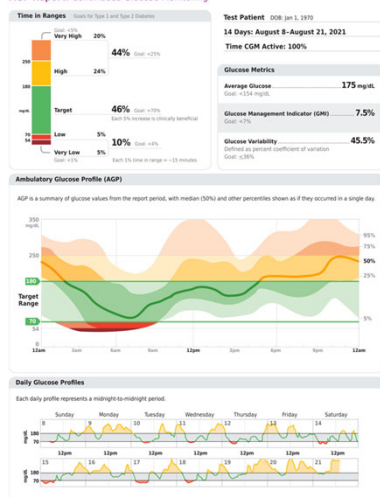


Figure Legend:

Key points included in standard AGP report. Reprinted from Holt RIG, DeVries JH, Hess-Fischl A, et al. Diabetes Care 2021;44:2589–2625.

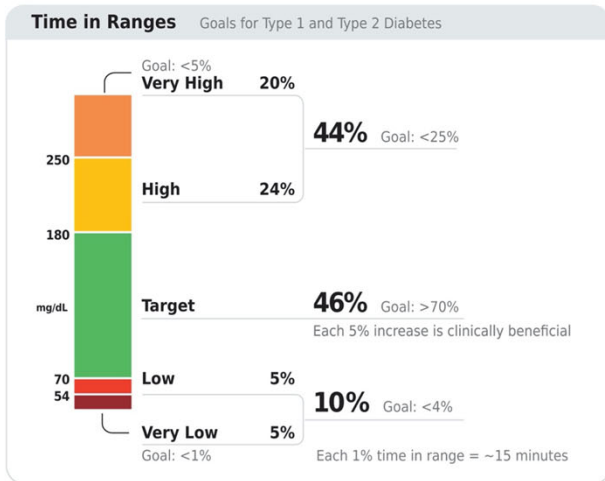
Clin Diabetes. 2022;41(1):4-31. doi:10.2337/cd23-as01



Date of Download: 6/2/2023

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AGP Report: Continuous Glucose Monitoring



Test Patient DOB: Jan 1, 1970

14 Days: August 8-August 21, 2021

Time CGM Active: 100%

Glucose Metrics

Average Glucose **175 mg/dL**
Goal: <154 mg/dL

Glucose Management Indicator (GMI) **7.5%**
Goal: <7%

Glucose Variability **45.5%**
Defined as percent coefficient of variation
Goal: ≤36%

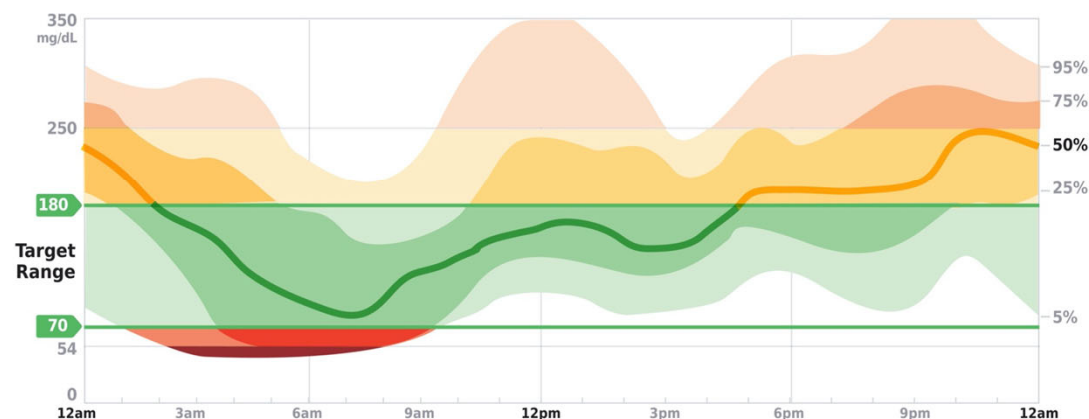


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Ambulatory Glucose Profile (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if they occurred in a single day.

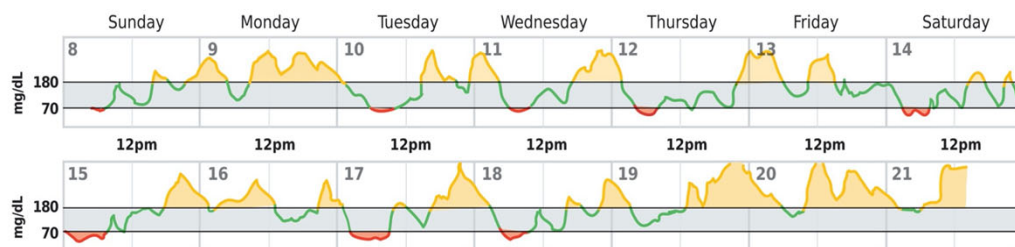


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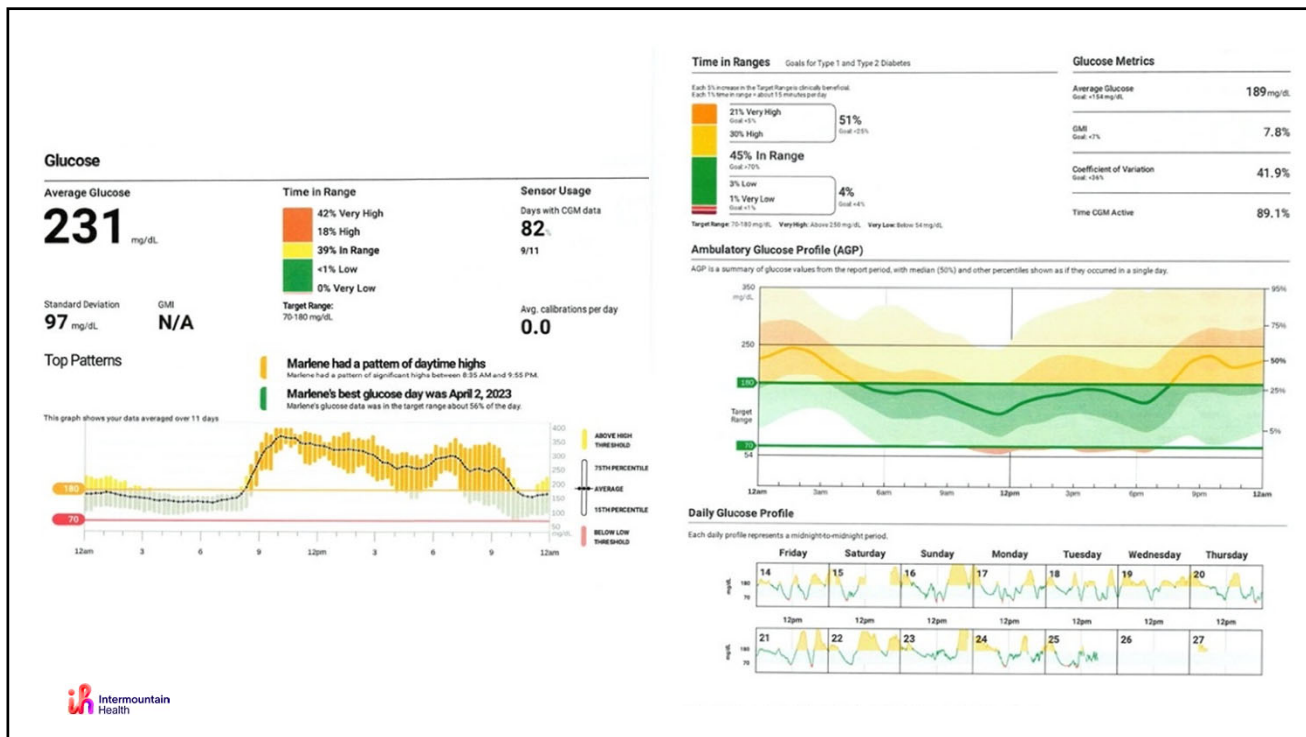
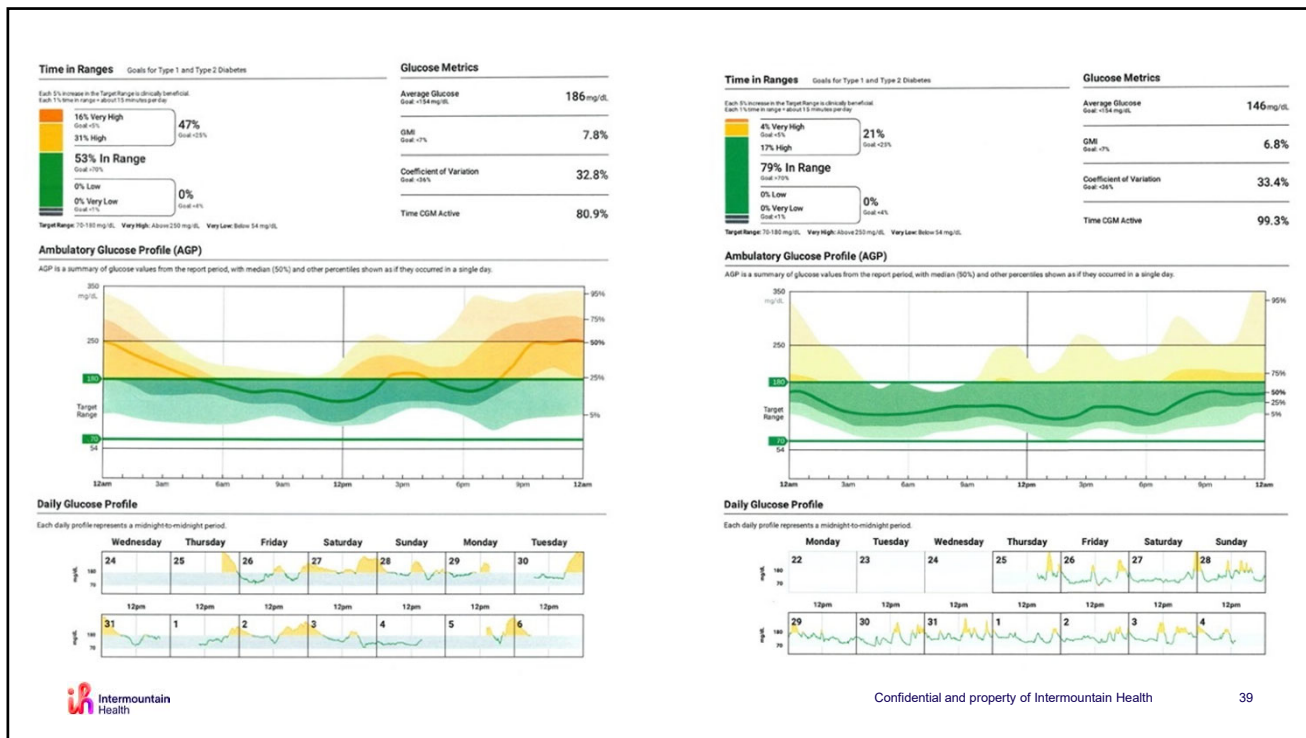
Daily Glucose Profiles

Each daily profile represents a midnight-to-midnight period.



AGP Report - Targets

- Time in Range (TIR) > 70% (range 70-180)
- Hypoglycemia < 4%
- Hyperglycemia < 26%
- GMI – Glucose Management Index
 - Calculated a1c



AGP Report

March 19, 2023 - April 15, 2023 (28 Days)

GLUCOSE STATISTICS AND TARGETS

March 19, 2023 - April 15, 2023 **28 Days**
Time CGM Active: 15%

Glucose Range	Targets % of Readings (Time On)
Target Range 70-180 mg/dL	Greater than 70% (180-48min)
Below 70 mg/dL	Less than 4% (58min)
Below 54 mg/dL	Less than 1% (14min)
Above 180 mg/dL	Less than 2% (30)
Above 200 mg/dL	Less than 5% (1h 12min)

Each 1% increase in time in range (70-180 mg/dL) is clinically beneficial.

Average Glucose: 256 mg/dL
Glucose Management Indicator (GMI): -
Glucose Variability: 28.6%
Defined as percent coefficient of variation (%CV)

TIME IN RANGES

Very High >250 mg/dL	48%	(1h 37min)
High 181 - 250 mg/dL	40%	(3h 26min)
Target Range 70 - 180 mg/dL	12%	(2h 53min)
Low 54 - 69 mg/dL	0%	(0min)
Very Low <54 mg/dL	0%	(0min)

AMBULATORY GLUCOSE PROFILE (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.

DAILY GLUCOSE PROFILES

Most recent 14 days. See Weekly Summary report for more days.

AGP Report

May 2, 2023 - May 15, 2023 (14 Days)

GLUCOSE STATISTICS AND TARGETS

May 2, 2023 - May 15, 2023 **14 Days**
Time CGM Active: 95%

Glucose Range	Targets % of Readings (Time On)
Target Range 70-180 mg/dL	Greater than 70% (180-48min)
Below 70 mg/dL	Less than 4% (58min)
Below 54 mg/dL	Less than 1% (14min)
Above 180 mg/dL	Less than 2% (30)
Above 200 mg/dL	Less than 5% (1h 12min)

Each 1% increase in time in range (70-180 mg/dL) is clinically beneficial.

Average Glucose: 203 mg/dL
Glucose Management Indicator (GMI): 8.2%
Glucose Variability: 32.2%
Defined as percent coefficient of variation (%CV)

TIME IN RANGES

Very High >250 mg/dL	23%	(3h 37min)
High 181 - 250 mg/dL	40%	(3h 37min)
Target Range 70 - 180 mg/dL	36%	(3h 38min)
Low 54 - 69 mg/dL	1%	(14min)
Very Low <54 mg/dL	0%	(0min)

AMBULATORY GLUCOSE PROFILE (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if occurring in a single day.

DAILY GLUCOSE PROFILES

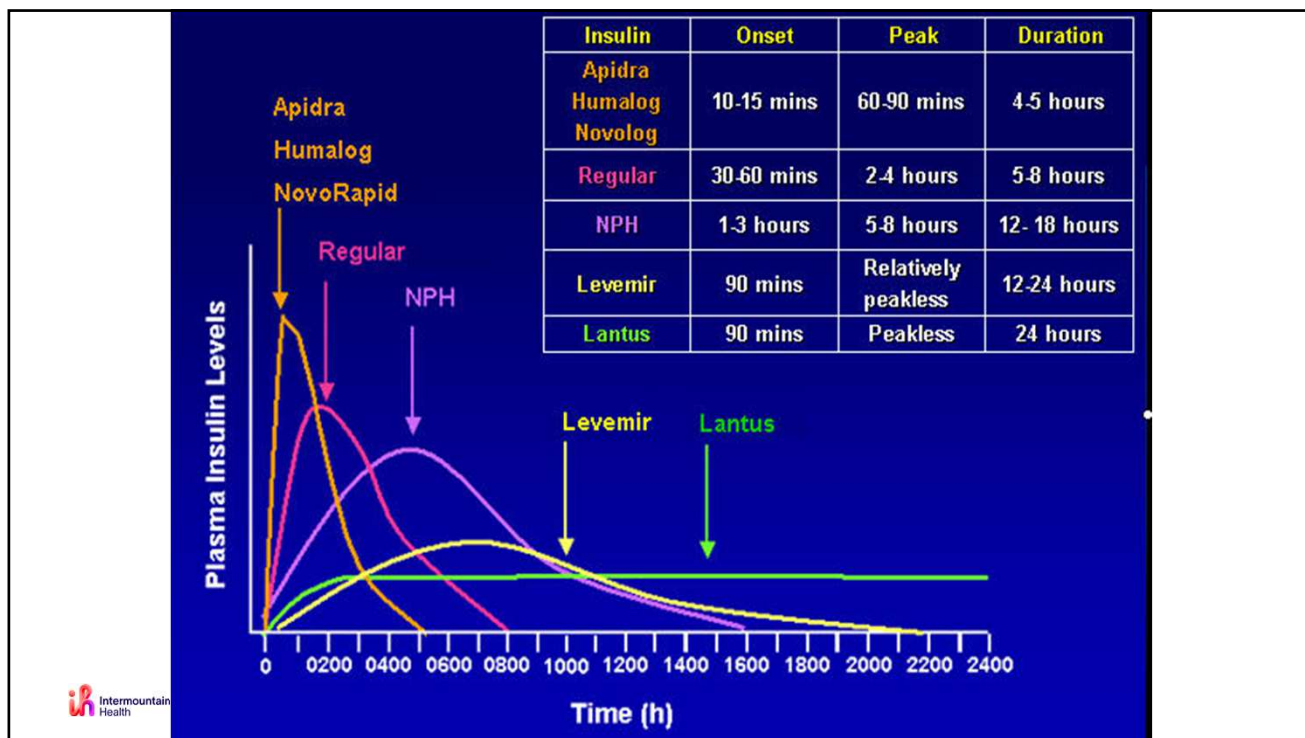
Each daily profile represents a single day's worth of data, with the date displayed in the upper left corner.

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Normal Insulin Secretion

- Endogenous insulin secretion
- Ideal basal insulin
- Ideal prandial insulin



Total Daily Dose - TDD

- For any diabetic on multiple daily injections
- Basal Insulin – baseline metabolic activity
 - ~ 50% total daily insulin dose
- Bolus Insulin – Mealtime coverage and correction insulin
- Type 2 TDD – 1-2 units/kg/day
- Type 1 TDD – 0.5 – 1 units/kg/day

TDD – Total Daily Dose of Insulin

Basal Insulin – Treat to Target Algorithm

Start with 10 IU/day bedtime basal insulin and adjust weekly	
Mean of self-monitored FPG values from preceding 2 days	Increase of insulin dosage (IU/day)
≥180 mg/dl (10 mmol/l)	8
140–180 mg/dl (7.8–10.0 mmol/l)	6
120–140 mg/dl (6.7–7.8 mmol/l)	4
100–120 mg/dl (5.6–6.7 mmol/l)	2

The treat-to-target FPG was ≤100 mg/dl. Exceptions to this algorithm were 1) no increase in dosage if plasma-referenced glucose <72 mg/dl was documented at any time in the preceding week, and 2) in addition to no increase, small insulin dose decreases (2–4 IU/day per adjustment) were allowed if severe hypoglycemia (requiring assistance) or plasma-referenced glucose <56 mg/dl were documented in the preceding week.



Riddle, M. *Diabetes Care* | November 2003; 26 (11): 3080–3086.

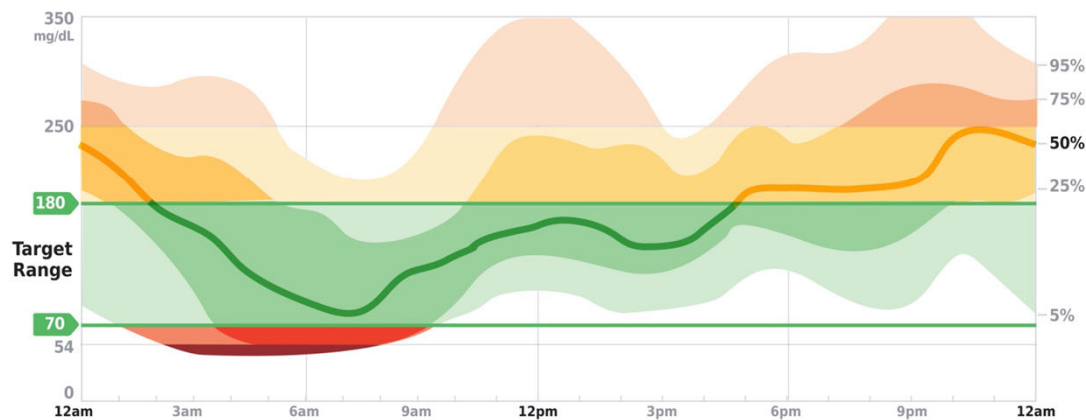
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BeAM

Ambulatory Glucose Profile (AGP)

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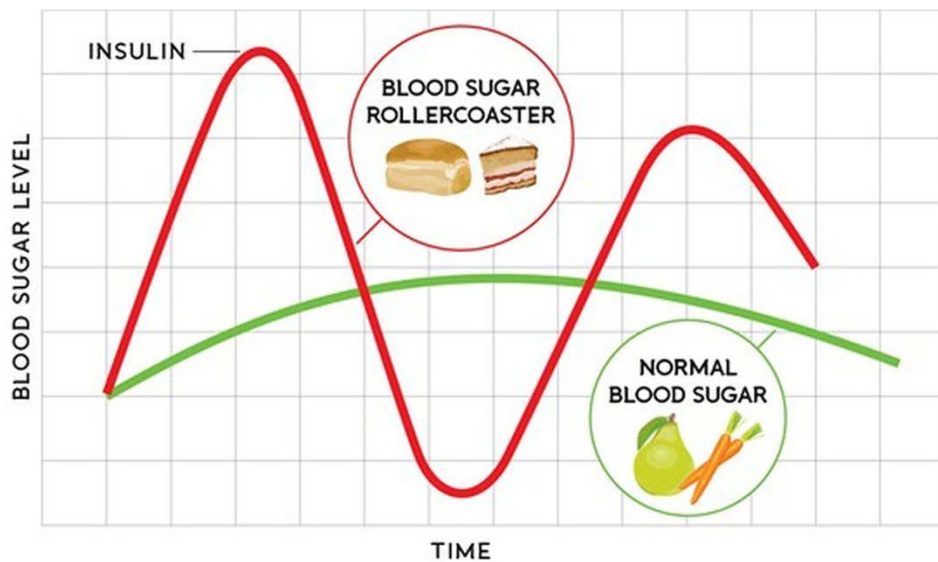
Insulin Simplified

- BeAM Factor – diff between Bed and AM glucose
 - Goal < 55
 - Fasting sugars normal
- Start thinking about mealtime insulin when
 - Beam > 55 mg/dl
 - Getting over about 50-60 units of basal insulin

Insulin Sliding Scale

BG Level	Lispro Insulin Dose
70 – 120	0 units
121 – 160	2 units
161 - 200	
201 – 240	
241 – 280	
281 – 320	10 units
> 321	Call MD

Sliding Scale Roller Coaster



Mealtime Insulin Simplified

- Fixed Dose +/- correction dose
 - Start 4-6 units of rapid acting insulin with largest meal
- PLUS (pt willing): 1 unit for every 30 mg/dl above 150

Updated Insulin Sliding Scale

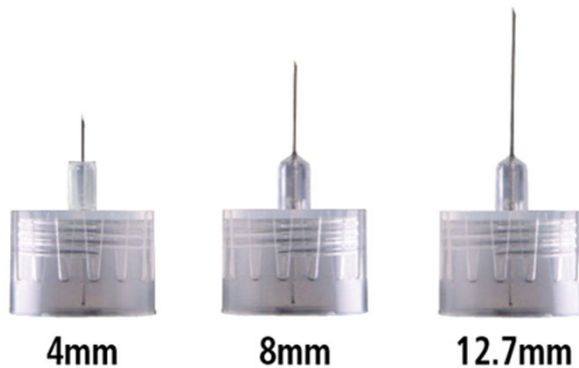
BG Level	Lispro Insulin Dose
70 – 149	4 units
150 - 179	5 units
180 - 209	6 units
210 – 239	7 units
240 – 269	8 units
270 – 299	9 units
➤ 300	10 units

Insulin and Procedures/Surgery

- Patient Message Portal: “Doctor, I am having a colonoscopy tomorrow, what should I do with my insulin dose tonight? I’m taking 46 units of glargine currently.” After review of your recent progress note, you note their BeAM is 30 and not having fasting hypoglycemia.
 - a) Keep the dose the same
 - b) Follow the colonoscopy instruction sheet and cut the dose in ½.
 - c) Reduce the dose to 40 units
 - d) Contact the GI doc

Insulin Injections

- Skin thickness 3mm regardless of age or weight



Rotate Injection Sites – Or Else



Rotate Injection Sites

• Horizontal Pattern



• Curve Pattern



• Zig Zag Pattern



• Crisscross Pattern



2023 ADA Treatment Guidelines for Type 2 Diabetes

Learning Objectives

- Identify glucose targets for patients with type 2 diabetes
- Identify preventative care measures for type 2 diabetes
- Discuss medication classes available
- Review and compare 2023 to 2021 treatment guidelines and applying them to your practice



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ADA Standards of Care

- Glycemic Targets, Individualized.
 - A1c < 7%,
 - TIR > 70%
 - Preprandial Sugars: 70 – 130
 - Postprandial Glucose (1-2 hrs): < 180
- Blood Pressure Target
 - Less than 130/80
 - Use ACEi or ARB, but not both
- Lipid Target
 - Secondary Preventions: LDL < 70, 50% reduction
 - Primary Prevention age 40-75: mod int statin



ADA Standards of Care

- Aspirin
 - Secondary Prevention
 - Primary Prevention – assess risk
- Neuropathy
 - Yearly monofilament exam and PAD assessment
 - Check b12 if on metformin
 - Education on prevention diabetic foot ulcer
- Nephropathy
 - Yearly Albumin to Creatinine Ratio (ACR) and GFR,
 - < 30 mg/g - confirm twice
 - Primary Prevention – ACE/ARB NOT recommended



ADA Standards of Care

- Retinopathy
 - Yearly DM Eye Exam
 - Goal A1c < 7%
- Testing BG
 - SMBG – on insulin, risk lows, lifestyle feedback
 - CGM – on insulin
- Lifestyle Interventions
 - CDCES/CDE - Diabetes Educator
 - RD - Dietician



Non-Insulin Medications for Type 2 Diabetes

- Metformin – decrease gluconeogenesis in liver
 - Helps with weight loss
 - Contraindications: renal or heart failure
 - A1c Reduction ~ 1.5%
- Thiazolidinediones (glitazones) - Insulin sensitizer
 - i.e. Pioglitazone
 - Drawbacks: Expensive, fluid retention, weight gain
 - A1c Reduction ~ 0.5 – 1.5%
- Sulfonylureas - Stimulates insulin secretion
 - i.e. glipizide, glimepiride, avoid glyburide
 - Drawback: hypoglycemia, beta cell burnout
 - A1c Reduction ~1.5%



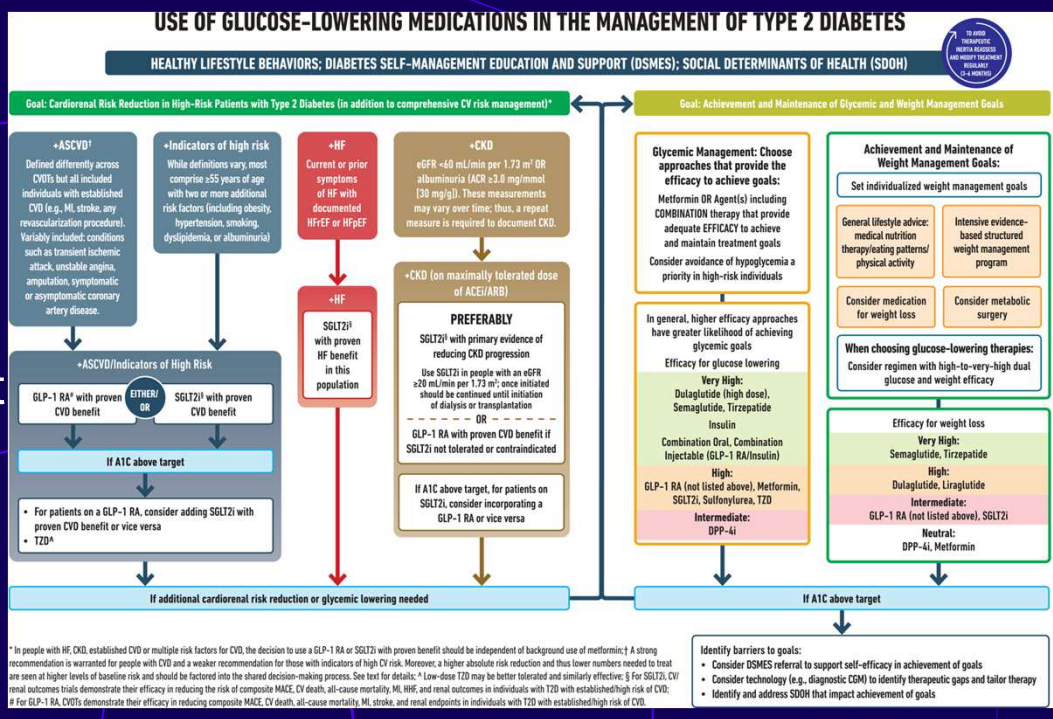
Non-Insulin Medications for Type 2 Diabetes

- SGLT2 Inhibitors (gliflozins)
 - Empagliflozin (Jardiance), Canagliflozin (Invokana), Dapagliflozin (Farxiga), Ertugliflozin (Steglatro)
 - Glucose excretion from kidneys, causing glucosuria
- Incretin Mimetics – GLPs, DPP-IV inhibitors
 - i.e. Semaglutide (Ozempic, Rybelsus), Dulaglutide (Trulicity), Liraglutide (Victoza), Exenatide (Bydureon, Byetta),
 - Sitagliptin (Januvia), Saxagliptin (Onglyza)
 - A1c Reduction 0.5 – 1.5%
- Dual Incretin Mimetics – GLP/GIP
 - Terzepatide (Mounjaro)



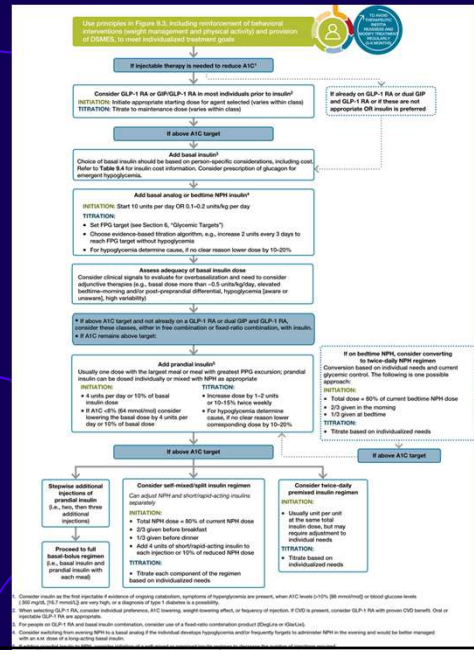
Up to 22% weight loss possible

2023 ADA Treatment Guideline

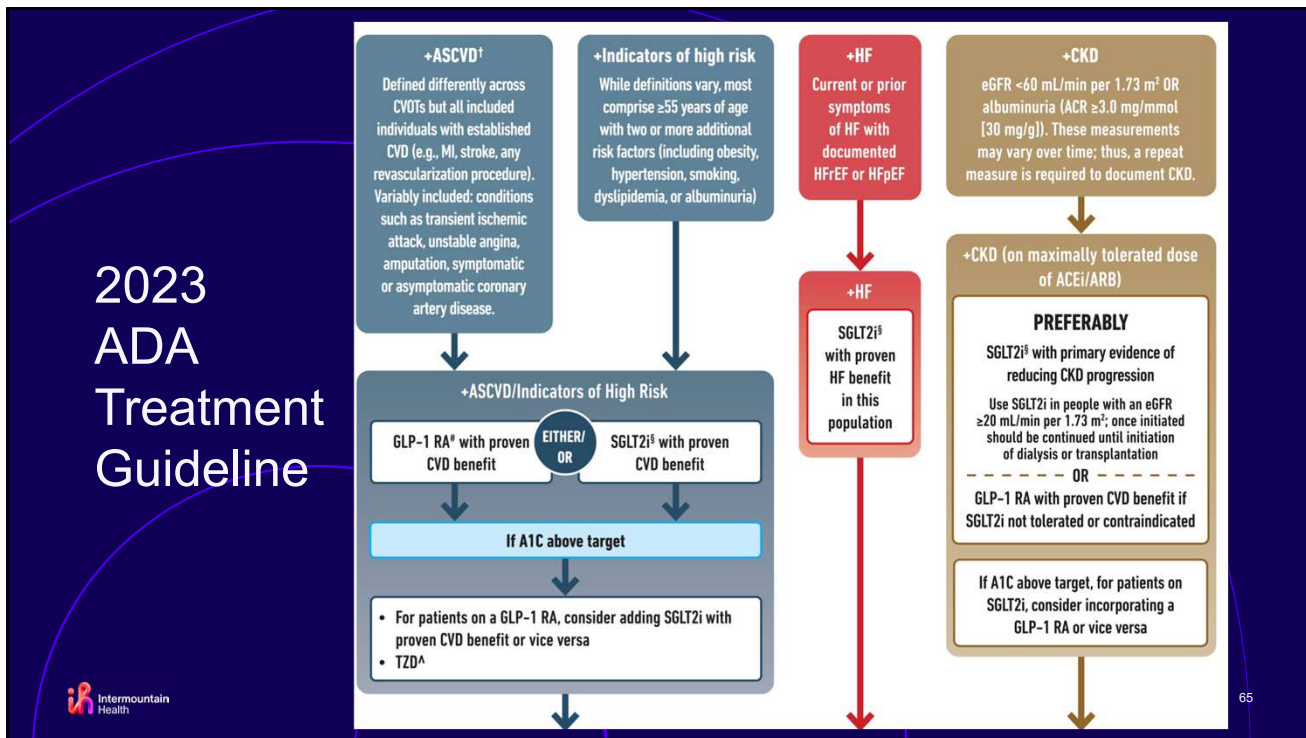


* In people with HF, CKD, established CVD or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be independent of background use of metformin. † A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high CV risk. However, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details. ‡ Low-dose TZD may be better tolerated and similarly effective. § For SGLT2i CV renal outcomes trials demonstrate their efficacy in reducing the risk of composite MACE, CV death, all-cause mortality, MI, HF, and renal outcomes in individuals with T2D with established high risk of CVD. ¶ For GLP-1 RA, CVDs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke, and renal endpoints in individuals with T2D with established high risk of CVD.

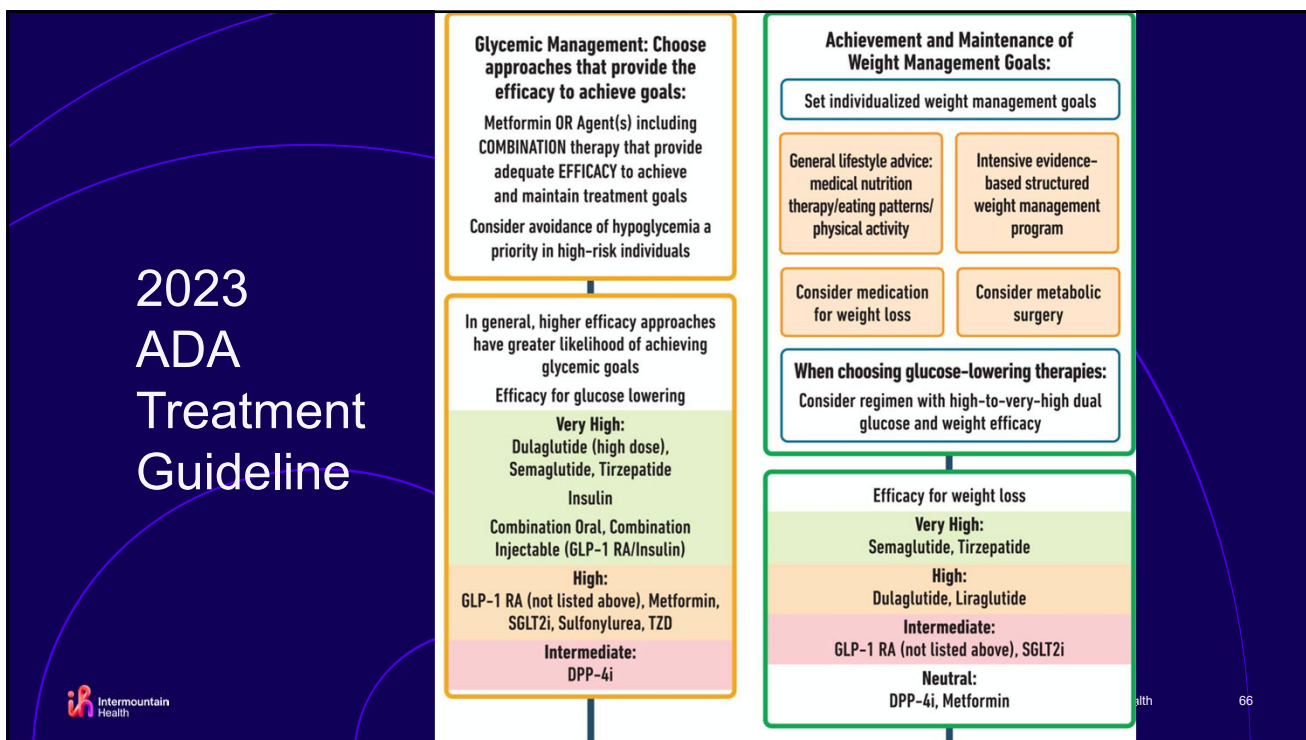
2023 ADA Treatment Intensification



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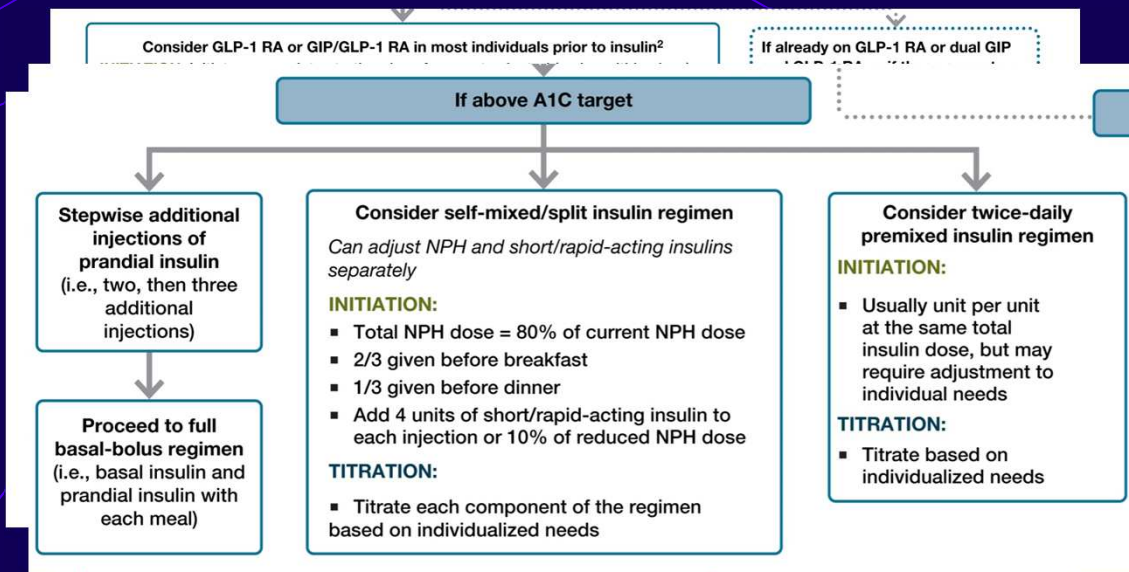


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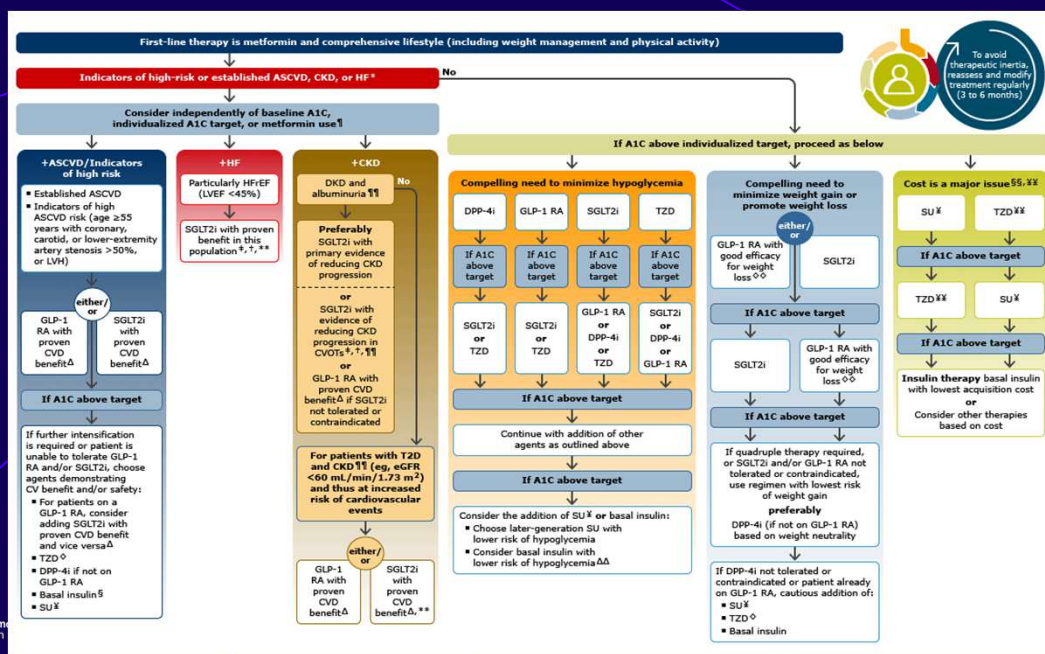
2023 ADA Treatment Intensification



When selecting GLP-1 RA, consider individual preferences, AIC lowering, weight loss, GI effects, or frequency of injection. If DDI is present, consider GLP-1 RA with proven DDI benefit. Oral or injectable GLP-1 RA are equivalent.
 For patients on GLP-1 RA with established cardiovascular conditions, consider use of a fixed-ratio combination product (dual GIP or GIP/GLP-1).
 Consider switching from eating NPH to a basal analog if the individual develops hypoglycemia and/or frequently forgets to administer NPH to the evening and would be better managed with an oral basal analog or a long-acting basal analog.
 2. For individuals with a history of hypoglycemia, consider use of a basal analog with a lower risk of hypoglycemia.

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2021 ADA Treatment



Case Discussion – Putting It All Together

- 81 yo female with T2DM, CAD, OSA, HTN and recently hospitalized after ORIF for AKI, resp failure and sepsis from wound infection and cholecystitis.
- A1c 9.2%
- Hx UTIs



Case Discussion

- Previously on Lantus 36 units and Humalog 18 units for breakfast and lunch and 22 units before dinner
- Post Hospitalization was on Lantus 20 and an unknown lispro sliding scale to the SNF
- 6 weeks later discharged from SNF and came to clinic
- Poor appetite d/t chronic cholecystitis
- Admitted guessing at insulin dose
 - Lantus was increased at SNF to 26

Case Discussion

- Where do we start?
- Data
- States Current BGs since home are all > 300

Case Discussion

- Increased Lantus to 30
- Fixed dose for meals at 14 units with a correction scale of 25
- Also added a skipped meal scale
- Get back on Dexcom CGM

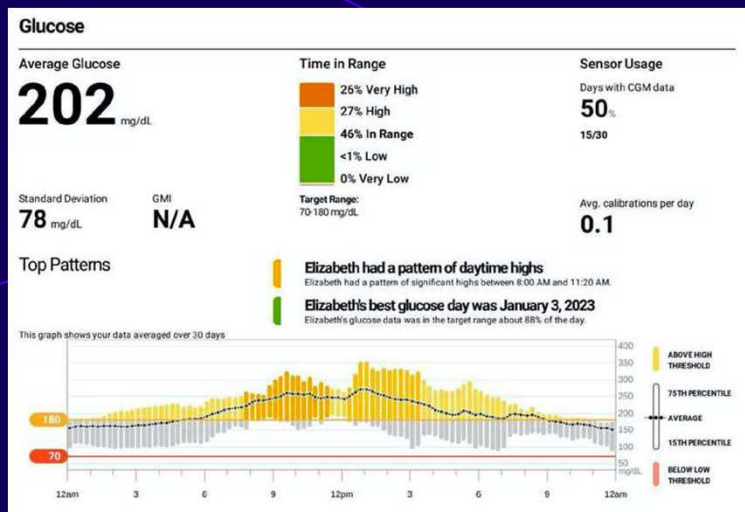
Case Discussion

Sensitivity Factor 25 mg/dL/unit	Fixed Mealtime Dose 14 units	skipped meals	
BG (mg/dL) Insulin (units)		BG Target 120 mg/dL	
125 - 149	14	Sensitivity Factor 20 mg/dL/unit	
150 - 174	15	BG (mg/dL) Insulin (units)	
175 - 199	16	120 - 139	0
200 - 224	17	140 - 159	1
225 - 249	18	160 - 179	2
250 - 274	19	180 - 199	3
275 - 299	20	200 - 219	4
300 - 324	21	220 - 239	5
325 - 349	22	240 - 259	6
350 - 374	23	260 - 279	7
375 - 399	24	280 - 299	8
400 - 424	25	300 - 319	9
425 - 449	26	320 - 339	10
450 - 474	27		
475 - 499	28		
500 - 524	29		



Case Discussion

1 week later



Case Discussion

Mealtime Injections

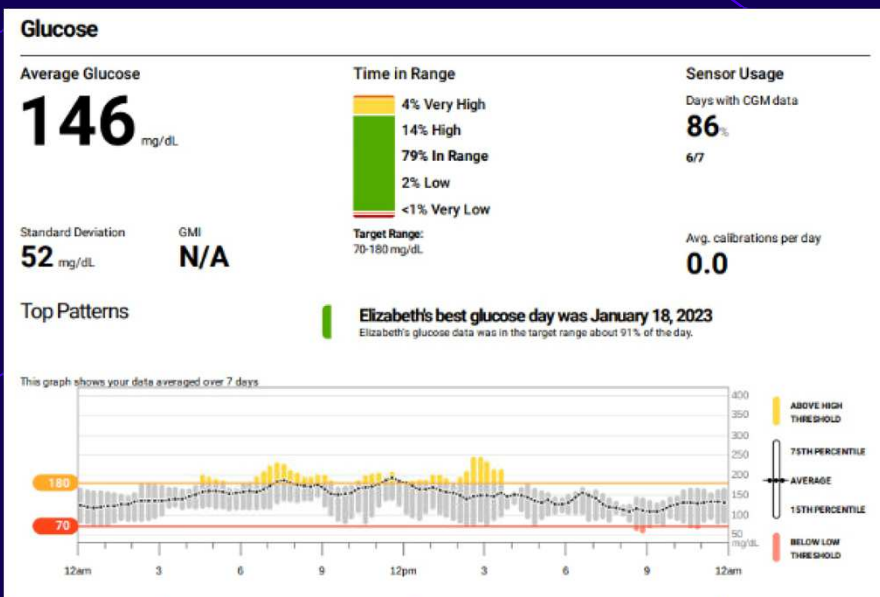
HumaLOG KwikPen Insulin 100 unit/mL Inpn
 Last edited by Justen W Rudolph, MD on 1/17/2023 at 11:43 AM

The patient will be instructed to take their fixed mealtime dose at the blood glucose target, and will dose in 1 unit increments.

Mealtime	Fixed Mealtime Dose (units)	Sensitivity Factor (mg/dL/unit)	BG Target (mg/dL)
breakfast	16	25	125
lunch	14	25	125
dinner	14	25	125
skipped meals	0	20	120



Case Discussion



Summary – Knowing the Acronyms

- Reviewed GLP-1 and SGLT2 Inh
- CGM and AGP reports
- BeAM factor and adjusting basal insulin and starting mealtime insulin for a TDD
- ADA Treatment Guidelines 2023



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Questions



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Thank You

Chico Primary Care Conference
MT Chapter AAFP

Justen Rudolph, MD



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