

Welcome to Day 2



Virtual DiabetesEd Training Conference

 April 15-17th, 2026

**30+ CE Credits through AMA PRA Category
1 Credits™, ACPE, ANCC, and CDR!**

See registration page for more details



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MS, RDN, CDCES

Cert. Exam Prep | Real-World Clinical Skills | Expert-Led Sessions | Latest ADA Standards | 1 Year On-Demand Access

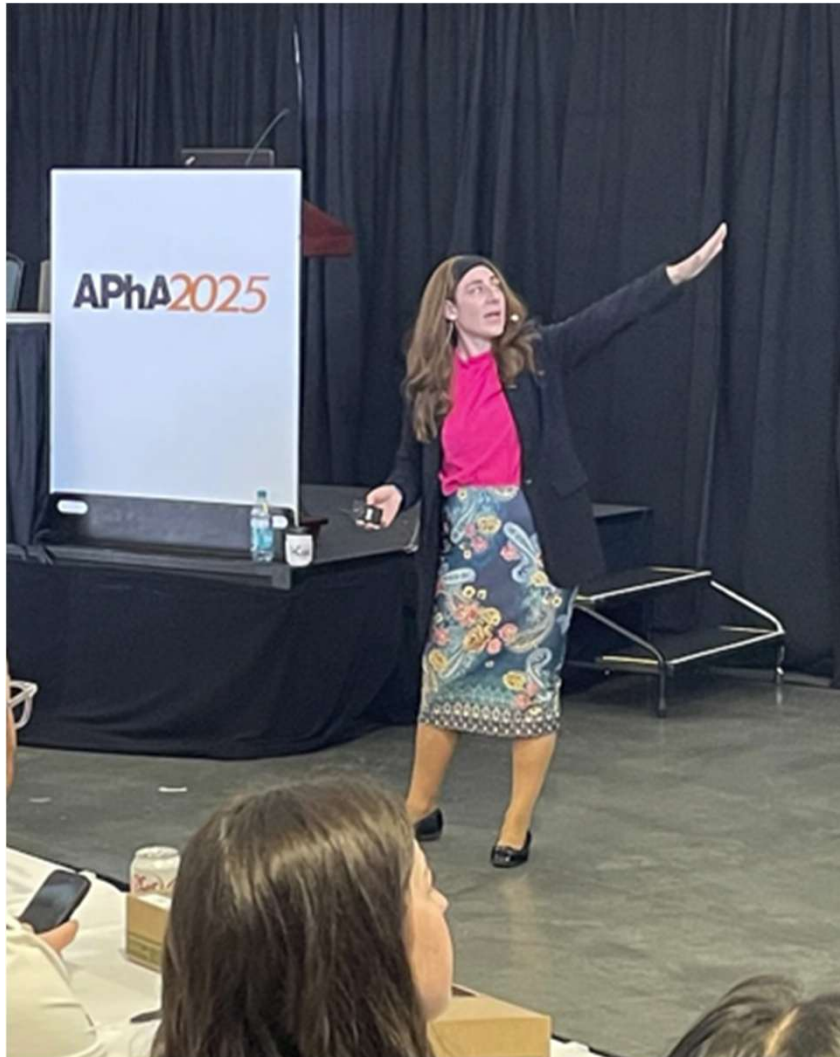
Good Morning and Welcome.

Grab your coffee, tea or other beverage, a healthy snack and get comfy.

We will start promptly at 8:00 AM Pacific Time.

If you are having any technical difficulty, please chat with Bryanna at www.DiabetesEd.net or call 530 / 893-8635 or email at info@diabetesed.net

Insulin – Ultimate Hormone Replacement Therapy



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Disclosures for Dr. Isaacs

- ▶ Diana Isaacs, PharmD, BCPS, BCACP, CDCES, BC-ADM, FADCES, FCCP declares the following disclosures:
- ▶ Speaker: Abbott, Dexcom, Novo Nordisk, Insulet, Medtronic, Lilly, Cequr, Sanofi, Corcept, Sequel

Objectives – Insulin –The Ultimate Hormone Replacement Therapy

Objectives:

- Discuss the actions of different insulins
- Describe how to use the ADA algorithm for insulin management
- Counsel a person with diabetes on safe and effective insulin use
- Discuss strategies to determine and fine-tune basal and bolus insulin settings based on glucose pattern management
- Describe how insulin settings are used to program insulin pumps and connected insulin pens

Best and Banting – U of Toronto 1921



History of insulin

- ▶ Insulin is produced by beta cells in the pancreas
- ▶ Discovered in 1921 by Frederick Banting and his assistant Charles Best from a dog's pancreas
- ▶ First used in a dog with diabetes and kept him alive for 70 days until they ran out of extract
- ▶ With the help of JB Collip and John Macleod, insulin was derived from the pancreas of cattle and in January 1922, given to a 14-year-old dying from diabetes in a Toronto hospital
- ▶ In 1923, Banting and Macleod received the Nobel Prize in Medicine which they shared with Best and Collip
- ▶ Soon after, Eli Lilly started large-scale production of insulin

1st Insulin Available - 1922



Miracle of Insulin



Patient J.L., December 15, 1922



February 15, 1923

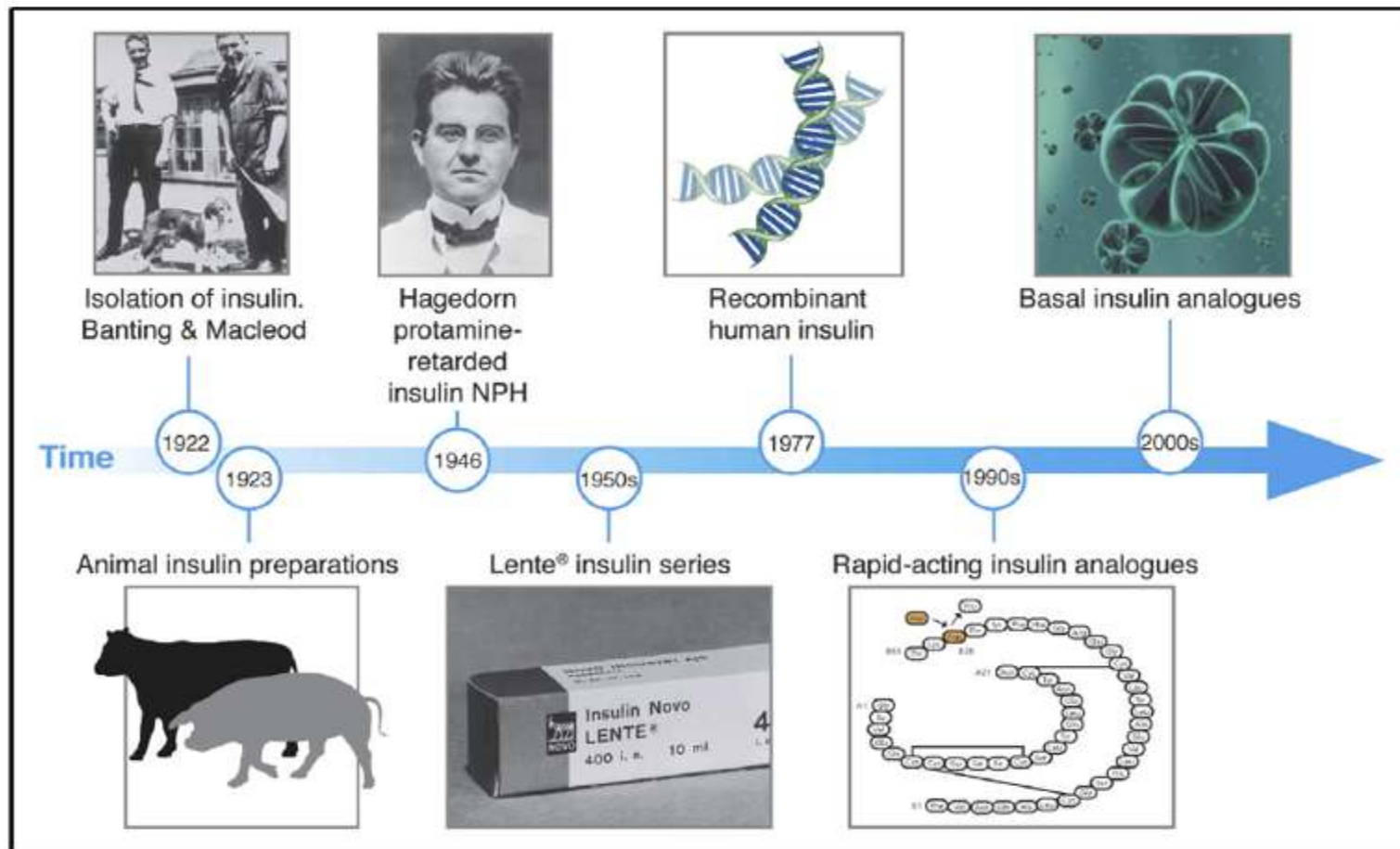


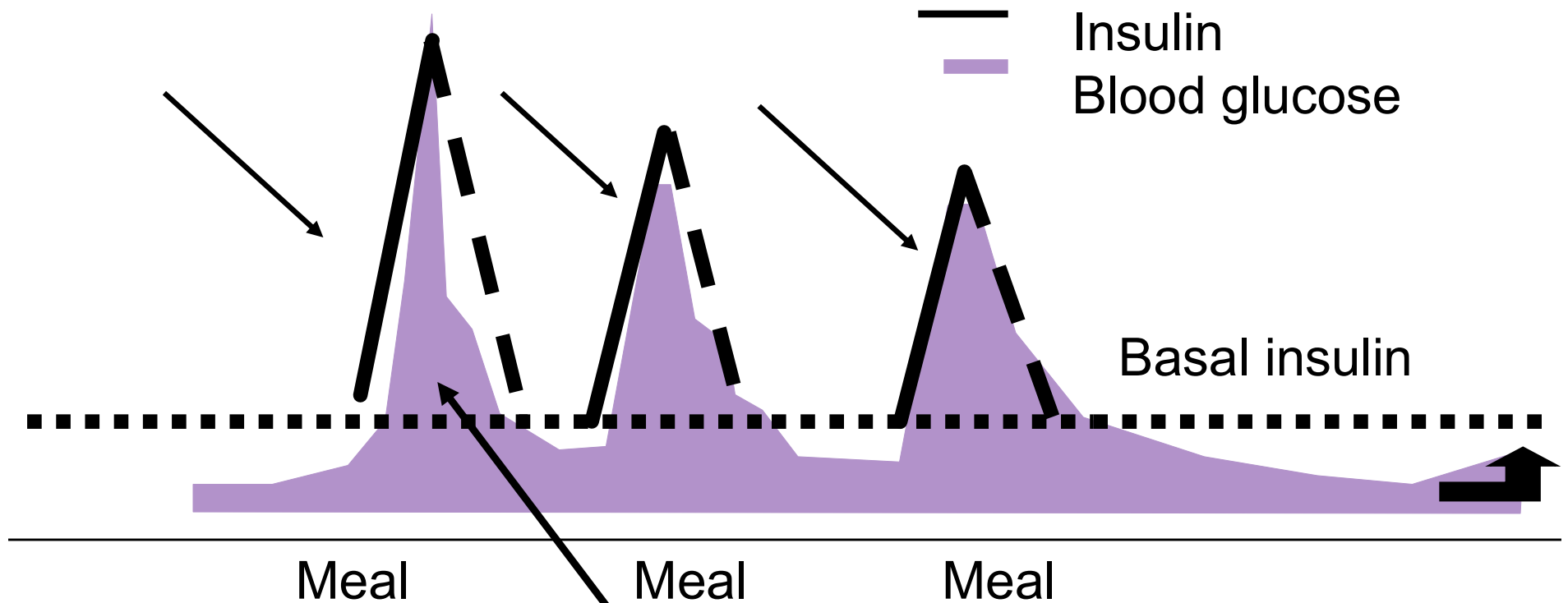
Figure 1 Milestones in the evolution of insulin therapy. NPH = neutral protamine Hagedom.

Evolution of Insulin: From Human to Analog.

Joseph M. Tibaldi, MD
 American Journal of Medicine, 2014

Physiologic Insulin Release:

Individuals without diabetes



Blood glucose— goes up after eating

Physiologic Insulin at Meals

- ▶ **1st phase:** peak 1-2 minutes, duration 10 minutes, suppresses hepatic glucose production
- ▶ **2nd phase:** duration 1-2 hours

The perfect insulin would be fast enough to match the absorption of carbohydrates

Insulin Overview

- ▶ None of the commercially available insulins are as fast as true physiologic insulin
- ▶ Almost all insulin is injected (SC or IV) with 1 inhaled option
- ▶ All people with T1D require basal + bolus insulin or insulin pump therapy
- ▶ Many people with T2D require insulin due to the progressive nature of the condition

Basal aka “Background” Insulin

- ▶ The liver plays a major role in maintaining glucose levels by regulating the process of gluconeogenesis and glycogenolysis
- ▶ Excessive hepatic glucose release leads to hyperglycemia
- ▶ In a person without diabetes, there is a low level of insulin to keep glucose homeostasis from glucose produced by the liver (**basal insulin**)
- ▶ People with T1D lack the ability to produce insulin to counteract the liver’s effects
- ▶ People with T2D may not have enough insulin due to insulin resistance
- ▶ Long-acting insulins or intermediate-acting insulins serve as a basal or “background insulin”
- ▶ In an insulin pump, a regular or rapid-acting insulin can be given continuously to serve as the basal

Everyone with T1D need basal insulin and many with T2D may need it

Bolus Insulin

- ▶ Glucose rises in response to carbohydrates
- ▶ A regular or rapid-acting insulin is given as a bolus to prevent the glucose from rising too much
- ▶ A regular or rapid-acting insulin can also be given to “correct” or bring down a high glucose

Everyone with T1D needs bolus insulin, some people with T2D may need it to achieve glycemic targets

Insulin PocketCard™

Action		Insulin Name	Effective			Considerations
			Onset	Peak	Duration	
Bolus	Very Rapid Acting Analogs	Aspart (Fiasp)	16 - 20 min	1 - 3 hrs	5 - 7 hrs	Bolus insulin lowers after-meal glucose. Post meal BG reflects efficacy. Basal insulin controls BG between meals and nighttime. Fasting BG reflects efficacy. Side effects: hypoglycemia, weight gain. Typical dosing range: 0.5-1.0 units/kg body wt/day.
		Lispro-aabc (Lyumjev)	15 - 17 min	2 - 3 hrs	5 - 7 hrs	
	Rapid Acting Analogs	Aspart (Novolog / Merilog)	20 - 30 min	1 - 3 hrs	3 - 7 hrs	
		Lispro (Humalog*/ Admelog)	30 min	2 - 3 hrs	5 - 7 hrs	
		Glulisine (Apidra)	15 - 30 min	1 - 3 hrs	3 - 4 hrs	
Short Acting	Regular*	30 - 60 min	2 - 4 hrs	5 - 8 hrs		
Basal	Intermediate	NPH	2 - 4 hrs	4 - 10 hrs	10 - 16 hrs	Side effects: hypoglycemia, weight gain. Typical dosing range: 0.5-1.0 units/kg body wt/day.
	Long Acting	Glargine (Lantus*/Basaglar/Semglee/Rezvoglar)	2 - 4 hrs	No Peak	20 - 24 hrs	
		Degludec (Tresiba)*	~ 1 hr		< 42 hrs	
	Ultra Long	Icodec (Awiqli) Once Weekly U-700	16 - 18 hrs	2 - 4 days	≥ 7 days	
Basal + Bolus	Intermediate + short	Combo of NPH + Reg 70/30 = 70% NPH + 30% Reg 50/50 = 50% NPH + 50% Reg	30 - 60 min	Dual peaks	10 - 16 hrs	Discard most open vials after 28 days. For pen storage guidelines, see package insert.
	Intermediate + rapid	Novolog® Mix - 70/30 Humalog® Mix - 75/25 or 50/50	5 - 15 min		24 hrs	

*Concentrated insulins available - see Concentrated Insulin Card for details. Insulin action times vary; time periods are general guidelines only. All PocketCard content is for educational purposes only. Please consult prescribing information for detailed guidelines. © 4/2026

BT1

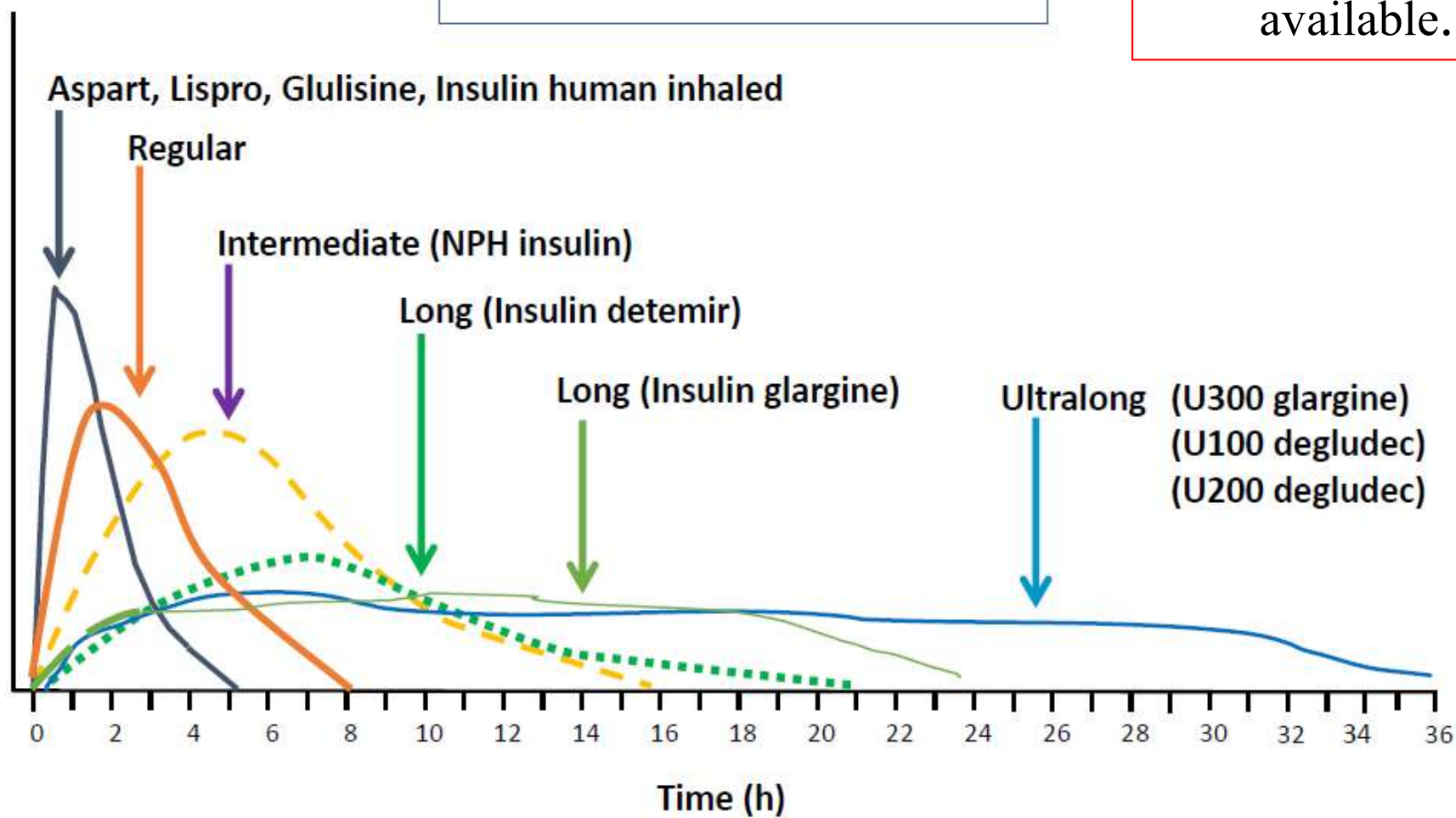
updated

Beverly Thomassian, 2026-04-07T01:20:07.357

Insulin Profiles

Plasma Insulin Levels

Detemir is no longer available.



Hirsch IB. NEJM 2005;352:174-183.

Lexicomp Online, Lexi-Drugs Online, Hudson, Ohio: UpToDate, Inc; 2020; August 21, 2020.

Insulin Concentration

- ▶ Most insulin is U100: 100 units/mL
- ▶ There is also concentrated insulin
 - ▶ U500 insulin, 500 units/mL, U300, 300 units/mL, and U200, 200 units/mL
- ▶ Insulin is available in a vial, pen, or cartridge
- ▶ U100 insulin:
 - ▶ 1 vial = 10mL = 1000 units
 - ▶ 1 pen = 3 mL = 300 units
 - ▶ 1 cartridge = 3 mL = 300 units
 - ▶ 1 box of pens = 5 pens = 1500 units
- ▶ Inhaled insulin
 - ▶ 4, 8, 12 units cartridges



Concentrated and Inhaled Insulin

Concentrated & Inhaled Insulins

Name/Concentration	Insulin/Action	Considerations
Humulin Regular U-500 <ul style="list-style-type: none"> 500 units insulin/mL KwikPen or Vial 	Regular Bolus / Basal	Indicated for those taking 200+ units daily. 3 mL pen holds 1,500 units. Max dose 300 units. Once opened, good for 28 days. 20 mL vial holds 10,000 units. Max dose 250 units using U-500 syringe. Once opened, good for 40 days.
Humalog KwikPen U-200 200 units insulin/mL.	Lispro (Humalog) Bolus	3 mL pen holds 600 units. Max dose 60 units. Once opened good for 28 days.
Lyumjev KwikPen U-200 200 units insulin/mL.	Lispro (Lyumjev) Bolus	3 mL pen holds 600 units. Max dose 60 units. Once opened good for 28 days.
Toujeo Solostar U-300 Pen 300 units insulin/mL.	Glargine (Lantus) Basal	1.5 mL pen holds 450 units. Max dose 80 units. 3 mL Max Solostar pen holds 900 units. Max dose 160 units. Once opened good for 56 days.
Tresiba FlexTouch U-200 Pen 200 units insulin/mL.	Degludec (Tresiba) Ultra basal	3 mL pen holds 600 units. Max dose 160 units. Once opened good for 56 days.

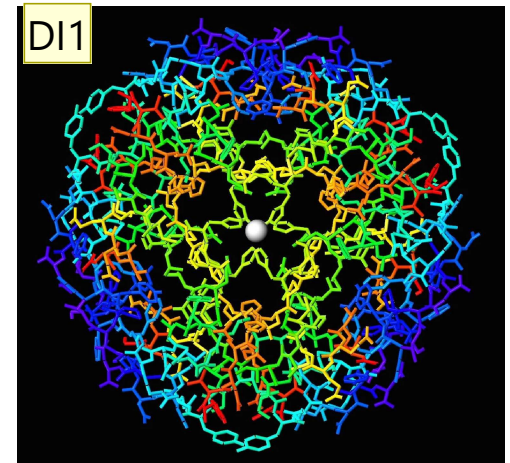
All concentrated insulin pens and the U-500 syringe automatically deliver correct dose (in less volume). No conversion, calculation or adjustments required. For example, if order reads 30 units, dial the concentrated pen to 30 units or draw up 30 units on the U-500 syringe. Important – never withdraw concentrated insulin from the pen using a syringe.

Inhaled Insulins

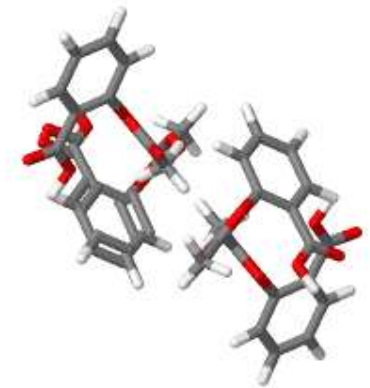
Action	Insulin Name	Dose Range	Onset	Peak	Duration	Considerations
Bolus – Rapid-acting	Afrezza Inhaled regular human insulin	4, 8, and 12 unit cartridges before meals	~ 12 min	35 - 45 mins	1.5 - 3 hrs	Assess lung function. Avoid in lung disease — bronchospasm risk. Side effects: hypo, cough, throat irritation.

Follow-On Insulin & Biosimilars

- ▶ These follow-on insulin products require a separate prescription (not directly interchangeable):
 - ▶ Insulin glargine (Lantus), follow-on product (Basaglar)
 - ▶ Insulin lispro (Humalog), follow-on product (Admelog)
- ▶ However, these have demonstrated bioequivalence and are interchangeable with the reference product:
 - ▶ Insulin glargine-yfgn (Semglee) interchangeable with Lantus
 - ▶ Insulin glargine-aglr (Rezvoglar) interchangeable with Lantus
 - ▶ Insulin aspart-szjj (Merilog) and insulin aspart-xjhz (Kirsty) interchangeable with Novolog



Insulin – Large Molecule



Aspirin – Small Molecule

Slide 19

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Added kirsty

Diana Isaacs, 2026-04-10T19:22:57.892

Generic Insulins

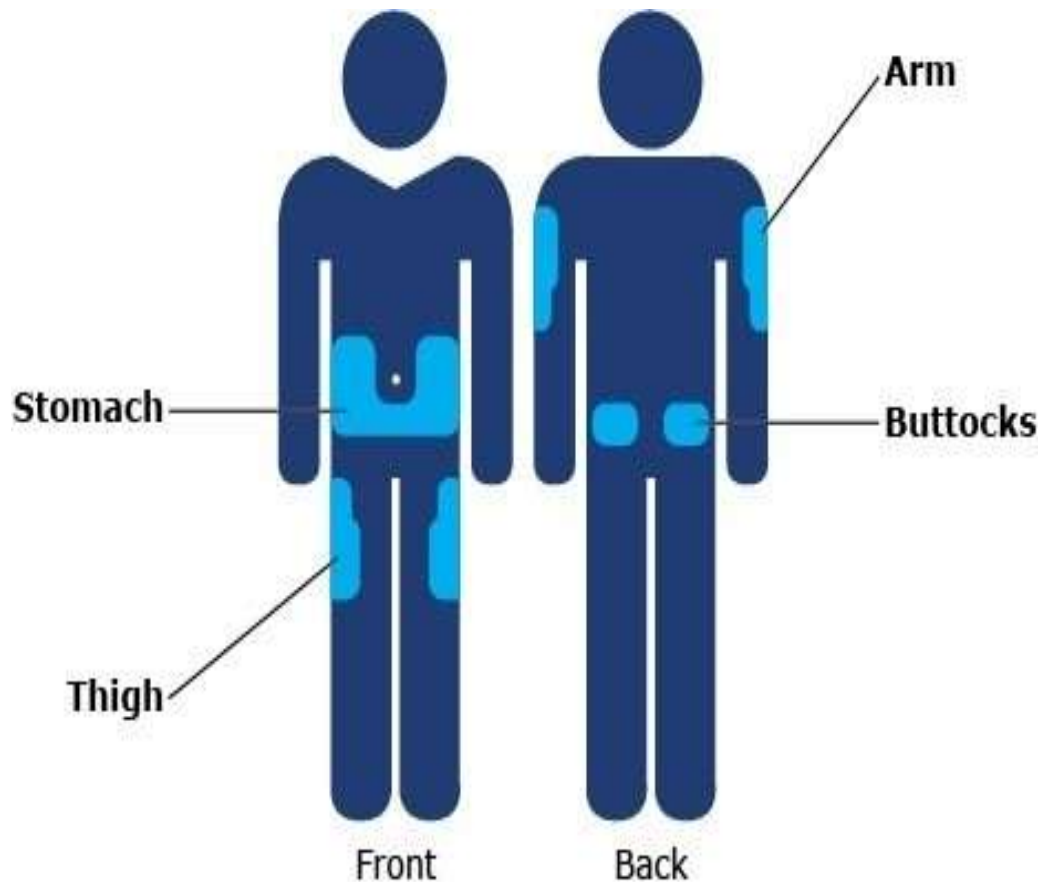
- ▶ Insulin aspart
- ▶ Insulin lispro
- ▶ Insulin glargine
- ▶ About half the cost of the brand name
- ▶ Exact same formulation, produced by same manufacturer, interchangeable at pharmacy



Which Insulin is Interchangeable with Lantus (Insulin glargine U100)? Poll 1

- A. Toujeo (Insulin glargine U300)
- B. Basaglar (Insulin glargine U100)
- C. Rezvoglar (Insulin glargine U100)
- D. Tresiba (Insulin degludec U100)
- E. All of the above

Insulin Injection Sites



Sites should be rotated

Insulin Key Counseling Points

- ▶ Do not shake insulin
- ▶ Cloudy insulin (NPH or pre-mixed) should be rolled before use so suspension is uniform
- ▶ Skin thickness is usually 2mm regardless of person's size, so shortest needles (4mm) work well for most
- ▶ Take outer and inner covering off for pen needles
- ▶ Leave the needle/syringe in the body for 5-10 seconds
- ▶ Change needle or syringe with each injection
- ▶ Dispose of needles/syringes in a sharps container or per local regulations



Priming insulin

- ▶ Prime pens before every use to get air bubbles out
- ▶ Hold vertically with needle at the top
- ▶ Turn dial to 2 units
- ▶ Push plunger
- ▶ Repeat until insulin comes out of the top
- ▶ May have to do multiple times for a new pen
- ▶ This will ensure all air is out and that pen needle works
- ▶ Do this every time an insulin pen injection is given



Mixing NPH & Regular Insulin

How To Mix Insulin

CLOUDY

air in the cloudy



STEP 1

CLEAR

air in the clear



STEP 2

CLEAR

draw up the clear



STEP 3

CLOUDY

draw up the cloudy



STEP 4

DI1

New slide

Diana Isaacs, 2026-04-10T21:09:25.206

Storage Options



Side Effects of Insulin

Weight Gain

Lipodystrophy/
Lipohypertrophy

Hypoglycemia



Sharps Disposal: Product and Info



- ▶ Search for household hazardous waste listing for your city or county.
- ▶ Call 1-800-CLEANUP (1-800-253-2687)

Insulin Storage and Expiration Cheat Sheet Available

Insulin Storage and Dispensing Info

Product Name/Type	Expiration when opened, stored at room temp up to 86 F	Pens per Box Or Vial	Units per Pen/Vial	Max Dose / Notes
Rapid Acting Insulins				
Aspart (Fiasp) -Vial -Pen -Pump	28 Days 28 Days 6 Days	1 Vial 5 Pens per Box	1000 units 300 units in 3 mL	80 Units
Aspart (Novolog) -Vial -Cartridge -Flexpen - Pump	28 Days 28 Days 28 Days 6 Days	1 Vial 5 cartridges 5 Pens per Box	1000 units 300 units in 3 mL 300 units in 3 mL	60 Units
Glulisine (Apidra) -Vial -SoloStar Pen -Pump	28 Days 28 Days 2 Days	1 Vial 5 Pens per Box	1000 units 300 units in 3 mL	80 Units
Lispro (Humalog/Admelog) -Vial -Cartridge -Pen -Pump	28 Days 28 Days 28 days Up to 7 Days	1 Vial 5 cartridges 5 Pens per Box	1000 units 300 units in 3mL 300 units in 3mL	80 Units (Admelog) 60 Units (Humalog)
Lispro -aabc (Lyumjev) - Vial -Cartridge -KwikPen	28 Days 28 Days 28 days	1 Vial 5 cartridges 5 Pens per box	1000 units 300 units in 3mL 300 units in 3mL	60 units

Basal Insulin Storage & Dispensing

Product Name/Type	Expiration when opened, stored at room temp up to 86 F	Pens per Box Or Vial	Units per Pen/Vial	Max Dose / Notes
Basal Insulins - Long and Ultra Long Acting				
Glargine (Lantus) Biosimilars: Basaglar Semglee/Rezvoglar - Pen Delivery - Vials; Lantus, Semglee	28 Days 28 Days	5 Pens 1 Vial	300 units in 3 mL 1000 Units	80 Units
Degludec (Tresiba) - Pen	56 Days	5 Pens	300 units in 3mL	80 Units
Icodec (Awiqli) U-700 Once weekly injection	12 weeks	1 pen/pack with needles	700 units in 1.0 mL 1050 units 1.5 mL 2100 units in 3mL	Max dose 700 units. Flex Touch Pen dials in 10-unit dosing increments.

BT1

new

Beverly Thomassian, 2026-04-07T01:21:13.336

Polling Question 2

▶ After how many days should an open vial of insulin degludec be discarded?

A. 28 days

B. 30 days

C. 42 days

D. 56 days

Question Time

Break for Questions





Weekly Insulin

Rationale for Developing Once-Weekly Insulin

Potential benefits
from prolonged,
flatter
pharmacokinetic and
pharmacodynamic
profiles

- Reduced glycemic variability
- Longer duration makes them more forgiving of missed doses
- Reduced injection frequency, potentially improving medication taking behavior and patient satisfaction

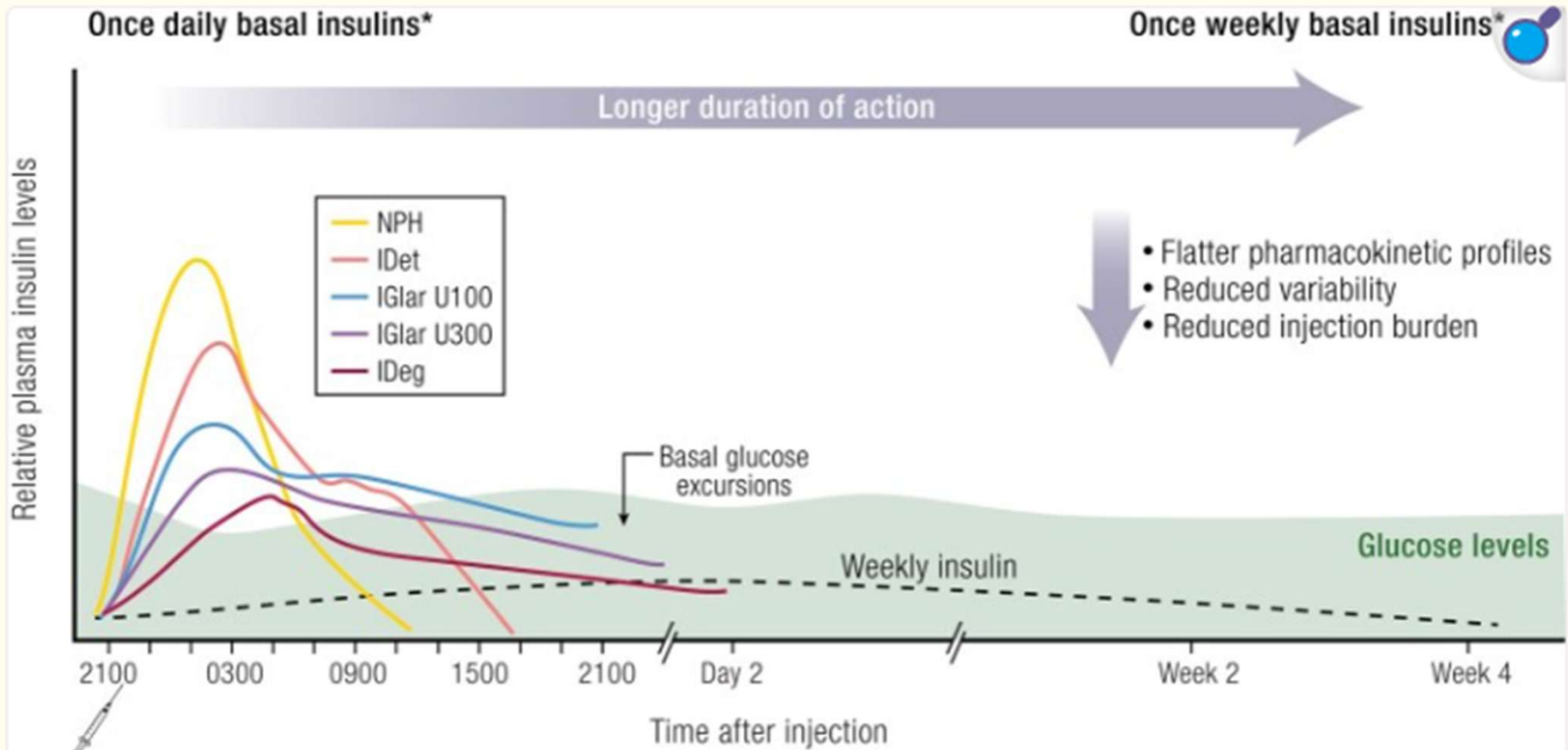
Slide 34

DI1

New slide

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Weekly Insulins vs Standard Insulins



*Schematic representation of single doses

DI1

New slide

Diana Isaacs, 2026-04-10T21:13:10.566

Icodec (Awiqli)

- ▶ Icodec
 - ▶ An ultra long acting insulin – lasts 7 days
 - ▶ Peaks in 2-4 days
 - ▶ Takes 3-4 weeks to reach steady state
 - ▶ Available in U-700 pens dosed in 10 units increments.
 - ▶ Adjust dose every 7-14 days
- ▶ Because of icodec's long half-life and delayed steady state, dose changes take longer to fully manifest, avoid making rapid or frequent adjustments.
- ▶ Adjust every 1-2 weeks based on glycemic response.



Slide 36

BT1

new

Beverly Thomassian, 2026-04-07T01:20:46.893

Icodec Dosing Considerations

- ▶ When initiating **insulin icodec**, dosing based on current total daily basal insulin dose.
- ▶ Multiply existing **daily basal dose by 7** to estimate the initial once-weekly dose, followed by careful titration based on fasting glucose trends.



- ▶ For individuals who are insulin-naïve, a standard starting dose of 70 units once weekly in clinical trials was used in clinical studies.
- ▶ Individualization is key—consider factors such as hypoglycemia risk, renal function, ability to monitor glucose when determining and adjusting the dose.

Slide 37

BT1

new

Beverly Thomassian, 2026-04-07T01:20:57.206

Icodec Dosing Considerations

- ▶ **Dose Adjustment in Altered Kidney Function**
 - ▶ eGFR of 50 or greater – no dosage adjustment needed.
 - ▶ eGFR of 10-50 – administer 75% of usual starting dose.
 - ▶ eGFR less than 10 – administer 50% of usual dose.
- ▶ **Missed Doses:**
 - ▶ If 3 or fewer days until next regularly scheduled dose:
 - ▶ Administer missed dose as soon as possible.
 - ▶ Reset weekly dosing schedule to start one week later.
 - ▶ If 4 or more days until next regularly scheduled dose:
 - ▶ Administer missed dose as soon as possible.
 - ▶ Continue current weekly dosing schedule.
 - ▶ [See Package Insert for Dosing Info](#)

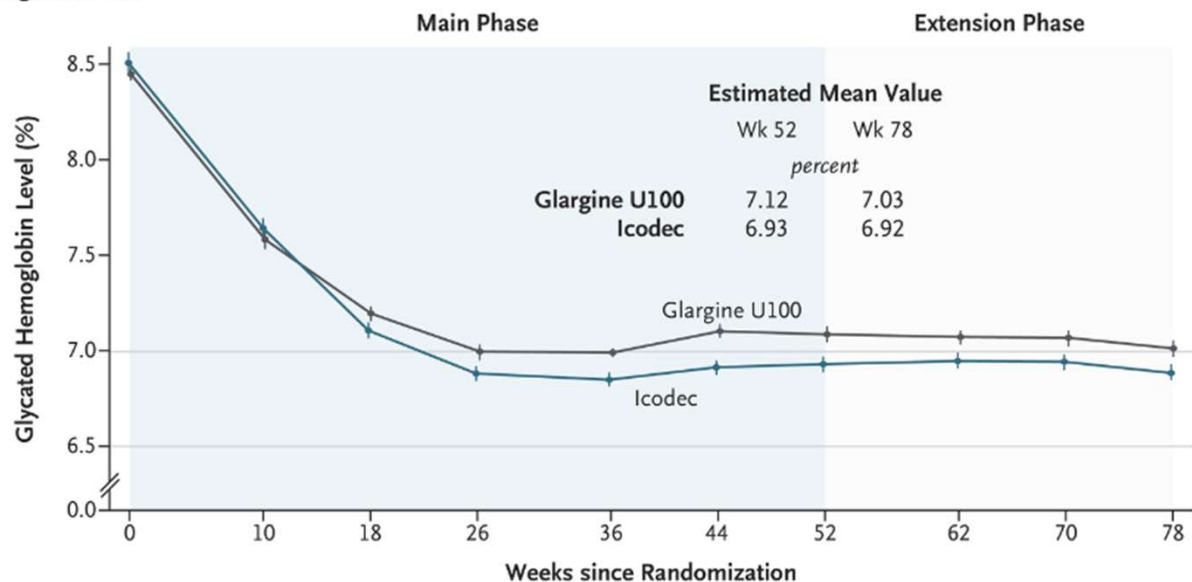
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Glargine vs. Icodec in T2D

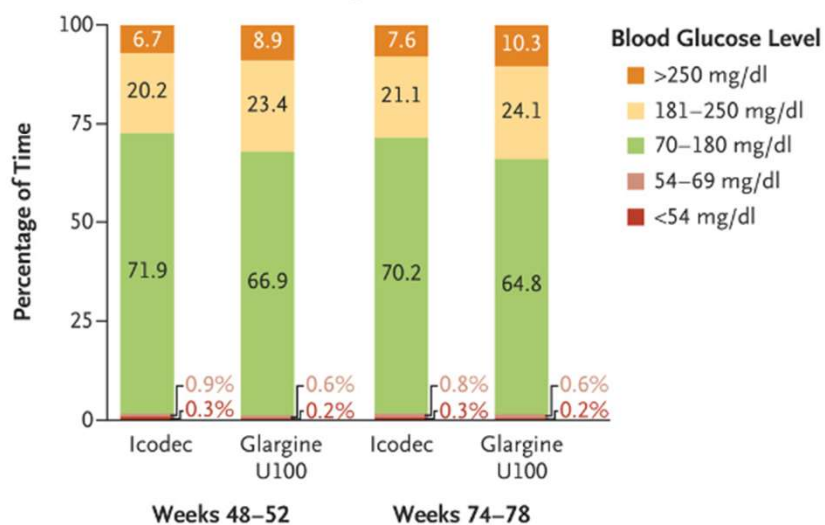
A Glycated Hemoglobin Level



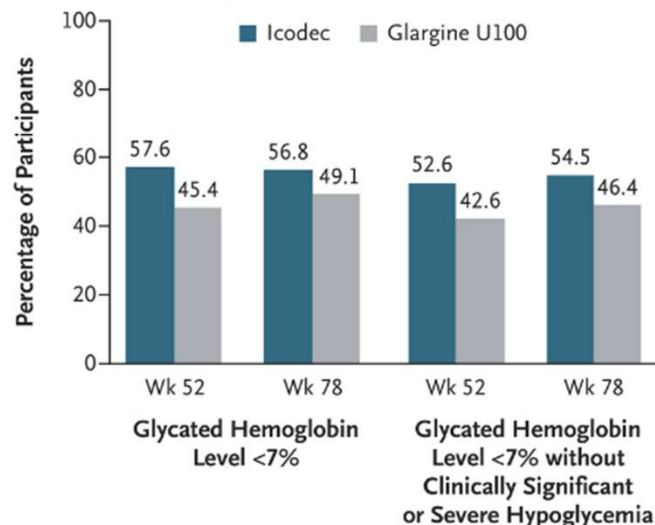
▶ 492 pts in each group

▶ Primary outcome: change in A1C

B Continuous Glucose Monitoring

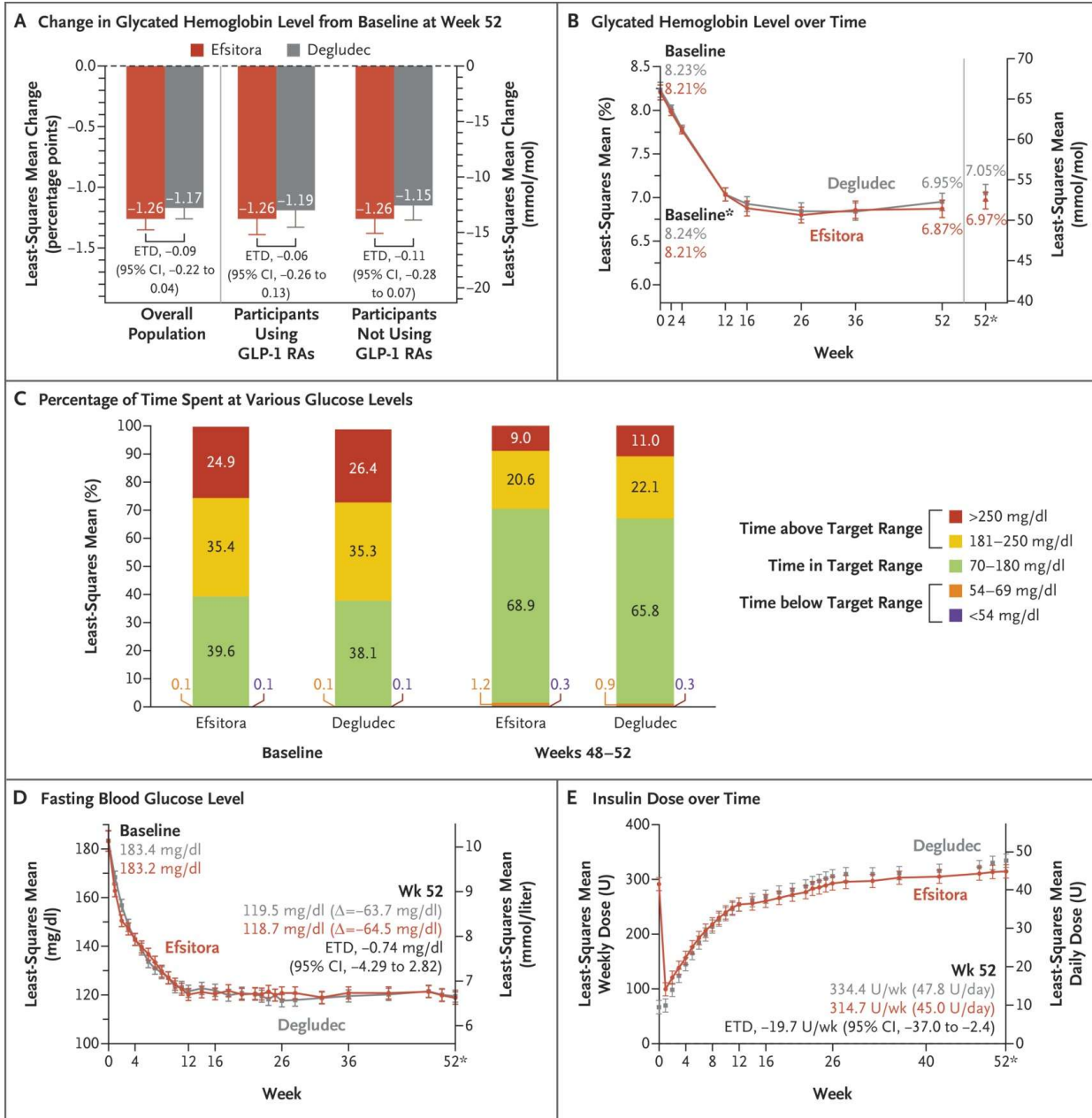


C Achievement of Glycated Hemoglobin Targets



▶ Conclusion: glycemic control better with icodec

Degludec vs. Efsitora in T2D



► **Insulin efsitora alfa:** once-weekly, Fc-fusion basal insulin with ~17-day half-life

► 928 pts

► Primary outcome: change in A1C

► Efsitora non-inferior

Benefits and Risks of Once-Weekly Basal Insulin

Potential Benefits

- Fewer injections → improved acceptance and persistence
- Simplified routines, especially for insulin-naive patients
- Opportunity to pair with CGM + decision support
- Patient-reported satisfaction signals

Unique Risks

- Longer half-lives → slower “undo” if overtitrated
- Missed doses show no immediate loss of efficacy
- Illness/surgery may require temporary strategy changes
- Hypoglycemia risk: generally low but varies by trial and population

Dosing Considerations

- Treat-to-target using fasting glucose
- More flexible dose titration
- Dose changes are less frequent (weekly or every 2-4 wk)
- Switching to once-weekly insulin may require a loading dose

Poll Question 2

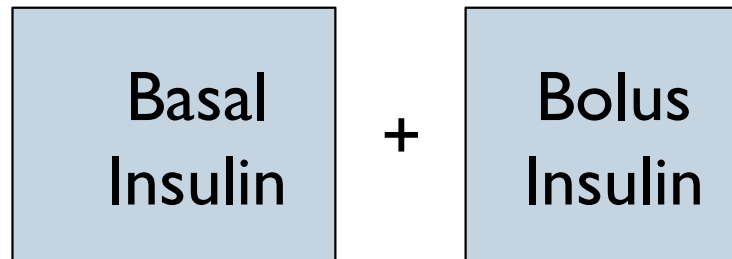
- ▶ RL takes 140 units of icodec once weekly and 10 units aspart at each meal. BMI is 28kg/m² and A1C is 6.9%. Pre breakfast BG levels are ranging from 70-90s. What is the best action?
 - a. Advise RL to eat bedtime protein/carb snack.
 - b. Decrease breakfast aspart by 2 units.
 - c. Increase breakfast carbs by 15 gms.
 - d. Decrease icodec to 80 units weekly



How to Dose Insulin

Type 1 Diabetes (T1D)

- ▶ Absolute deficiency in endogenous insulin
- ▶ Exogenous insulin is required
- ▶ The regimen should include:



How to Dose Insulin? T1D

- ▶ Newly diagnosed T1D
 - ▶ Total insulin dose: 0.5-1.0 units/kg/day
 - ▶ 50% basal
 - ▶ 50% bolus
- ▶ Bolus can initially start with set doses or calculations can be used to determine initial carbohydrate ratio and correction factor

Insulin PocketCard™

Action		Insulin Name	Onset	Peak	Duration	Considerations
Bolus	Very Rapid Acting Analogs	Aspart (Fiasp)	16 - 20 min	1 - 3 hrs	5 - 7 hrs	Bolus insulin lowers after-meal glucose. Post meal BG reflects efficacy. Basal insulin controls BG between meals and nighttime. Fasting BG reflects efficacy. Side effects: hypoglycemia, weight gain. Typical dosing range: 0.5-1.0 units/kg body wt/day.
		Lispro-aabc (Lyumjev)	15 - 17 min	2 - 3 hrs	5 - 7 hrs	
	Rapid Acting Analogs	Aspart (Novolog / Merilog)	20 - 30 min	1 - 3 hrs	3 - 7 hrs	
		Lispro (Humalog*/ Admelog)	30 min	2 - 3 hrs	5 - 7 hrs	
		Glulisine (Apidra)	15 - 30 min	1 - 3 hrs	3 - 4 hrs	
Short Acting	Regular*	30 - 60 min	2 - 4 hrs	5 - 8 hrs		
Basal	Intermediate	NPH	2 - 4 hrs	4 - 10 hrs	10 - 16 hrs	Side effects: hypoglycemia, weight gain. Typical dosing range: 0.5-1.0 units/kg body wt/day.
	Long Acting	Glargine (Lantus*/Basaglar/Semglee/Rezvoglar)	2 - 4 hrs	No Peak	20 - 24 hrs	
		Degludec (Tresiba)*	~ 1 hr		< 42 hrs	
	Ultra Long	Icodec (Awiqli) Once Weekly U-700	16 - 18 hrs	2 - 4 days	≥ 7 days	
Basal + Bolus	Intermediate + short	Combo of NPH + Reg 70/30 = 70% NPH + 30% Reg 50/50 = 50% NPH + 50% Reg	30 - 60 min	Dual peaks	10 - 16 hrs	Discard most open vials after 28 days. For pen storage guidelines, see package insert.
	Intermediate + rapid	Novolog® Mix - 70/30 Humalog® Mix - 75/25 or 50/50	5 - 15 min		24 hrs	

*Concentrated insulins available - see Concentrated Insulin Card for details. Insulin action times vary; time periods are general guidelines only. All PocketCard content is for educational purposes only. Please consult prescribing information for detailed guidelines. © 4/2026

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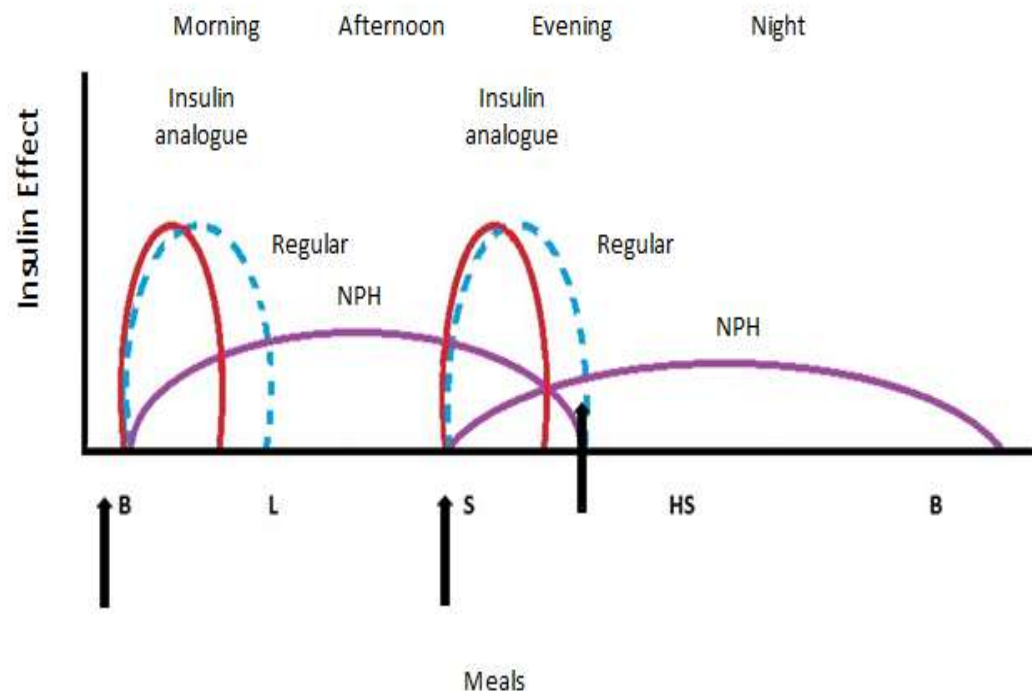
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T1D: Insulin Dosing Regimens

Time of Insulin Administration	Before breakfast	Before lunch	Before dinner	Bedtime
Method 1	Intermediate: Regular (2/3 TDD) 2:1 ratio		Intermediate: Regular (1/3 TDD) 2:1 ratio	
Method 2	Regular/ analog (1/2 TDD ÷ by 3)	Regular/ analog (1/2 TDD ÷ by 3)	Regular/ analog (1/2 TDD ÷ by 3)	Long-acting (1/2 TDD)

***These are starting regimens and are adjusted based on ability to carbohydrate count and glycemic management as determined by A1C, BGM and/or CGM

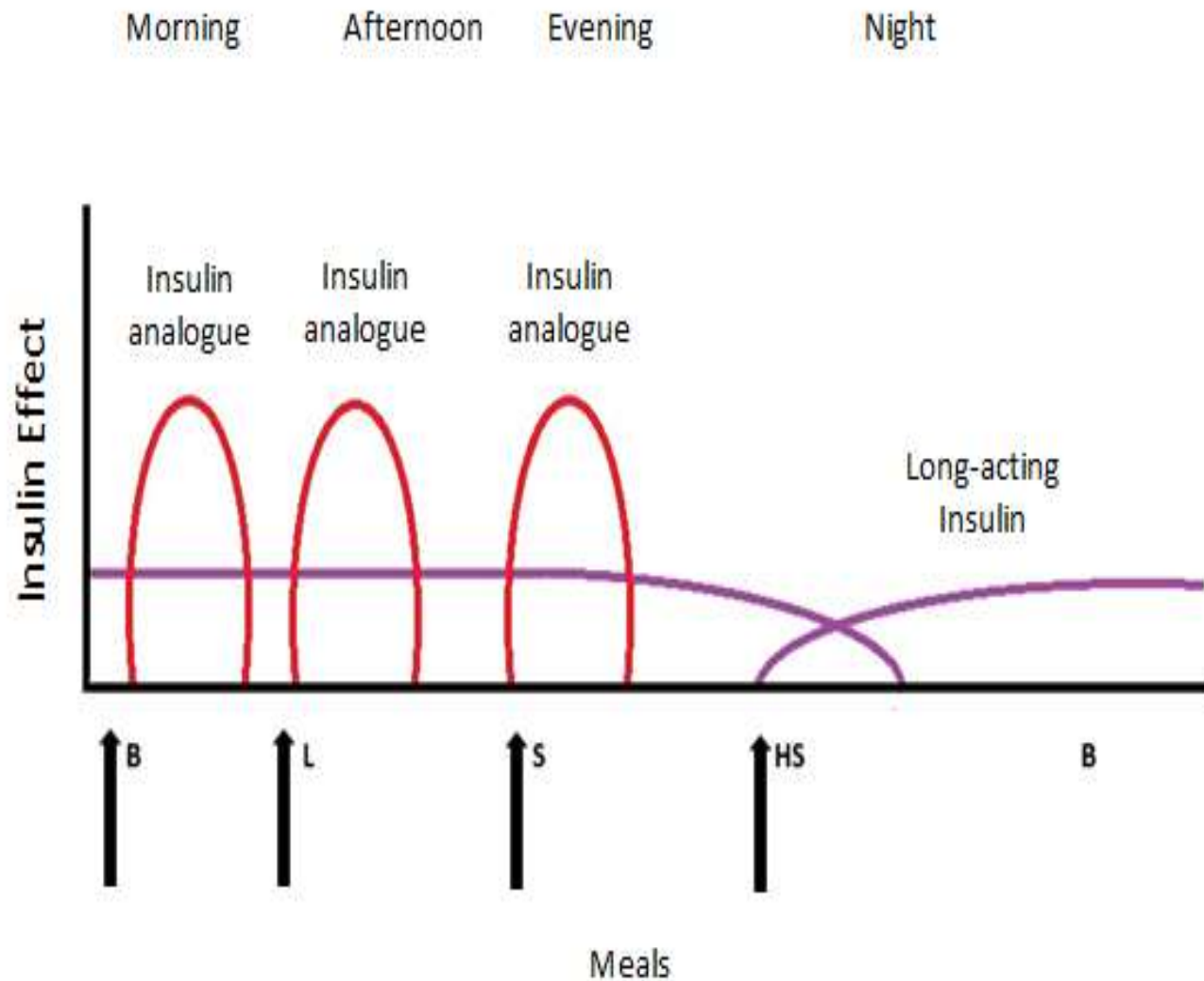
Intermediate-acting Insulin + Regular Insulin or Insulin Analogue



Intermediate insulin serves as basal while regular or insulin analog serves as bolus

Regular insulin: Novolin R, Humulin R
Intermediate insulin: Novolin N, Humulin N
Insulin analogue: aspart, lispro, glulisine

Long-acting Insulin with Insulin analog



Long-acting
serves as
basal
insulin
analog
serves as
bolus

Carbohydrate Ratio

- ▶ Insulin to carbohydrate ratio (ICR)
 - ▶ 1 unit of insulin is expected to cover X grams of carbohydrates

- ▶ Rule of 450 or 500 can be used
 - ▶ $450/\text{TDD} = \text{estimated carbohydrate ratio}$

Correction Factor

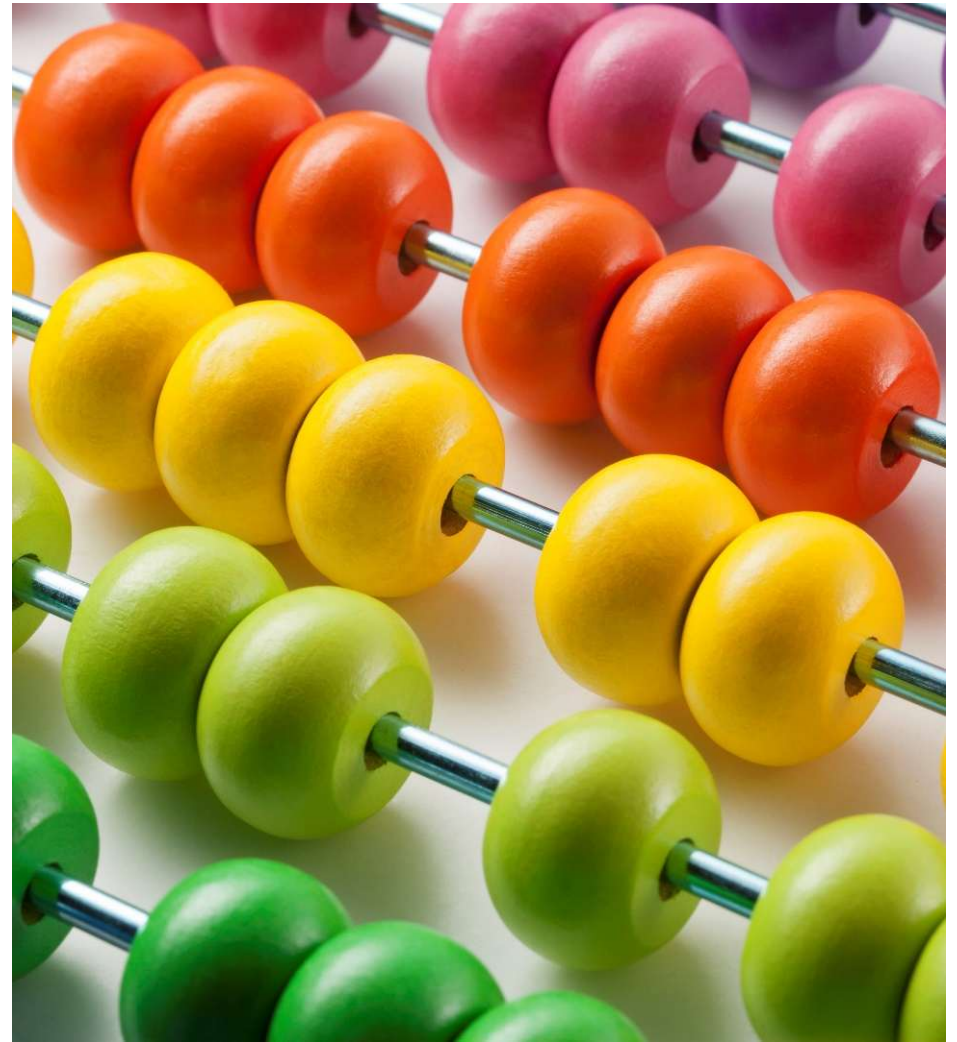
- ▶ Insulin correction factor (ICF)
 - ▶ Also known as insulin sensitivity factor (ISF)
 - ▶ 1 unit of insulin is expected to lower glucose by Y points
- ▶ Rule of 1700 or 1800 can be used
 - ▶ $1700/\text{TDD} = \text{estimated ICF}$
- ▶ For regular insulin, the rule of 1500 is typically used

An Example: Meet Austin

- ▶ Austin is a 12-year-old newly diagnosed with T1D, he weighs 40kg
- ▶ He is started on 0.5 units/kg/day of total insulin
 - ▶ $40 \times 0.5 = 20$ units
 - ▶ 50% basal = 10 units
 - ▶ 50% bolus = 10 units
- ▶ Austin is prescribed 10 units of long-acting insulin and 3 units of rapid-acting insulin at meals
- ▶ The insulin doses will be adjusted based on glucose data

Austin Calculation cont'd

- ▶ Austin is ready for carbohydrate counting
- ▶ Based on the rule of 450 and rule of 1700, what should his ICR and ICF be?



Poll Question 3

▶ Based on the rule of 450 and rule of 1700, what should Austin's ICR and ISF be? (TDD=20 units/day)

A. ICR=22, ISF=85

B. ICR=20, ISF=60

C. ICR=15, ISF=50

D. ICR=30, ISF=75

E. I am not sure

Slide 54

DI1

updated

Diana Isaacs, 2026-04-10T20:00:48.406

Answer and Explanation

- ▶ $ICR=450/20=22.5$
 - ▶ This means that 1 unit of insulin covers 22 grams of carbohydrate
 - ▶ If Austin eats 45 grams of carbohydrate, he should inject 2 units
- ▶ $ISF=1700/20=85$
 - ▶ This means that 1 unit of insulin is expected to lower glucose by 85 mg/dL
 - ▶ Austin's glucose target is 100
 - ▶ If his current glucose is 185, he should take 1 extra unit of insulin

Slide 55

DI1

updated

Diana Isaacs, 2026-04-10T20:00:35.582

DI2

updated

Diana Isaacs, 2026-04-10T20:00:40.341

Correction Scale 1

Rapid/Fast Acting Insulin (1 unit:50 mg/dl>150)

Less than 70	Subtract 1 unit
70-150 mg/dl	0 units
151-200 mg/dl	1 unit
201-250 mg/dl	2 units
251-300 mg/dl	3 units
301-350 mg/dl	4 units
351-400 mg/dl	5 units

Correction Scale 2

Rapid/Fast Acting Insulin (2 units:50 mg/dl>150)

Less than 70	Subtract 1 unit
70-150 mg/dl	0 units
151-200 mg/dl	2 unit
201-250 mg/dl	4 units
251-300 mg/dl	6 units
301-350 mg/dl	8 units
351-400 mg/dl	10 units

Poll Question 4

- ▶ How much insulin would you start on a child with T1D that weighs 65lbs?
 - A. 10 units/day
 - B. 15 units/day
 - C. 30 units/day
 - D. 40 units/day



Slide 58

DI1

Changed the question.

Diana Isaacs, 2025-08-25T18:37:23.982

Inhaled Insulin (Afrezza)



- **FDA approved for adults over 18yo**
- **Not indicated for kids or during pregnancy (yet)**
- **Comes in 4, 8 and 12 units cartridges**

Injected Meal Time Dose	Inhaled Insulin Dose
Up to 4 units	4 units
5-8 units	8 units
9-12 units	12 units
12-16 units	16 units
17-20 units	20 units
21-24 units	24 units

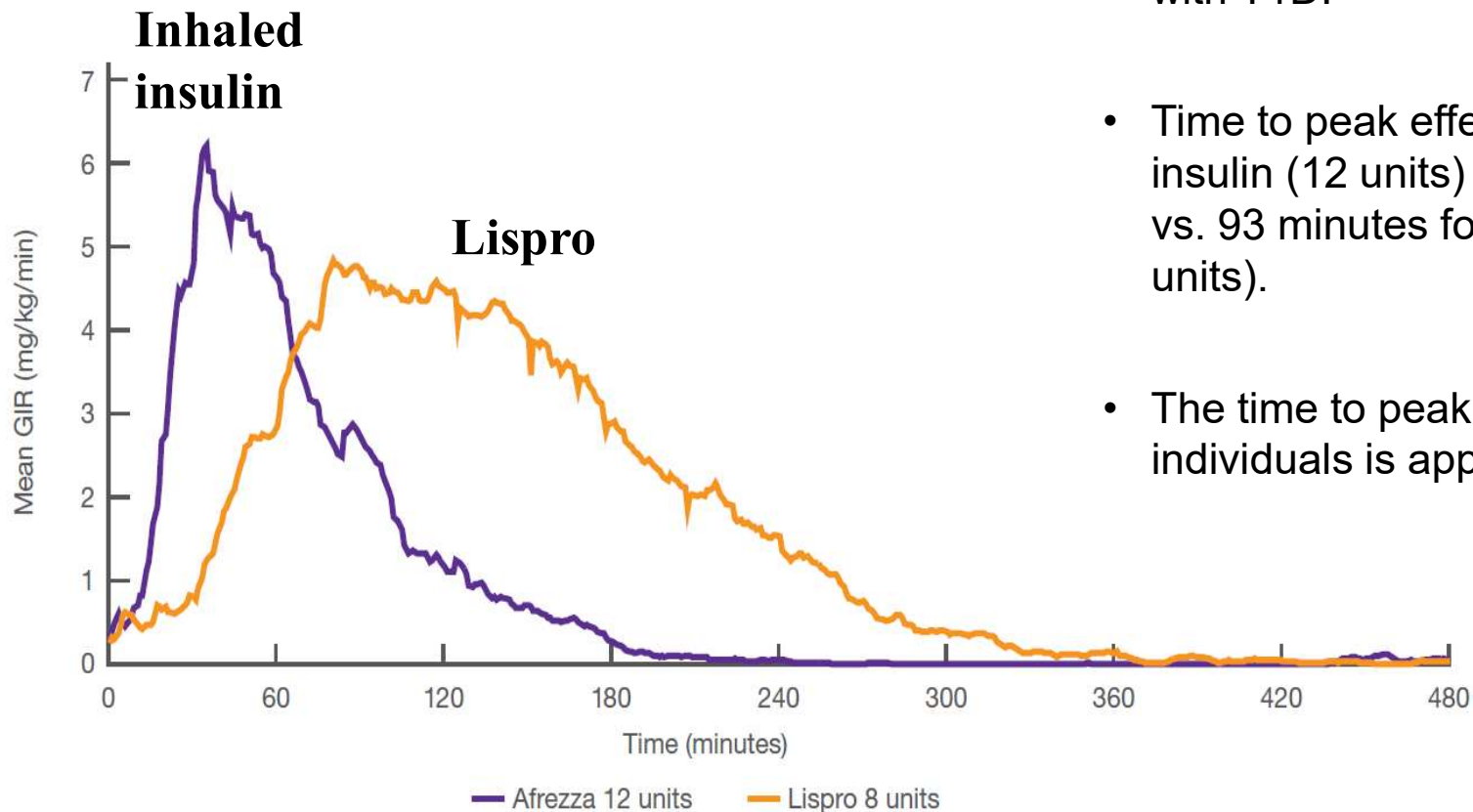
DI1

Modified slightly.

Diana Isaacs, 2025-08-25T18:38:44.263

Inhaled Insulin Vs. Insulin lispro

- Clinical trial comparing inhaled insulin to insulin lispro in 30 people with T1D.
- Time to peak effect for inhaled insulin (12 units) was 42 minutes vs. 93 minutes for insulin lispro (8 units).
- The time to peak effect in healthy individuals is approx 45 minutes.



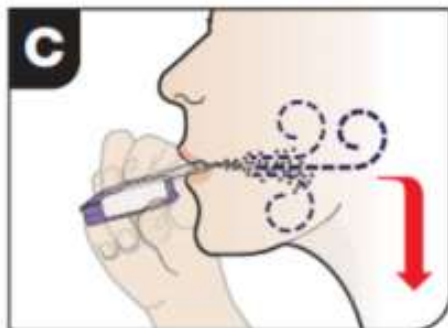
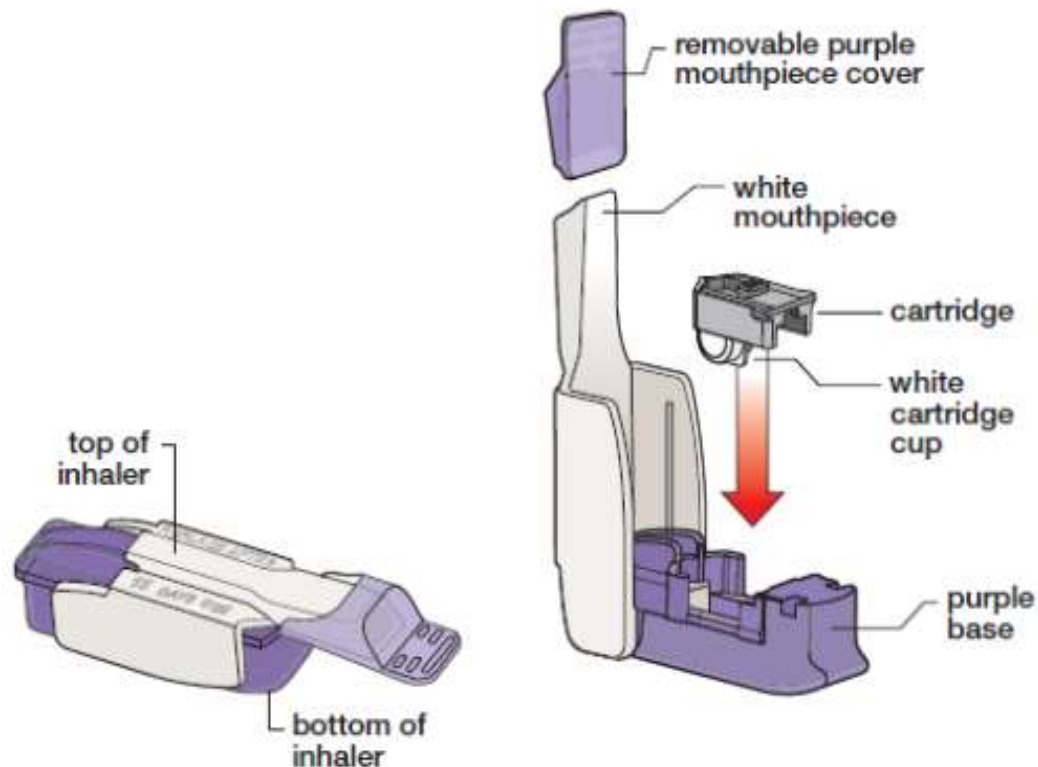
1. Grant M, Heise T, Baughman R. *Clin Pharmacokinet.* 2022;61(3):413-422.
Caumo A, Bergman RN, Cobelli C. *J Clin Endocrinol Metab.* 2000;85(11):4396-4402.
Afrezza (insulin human) Inhalation Powder Prescribing Information. MannKind Corporation.

Inhaled Insulin: Time to Effect

	Insulin in Healthy Individuals	Inhaled Insulin	Injectable Insulin
Onset (minutes)	10	12	17-30
Peak effect (minutes)	45	45	90-120
Back to baseline (minutes)	210	180	275-320

- Time to reach peak effect for inhaled insulin is 45 minutes versus 90-120 minutes with injectable insulin
- Time for insulin effect to return to baseline for inhaled is 180 minutes vs. 275-320 minutes for injectable insulin

Inhaled Insulin





Inhale Deeply and Hold Breath

With your mouth closed around the mouthpiece, **inhale deeply through the inhaler.**

Hold your breath for as long as comfortable and at the same time remove the inhaler from your mouth. After holding your breath, exhale and continue to breathe normally.

Inhaled Insulin Storage

- ▶ Opened inhaler: use in 15 days
- ▶ Sealed foil packages: refrigerate until expiration date on package
- ▶ Sealed blister card strips: room temp-use within 10 days, fridge-30 days
- ▶ Opened strips: room temperature, use within 3 days
- ▶ Before using, inhaler and strips should be at room temperature for at least 10 minutes

SEALED BLISTER CARDS + STRIPS	Room Temperature
	Must be used within 10 days
OPENED STRIPS	Room Temperature
	Must be used within 3 days

Inhaled Insulin Dosing and Counseling

- ▶ Bolus insulin – inhaled at meals
- ▶ Usually requires 2-3x injected dose
- ▶ May inhale more 1-2 hours after a meal as needed
- ▶ Use with a basal insulin
- ▶ Lung function test before start (FEV1)
 - ▶ Not for those w/ chronic lung issues
 - ▶ Asthma, COPD, history of lung cancer, smoking within past 6 months
 - ▶ Can cause acute bronchospasm – Black box warning
- ▶ Side effects:
 - ▶ Sore throat, cough
 - ▶ Less hypoglycemia than injected insulin

Bolus Insulin Timing

- ▶ How is the effectiveness of bolus insulin determined?
 - ▶ 1-2 hours post meal
 - ▶ Before next meal blood glucose
- ▶ Glucose goals (may be modified based on pt specific factors)
 - ▶ 1-2 hours peak post meal <180 mg/dL (ADA)
 - ▶ 2 hour post meal <140 mg/dL (AACE)
 - ▶ Before next meal 80 – 130 mg/dL



Poll Question 5



- ▶ Mary takes 4 units of insulin lispro before breakfast. Which BG result reflects that the dose was the right dose?
- 1. Before breakfast BG of 97
- 2. 1 hour post lunch BG of 160
- 3. Before lunch BG of 94
- 4. 2 hour post breakfast BG of 185



U500 Insulin

More than 200 units a day?

DRUG NAME	AVAILABILITY	PEN UNITS	EXPIRATION	ONSET	PEAK EFFECT	DURATION OF ACTION	CLINICAL PEARLS
INSULIN HUMAN REGULAR (HUMULIN R U500)	Pen, Vial	5 unit	Vial: 40 days Pen: 28 days	0.25-0.5 hours	4-8 hr	13-24 hr	This insulin is 5 time as concentrated. If using a vial, use the special U500 syringe.

DailyMed: <https://dailymed.nlm.nih.gov/dailymed/index.cfm>

Stahnke AM et al. ADCES in Practice. March, 2020. <https://doi.org/10.1177/2633559X20896414>

Switching to u500 insulin

- ▶ Typically reserved for people requiring insulin >200 units/day
- ▶ U500 acts like an intermediate acting insulin but replaces both the basal and bolus doses
 - ▶ If A1C < 8%, recommend to reduce TDD by 10-20%
 - ▶ If A1C ≥ 8%, consider 1:1 conversion
- ▶ Typically dosed 2-3 times daily
- ▶ Take 30 minutes prior to meals
- ▶ Often initiated as a 60/40 or 40/30/30 split

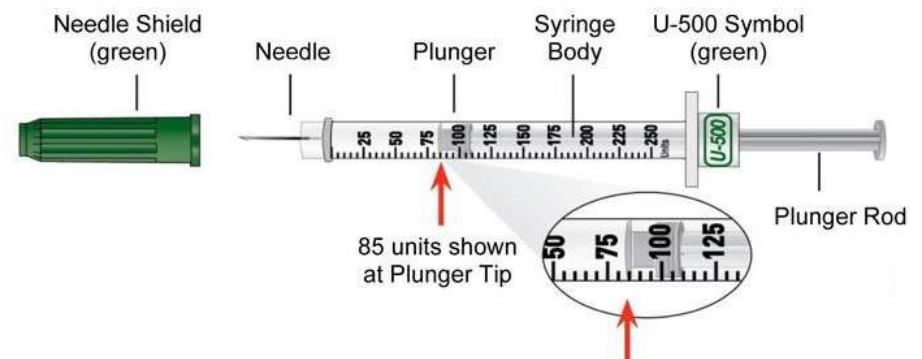
U500 Example: Let's Practice

- ▶ A woman with obesity, T2D, and insulin resistance takes insulin glargine 120 units BID and insulin aspart 60 units TID a.c. Her most recent A1C=9%. How would she switch to U500?
 - ▶ Will it be a 1:1 conversation or dose reduce?
 - ▶ How to split: 60/60 or 40/30/30?
- ▶ New Dose:
 - ▶ Must round to nearest 5 unit increment



U500 Example: Answer

- ▶ A woman with obesity, T2D, and insulin resistance takes insulin glargine 120 units BID and insulin aspart 60 units TID a.c. Her most recent A1C=9%. How would she switch to U500?
 - ▶ 1:1 conversion since A1C \geq 8%
 - ▶ TDD=180+240=420 units split as 40/30/30
- ▶ New Dose:
 - ▶ U500 165 units QAM, 125 units at lunch, 125 units at dinner
 - ▶ Must round to nearest 5 unit increment
 - ▶ Inject 30 minutes before each meal
 - ▶ Use U500 syringe or U500 pen
 - ▶ Do not use U100 syringes!





Barriers to Insulin Use

Poll Question 6

- ▶ AJ tells you she doesn't want to start on insulin. What is your best response?
 - a. The needles are so small, you won't even feel it.
 - b. Lots of people are afraid of insulin.
 - c. It sounds like you are refusing to take insulin?
 - d. I'm sorry, but there is a doctors' order to start insulin.
 - e. What concerns do you have about taking insulin?



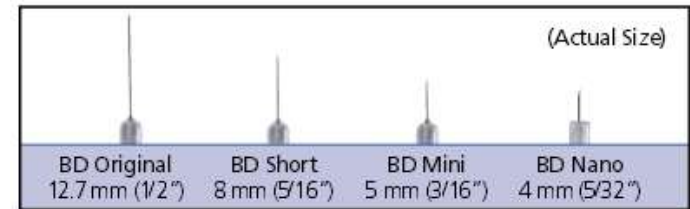
Psychological Insulin Resistance (PIR)

- ▶ 50% of providers in study threatened pts “with the needle”.
- ▶ Less than 50% of providers realized insulins’ positive effect on T2D
- ▶ Most pts don’t believe that insulin would “better help them manage their diabetes”.
- ▶ Solutions: Find the root of PIR and address it



Needle Size often a Barrier: Size Matters

- ▶ Use shortest needles – 4 mm
- ▶ Effective for almost ALL patients
- ▶ Keeps it subq
- ▶ If thin, inject at angle
- ▶ To avoid leakage, count to 10 before withdrawing needle
- ▶ For needle phobias, consider insulin pumps, patches, iport, and/or inhaled insulin




BD Nano 4mm and BD Mini 5mm only available in pen needles

Question Time

Break for Questions





How To's of Adding Insulin in Type 2 DM

1st Injectable: GLP-1 if Possible

In adults with T2D without severe hyperglycemia or hyperglycemic crisis, a GLP-I based therapy is preferred to insulin for initial or add-on glucose lowering therapy (A)



ADA SOC 2026

DI1

Updated to 2026

Diana Isaacs, 2026-04-10T20:47:53.498

Insulin + GLP-1? YES!

- ▶ If insulin is used, combination therapy with a GLP-1RA or GIP/GLP-1RA, is recommended for greater glycemic effectiveness and beneficial effects on weight and hypoglycemia risk
- ▶ In adults with T2D who are initiating insulin therapy, continue glucose-lowering agents (unless contraindicated or not tolerated) for ongoing glycemic and metabolic benefits (i.e., weight, cardiometabolic, or kidney benefits).



Slide 79

DI1

New slide

Diana Isaacs, 2025-08-25T20:00:36.010

Insulin With Other Glucose-Lowering Agents

Drug class/name	Recommendations for use with insulin
Metformin	<ul style="list-style-type: none"> Continue use when initiating basal insulin
GLP-1 RA or GLP-1/GIP RA	<ul style="list-style-type: none"> Combination with basal insulin limits weight gain, poses relatively low hypoglycemia risk, and may reduce need for prandial insulin Consider for people with ASCVD/indicators of high ASCVD risk, CKD, HF, and obesity
SGLT2i	<ul style="list-style-type: none"> May reduce need for insulin and limit weight gain Reduced insulin dose may be needed to prevent hypoglycemia Consider for people with ASCVD/indicators of high ASCVD risk, CKD, or HF
DPP-4i	<ul style="list-style-type: none"> Continue with basal insulin; discontinue if patient is also using a GLP-1 RA
TZDs	<ul style="list-style-type: none"> Can be combined with insulin; consider reducing dose or stopping if problems with weight gain, edema, or is at risk for HF
Sulfonylureas and meglitinides	<ul style="list-style-type: none"> Stop when initiating basal insulin to reduce hypoglycemia risk

American Diabetes Association Professional Practice Committee for Diabetes. *Diabetes Care*. 2026;49(Supplement_1):S183-S215 ; Forst T et al. *Diabetes Metab Res Rev*. 2021;37(6):e3418; Mehta R et al. *Ann Med*. 2021;53(1):998-1009.

CKD, chronic kidney disease; GIP, glucose-dependent insulinotropic polypeptide; HF, heart failure; TZDs, thiazolidinediones.

DI1

New slide

Diana Isaacs, 2026-04-10T21:06:16.508

ADA Recommendations for Initiating and Adjusting Basal Insulin

- Initiate with a single daily dose of basal insulin
- Daily dose: 10 units or 0.1-0.2 units/kg
- Consider glucagon, CGM

**Bedtime or morning
long-acting insulin
OR bedtime
intermediate-acting
insulin**

Adjust dose 10%-15% or 2-4 units
once to twice weekly to reach FBG target of
80-130 mg/dL

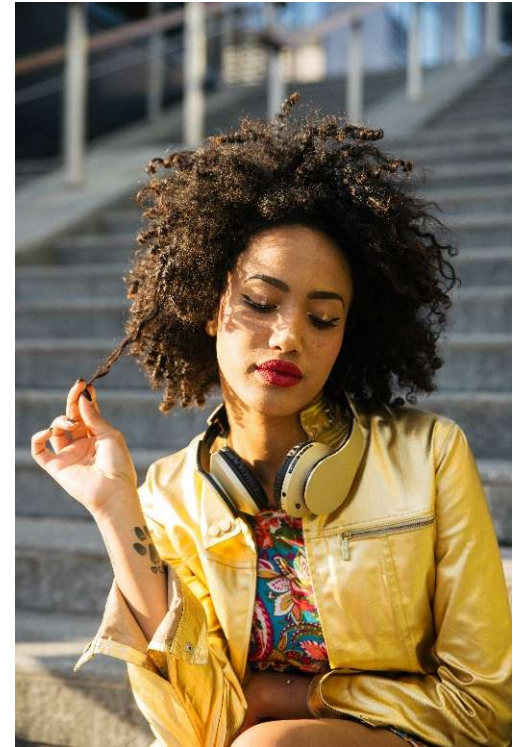
In the event of hypoglycemia or
FBG level <70 mg/dL, determine the cause.
If there is no clear reason, reduce the
insulin dose by 10%-20%.

- Assess adequacy of insulin dose at every visit
- Assess for overbasalization

Overbasalization

▶ Clinical signals of overbasalization include:

- ▶ high bedtime-to-morning or preprandial-to-postprandial glucose differential
 - (e.g., bedtime to AM glucose ≥ 50 mg/dL),
- ▶ hypoglycemia (aware or unaware)
- ▶ high glucose variability
- ▶ Evidence of overbasalization should prompt reevaluation of the glucose-lowering treatment plan to better address postprandial hyperglycemia



Patient Case

March 6, 2026 - March 19, 2026

14 Days

Time sensor is active:

94%

Ranges And Targets For		Type 1 or Type 2 Diabetes
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)
Below 54 mg/dL		Less than 1% (14min)
Above 180 mg/dL		Less than 25% (6h)
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 **200 mg/dL**

Glucose Management Indicator (GMI) **8.1%**

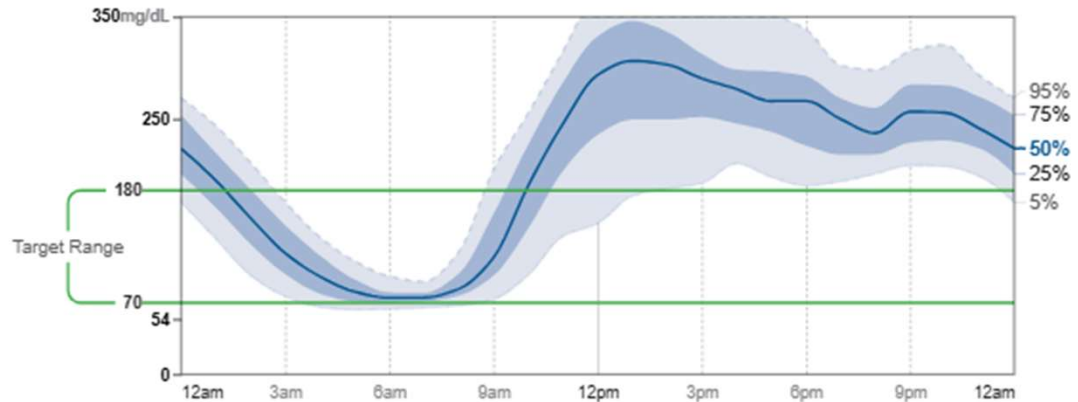
Glucose Variability **44.6%**

Defined as percent coefficient of variation (%CV); target $\leq 36\%$



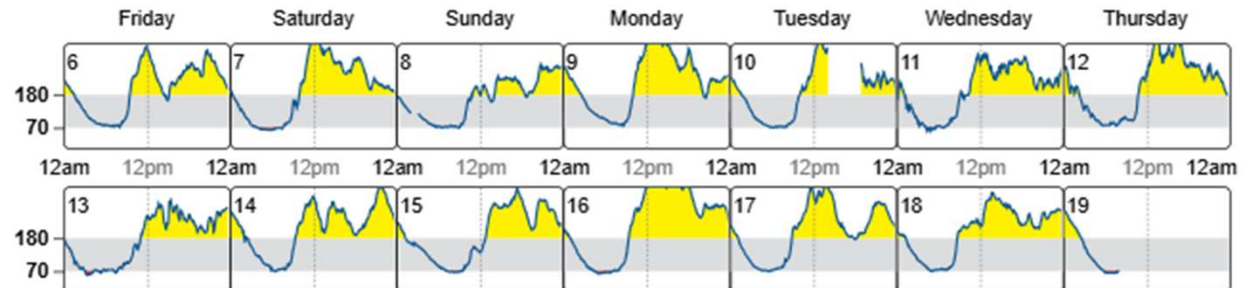
AMBULATORY GLUCOSE PROFILE (AGP)

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 midnight to midnight period with the date displayed in the top-left corner.



D11

Overbasalization
on CGM

Slide 83

DI1

New slide

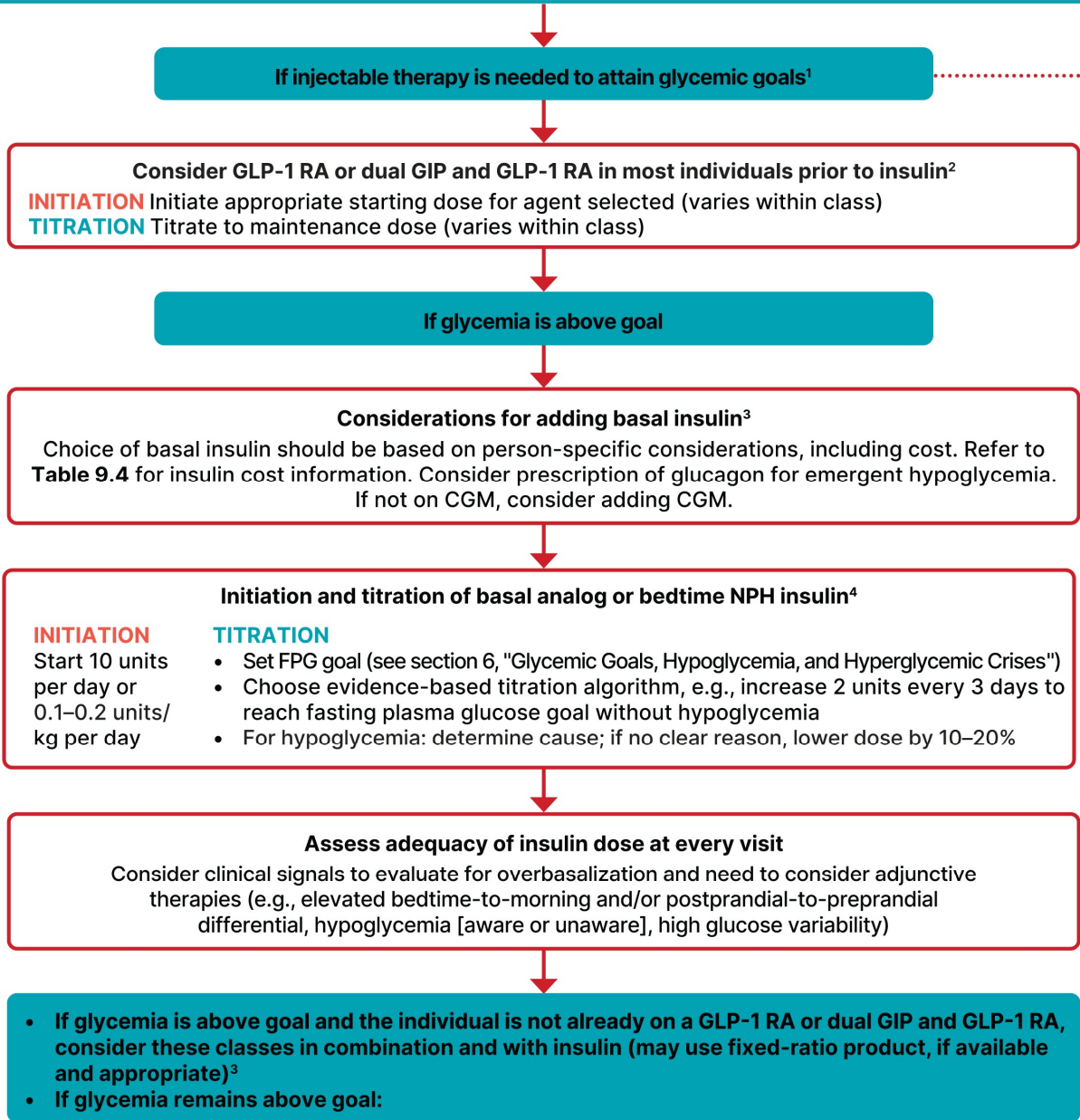
Diana Isaacs, 2026-04-10T20:59:31.148

Intensifying Insulin Therapy

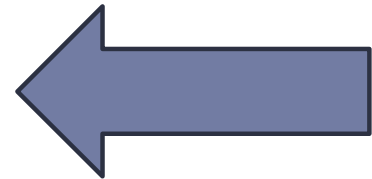
Use principles in Figure 9.3, including reinforcement of behavioral interventions (weight management and physical activity) and provision of DSMES, to meet individualized treatment goals



Prevent therapeutic inertia, reassess and modify treatment regularly (3–6 months)



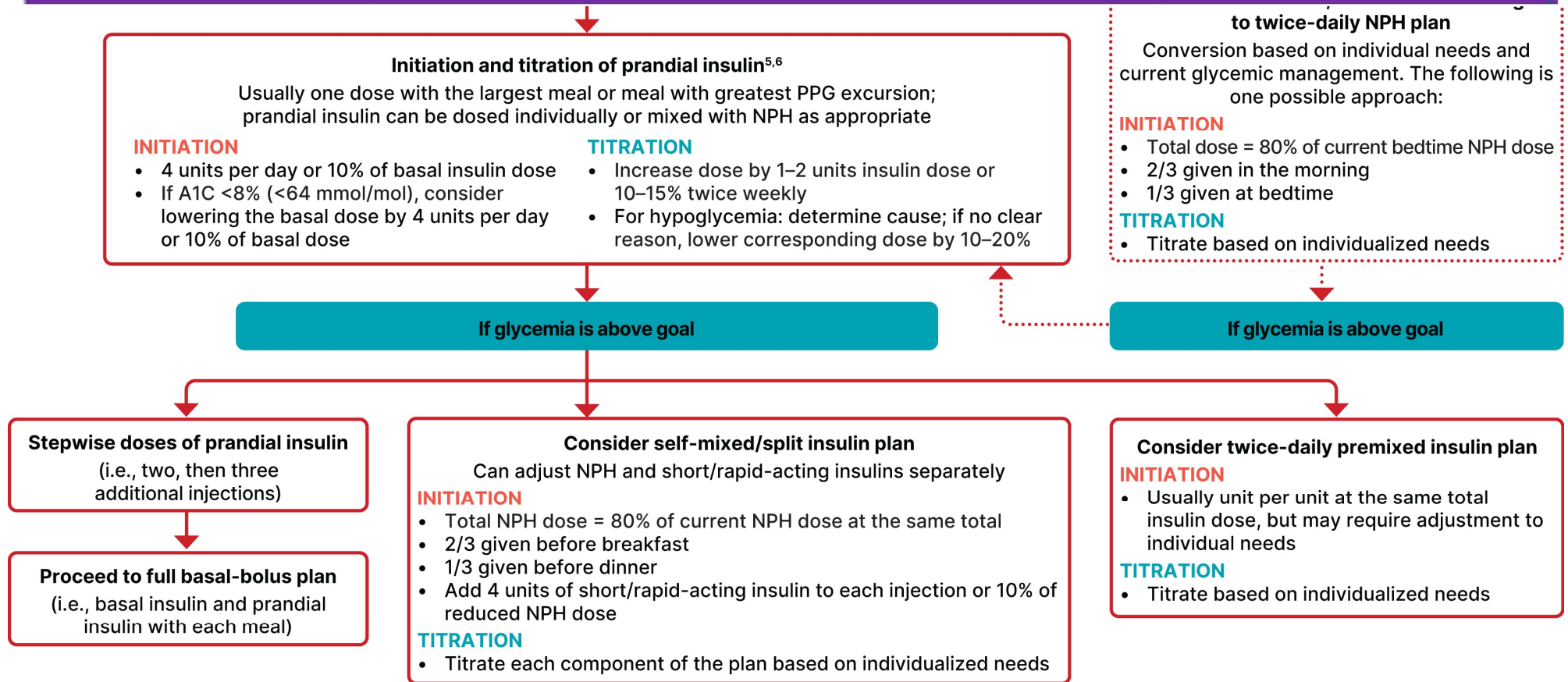
If already on GLP-1 RA or dual GIP and GLP-1 RA, or if these are not appropriate, or if insulin is preferred



If on bedtime NPH, consider converting to

INTENSIFYING INJECTABLE THERAPY IN TYPE 2 – ADA STANDARDS Figure 9.4

Including reinforcement of behavioral interventions (weightmanagement and physical activity) and provision of DSMES to meet individualized treatment goals.



1. Consider insulin as the first injectable if symptoms of hyperglycemia are present, when A1C or blood glucose levels are very high (i.e., A1C >10% [>86 mmol/mol] or blood glucose ≥ 300 mg/dL [≥ 16.7 mmol/L]), or when a diagnosis of type 1 diabetes is a possibility.
2. When selecting GLP-1 RAs, consider individual preference, glycemic lowering, weight-lowering effect, and frequency of injection. If CVD is present, consider GLP-1 RA with proven CVD benefit; oral or injectable GLP-1 RAs are appropriate.
3. For people on GLP-1 RA and basal insulin combination, consider use of a fixed-ratio combination product (IDegLira or iGlarLixi).
4. Consider switching from evening NPH to a basal analog if the individual develops hypoglycemia and/or frequently forgets to administer NPH in the evening and would be better managed with a morning dose of a long-acting basal insulin. Consider dosing NPH in the morning for steroid-induced hyperglycemia.
5. Prandial insulin options include injectable rapid- and ultra-rapid-acting analog insulins, injectable short-acting human insulin, or inhaled human insulin.
6. If adding prandial insulin to NPH, consider initiation of a self-mixed or premixed insulin plan to decrease the number of injections required.

Insulin/Injectable Combos

Name	Combines	Considerations
IDegLira* Xultophy 100/3.6	Insulin degludec (IDeg or Tresiba) Ultra long insulin + Liraglutide (Victoza) GLP-1 Receptor Agonist (GLP-1 RA)	<p>Xultophy 100/3.6 pre-filled pen = 100 units IDeg / 3.6 mg liraglutide per mL Once daily injection – Dose range 10 to 50 = 10 – 50 units IDeg + 0.36 -1.8 mg liraglutide</p> <p>Recommended starting dose:</p> <ul style="list-style-type: none"> • 16 IDegLira (= 16 units IDeg + 0.58 mg liraglutide) Titrate dose up or down by 2 units every 3-4 days to reach target. Supplied in package of five single-use 3mL pens. Once opened, good for 21 days.
iGlarLixi* Soliqua 100/33	Insulin glargine (Lantus) Basal Insulin + Lixisenatide (Adlyxin) GLP-1 Receptor Agonist	<p>Soliqua 100/33 Solostar Pen = 100 units glargine / 33 µg lixisenatide per mL Once daily injection an hour prior to first meal of day. Dose range 15 – 60 = 15-60 units glargine + 5 – 20µg lixisenatide</p> <p>Recommended starting dose:</p> <ul style="list-style-type: none"> • 15 units if not meeting glucose target on 30 units basal insulin or GLP-1 RA • 30 units if not meeting glucose target on 30-60 units basal insulin or GLP-1 RA Titrate dose up or down by 2-4 units every week to reach target. Supplied in package of five single-use 3mL pens. Once opened, good for 14 days.

***Discontinue basal insulin /GLP-1 RA therapy before starting. If dose missed, resume with next usual scheduled dose.**

Case Study: Jenny

Jenny is a 50-year-old woman that takes insulin glargine 100 units daily, glipizide 10mg BID, metformin 1000mg BID, and linagliptin 5mg daily. A1C is 8.5%. She weighs 110kg. She checks glucose in the AM only and reports it's 80-110mg/dL with no symptoms of hypoglycemia. Her eGFR is 70 and BMI=34kg/m². She previously had UTI's with empagliflozin.

What concerns do you have for Jenny?

What other information would you like to have?

How could her medications be adjusted?

Thinking about the choices

- ▶ Continue current meds or stop/change any?
 - ▶ Insulin glargine 100 units daily
 - ▶ Glipizide 10mg daily
 - ▶ Linagliptin 5mg daily
 - ▶ Metformin 1000mg bid
- ▶ Medication options:
 - ▶ GLP-1 or GIP/GLP-1 RA
 - ▶ Prandial insulin
 - ▶ SGLT2 inhibitor
 - ▶ Pioglitazone
 - ▶ Combination GLP1 receptor agonist /insulin injectable?



Piecing it Together

- ▶ New Regimen:
 - ▶ Insulin glargine 80 units once daily (20% reduction)
- ▶ Semaglutide 0.25mg weekly, titrated up to 2mg weekly
- ▶ Stop linagliptin (since starting GLP-1)
- ▶ Continue glipizide (for now)
- ▶ Next step could be to retry SGLT2i with counseling on how to avoid UTIs
- ▶ Or replacing glipizide with prandial insulin with largest meal
- ▶ CGM!



Switching Insulin

How to Switch Basal Insulin

- ▶ When going from twice daily NPH to long-acting insulin, reduce dose by 20%
- ▶ Switching Insulin glargine U100:
 - ▶ To glargine U300: 1:1, higher dose 10-18% may be needed
 - ▶ To degludec or NPH: 1:1 or consider 20% reduction
- ▶ Switching Insulin degludec to other basal insulins:
 - ▶ To degludec, NPH or glargine: reduce by 20%
- ▶ Switching insulin glargine U300:
 - ▶ To degludec: 1:1 or consider 20% reduction
 - ▶ To NPH or insulin glargine U100: reduce dose by 20%
- ▶ Switching NPH to other insulins:
 - ▶ If twice daily, decrease dose by 20%
 - ▶ If once daily, 1:1 or consider 20% reduction
- ▶ Need to use clinical judgement
 - ▶ For example, if A1C, FBG, and pre-meal BG are all above target, then may not be necessary to reduce basal insulin dose

Poll 7 - Making the switch: Meet Joan

Joan is taking insulin NPH 30 units twice daily. Her endo wants her to switch to degludec. Her current A1C is 6.9%. What is the best dose recommendation?

- A. Insulin degludec 30 units twice daily
- B. Insulin degludec 60 units once daily
- C. Recommend against the switch since her A1C is at goal
- D. Insulin degludec 48 units once daily



Switching Meal time Insulin

- ▶ This is a 1:1 conversion when switching between regular insulin, aspart, lispro, and glulisine including Fiasp[®] and Lyumjev[™].
- ▶ The exception is when switching to inhaled insulin (Afrezza)-often 2-3x actually needed

Injected Meal Time Dose	Inhaled Insulin Dose
Up to 4 units	4 units
5-8 units	8 units
9-12 units	12 units
12-16 units	16 units
17-20 units	20 units
21-24 units	24 units

Poll 8. Patient Case: Lumy

- ▶ Lumy's insurance formulary changed from insulin lispro to insulin aspart. Her A1C is 7%.
- ▶ She was following an insulin to carbohydrate ratio of 1:12 and a correction factor of 1:50.
- ▶ How should she dose insulin aspart when she switches?
 - A. Reduce all doses by 10%
 - B. Increase all doses by 10%
 - C. Same dosing
 - D. Submit prior authorization so she doesn't change insulin



Insulin Pattern Management

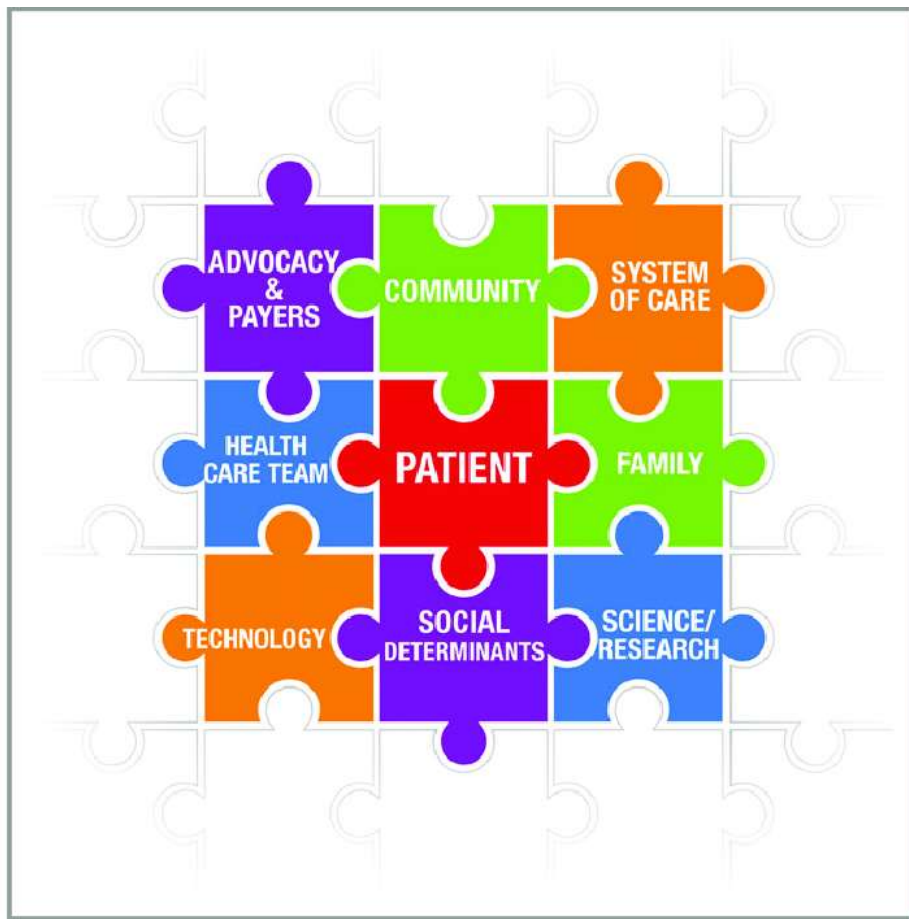
Pattern Management –AKA

How to
think
like a
pancreas

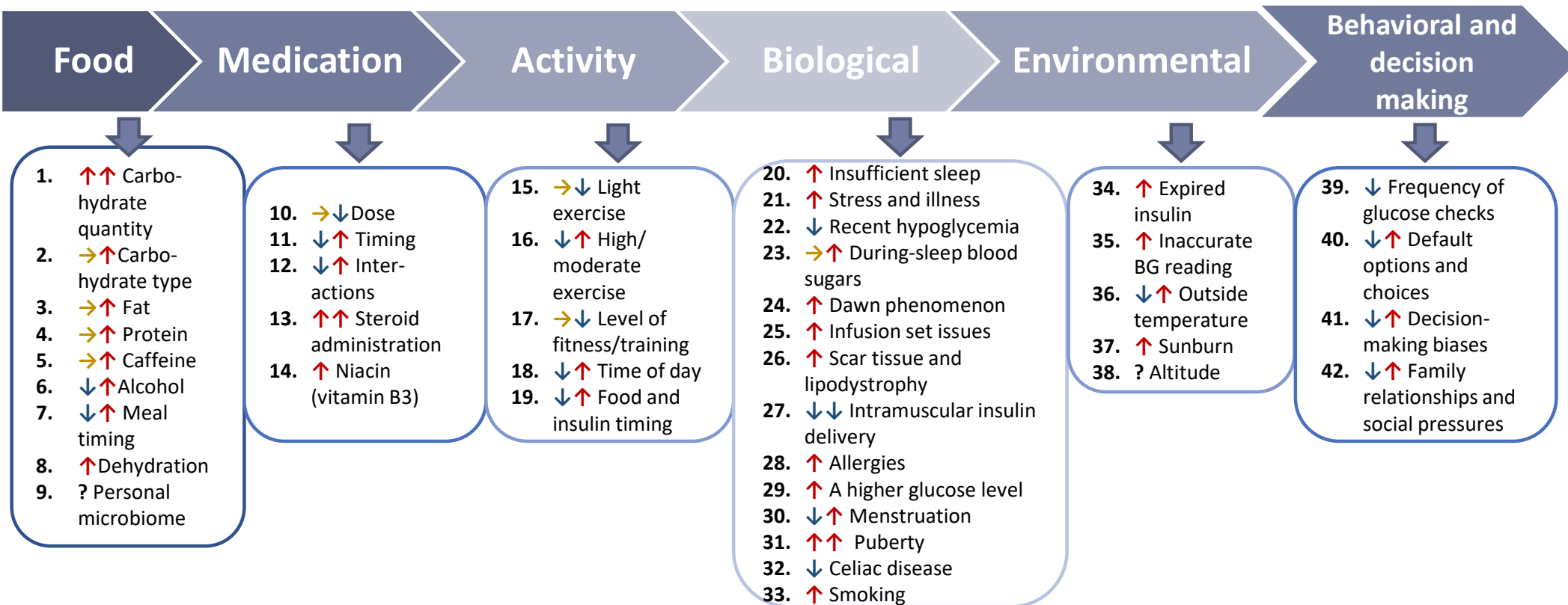


What do the numbers mean?

It's like a BIG puzzle!



At Least 42 Factors Affect Glucose!



Poll Question 9

- ▶ When looking at glucose patterns, which problem do you fix first?
 - a. Hyperglycemia
 - b. Hypoglycemia
 - c. Adherence
 - d. Frequency of glucose checking



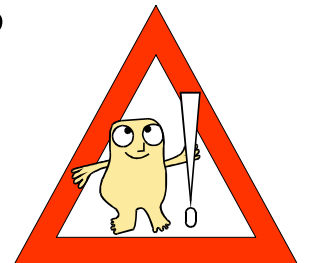
DI1

changed

Diana Isaacs, 2026-04-10T21:07:49.671

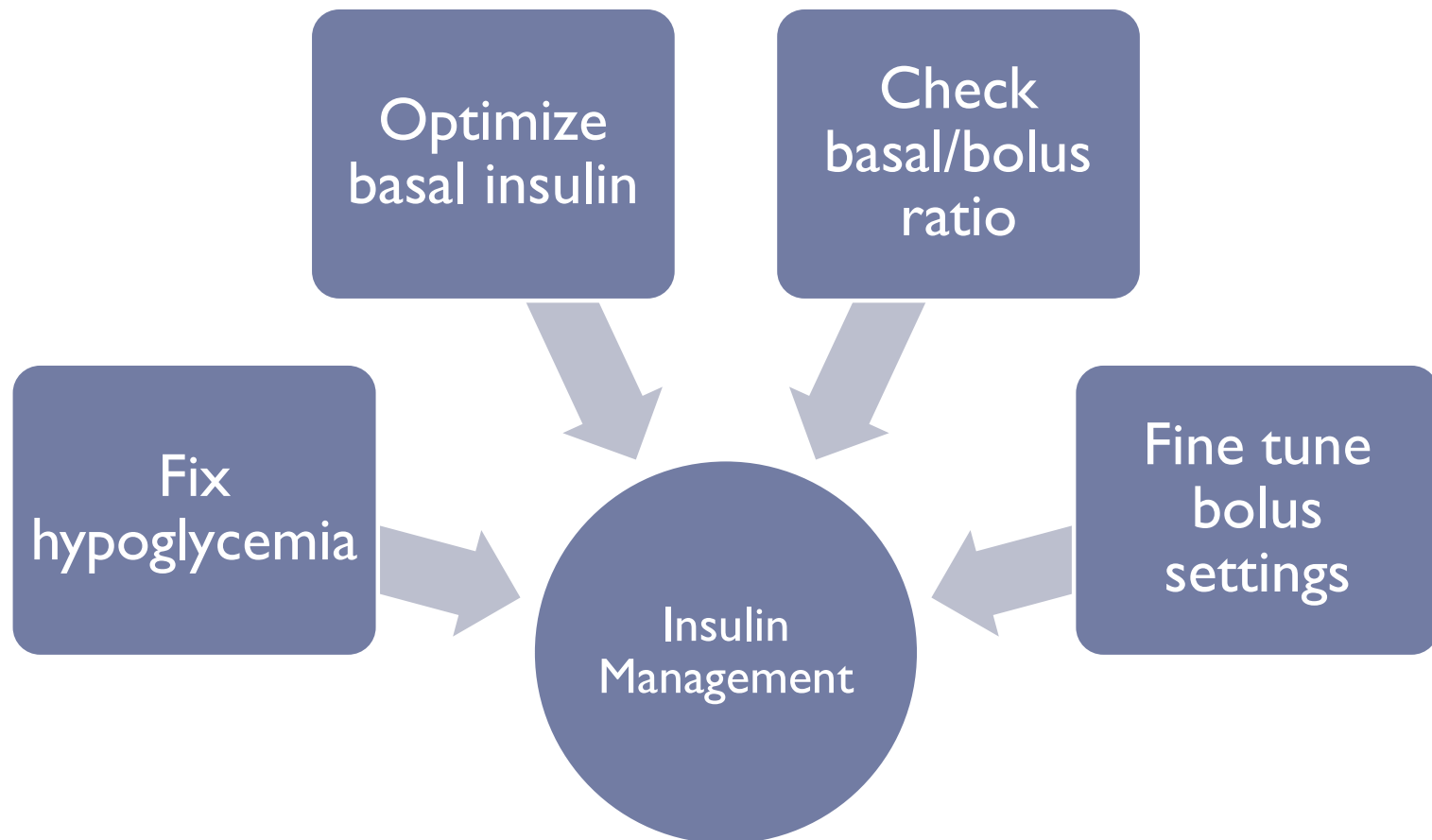
Pattern Management

- ▶ Safety 1st!! - Evaluate 3 day patterns
- ▶ **Hypo:** eval 1st and fix:
 - ▶ If possible, decrease medication dose
 - ▶ Timing of meals, exercise, medications
- ▶ **Hyperglycemia:** evaluate 2nd
 - ▶ Identify patterns
 - ▶ Before increase insulin, make sure not missing something (carbs, exercise, omission)



General Rules with Basal Bolus

- ▶ Optimize basal dose
 - ▶ Stay within 30mg/dL when not eating
 - ▶ Stay within 50mg/dL after a meal



Adjusting Insulin Doses in a Basal/Bolus regimen (T1D or T2D)

Out of Range Glucose	Insulin to Adjust
Fasting	Long acting insulin or bedtime NPH
Post-breakfast/pre-lunch	Pre-breakfast rapid/regular insulin
Post lunch/pre-dinner	Pre-lunch rapid/regular insulin or morning NPH
Post-dinner/before bedtime	Pre-dinner rapid/regular insulin

Adjusting Insulin Doses: Let's Practice

Example

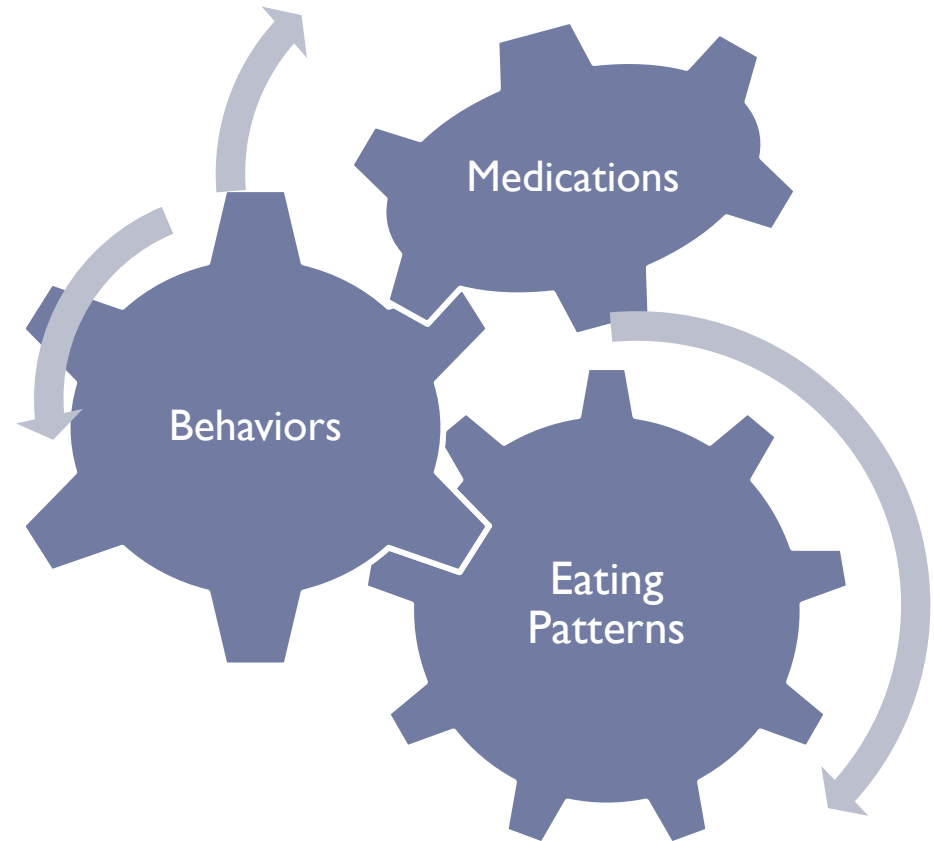
Insulin degludec 20 units QAM

Insulin lispro 5 units TID before meals

Out of Range Glucose	Insulin to Adjust
Fasting	
Pre-lunch	
Post lunch	
Before bedtime	

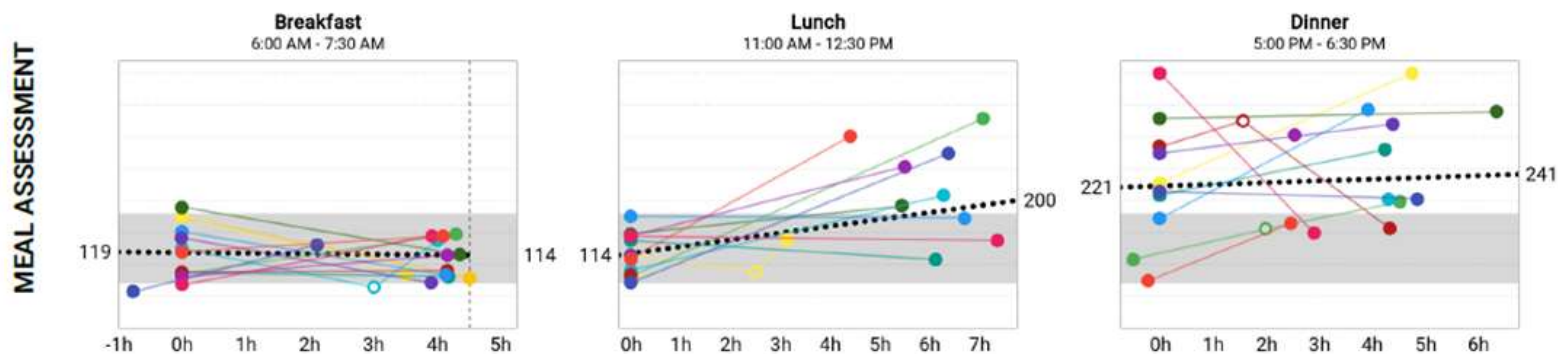
Tips for Data Interpretation

- ▶ Start by asking the person what they've experienced and noticed with their glucose patterns
- ▶ Avoid judgment
- ▶ Learn from 1 time episodes, but make changes based on patterns
- ▶ Fix lows first but some amount is expected (<1-4%) and if you remove all lows, you may end up with too many highs
- ▶ If it's not making sense, dig deeper (ex. missed doses, rationing, injection technique, food insecurity, etc)



Meal Time Data Review

- ▶ Glucose data before and after breakfast, lunch and dinner
- ▶ “Ideally”, 2 hour post-meal should not rise above 180mg/dL or 50mg/dL from the pre-meal start
 - ▶ Remember though, CGM goal <25% above 180mg/dL
- ▶ By 4-5 hours, glucose should return to pre-meal level (<130mg/dL)



Bolus Pattern Management

- ▶ Does glucose go low after a correction dose?
 - ▶ May need a higher sensitivity
 - ▶ Ex. 1:60 instead of 1:50
- ▶ Does glucose remain high after a correction dose?
 - ▶ May need a lower sensitivity
 - ▶ Ex. 1:40 instead of 1:50
- ▶ Often people are more sensitive overnight (less insulin needed)
- ▶ Does the person spike high after eating?
 - ▶ Is the person bolusing BEFORE the meal
 - ▶ Counting carbs correctly?
 - ▶ May need a more intensive carb ratio
 - ▶ Ex. 1:6 instead of 1:8
- ▶ Does the person go low after eating?
 - ▶ Counting carbs correctly?
 - ▶ May need a less intensive carb ratio
 - ▶ Ex. 1:10 instead of 1:8

Adjustments typically made 10-20% at a time

Checking the Sensitivity

▶ TDD=49 units

▶ Rule of 1800

▶ $1800/49=37$

▶ Current sensitivity is 40

Total daily dose (per day)	49 units
Bolus amount (per day)	21U (43%)
Auto Basal / Basal amount (per day)	28U (57%)

Carbohydrate Ratio (g/U)			Insulin Sensitivity (mg/dL per U)		
Time	Ratio		Time	Sensitivity	
0:00	15.0		0:00	40	

The calculation is slightly different from the current sensitivity. Look at the glucose data to determine if the sensitivity should be decreased.

Checking the Carb Ratio

- ▶ TDD=49 units
- ▶ Rule of 450
 - ▶ $450/49=12.9$

Total daily dose (per day)	49 units
Bolus amount (per day)	21U (43%)
Auto Basal / Basal amount (per day)	28U (57%)

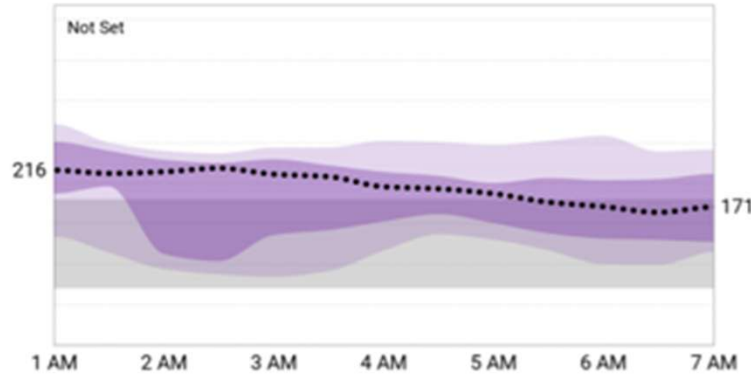
- ▶ Current carb ratio is 15

Carbohydrate Ratio (g/U)			Insulin Sensitivity (mg/dL per U)		
Time	Ratio		Time	Sensitivity	
0:00	15.0		0:00	40	

The calculation is different from the current carb ratio. Look at the glucose data to determine if the carb ratio should be decreased.

Basal Insulin Review

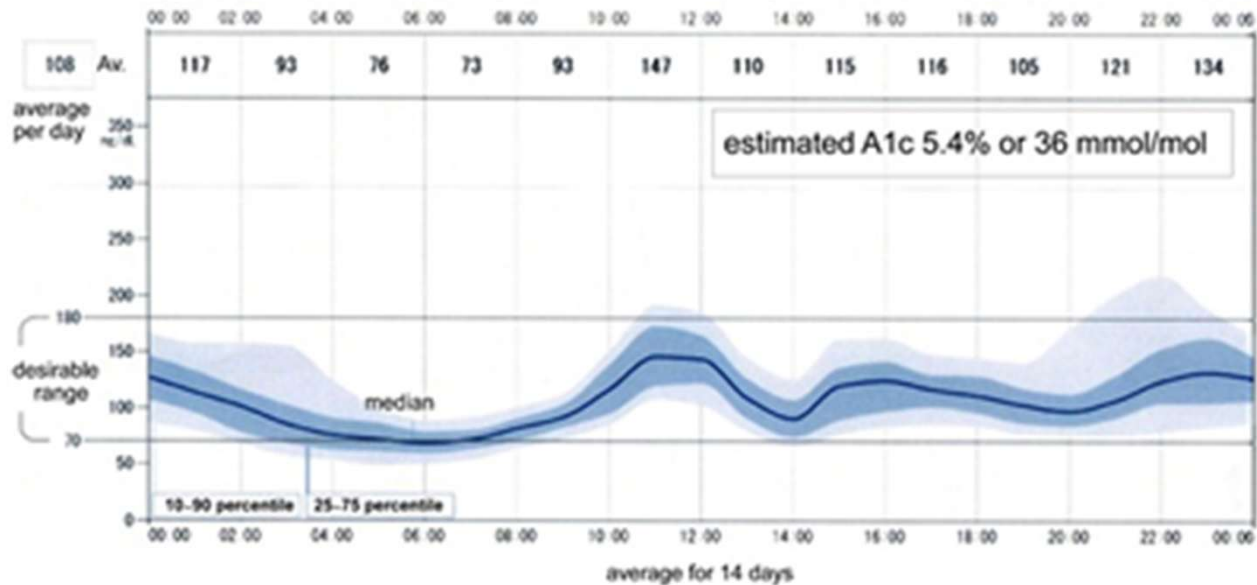
LONG-ACTING ASSESSMENT



Days Included in Assessment	11 of last 14 days
Average Daily Dose Taken	0 U
# Days with Glucose < 70 mg/dL	2 ▼
Median Bedtime to Fasting (Change)	216 to 171 (-45 mg/dL) ▼

Note: Days with overnight boluses are excluded.

- ▲ Rising fasting glucose of 30 mg/dL or more may indicate long-acting dose should be increased.
- ▼ Falling fasting glucose of 30 mg/dL or more or days with glucose < 70 mg/dL may indicate long-acting dose should be decreased.



Case Study: Larry Poll Question 10

Larry takes metformin 1000mg BID, insulin glargine 50 units once daily, empagliflozin 10mg daily. His A1C is 7.8%. His BMI is 32kg/m². FBG averages 110 mg/dL. 2 hr PP breakfast=190mg/dL, 2 hr PP lunch=210mg/dL, and 2 hr PP dinner is 240mg/dL. What is the best recommendation for an agent to add to the regimen to achieve A1C target<7%?

- A. Initiate insulin aspart 5 units at dinner, decrease insulin glargine to 45 units daily
- B. Initiate insulin aspart 5 units with all meals, decrease insulin glargine to 35 units daily
- C. Initiate insulin aspart 5 units at dinner, continue insulin glargine 50 units daily
- D. Initiate tirzepatide 2.5mg weekly, decrease insulin glargine to 45 units daily

Summary

- ▶ Many different types of insulin
- ▶ Basal + bolus needed for T1D
- ▶ Weight based dosing and rules of 1700/1800 and 500/450 can be used to calculate correction factor and carb ratio respectively
- ▶ GLP1 agonist preferred 1st injectable in T2D
- ▶ Avoid overbasalization, utilize GLP1 agonist +/- prandial insulin if large bedtime-AM glucose drop
- ▶ Counsel patients on injection site technique, administration and storage
- ▶ Fine tune insulin settings based on BGM and CGM data

Diabetes Bingo “DiaBingo”

Shout out Right Answer



DiaBingo - I

| Inhaled insulin

| Glargine, Degludec, NPH are types of

| Breakdown of glycogen into glucose

| Anabolic hormone made by pancreatic beta cells

| Insulin is released when glucose levels are low

| In which injection site is insulin most rapidly absorbed?

| Elevated post-prandial glucose indicate need for pre-meal

| Epinephrine increases insulin resistance

| Creation of glucose from amino acids and lactate

| Decreasing renal function for people on insulin can cause

| Bolus insulins

| A hormone that increases blood glucose

Slide 113

DI1

Changed detemir to degludec

Diana Isaacs, 2025-08-25T23:08:11.972



During interviews, outline strategies to identify previously undiscovered diabetes co-conditions, identify clinical inertia and move to best health.

Diabetes Interview – From Head to Toe & Microvascular Risk

www.DiabetesEd.net

Beverly Thomassian, RN, MPH, BC-ADM, CDCES
President, Diabetes Education Services

Objectives

1. Identify common yet often under diagnosed co-conditions associated with type 1 and type 2 diabetes.
2. Describe the interrelationship between glucose, inflammation and diabetes complications.
3. List the elements of a head-to-toe assessment including lower extremity assessment.
4. Discuss barriers to sexual health and communication strategies.



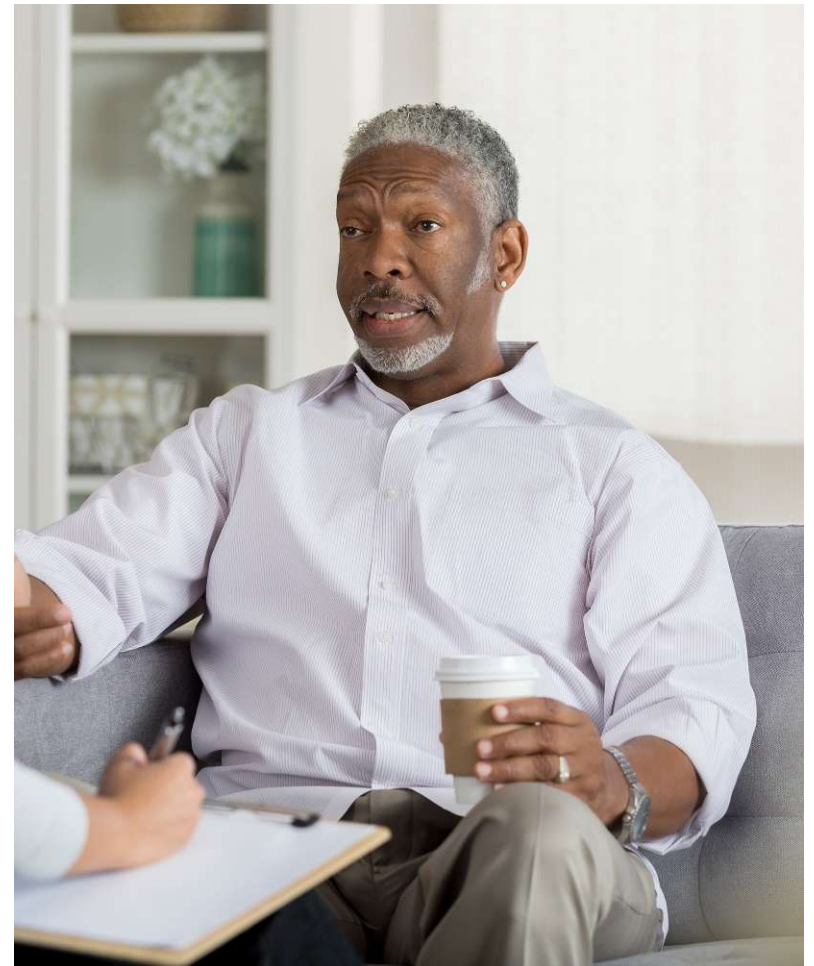
4. Comprehensive Medical Evaluation and Assessment of Comorbidities

- ▶ Use person-centered communication, culturally sensitive, strength-based language and active listening;
- ▶ Elicit individual preferences and beliefs; develop self-management plan together.
- ▶ Diabetes Care coordinated by multi disciplinary team:
 - ▶ CDCES, Providers, nurses, dietitians, exercise specialists, pharmacists, dentists, podiatrists, and behavioral health professionals.
- ▶ Goal is to optimize health outcomes and health-related quality of life.



Communication Goals

- ▶ The communication goal between health care professionals and people with diabetes is to:
- ▶ Establish a collaborative relationship.
- ▶ Assess and address self-management barriers *without* blaming people with diabetes for “noncompliance” or “nonadherence”
- ▶ when the outcomes of self-management are not optimal.



4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2026 **FREE**

American Diabetes Association Professional Practice Committee for Diabetes*

Communication Strategies

- ▶ Empathize and use active listening techniques to help facilitate communication :
 - ▶ open-ended questions,
 - ▶ reflective statements, and
 - ▶ summarizing what the person said,
- ▶ Check in about perceptions of their:
 - ▶ Ability or self-efficacy to manage diabetes.
 - ▶ Address psychosocial factors to improve self-management and treatment outcomes.



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Language Guidelines ADA

- The goal of communication between health care professionals and people with diabetes is to establish a collaborative relationship and to assess and address self-management barriers without blaming people with diabetes for “noncompliance” or “nonadherence” when the outcomes of self-management are not optimal.

What We Say Matters: Language that Respects the Individual and Imparts Hope | FREE Webinar & Resources



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Language that Respects the Individual & Imparts Hope Confirmation

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FREE Webinar (No CEs) or Earn 1.0 CE for \$19

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READY TO WATCH

“Language has a strong impact on perceptions and behavior”

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Slide 119

BT1

added

Beverly Thomassian, 2026-04-07T23:10:01.135

EV Arrives and Requests Help

- ▶ 58 yr old complains of 4 lb wt gain for past month. BMI 31, wt 90 kg. B/P 142/96. A1C 8.3%
- ▶ Meds include:
 - ▶ Sitagliptin, Metformin
 - ▶ Pioglitazone 15mg ac breakfast
 - ▶ glargine 58 units
 - ▶ Semaglutide 0.5mg weekly
 - ▶ Levothyroxine (ran out)
 - ▶ Lisinopril 10mg
 - ▶ Gabapentin 100 mg TID

What story do these meds tell?
Any med(s) missing?
Any med needs to be stopped?



EV Arrives and Requests Help

- ▶ 58 yr old complains of 4 lb wt gain for past month. BMI 31, wt 90 kg. B/P 142/96. Checks BG at hs & morning; 230 at hs, 150's in AM. A1C 8.3%.
- ▶ Meds include:
 - ▶ Sitagliptin (DPP-IV), Metformin
 - ▶ glargine 58 units (Basal)
 - ▶ Pioglitazone 15mg (TZD)
 - ▶ Semaglutide 0.5mg wk (GLP-1)
 - ▶ Levothyroxine (ran out)
 - ▶ Lisinopril 10mg (ACE)
 - ▶ Lovastatin 20mg (Statin)
 - ▶ Gabapentin 100 mg TID (leg pain)

What does this tell us about EV?

- Struggling with weight
- B/P & A1C above target
- Overbasalized? BG drops > 70pts over hs
- Why not taking thyroid med?
- Lower extremity pain contributing to distress?
- Elevated CV risk?

EV is Gaining Weight and is Tired

▶ 58 yr old complains of 4 lb wt gain for past month. BMI 31, wt 90 kg. B/P 142/96. Checks BG at hs & morning; 230 at hs, 150's in AM. A1C 8.3%.

▶ Meds include:

- ▶ Sitagliptin, Metformin
- ▶ Pioglitazone 15mg ac breakfast
- ▶ glargine 58 units
- ▶ Semaglutide 0.5mg weekly
- ▶ Levothyroxine – ran out
- ▶ Lisinopril 10mg
- ▶ Gabapentin 100 mg TID



Labs

A1C – 8.3%

UACR 26 GFR >60

TSH 10.6

LDL 98 mg/dl, Trig 158

ALT 85 IU/L, AST 90 IU/L

Life situation

Takes care of dad with dementia

Gums inflamed

No eye doctor for year

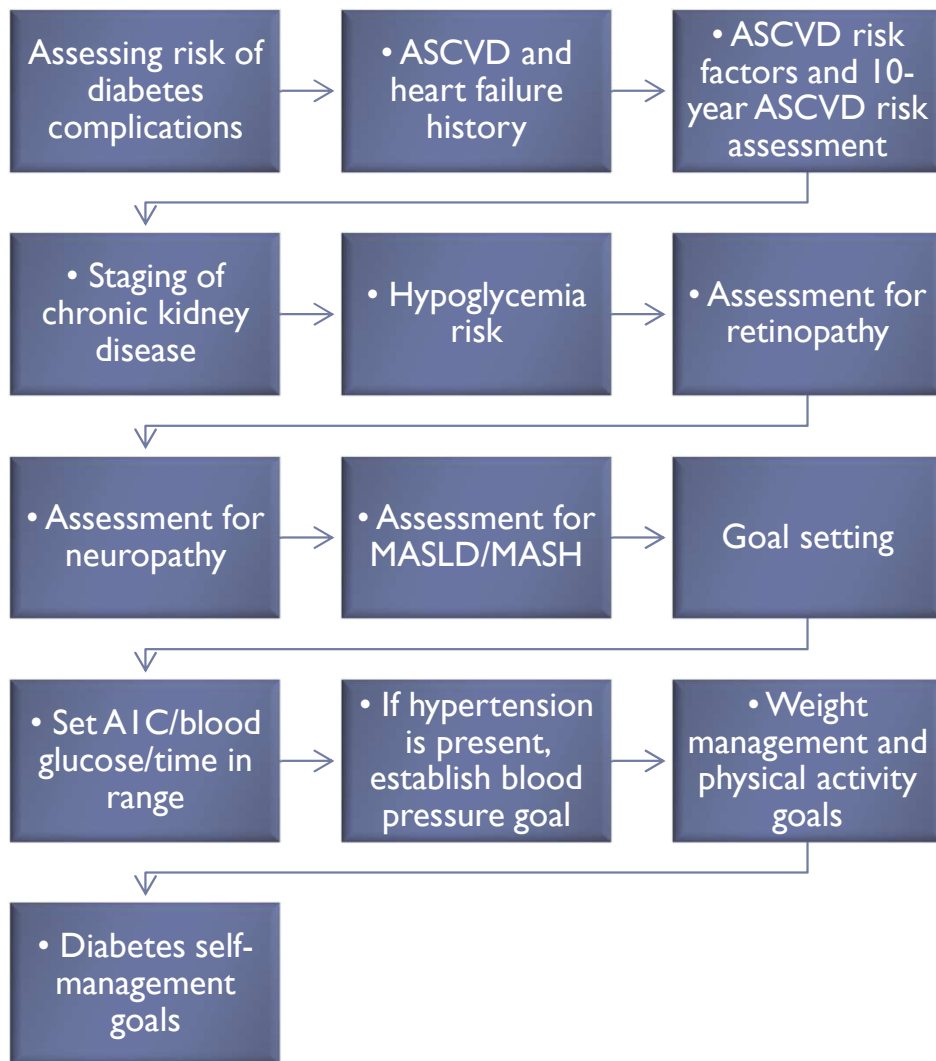
Both feet hurt at night

ABC's of Diabetes

- ▶ **A**1c less than 7% (individualize)
 - ▶ Pre-meal BG 80-130
 - ▶ Post meal BG <180
 - ▶ AGP - Time in Range (70-180) 70% of time
- ▶ **B**lood Pressure < 130/80
 - ▶ <120/80 for high risk
- ▶ **C**holesterol
 - ▶ Statin therapy based on age & risk status
 - ▶ If 40+ with ASCVD Risk, decrease 50%, LDL <70
 - ▶ If 40+ with ASCVD, decrease 50%, LDL <55



Assessment and Treatment Plan



Therapeutic treatment plans

- Lifestyle management
- Pharmacologic therapy: glucose lowering
- Pharmacologic therapy: cardiovascular and kidney disease risk factors
- Weight management with pharmacotherapy or metabolic surgery, as appropriate
- Use of glucose monitoring and insulin delivery devices
- Referral to diabetes education, behavioral health, and medical specialists

4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2026 **FREE**

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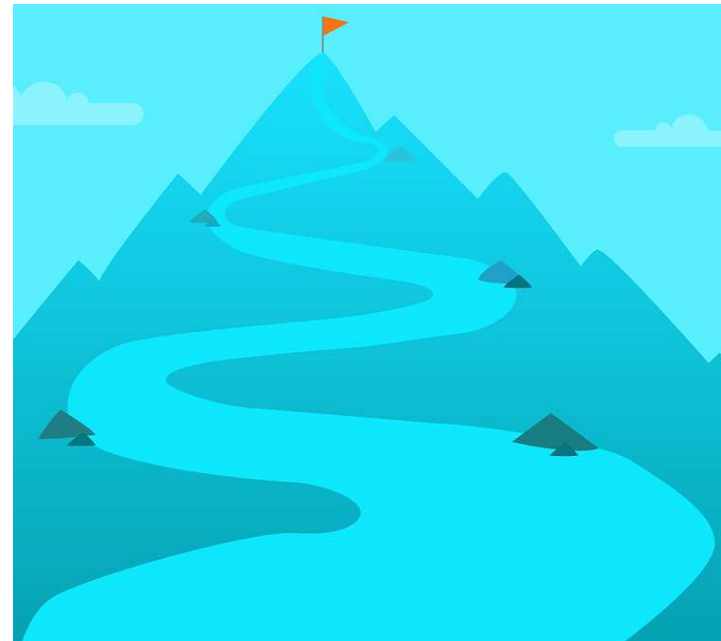
BT1

updated

Beverly Thomassian, 2026-04-07T23:10:17.403

Advocating for Best Health for people with Diabetes

- ▶ Modifiable
 - ▶ Sleep
 - ▶ Activity
 - ▶ Smoking
 - ▶ Dietary Habits
 - ▶ Glucose
 - ▶ Blood Pressure
 - ▶ Lipids
 - ▶ Oral Care
 - ▶ Immunizations
 - ▶ Psychosocial care



- ▶ Make small, achievable goals. We are in this for the long run.

Diabetes is a long path



Get at least 7 hours of sleep a night – Check for sleep apnea

Obstructive Sleep Apnea - OSA

- ▶ OSA affects ~25% of people with type 2
 - ▶ Up to 60% of those with type 2 have disordered sleep
- ▶ Associated with increased CVD risk
- ▶ Signs include excessive daytime sleepiness, snoring and witnessed apnea
- ▶ Treatment:
 - ▶ Lifestyle modification
 - ▶ **Tirzepatide (Zepbound)** BT1
 - ▶ Continuous positive oral airway pressure and devices
 - ▶ Surgery

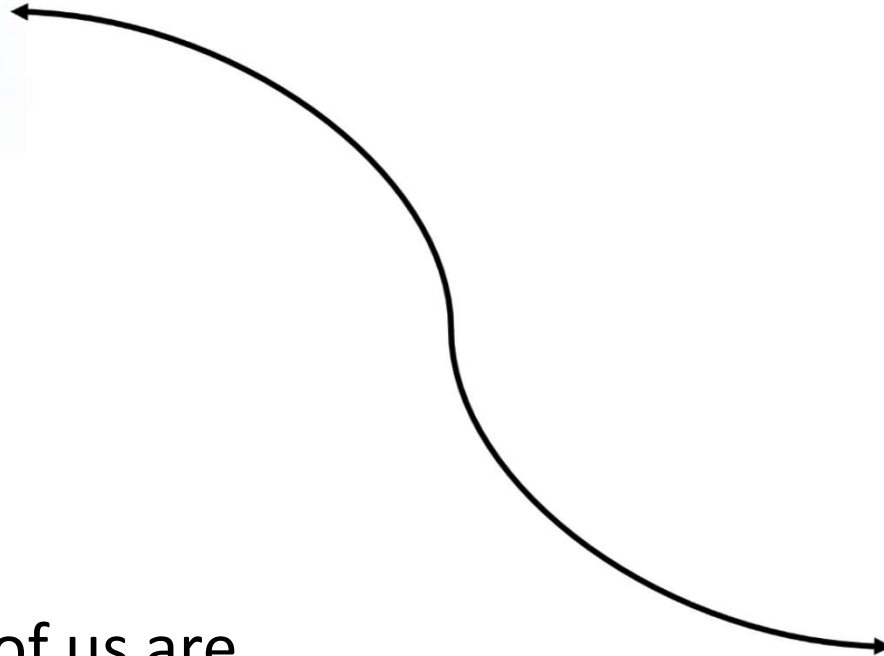


BT1

Added Tirzepatide (Zepbound)

Beverly Thomassian, 2025-08-24T22:58:13.104

Where are we on this continuum?



Only about 50% of us are meeting activity goals

Benefits of Exercise and Diabetes

- ▶ Increase muscle glucose uptake 5-fold
- ▶ Glucose uptake remains elevated for 24 - 48 hours (depending on exercise duration)
- ▶ Increases insulin sensitivity in muscle, fat, liver.
- ▶ Reduce CV Risk factors (BP, cholesterol, A1c)
- ▶ Maintain wt loss
- ▶ Contribute to well being
- ▶ Muscle strength
- ▶ Better physical mobility

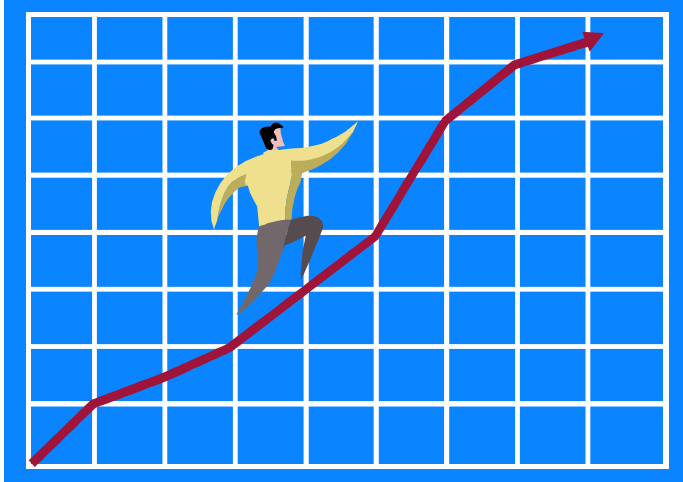


Exercise decreases:

- ▶ Sleep apnea
- ▶ Diabetic kidney disease, retinopathy
- ▶ Depression
- ▶ Sexual dysfunction
- ▶ Urinary incontinence
- ▶ Knee pain
- ▶ Need for medications
- ▶ Health care costs



EV asks why the weight gain?



- ▶ Fluid retention - diabetes doubles risk for Congestive Heart Failure (CHF). Check lower extremities.
- ▶ Inaccurate nutrition knowledge
- ▶ Pioglitazone can be associated with fluid wt gain.
- ▶ Blood glucose improving
- ▶ Thyroid disease under treated
- ▶ Novel Antipsychotics
- ▶ Depression / Increased intake

Poll question 11

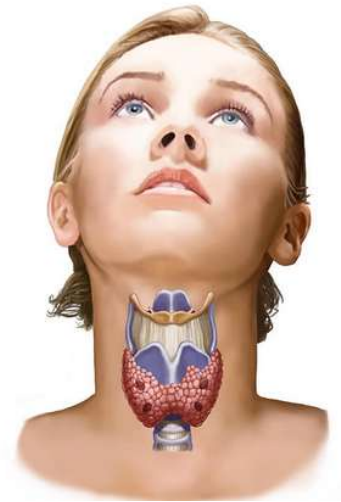
- ▶ Which of the following is a true statement?
 - a. Atypical antipsychotics are contraindicated for people with diabetes and thyroid disease.
 - b. Hypothyroidism is more common than hyperthyroidism.
 - c. Hyperthyroidism can be associated with weight gain or weight loss.
 - d. Hypothyroidism causes LDLs to decrease.



Thyroid Disease and Diabetes

BT1

- ▶ Thyroid disorders are **2–3 times more common** in people with diabetes.
- ▶ Both conditions impact **metabolism, weight, energy, and cardiovascular health**.
- ▶ Recognizing and addressing the overlap improves outcomes.



Slide 133

BT1

Added slide

Beverly Thomassian, 2025-08-24T22:57:50.288

Prevalence: Hypothyroidism in Diabetes

- ▶ **Type 1**
 - ▶ Overt hypothyroidism ~**4–10%**
 - ▶ Subclinical hypothyroidism ~**10–15%**
 - ▶ Up to 30% of people with T1D will develop autoimmune thyroid disease in their lifetime.
- ▶ **Type 2 diabetes:**
 - ▶ Overt hypothyroidism ~**10–30%**
 - ▶ Higher prevalence of subclinical hypothyroidism (~5–10%) than the general population.
- ▶ **More Women > men.**
- ▶ **Hashimoto's thyroiditis – autoimmune thyroid**
 - ▶ most common cause of hypothyroidism w/ diabetes



NIH
<https://pmc.ncbi.nlm.nih.gov/articles/PMC3647563/>

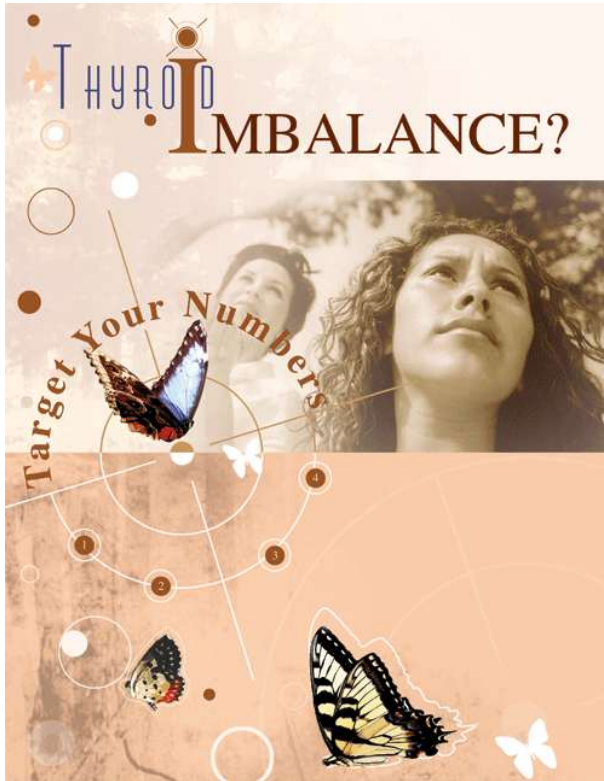
Slide 134

BT1

Updated slide with new stats

Beverly Thomassian, 2025-08-24T22:57:23.464

Thyroid & TSH* Levels



**AACE
Guidelines**

- ▶ *Thyroid Stimulating Hormone - secreted by pituitary gland
 - ▶ controls thyroid hormone thyroxine production
 - ▶ first and best test
 - ▶ TSH Norm = up to 4.5 mIU/mL
 - ▶ Treatment based on TSH plus symptoms.
 - ▶ 4.5 – 10 based on risk, s/s
 - ▶ 10 or more = treat
 - ▶ Lower = hyperthyroidism
 - ▶ Higher = hypothyroidism-

Thyroid Dysfunction

HYPO THYROIDISM

DRY, COARSE HAIR

LOSS OF EYEBROW
HAIR

PUFFY FACE

ENLARGED THYROID
(GOITER)

SLOW HEARTBEAT

ARTHRITIS
COLD
INTOLERANCE
DEPRESSION
DRY SKIN
FATIGUE
FORGETFULNESS
HEAVY
MENSTRUAL
PERIODS
INFERTILITY
MUSCLE ACHES

WEIGHT GAIN

CONSTIPATION

BRITTLE NAILS

HYPER THYROIDISM

HAIR LOSS

BULGING EYES

SWEATING

ENLARGED THYROID
(GOITER)

RAPID HEARTBEAT

DIFFICULTY
SLEEPING
HEAT
INTOLERANCE
INFERTILITY
IRRITABILITY
MUSCLE
WEAKNESS
NERVOUSNESS
SCANT
MENSTRUAL
PERIODS

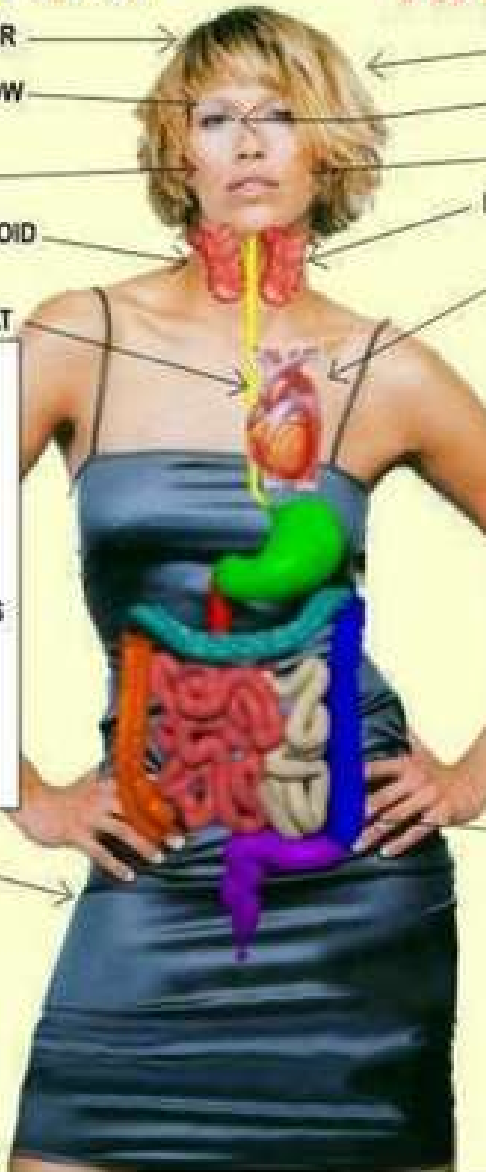
WEIGHT LOSS

FREQUENT
BOWEL
MOVEMENTS

WARM, MOIST
PALMS

TREMOR OF
FINGERS

SOFT NAILS



A TSH above 10 mIU/L, in combination with a subnormal free T4 characterizes overt hypothyroidism.

If TSH in range, but person is symptomatic, Check for thyroid peroxidase antibody or TPO antibodies

A low TSH indicates hyperthyroidism (0.1 ish)

Collaborative Action Plan

- ▶ Increase semaglutide to 1.0mg
- ▶ Decrease glargine by 10 units
- ▶ Stop sitagliptin
- ▶ Continue pioglitazone
- ▶ Walk after lunch during work week
- ▶ Restart levothyroxine, Re-Check TSH - Re-evaluate in 4 weeks.
- ▶ Eat one serving of veggie a day and decrease meat intake to 4 nights a week.
- ▶ Meet with RD/RDN
- ▶ Check BG a few times a week before bed (in addition to am)



Labs

A1C – 8.3%
UACR 26 GFR
>60
TSH 10.6
LDL 98 mg/dl,
Trig 158
ALT 85 IU/L,
AST 90 IU/L

Metabolic Associated Steatohepatitis

MASH is when fat reaches 5% of the liver's weight

Without consumption of significant amounts of alcohol defined as:

- Ingestion of less than 21 standard drinks per week in men and
- Less than 14 standard drinks per week in women

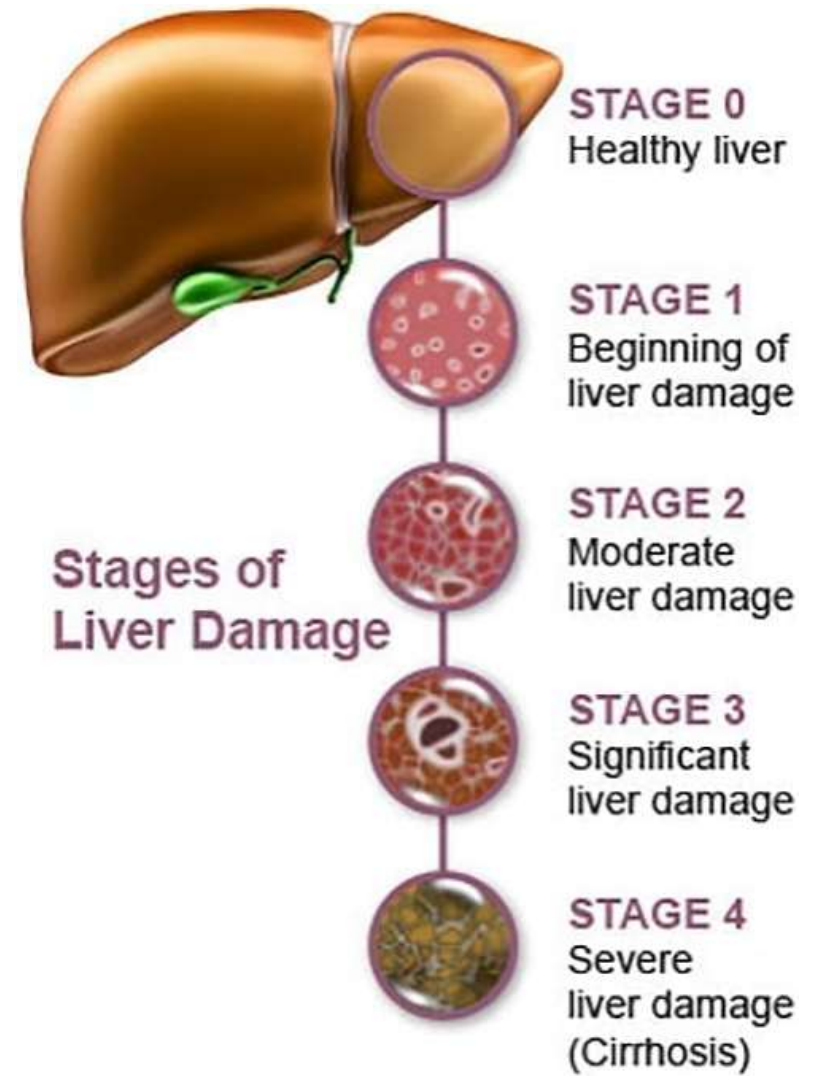
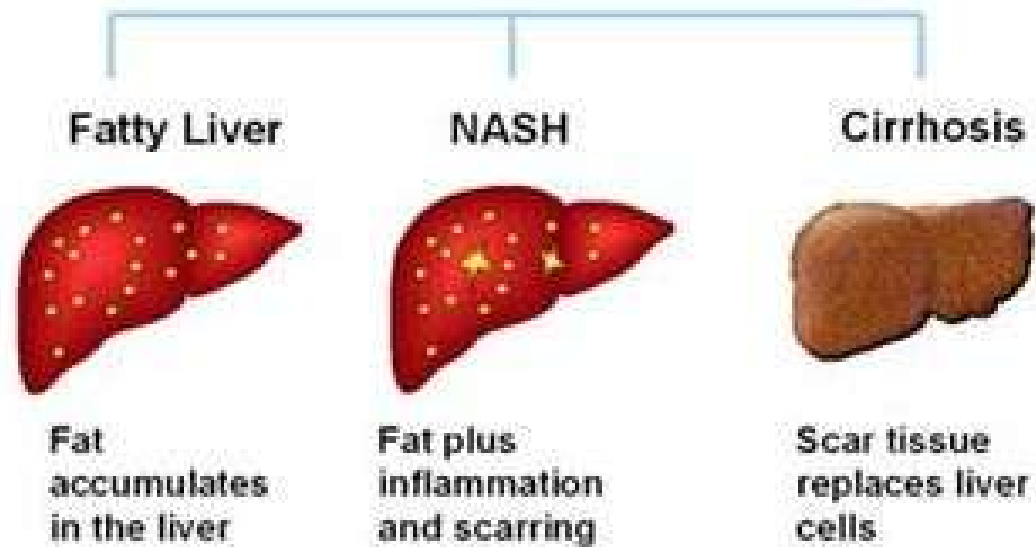
over a 2-year period preceding evaluation) or the presence of other secondary causes of Steatosis disease.



Metabolic dysfunction–
associated steatotic liver
disease (MASLD)

Natural History of MAFLD to MASH

The Spectrum of NAFLD



MAFLD– Metabolic dysfunction– associated steatotic liver disease

MASH – Metabolic Assoc Steatohepatitis

<https://liverfoundation.org/wp-content/uploads/2020/11/StagesFibrosis.jpg>

Poll Question 12

- ▶ What best describes diabetes and Metabolic dysfunction–associated steatotic liver disease (MASLD)?
 - A. More than 60% of people with diabetes have MASLD.
 - B. MASLD likely to be found in individuals with type 2 diabetes and BMI < 25
 - C. Children don't exhibit MASLD.
 - D. Almost all people with diabetes have MASLD.



Metabolic dysfunction–associated steatotic liver disease (MASLD)

Adults with type 2 diabetes.

- ▶ >70% have MASLD
 - ▶ Of those 50% have MASH*
 - 12-20% have fibrosis
- ▶ Adults with type 1
 - ▶ 20% have MASLD
- ▶ MASH = 5% plus hepatic steatosis with inflammation and hepatocyte injury (hepatocyte ballooning), with or without evidence of liver fibrosis
- ▶ Screen for liver fibrosis using FIB 4 Index
 - ▶ Uses liver enzymes (ALT & AST), platelet count plus age – positive if (FIB \geq 1.3)



BT1

Updated

Beverly Thomassian, 2026-01-13T05:32:48.485

Symptoms of Steatosis

If symptoms do appear, they may include:

- ▶ A feeling of fullness in the middle or upper right side of the abdomen
- ▶ Abdominal pain, nausea
- ▶ Loss of appetite or weight loss
- ▶ Weakness
- ▶ Jaundice



- ▶ Swelling of the abdomen and legs
- ▶ Mental confusion
- ▶ Extreme fatigue or tiredness
- ▶ Signs of advanced disease include:
 - ▶ Portal hypertension, spider angiomas, reddening of palms, declining platelet counts

Mayo Clinic

Finding Liver Disease

- ▶ Imaging procedures used to diagnose NAFLD include:
- ▶ **Abdominal ultrasound**, which is often the initial test when liver disease is suspected.
- ▶ **Transient elastography**, an enhanced form of ultrasound that measures the stiffness of liver. Liver stiffness indicates fibrosis or scarring.
- ▶ **Magnetic resonance elastography**, works by combining MRI imaging with sound waves to create a visual map (elastogram) showing the stiffness of body tissues
- ▶ **Biopsy** by liver specialist confirms definitive diagnosis



Referral to
Hepatologist
or GI
specialist

Slide 143

BT1

new

Beverly Thomassian, 2026-04-07T23:10:55.532

Screening for NASH – FIB-4

Fibrosis-4 (FIB-4) Calculator

Share

The Fibrosis-4 score helps to estimate the amount of scarring in the liver. Enter the required values to calculate the FIB-4 value. The result will appear in the oval on the far right (highlighted in yellow).

$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST Level (U/L)}}{\text{Platelet Count (10}^9\text{/L)} \times \sqrt{\text{ALT (U/L)}}} = 1.57$$

The calculator interface shows the following values: Age (years) = 38, AST Level (U/L) = 85, Platelet Count (10⁹/L) = 217, and ALT (U/L) = 90. The result 1.57 is highlighted in a yellow oval.

FIB-4 estimates risk of hepatic cirrhosis (age 35+):

- ▶ Calculated by imputing:
 - ▶ Age
 - ▶ plasma aminotransferases (AST and ALT)
 - ▶ and platelet count
- ▶ FIB-4 Risk Levels
 - ▶ Lower risk is <1.3
 - ▶ Intermediate 1.3 to 2.67
 - ▶ High risk >2.67
 - ▶ considered as having a high probability of advanced fibrosis (F3–F4).

- ▶ The American College of Gastroenterology considers Upper limit of normal ALT levels:
 - ▶ 29–33 units/L for males
 - ▶ 19–25 units/L for female individuals

(mdcalc.com/calc/2200/fibrosis-4-fib-4-index-liver-fibrosis).

Poll Question 13

- ▶ AR lives with type 2 diabetes, and their waistline is 41 inches. Since their ALT and AST levels are elevated, you know they are at risk for steatosis (MASH). You quickly calculate their Fibrosis-4 Index (FIB-4), by plugging in AR's Age, AST, ALT, platelet count into the [FIB-4 calculator](#). AR's result is 2.83. According to the ADA Standards, with a FIB-4 value of 2.83, which action is required?
- ▶ Start AR on pioglitazone and recheck FIB-4 in 3 months.
- ▶ Encourage AR to see a RDN and stop consumption of alcohol immediately.
- ▶ Suggest increased high intensity activity coupled with a GLP-1 to reduce body weight.
- ▶ Refer AR to liver specialist for further evaluation.

Diagnostic algorithm for the prevention of cirrhosis in people with metabolic dysfunction–associated steatotic liver disease (MASLD)

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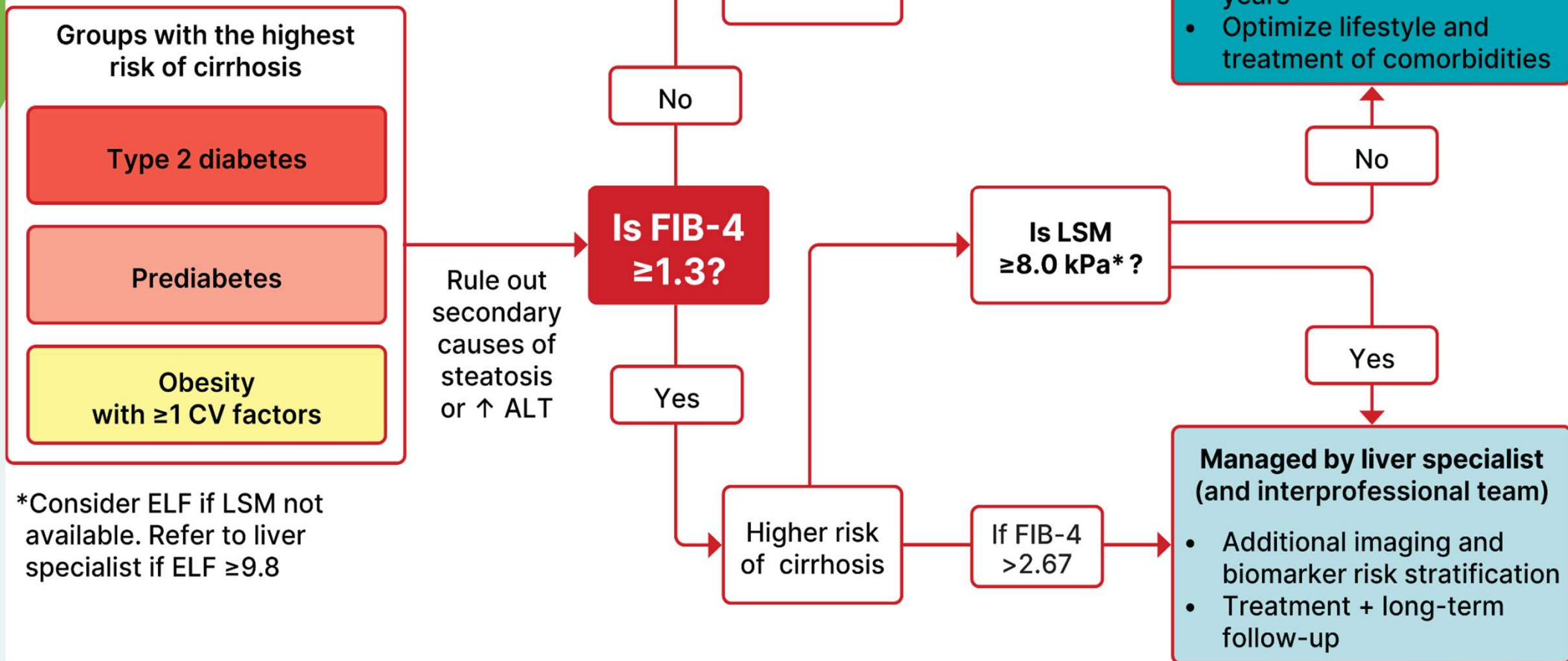


Figure 4.2—ELF, enhanced liver fibrosis test; FIB-4, fibrosis-4 index; LSM, liver stiffness measurement, as measured by vibration-controlled transient elastography. “Fibroscan” *In the absence of LSM, consider ELF a diagnostic alternative. If ELF ≥ 9.8 , an individual is at high risk of MASH with advanced liver fibrosis ($\geq F3$ – $F4$) and should be referred to a liver specialist.

BT1

updated

Beverly Thomassian, 2026-01-26T06:22:53.831

Other Treatments for MASLD and MASH

- ▶ Meds that lower glucose, cholesterol and weight
- ▶ Bariatric surgery
- ▶ Pioglitazone
 - ▶ Improves lipid and glucose metabolism
 - ▶ Reverses steatohepatitis in prediabetes/diabetes
 - ▶ Causes 1-2% wt gain at 15 mg
 - ▶ 3-5% wt gain at 45 mg
 - ▶ GLP-1 /GIP and others



Support lifestyle changes

Actions To Decrease Steatosis

▶ Increase activity

- ▶ Strength training
- ▶ Yoga or Thai Chi
- ▶ Walking & aerobics

▶ Thoughtful eating

- ▶ More fiber
- ▶ Less processed foods & less added sugar
- ▶ Avoid alcohol

▶ Treatment

- ▶ Pioglitazone
- ▶ GLP-1/GIP, esp semaglutide
- ▶ Resmetirom - thyroid hormone receptor- β agonist for F2 or F3 liver fibrosis
- ▶ Statin
- ▶ Insulin for decompensated cirrhosis

▶ Prevention

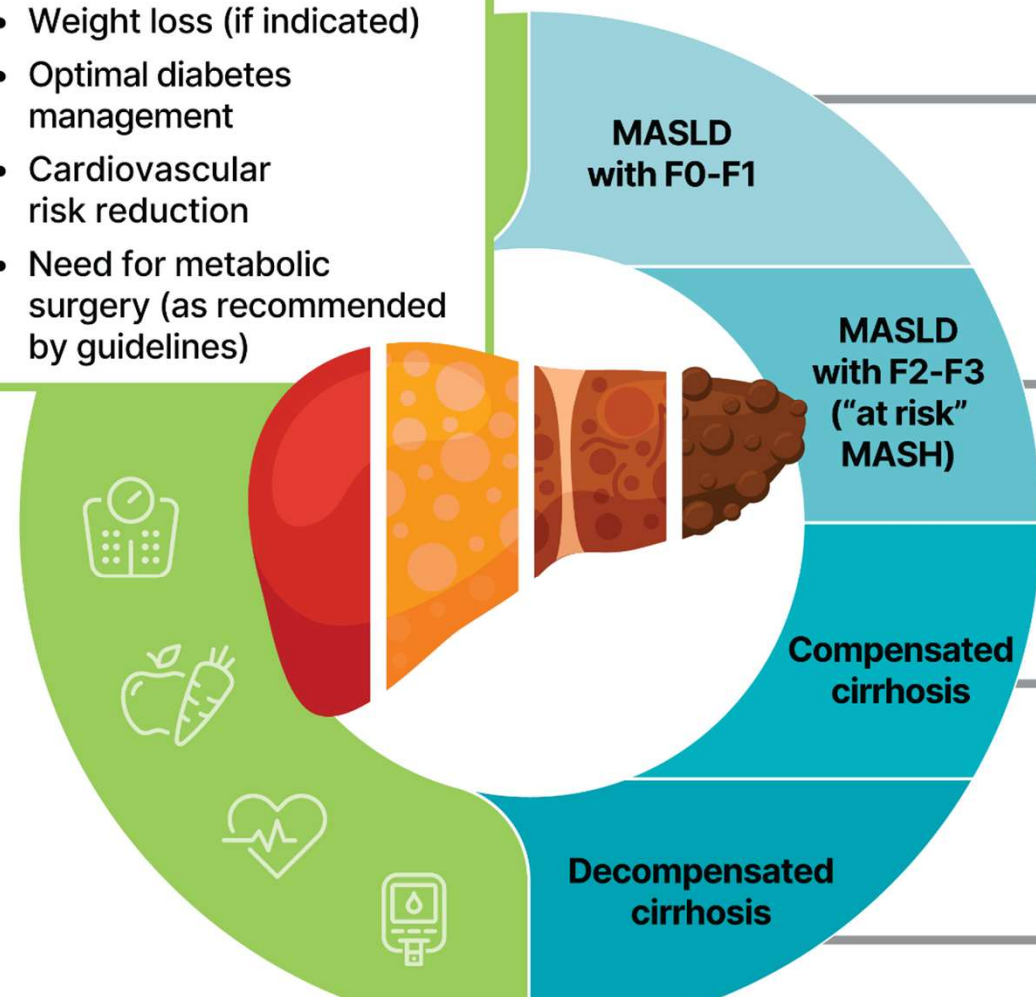
- ▶ Cancer Screenings
- ▶ Decrease inflammation

Metabolic dysfunction–associated steatotic liver disease (MASLD) treatment algorithm

Individualize care, targeting the following:



- Adoption of a healthy lifestyle
- Weight loss (if indicated)
- Optimal diabetes management
- Cardiovascular risk reduction
- Need for metabolic surgery (as recommended by guidelines)



F0-F1, no to minimal fibrosis; F2-F3, moderate fibrosis; F4, cirrhosis

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Obesity pharmacotherapy	Diabetes pharmacotherapy	MASH pharmacotherapy
Prefer GLP-1 RA, dual GIP and GLP-1 RA	Prefer GLP-1 RA, dual GIP and GLP-1 RA, pioglitazone, SGLT2i	Not indicated
Prefer GLP-1 RA, dual GIP and GLP-1 RA	Prefer GLP-1 RA, dual GIP and GLP-1 RA, pioglitazone	Resmetirom, GLP-1 RA†
As with F2-F3 with caution*	As with F2-F3 with caution*	⚠️ AVOID
⚠️ AVOID	Only use insulin	⚠️ AVOID

† Only semaglutide among GLP-1 RAs has been approved by the FDA for treatment of MASH.

* Individualized care and close monitoring needed in compensated cirrhosis given limited safety data available.

Slide 149

BT1

Updated

Beverly Thomassian, 2026-01-13T05:33:08.735

BT2

updated

Beverly Thomassian, 2026-01-26T06:25:28.129

Fractures

- ▶ Hip fractures:
 - ▶ Type 1 - 4.3 relative risk associated w/ osteoporosis
 - ▶ Type 2 – 1.8 relative risk
- ▶ Health care professionals can:
 - ▶ Assess risk fracture risk and history, esp with older clients
 - ▶ Recommend bone mineral density assessment
 - ▶ Assess if would benefit from vita d supplement
 - ▶ Home health/ Physical Therapy
 - ▶ Use TZDs and SGLT's with caution



4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2026 **FREE**
American Diabetes Association Professional Practice Committee for Diabetes*

Bone Mineral Density Testing

- ▶ Determination of fracture risk traditionally relied on measurements of bone mineral density (BMD) and the World Health Organization–defined T-score of less than -2.5 SD.
- ▶ Now established that the consideration of other risk factors improves the categorization of fracture risk



4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2026 FREE
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If at Risk for Fracture - Advise people with diabetes on their intake of calcium (1,000–1,200 mg/day) and vitamin D to ensure it meets the recommended daily allowance through their diet or supplemental means.

Assess Risk factors for Fracture

Table 4.4—Diagnostic assessment

Individuals who should receive BMD testing

People aged ≥ 65 years

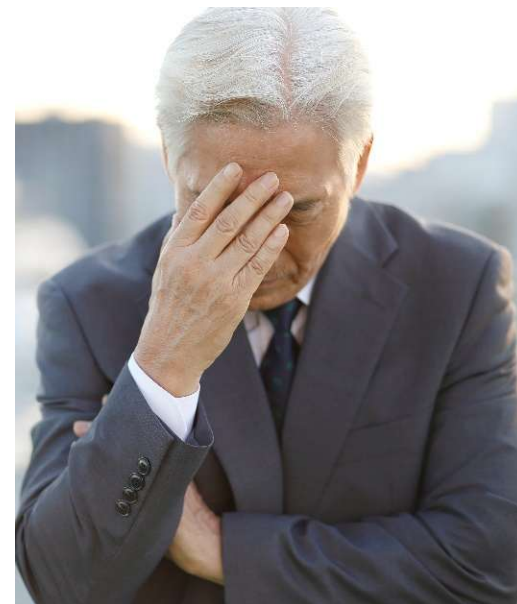
Postmenopausal women and men aged ≥ 50 years with history of adult-age fracture or with diabetes-specific risk factors:

- Frequent hypoglycemic events
 - Diabetes duration > 10 years
 - Diabetes medications: insulin, thiazolidinediones, sulfonylureas
 - A1C $> 8\%$
 - Peripheral or autonomic neuropathy, retinopathy, nephropathy
 - Frequent falls
 - Glucocorticoid use
-

Avoid TZDs if high risk and use caution with medications that can cause hypo (insulin, meglitinides and sulfonylureas)

Cognitive Impairment

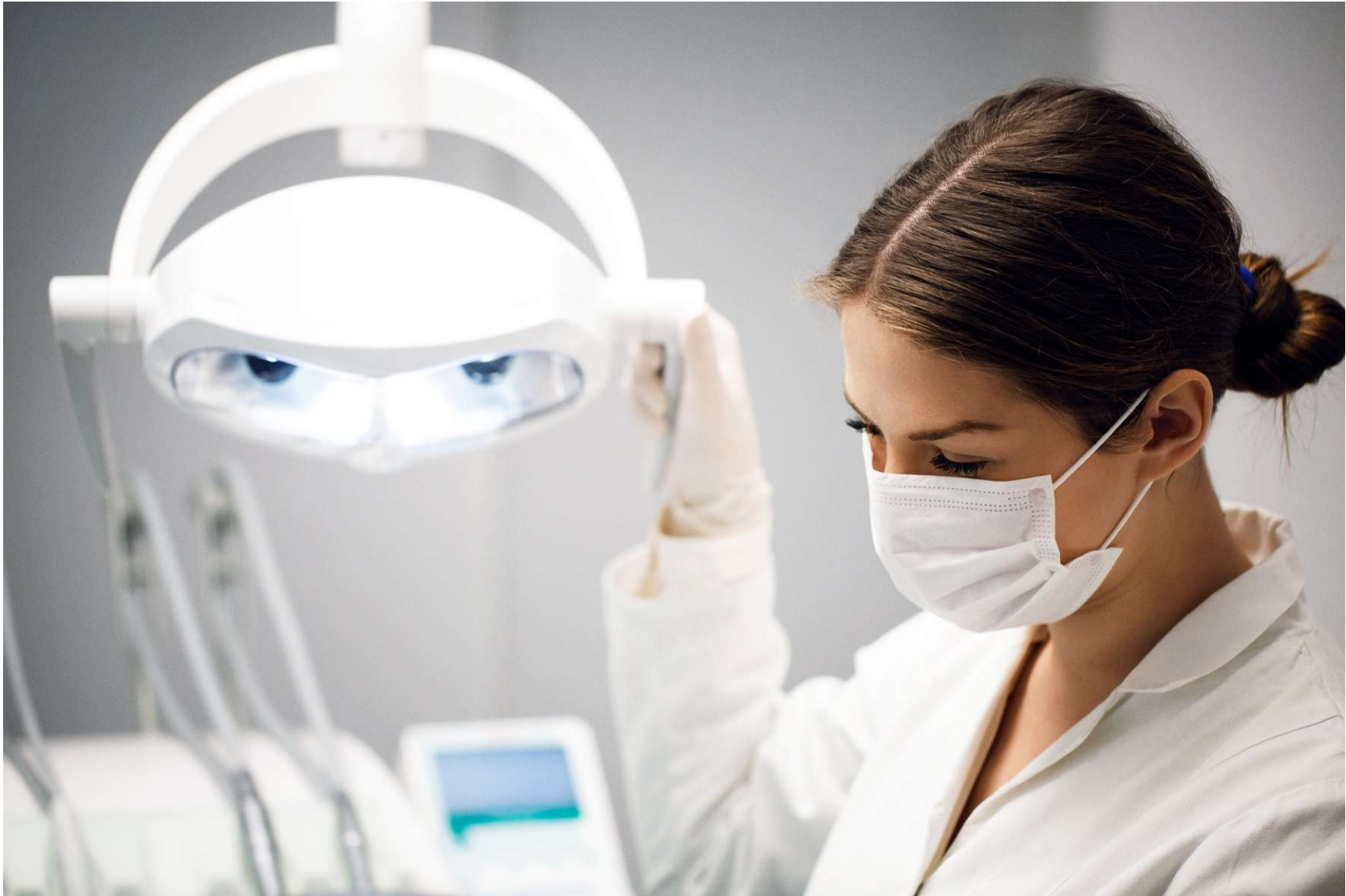
- ▶ Meta-analysis showed individuals with diabetes had
 - ▶ 43% higher risk of all types of dementia,
 - ▶ 43% higher risk of Alzheimer dementia
 - ▶ 91% higher risk of vascular dementia
 - ▶ compared with individuals without diabetes
- ↔
- ▶ People with Alzheimer dementia are more likely to develop diabetes than people without Alzheimer dementia.



Movement Break – Before Microdisease



Dental, Eye, and Nerve Care



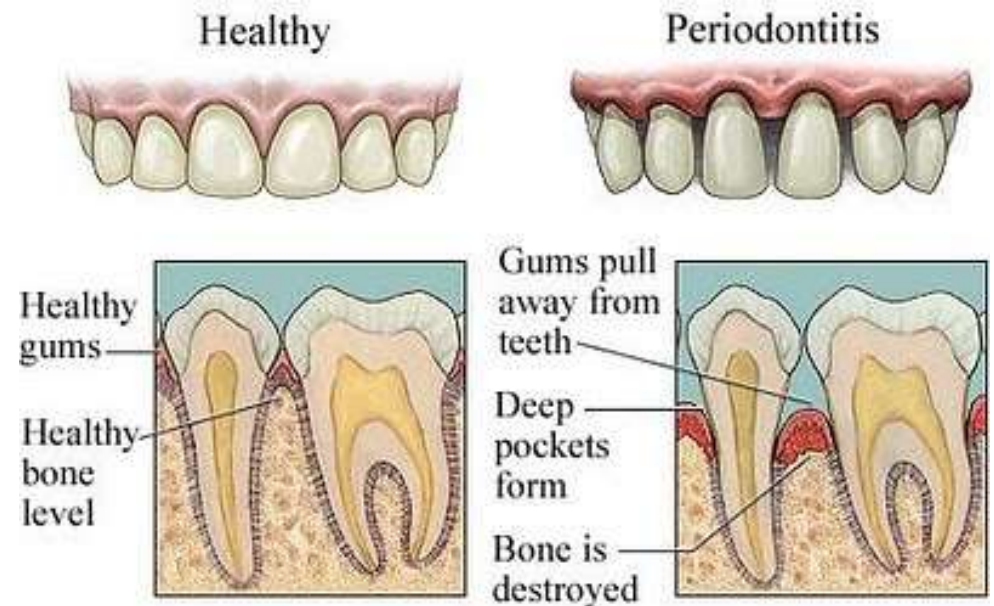
Poll Question 14

▶ Diabetes is associated with an increased risk of oral disease. Which of the following statements is true?

- a. Diabetes is associated with decreased saliva production.
- b. People with diabetes benefit from vinegar gargles to decrease bacterial load
- c. People with diabetes are at greater risk for tongue cancer.
- d. Diabetes is associated with increased tonsillitis.

Periodontal Disease

- ▶ More severe and prevalent with diabetes and elevated A1C levels.
 - ▶ periodontal treatment associated with better glycemic control (A1C 8.3% vs. 7.8%)
 - ▶ Benefits lasted for 12 mo's
- ▶ People with periodontal disease have higher rates of diabetes.
- ▶ First time, periodontal disease is listed as a risk factor for diabetes in ADA Stds.



Oral Care Matters

- See dentist at least yearly
- Dental hygienist twice yearly
- Brush twice daily
- Floss daily

Gingivitis

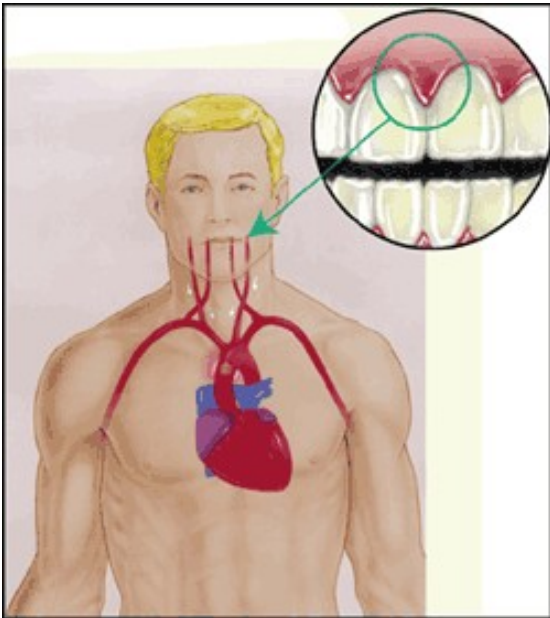


Mild to Severe Periodontitis



Periodontal disease and Heart Disease

- Heart disease link:
 - oral bacteria enter the blood stream, attach to fatty plaques in coronary arteries increasing clot formation
 - inflammation increases plaque build up, which may contribute to arterial inflammation
- Hyperglycemia = Gingivitis = Heart Disease



Keeping Oral Healthy

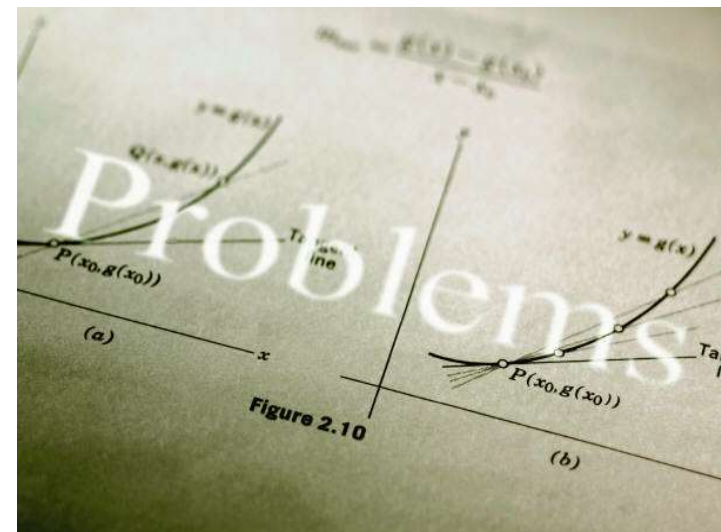
- ▶ Oral disease linked with heart disease
- ▶ Dental exams (every 6 mo's)
- ▶ Metabolic control critical
- ▶ Quit smoking
- ▶ Brush twice daily and floss daily.
- ▶ Help access affordable dental care.
- ▶ Treat infections with ATB's, can lower A1c by 1-2%. Lowering BG shortens infection.



Best \$10 investment

Diabetes – Microvascular Complications

- ▶ Microvascular Complications
 - ▶ Diabetes eye disease, nephropathy and neuropathy



Retinopathy Changes How We See



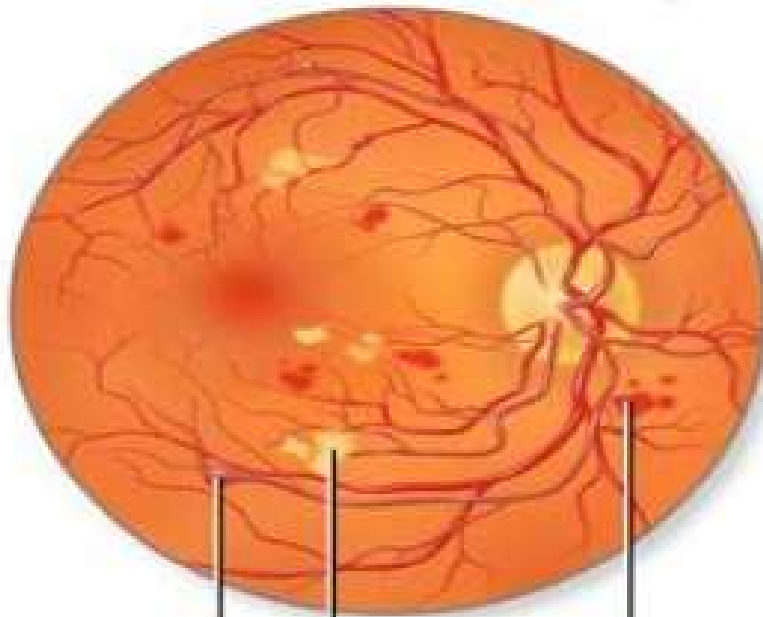
View of boys by person with usual vision



View of boys by person with diabetic retinopathy.

Non - Proliferative to Proliferative Diabetic Retinopathy

Non-proliferative
diabetic retinopathy

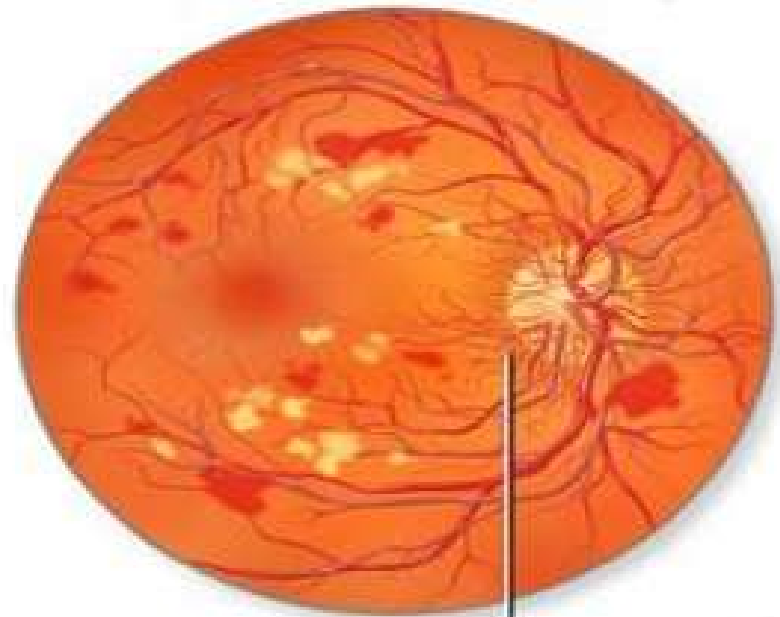


Aneurysm

Hemorrhage

Hard
exudate

Proliferative
diabetic retinopathy



Growth of abnormal
blood vessels

Quick Question 15

- ▶ Which of the following is correct regarding eye screening for people with diabetes?
 - A. All people with diabetes must get a complete eye exam every year
 - B. All people diagnosed with type 1 and 2 need an immediate eye exam.
 - C. All people diagnosed with type 2 need an immediate eye exam.
 - D. People with diabetes over age of 60 need an eye exam every 6 months.



12. Microvascular Complications - Eyes

- ▶ Optimize BG and B/P Control to protect eyes
- ▶ Screen with initial dilated and comprehensive eye exam by ophthalmologist or optometrist
 - ▶ Type 2 at diagnosis, then every year*
 - ▶ Type 1 within 5 years of dx, then every year*
 - ▶ *If **no** evidence of retinopathy **and** glycemic indicators within goal range, then screening every 1–2 years may be considered.



12. Retinopathy, Neuropathy, and Foot Care: Standards of Care in Diabetes—2026 [PDF](#)
American Diabetes Association Professional Practice Committee for Diabetes*

Retinopathy Prevention

- ▶ To reduce the risk or slow the progression of retinopathy
 - ▶ Optimize glycemia
 - ▶ Optimize blood pressure
 - ▶ Optimize lipids
 - ▶ retinopathy progression may be slowed by the addition of fenofibrate



12. Retinopathy, Neuropathy, and Foot Care: Standards of Care in Diabetes—2026 FREE

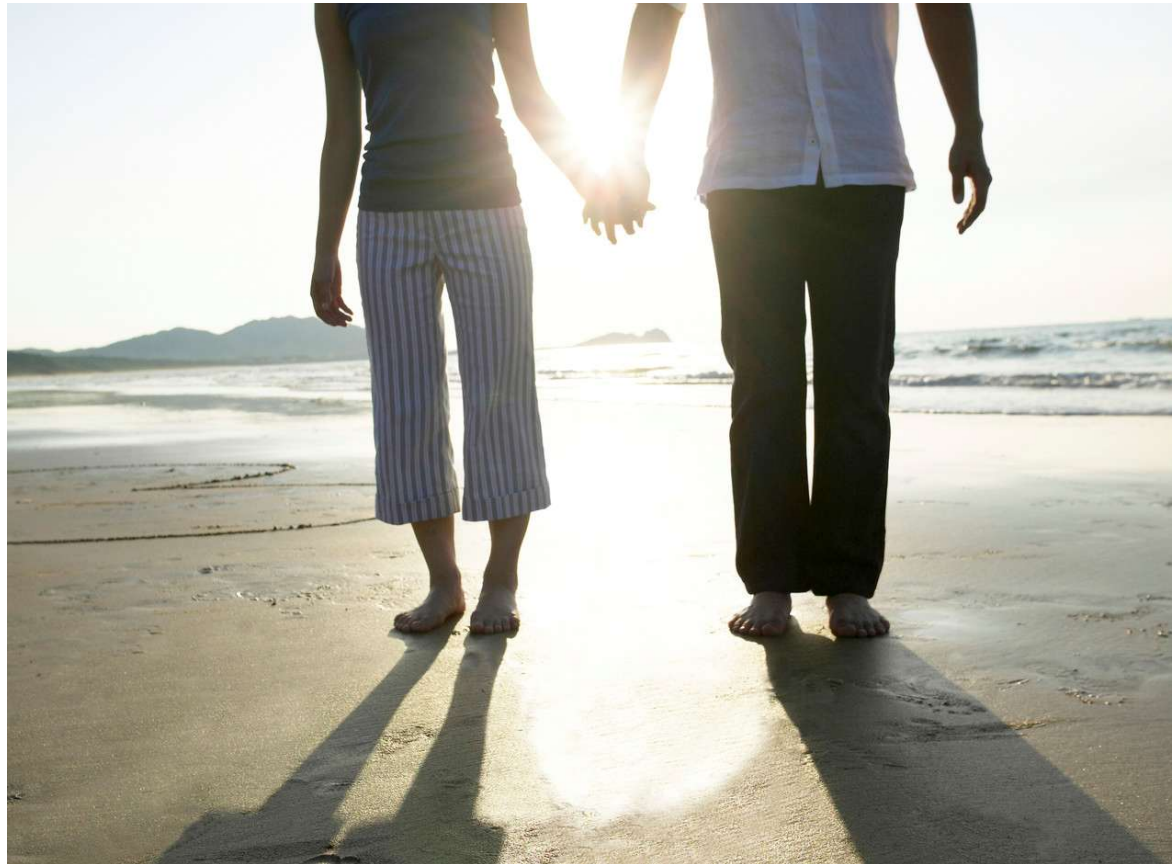
American Diabetes Association Professional Practice Committee for Diabetes*

Collaborative Action Plan and F/U

- ▶ Make appointment with dentist and eye doctor.
- ▶ Brush twice daily and floss daily.
- ▶ Need some relief from nerve pain.
- ▶ Experiencing vaginal dryness.



Moving on to the Lower Half



Diabetes and Amputations

- ▶ Rate declined 43% - 2000 – 2009
- ▶ Increased 50% from 2009-2015
 - ▶ 2.1 per 1000 then up to 4.2 per 1000
 - ▶ Driven by a 62% increase in minor amputations
 - ▶ Highest rates in young and middle age adults (18- 64 years).
- ▶ 50% of amputations can be avoided through self-care skill education and early intervention

Diabetes Care

Resurgence of Diabetes-Related Nontraumatic Lower Extremity Amputation in the Young and Middle-Aged Adult U.S. Population

<https://doi.org/10.2337/DC18-1380>

Diabetes Care 2018



Poll Question 16

- ▶ Which of the following is true about diabetes and lower extremities?
 - a. Excess hair on the toes indicates compromised circulation.
 - b. People with diabetes need to inspect lower extremities weekly.
 - c. People over 65, with high-risk feet, qualify for a pair of custom shoes annually
 - d. Once a person with diabetes has an amputation, they are not likely to have another.



Lower Extremities

- ▶ Lift the Sheets and Look at the Feet



No
DeFEET



12. Microvascular Complications Nerves

▶ Nerve Disease

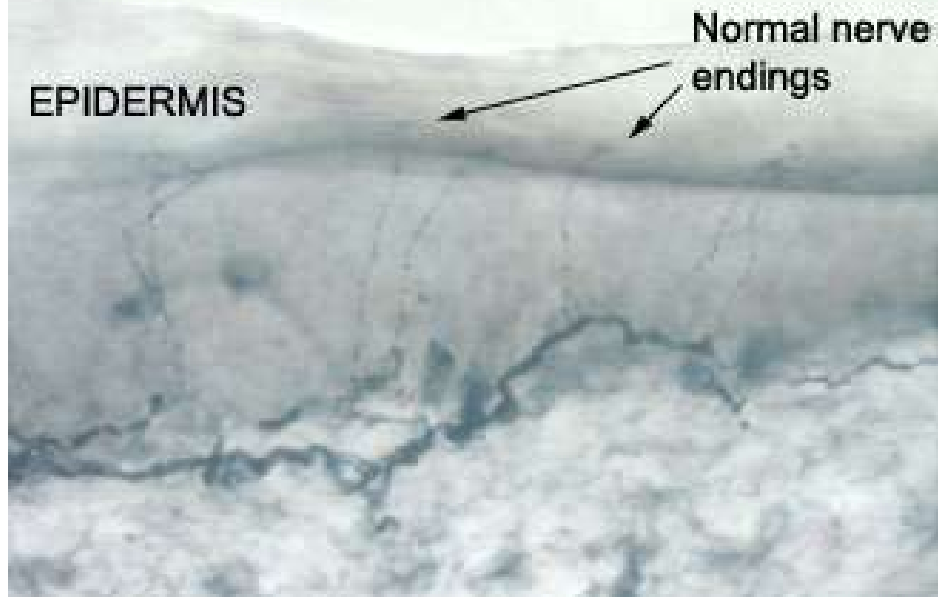
- ▶ Optimize glucose to prevent/delay.
- ▶ Optimize wt, BP, lipids *to slow* progression.
- ▶ Screen for nerve disease using simple tests:
 - ▶ Type 2 at diagnosis, then annually
 - ▶ Type 1 diabetes 5 years, then annually
 - 10-g Monofilament - protective sense
 - Pinprick & temperature - small nerve fiber
 - Reflexes & vibration – Large nerves
- ▶ Assess and treat to reduce pain and symptoms to improve quality of life.



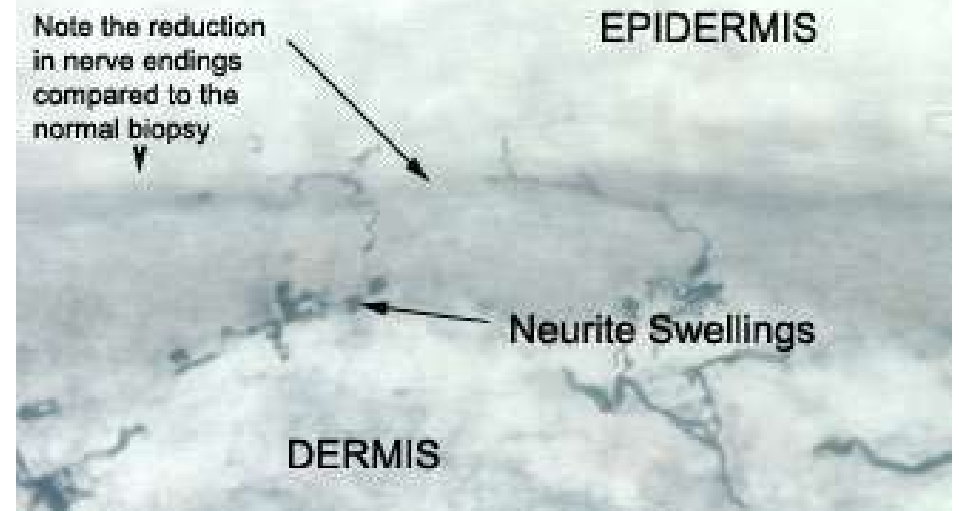
Avoid opioids
for pain
management

Skin Biopsy to Assess Neuropathy

Normal Skin Biopsy (lower leg)



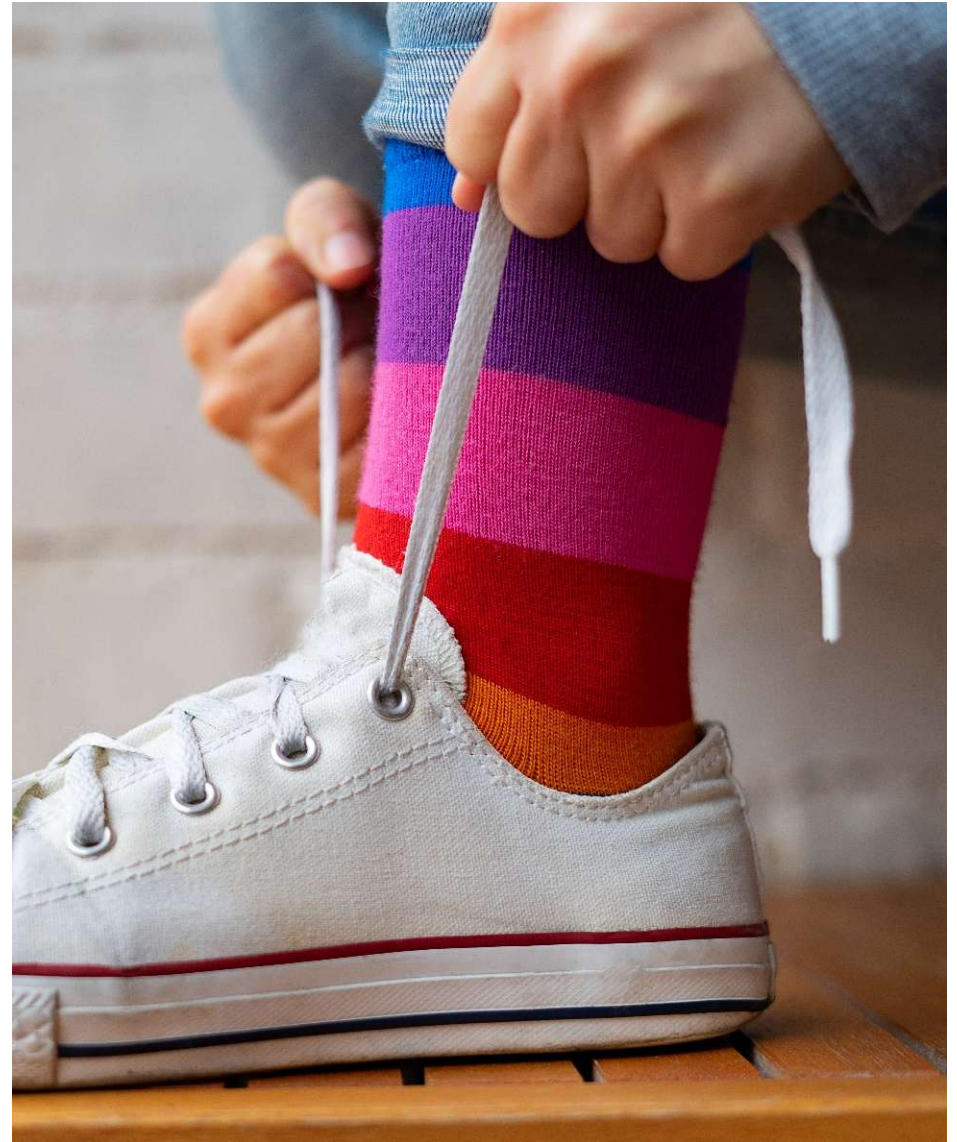
Neuropathic Skin Biopsy (lower leg)



Testing for Small and Large Nerve Fiber Loss

- ▶ Test for nerve fiber function and loss of protective sensation:
 1. Small-fiber function: pinprick and temperature sensation.
 2. Large-fiber function: vibration perception and 10-g monofilament.
 3. Protective sensation: 10-g monofilament.

Up to 50% of diabetes peripheral neuropathy may be asymptomatic.

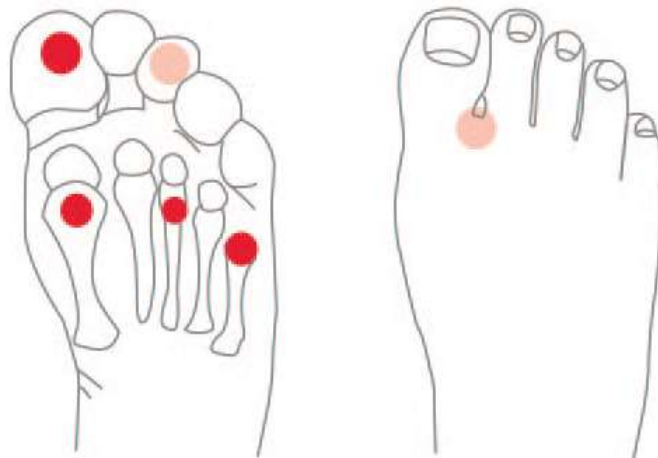
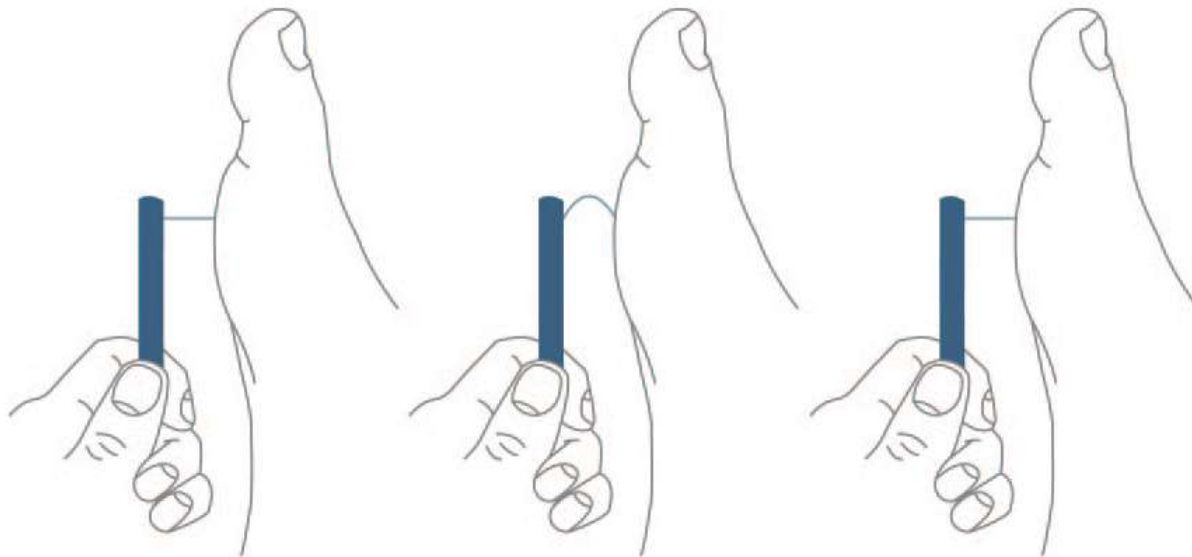


Consider Other Causes of Neuropathy

- ▶ toxins (e.g., alcohol)
- ▶ neurotoxic medications (e.g., chemotherapy)
- ▶ vitamin B12 deficiency
- ▶ hypothyroidism
- ▶ renal disease
- ▶ malignancies (e.g., multiple myeloma, bronchogenic carcinoma)
- ▶ infections (e.g., HIV)
- ▶ chronic inflammatory demyelinating neuropathy
- ▶ inherited neuropathies, and vasculitis



5.07 monofilament delivers 10gms linear pressure



Treating Neuropathy

- ▶ Improve glycemic control
- ▶ Control pain
- ▶ Relief from depression from chronic pain
 - ▶ Massage, stretching,
 - ▶ Pain control clinic,
 - ▶ Transcutaneous Electrical Nerve Stimulation (TENS)
 - ▶ Avoid alcohol
 - ▶ Relaxation exercises....



Neuropathy Treatment for Diabetes

Behavioral Interventions: Improve glucose levels, quit smoking, alcohol reduction, exercise, massage, meditation, pain management clinic, adequate sleep, nutrition therapy, hobbies.

Pathogenetically Oriented Therapy

- Alpha lipoic acid 600 – 1,800 mg a day. Consider B12 replacement therapy.

Prescription Therapy:

1st line – Tricyclic Antidepressants (Amitriptyline, Nortriptyline, Desipramine)

- Calcium Channel Modulators (Gabapentin, Pregabalin)
- Serotonin Norepinephrine Reuptake Inhibitors (SNRI – Venlafaxine, Duloxetine)

2nd Line - Topical Capsaicin Cream for localized pain – Apply 2-4 x daily for up to 8 wks

- Opioids are no longer recommended due to addiction risk, lack of efficacy. (ADA Stds)

Common Reasons for Treatment Failure

- Dose too low or inadequate trial – requires 2-8 weeks of treatment to observe symptom reduction
- Expecting elimination of symptoms – only reduces symptoms by about 50%
- Incorrect diagnosis: If in doubt, refer to neurologist
- If there is no improvement or person has adverse effects, change medication class
- If some but inadequate relief, raise the dose and consider adding or changing meds.

References: Ziegler, D. Painful diabetic neuropathy. Diabetes Care 2009; 32 (Supp 2): S414-S419

Class	Generic / Trade Name	Usual Daily Dose Range	Comments	Side Effects/ Caution
1st Line Agents Tricyclic Antidepressants TCA Improves neuropathy and depression	Amitriptyline / Elavil	25 – 100 mg* Avg dose 75mg	Usually 1 st choice	Take 1 hour before sleep. Side effects; dry mouth, tiredness, orthostatic hypotension. Caution: not for pts w/ unstable angina (<6 mo), MI, heart failure, conduction system disorder.
	Nortriptyline / Pamelor	25 - 150 mg* (for burning mouth)	Less sedating and anticholinergic	
	Desipramine / Norpramine	25 – 150 mg* *Increase by 25mg weekly till pain relieved		
Calcium Channel Modulators	Gabapentin/ Neurontin	100 - 1,200mg TID	Improves insomnia,	Sedation, dizziness, peripheral edema, wt gain Caution; CHF, suicide risk, seizure disorder.
	Pregabalin / Lyrica *FDA approved for neuropathy treatment	50 - 200mg TID	fewer drug interactions	
Serotonin Norepinephrine Reuptake Inhibitor SNRI	Duloxetine / Cymbalta *FDA approved for neuropathy treatment	60 mg daily Start at 30 mg	Improves depression, insomnia	Nausea, sedation, HTN, constipation, dizziness, dry mouth, blurred vision. Caution: adjust dose for renal insufficiency, do not stop abruptly, taper dose.
	Venlafaxine/ Effexor	75 - 225 mg daily		
2nd Line Agents Opioids (avoid this class)	Weaker opioids Tramadol / Ultram	50 – 400 mg	Sedation, nausea, constipation	Caution: ADA Standards no longer recommend this class due to addiction risk and lack of efficacy for painful neuropathy.
	Stronger opioids Oxycodone	10 – 100 mg		

Meds for Neuropathy – Cheat Sheet

Also consider
Capsaicin cream
8% patch or
Lidocaine 5%
patch

Other strategies to help ease the pain

- ▶ Music
- ▶ Podcasts
- ▶ Movies
- ▶ Pet's
- ▶ Massage
- ▶ Touch
- ▶ Topical creams
- ▶ Lidocaine patches
- ▶ Mineral salts baths
- ▶ Neurostimulators



- ▶ Acetaminophen / Ibuprofen
- ▶ Earthing
- ▶ Sleep
- ▶ Hobbies
- ▶ Aromatherapy
- ▶ Time with special people
- ▶ Work / volunteering

We Can Make A Difference

- ▶ Assess
 - ▶ Nail condition, nail care, in between the toes
 - ▶ Who trims your nails
 - ▶ Have you ever cut your self?
 - ▶ Shoes – type and how often
 - ▶ Socks
 - ▶ Skin/skin care and vascular health
 - ▶ Ability to inspect
 - ▶ Loss of protective sensation
 - ▶ Nerve pain treatment

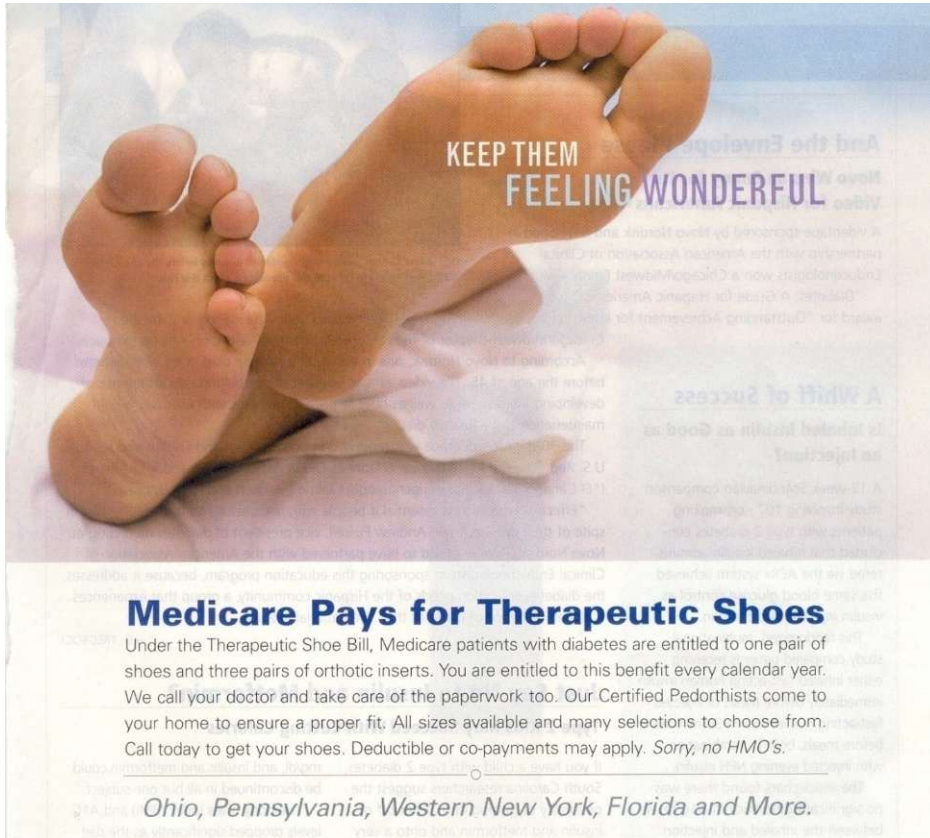


Lower Extremities

- ▶ **"Every time you see your provider, take off your shoes and socks and show your feet!"**
- ▶ For those at high risk for foot complications
 - ▶ with loss of protective sensation, foot deformities, or a history of foot ulcers
- ▶ Everyone else needs a thorough, annual inspection



Feet Deserve Special Care



- ▶ Daily inspection
- ▶ With order from MD and Loss of Protective Sensation (LOPS), Medicare Covers:
 - ▶ Annual custom shoes
 - ▶ 3 pairs of orthotic inserts

Medicare and Custom Shoes

- ▶ The doctor who treats diabetes must certify need for therapeutic shoes or inserts and be a medicare provider.
- ▶ A podiatrist or other qualified doctor must prescribe the shoes or inserts, and ind must get the shoes or inserts from one of these:
 - A podiatrist A prosthetist
 - A pedorthist An orthotist
 - Another qualified individual

Autonomic Neuropathy

- ▶ A condition that causes nerve damage to the autonomic nervous system which is in charge of digestion, sexual function, heart rate, and the adrenergic flight or fight response.
- ▶ The autonomic nervous system also “oversees” the energy-conserving parasympathetic response including bladder control, heart rate slowing, eye pupil constriction, and more.

Slide 185

BT1

added

Beverly Thomassian, 2026-04-07T23:12:01.774

“DAN” Diabetic Autonomic Neuropathy

- ▶ 50% of ind's with peripheral neuropathy also have DAN
- ▶ DAN associated with higher M/M Rates
 - ▶ hypoglycemia unawareness
 - ▶ resting tachycardia, orthostatic hypotension
 - ▶ gastroparesis, constipation, diarrhea, fecal incontinence
 - ▶ neurogenic bladder
 - ▶ sudomotor dysfunction with either increased or decreased sweating
 - ▶ erectile dysfunction

Who is DAN?



Sexual Functions as We Age

- ▶ 20-30 years trice daily
- ▶ 30-40 years tri weekly
- ▶ 40-50 years try weekly
- ▶ 50-60 years try weakly
- ▶ 60-70 years try oysters
- ▶ 70-80 years try anything
- ▶ 80-90 years try to remember



A touch of humor from AADE-New Perspectives on Erectile Dysfunction, 1999

Asking about sexual health

- ▶ “ I’m going to ask you a few questions *about your sexual health. Since sexual health is very important to overall health, I ask each person these same questions.*
- ▶ Before I begin, *do you have any questions or sexual concerns you’d like to discuss? ”*
- ▶ Have you noticed any changes in your sex life over the past year?
 - ▶ Trouble with erection, lowered libido, decreased sensation, painful intercourse or something else?



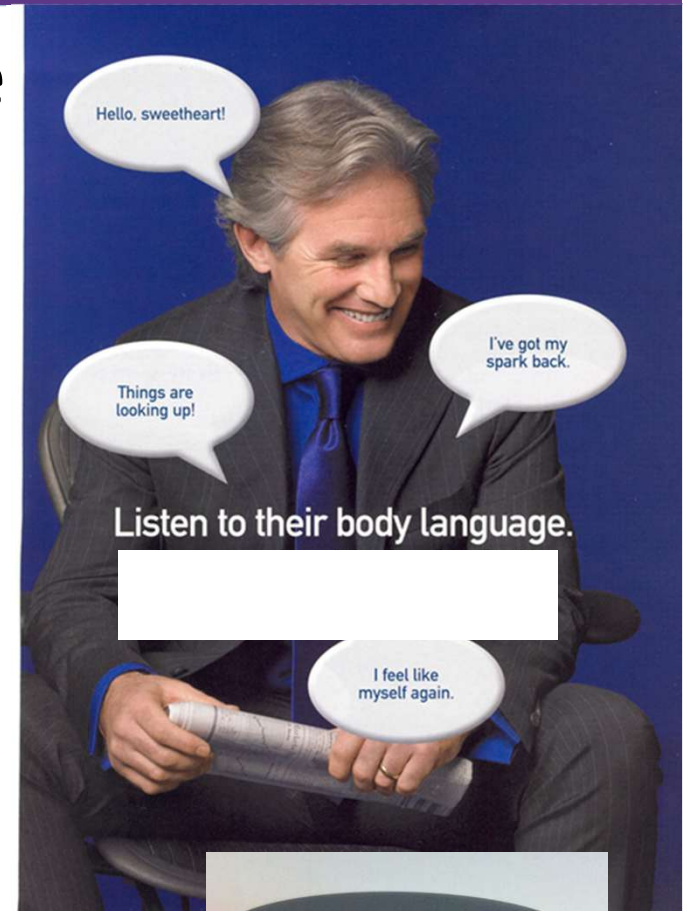
Erectile Dysfunction

- ▶ Affects about 50% of men with diabetes
- ▶ Loss of erections sufficient for intercourse
- ▶ Due to combo of vascular and nerve damage
- ▶ Tests: penile tumescence to eval if organic or psychogenic
- ▶ Treatment:
 - ▶ Sildenafil (Viagra), Vardenafil (Levitra), Tadalafil (Cialis)
 - ▶ Use caution if taking nitrate drugs. Check w/ MD first
 - ▶ Other meds, vacuum devices, prosthetics
 - ▶ HRT- testosterone gel, patches, injections, pills



Low Testosterone

- ▶ Hypogonadism: loss of sex drive or activity
- ▶ Screening: morning serum levels
- ▶ Mean testosterone levels lower in men with diabetes – also associated with elevated BMI
- ▶ Testosterone replacement therapy can improve:
 - ▶ Sexual function, strength, bone density, mood
 - ▶ Repeat am testosterone level after treatment to eval response



Assess Sexual Health

- ▶ In women with diabetes or prediabetes, assess sexual health:
- ▶ 33% reported female sexual dysfunction (FSD)
- ▶ Screen for desire (libido), arousal, orgasm difficulties, particularly in those with depression and/or anxiety and those with recurrent urinary tract infections.
- ▶ In postmenopausal women - screen for symptoms and/or signs of genitourinary syndrome of menopause, including vaginal dryness and dyspareunia.



Improving Sex Life

People with diabetes get more vaginal and bladder infections

- ▶ Difficulty achieving orgasm due to neuropathy
- ▶ Painful intercourse due to lack of vaginal lubrication



Treatment

- ▶ Lower blood glucose / blood pressure
- ▶ Treat vaginal infections and UTI's
- ▶ Water based lubricants for vaginal dryness
- ▶ Hormone replacement therapy
- ▶ Eat to prevent lows during intimacy
- ▶ Allow time, touching and romance

Many people with diabetes have issues with sexual desire, arousal, or orgasm. How about you?"

EV is feeling Empowered

- ▶ Her A1c has dropped, she feels better about herself with healthier eating and increased activity.
- ▶ She is back on her thyroid medication and has more energy.
- ▶ The pain in her feet is better and she is more hopeful overall!



The ABC's of Diabetes Management

A - A1c less than 7%, TIR 70%

B - Blood pressure < 130/80

C - Cholesterol

LDL < 70, HDL > 40, Triglycerides < 150

D - Drugs- Keep list on phone

E - Exercise and Eyes

F - Food and Feet

G – Glucose checks and goals

H- Healthy Coping - Hoorah for your hard work!

K – Kidneys – Check UACR & GFR



Questions and Lunch



- ▶ Class starts again at 1:00 pm
- ▶ Thank you

ABCs of Assessing & Supporting Well-Being: Healing Through Connection

Beverly Thomassian, RN, MPH, CDCES, BC-ADM
Pronouns: She, her, hers

ABCs of Assessing & Supporting Well-Being: Healing Through Connection

- ▶ State strategies to assess and address social determinants of health
- ▶ Discuss health care delivery systems using a person-centered approach
- ▶ List tools that can help detect distress, and mental health issues.
- ▶ Describe psycho-social and emotional barriers to diabetes self-management
- ▶ Discuss communication tools that healthcare professionals can use to address distress and support well-being.



Improving Care and Promoting Health in Populations



1. Improving Care and Promoting Health in Populations: Standards of Care in Diabetes—2026 **FREE**

American Diabetes Association Professional Practice Committee for Diabetes*

5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2026 **FREE**

American Diabetes Association Professional Practice Committee for Diabetes*

Standards of Care in Diabetes—2026



ISSN 0149-5992

Facilitating Positive Health Behaviors and Well Being to Improve Health Outcomes – Standard 5

- ▶ Building positive health behaviors and maintaining psychological well-being are foundational for achieving diabetes management goals and maximizing quality of life
- ▶ Engage in person-centered collaborative care and shared decision making



5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2026 **FREE**

American Diabetes Association Professional Practice Committee for Diabetes*

BT1

updated

Beverly Thomassian, 2026-04-10T16:32:41.050

Well-Being Key Goal of Care

- ▶ Timely treatment based on evidence and SDOH in collaboration with individual
- ▶ Integrate long term treatment approaches w/ person centered care team.
- ▶ Facilitate in person & virtual team-based care along with community involvement



We want to help people
move from
Dis – Ease to
Well- Being

1. Improving Care and Promoting Health in Populations: Standards
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BT1

updated

Beverly Thomassian, 2026-04-10T16:32:30.798

Diabetes Care and Education Specialist (CDCES) Definition

“A compassionate teacher and expert who, as an integral member of the care team, provides collaborative, comprehensive, and person-centered care and education for people with diabetes”

When I get lost or discouraged, I remember my why.



2022 National Standards for
Diabetes Self-Management
Education and Support

Diabetes Care 2022;45:484–494 | <https://doi.org/10.2337/dc21-2396>

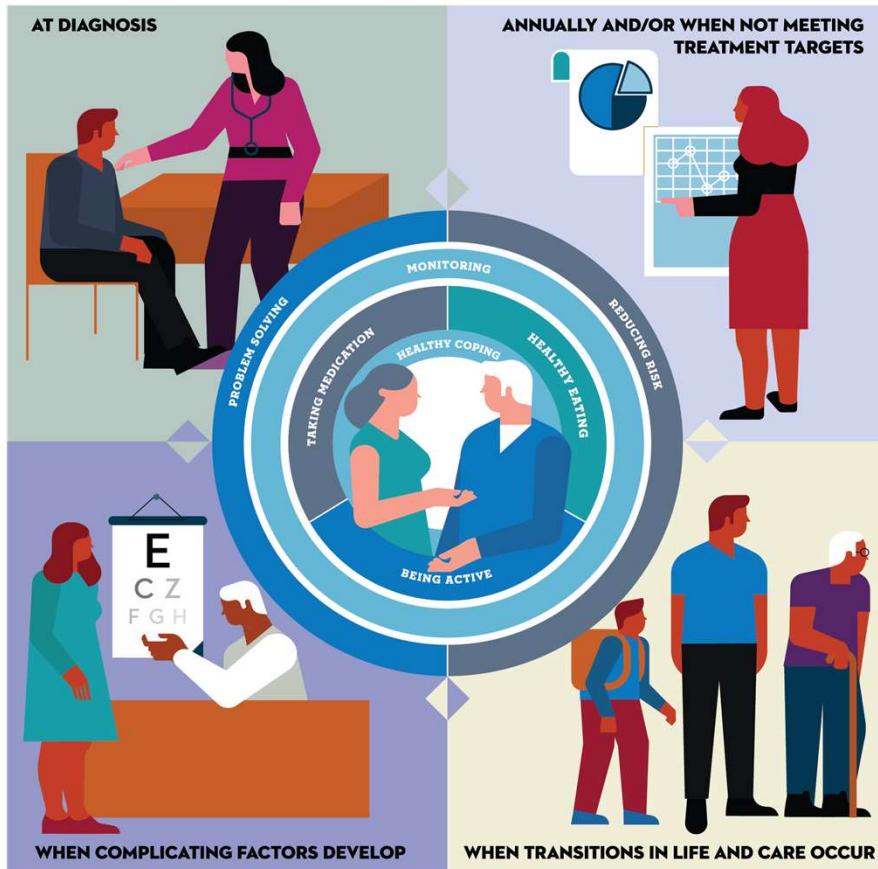
Barriers to DSMES

- ▶ **Only about 50% of eligible individuals receive DSMES**
- ▶ Barriers include health system, payor, clinic, HCP, and individual.
- ▶ Due to lack of administrative leadership support to ineffective DSMES referral processes, transportation challenges etc.
- ▶ Low participation can be due to lack of referrals, logistical issues (e.g., accessibility, timing, and costs), and lack of a perceived benefit



Efforts to identify and address potential barriers at all levels need to be made.

Critical Times to Provide/Modify DSMES





- ▶ At diagnosis.
- ▶ Annually and/or when not meeting treatment goals.
- ▶ When complicating factors develop (medical, functional, psychosocial).
- ▶ When transitions in life and care occur.

Powers MA, Bardsley JK, et al. DSMES Consensus Report, The Diabetes Educator, 2020
ADCES. AADE7 Self-Care Behaviors, The Diabetes Educator, 2020

STANDARDS OF CARE | DECEMBER 08 2025

5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2026 **FREE**

DSMES Benefits

- ▶ ↑ Knowledge
 - ▶ ↓ A1c and weight
 - ▶ ↑ Quality of life
 - ▶ ↓ Mortality
 - ▶ Positive coping
 - ▶ ↓ Cost
 - ▶ < 10% referred receive DSMES
- 
- ▶ ↑ primary care, preventive services
 - ▶ ↓ frequency of acute care and inpt admissions
 - ▶ More likely to follow best practice recommendations (esp. those with Medicare)
- 

Slide 205

BT1

added

Beverly Thomassian, 2026-02-06T03:03:17.373

Improving Ind & Population Health

- ▶ Requires engagement of and collaboration between people with diabetes and their caregivers, interprofessional health care teams, health systems, community partners, payors, policymakers, and public health agencies.
- ▶ Health care community linkages promote translation of clinical goals into lifestyle changes in real world.
 - ▶ Community health workers
 - ▶ Community paramedics
 - ▶ Peer supporters
 - ▶ Lay leaders helpful



Chronic Care Model – 6 Core Elements

Delivery system design
(moving from
a *reactive* to
a *proactive* care delivery
system where planned
visits are coordinated
through a team-based
approach)

Self-management
support

Decision support
(basing care on
evidence-based, effective
care guidelines)

1. Improving Care and Promoting Health in Populations: Standards of Care
in Diabetes—2026 [PDF](#)
American Diabetes Association Professional Practice Committee for Diabetes*

Clinical information
systems (using registries
that can provide
patient-specific and
population-based
support to the care
team)

Community resources
and policies (identifying
or developing resources
to support healthy
lifestyles)

Health systems (to
create a quality-
oriented culture)

Studies show using chronic care delivery model
decreases death & disease and improves outcomes.

Lived Experiences & Advocacy



Diabetes Admit for Hyperglycemia

- ▶ John is admitted for hyperglycemia because he stopped taking his diabetes meds.
- ▶ HCP says, “Don’t you realize you are going to get complications, like kidney disease or amputation if you don’t take your medications?”
- ▶ Door Closed – No Connection made

How Does John Feel?

- ▶ Embarrassed
- ▶ Ashamed
- ▶ Defeated
- ▶ Angry
- ▶ Unheard



How does HCP feel?

- ▶ Frustrated
- ▶ Defeated
- ▶ Worried

Diabetes Visit – Let's Go *through*

A small adjustment can make a **BIG** Difference

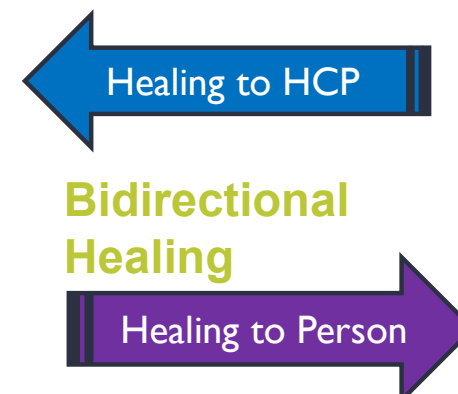
- ▶ HCP says, “John, I am worried about you and your elevated blood glucose. Can you share what is going on in your life?”
- ▶ Door Open – Connection made

How Does John Feel?

- ▶ Heard & Seen
- ▶ Recognized
- ▶ Connected
- ▶ Engaged

How does the HCP feel?

- ▶ Connected
- ▶ Concerned
- ▶ Collaborative





Missed Appointments due to Stigma and Shame

A recent survey of over 2,600 people with diabetes across eight countries revealed that nearly 40% of missed doctor's appointments are due to stigma or shame.

Create a Judgement Free Zone – Roll out the Carpet of Acceptance

There are no bad or good blood glucose numbers.

There is no such thing as cheating.
You are not failing at your diabetes.
It is not your fault you have diabetes.
Thank you for showing up today.



EMBARC Trial

Adults with type 1 diabetes experienced reductions in diabetes distress and HbA_{1c} after participating in a virtual emotion-focused and/or education/behavioral program

EMBARC: a randomized, controlled clinical trial comparing three interventions aimed at reducing diabetes distress and improving HbA_{1c} among adults with type 1 diabetes.



Streamline, an educator-led education and management program



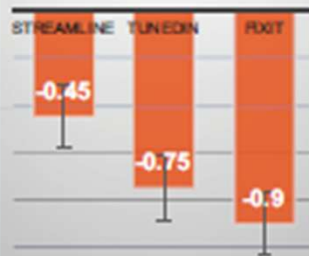
TunedIn, a psychologist-led program focused exclusively on the emotional side of diabetes



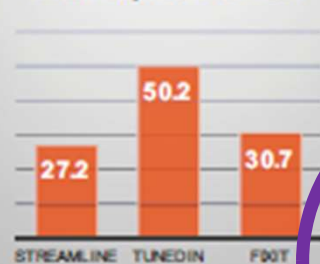
FixIt, an integration of Streamline and TunedIn.

- All interventions were group based and virtual over 3–4 months.
- Recruitment occurred through clinics and community organizations in the United States.

Change in Diabetes Distress



% of participants whose Diabetes Distress score improved to <2.0



Change in HbA_{1c}



% of participants whose HbA_{1c} decreased by ≥0.5%



All three programs demonstrated substantive and sustained reductions in Diabetes Distress and HbA_{1c} at 12-month follow-up.



TunedIn, the emotion-focused program, had the most consistent benefits across

both Diabetes Distress and HbA_{1c}.

Group-based, fully virtual, and time-limited programs like these can augment and enhance existing care.

Findings highlight the value of using emotion-focused strategies, like those used in TunedIn, for adults with type 1 diabetes to augment and enhance existing care.

Embark Trial – Emotions as Priority

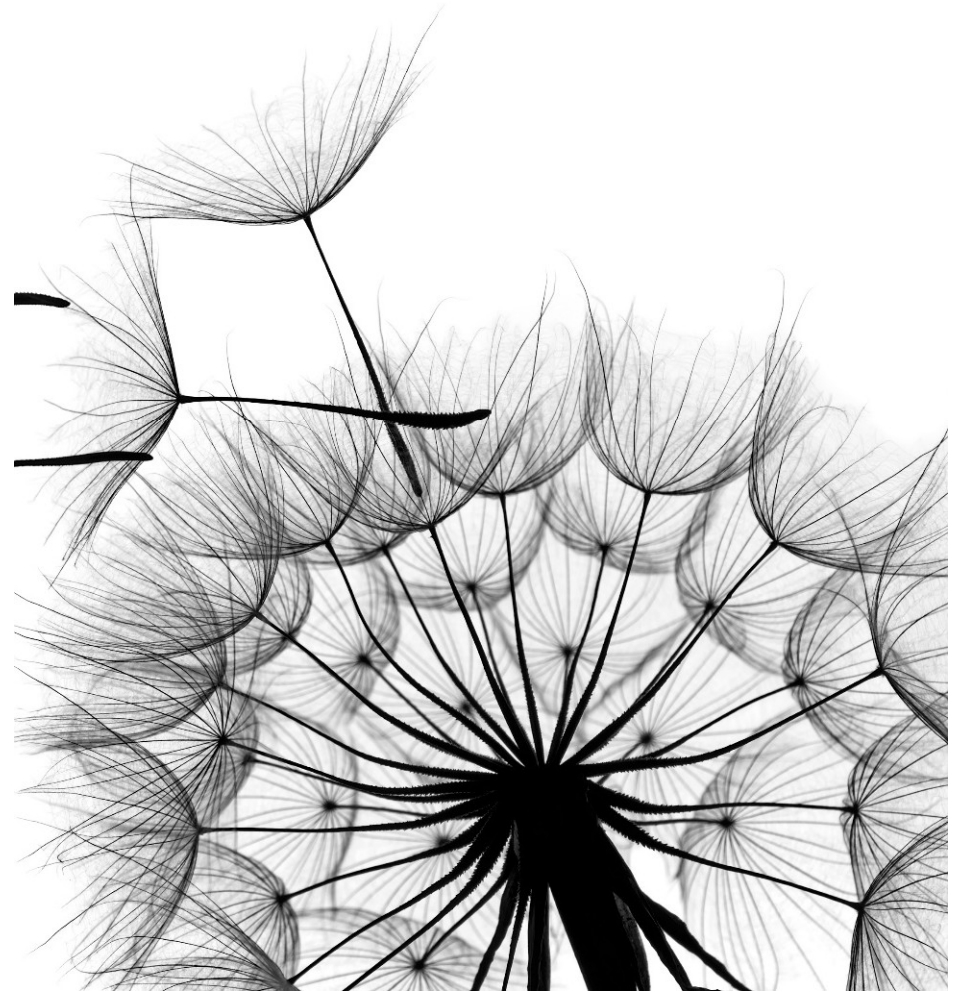
I have finally given myself permission to make addressing the emotional aspects of diabetes a priority.

~Coach Beverly



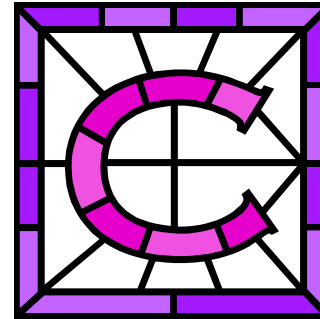
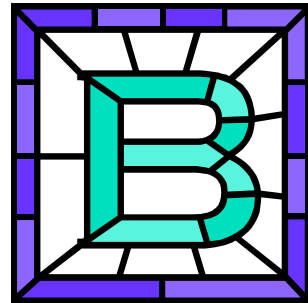
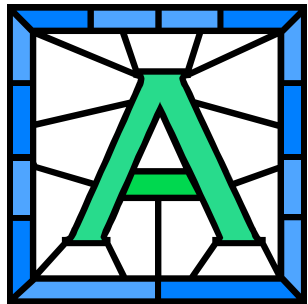
Releasing the Brake

- ▶ This strategy recognizes that diabetes distress acts as a brake on the application of existing diabetes knowledge and skills.
- ▶ By releasing the diabetes distress brake through emotion-focused intervention, the negative cycle can be efficiently ended.

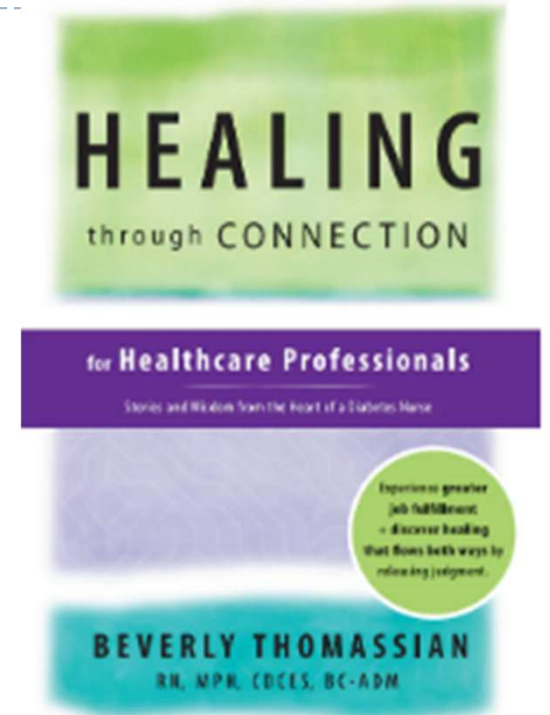


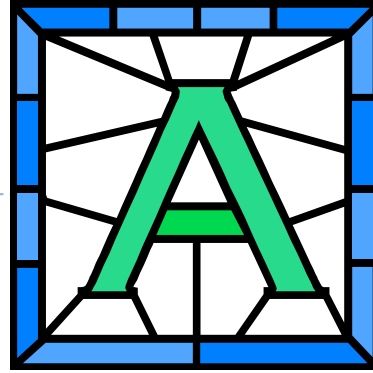
Commit to Listening at least Half of the Time





of Healing Through Connection





- ◆ Ask about their life (SDOH)
- ◆ Assess current self-management behaviors
- ◆ Assess your feelings
- ◆ Accept without judgement
- ◆ Acknowledge one thing they are doing right
- ◆ Advocate for needed resources

Case Study



- ▶ 34-year-old transgender female, with type 2 diabetes, ends up in urgent care with an abscess due to elevated blood glucose – A1C 9.4%. Living with roommates. On glipizide and metformin, but not taking because can't afford strips to check glucose. Afraid of glucose going too low.
- ▶ History of diabetes distress and anxiety.



Members of the lesbian, gay, bisexual, transgender and queer (LGBTQ) community have unique health disparities and worse health outcomes than their heterosexual counterparts, which has clinical relevance in the delivery of diabetes care and education.¹ Diabetes care and education specialists are in a pivotal position to help this medically-underserved and vulnerable population get the best possible care.

Definitions²

Gender Identity: One's internal sense of being male or female, neither of these, both, or another – female/woman/girl, male/man/boy, other gender(s) (e.g. 58 gender options for Facebook users).

Gender Expression: The physical expression of one's gender identity through clothing, hairstyle, voice, body shape, etc. - feminine, masculine, other.

Sex Assigned at Birth: The assignment and classification of people as male, female, intersex or another sex based on a combination of anatomy, hormones and chromosomes – female, male, other/intersex.

Sexual Orientation: Sexually attracted to men, women, other gender(s).

Romantic/Emotional Orientation: Romantically attracted to men, women, other gender(s)

Transgender: An umbrella term for people whose gender identity and/or gender expression differs from what is typically associated with the sex they were assigned at birth.

Cisgender: A term used to describe people who are not transgender, i.e., who identify with the gender assigned at birth. "Cis-" is a Latin prefix meaning "on the same side as," and is therefore an antonym of "trans-."



Content provided by Theresa Garner, APRN, BC-ADM, MSN, CDE
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Social Drivers of Health

To improve health, support overall well-being, and eliminate disparities, it is crucial to address these drivers.

Individuals from racial and ethnic minority communities, underserved geographic areas (rural or urban), and those facing socioeconomic barriers to care and health at higher risk.

Care Quality Gaps



Growing gaps in diabetes care quality and outcomes due to high & rising costs of care.



Increased disparities experienced by individuals from racial and ethnic minoritized backgrounds and those facing socioeconomic barriers to care.

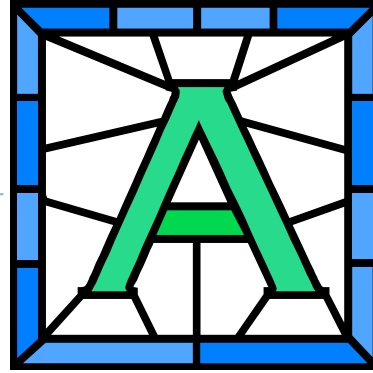


Calls for urgent, substantial, and multisectoral system-level improvements to care delivery

Case Study



- ▶ 34-year-old transgender female, with type 2 diabetes, ends up in urgent care with an abscess due to elevated blood glucose – A1C 9.4%. Living with roommates. On glipizide and metformin, but not taking because can't afford strips to check glucose. Afraid of glucose going too low.
- ▶ History of diabetes distress and anxiety.



- ◆ Ask about their life (SDOH)
- ◆ Assess current self-management behaviors
- ◆ Assess your feelings
- ◆ Accept without judgement
- ◆ Acknowledge one thing they are doing right
- ◆ Advocate for needed resources

From Judgement to Curiosity

When you meet with people and release Judgment, this is what feelings of **CURIOSITY** could sound like.

Judgement Statement	Curiosity Statement
They still aren't taking their medications every day.	I wonder why they aren't able to take their medications every day.
I can't believe they keep gaining weight.	Let me explore how they are feeling about their body health.
How come they can't even exercise at least once a week.	Something seems to be blocking their goal to get more active. Let's find out.
Why are they still eating tortillas with each meal?	How do they think tortillas affect their blood glucose levels?
Can't they check their blood glucose more often?	I wonder how often they think they need to check their blood glucose?
Don't they understand they are going to get complications if they don't lower their blood glucose?	It seems like we need to explore what is happening in their lives, preventing them from engaging in their diabetes self-management.

Psychosocial Care

- Provide psychosocial care to all people with diabetes to optimize health-related quality of life and outcomes.
- Integrate such care with routine medical care using a collaborative, person-centered, culturally informed approach.
- Implement screening protocols for psychosocial concerns.



What to Assess?

- ▶ Using standardized/validated tools
 - ▶ Diabetes Distress
 - ▶ Depression
 - ▶ Anxiety
 - ▶ Disordered Eating
 - ▶ Cognitive Capacity
 - ▶ Adverse Childhood Experiences
 - ▶ Suicidality if appropriate



Poll Question 1

JT, a nine-year-old with type 1 diabetes, is struggling. Which of the following statements reflects that they may be dealing with diabetes distress?

- A. I sometimes just guess my carbs.
- B. I just don't want to get out of bed in the morning.
- C. I just can't keep up with all this diabetes self-care stuff.
- D. I don't want to wear a diabetes bracelet or necklace.



Diabetes Distress=DD

- ▶ Diabetes distress refers to significant negative psychological reactions related to emotional burdens and worries specific to an individual's experience in having to manage a demanding chronic condition such as diabetes.
- ▶ Can impact A1C, cognition and mental health
 - ▶ Type 2 - Affects ~ 60%
 - ▶ Type 1 – Affects 22-42%



DDS 17: Diabetes Distress Scale

- ▶ Yields a total Diabetes Distress Scale score plus 4 sub scores:
 - ▶ Emotional burden
 - ▶ Physician related Distress
 - ▶ Regimen related Distress
 - ▶ Interpersonal Distress



Begin a conversation with any item rated 3 or more – See Distress Scale in your resources page

- ▶ 44.5% of individuals reported diabetes distress
- ▶ Only 24% of providers asked pts how diabetes affected their life (DAWN Study)

Diabetes Distress Scale cont.

Feeling that diabetes is taking up too much of my mental and physical energy every day.

Feeling that my doctor doesn't know enough about diabetes and diabetes care/ doesn't give me clear enough directions .

Feeling angry, scared, and/or depressed ... think about living with diabetes

Feeling that I am not testing my blood sugars frequently enough.

Feeling that I am often failing with my diabetes routine.

Feeling that friends or family are not supportive enough of self-care efforts (planning activities that ..., encourage me to eat the "wrong" foods).

Feeling that diabetes controls my life.

Not feeling motivated to keep up my diabetes self management. DDS (17) Scoring

Diabetes Distress Scale (DDS-17)

Instructions: Living with diabetes can sometimes be tough. There may be many problems and hassles concerning diabetes and they can vary greatly in severity. Problems may range from minor hassles to major life difficulties. Listed below are 17 potential problem areas that people with diabetes may experience. Consider the degree to which each of the 17 items may have distressed or bothered you DURING THE PAST MONTH and circle the appropriate number.

Please note that we are asking you to indicate the degree to which each item may be bothering you in your life, NOT whether the item is merely true for you. If you feel that a particular item is not a bother or a problem for you, you would circle 1. If it is very bothersome to you, you might circle 6.

	Not a problem	Slight problem	Moderate problem	Somewhat serious problem	Serious problem	Very serious problem
1	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
7	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
8	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
9	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
10	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
11	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
12	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
13	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
14	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

https://professional.diabetes.org/sites/default/files/media/ada_mental_health_toolkit_questionnaires.pdf.

Diabetes Distress – *Assess Annually

- ▶ High levels of diabetes distress significantly impact medication-taking behaviors and are linked to higher A1C, lower self-efficacy, and poorer dietary and exercise behaviors
- ▶ Can also contribute to higher stress hormone levels
- ▶ Address Distress
- ▶ Mindful Self-Compassion is important
- ▶ Counseling and DSME can help



Trusting our Intuition

- ▶ As healthcare professionals, we tend to focus on problem-solving around lifestyle, medications, and glucose levels.
- ▶ The results of the Embark study confirm our intuition to prioritize addressing emotions to support individuals living with diabetes.
- ▶ **Let's reprioritize our checklist by assessing and addressing distress and move into the heart of providing effective diabetes care.**



Anxiety Symptoms Common in Diabetes

- ▶ 19.5% lifetime prevalence of generalized anxiety disorder in type 1 or type 2 diabetes*
- ▶ People with diabetes have higher rates of:
 - ▶ generalized anxiety disorder,
 - ▶ body dysmorphic disorder,
 - ▶ obsessive compulsive disorder,
 - ▶ specific phobias,
 - ▶ Posttraumatic stress disorder.
- ▶ **Common Anxieties**
 - ▶ Fear of Hypoglycemia
 - ▶ Not meeting glycemic goals
 - ▶ Insulin injection/infusion
 - ▶ Onset of complications

*Behavioral Risk Factor Surveillance System estimates



Consider Referral to Mental Health Provider for Eval and Treatment

- ▶ Low engagement in diabetes self-management
- ▶ Screens positive for depression, anxiety, FoH*
- ▶ Disordered eating or disrupted eating patterns
- ▶ Not taking insulin/meds to lose weight
- ▶ Serious mental illness is suspected
- ▶ Youth with repeated hospitalizations, distress
- ▶ Cognitive impairment or impairment of DSME
- ▶ Before bariatric/metabolic surgery

*Fear of hypoglycemia

Care Study

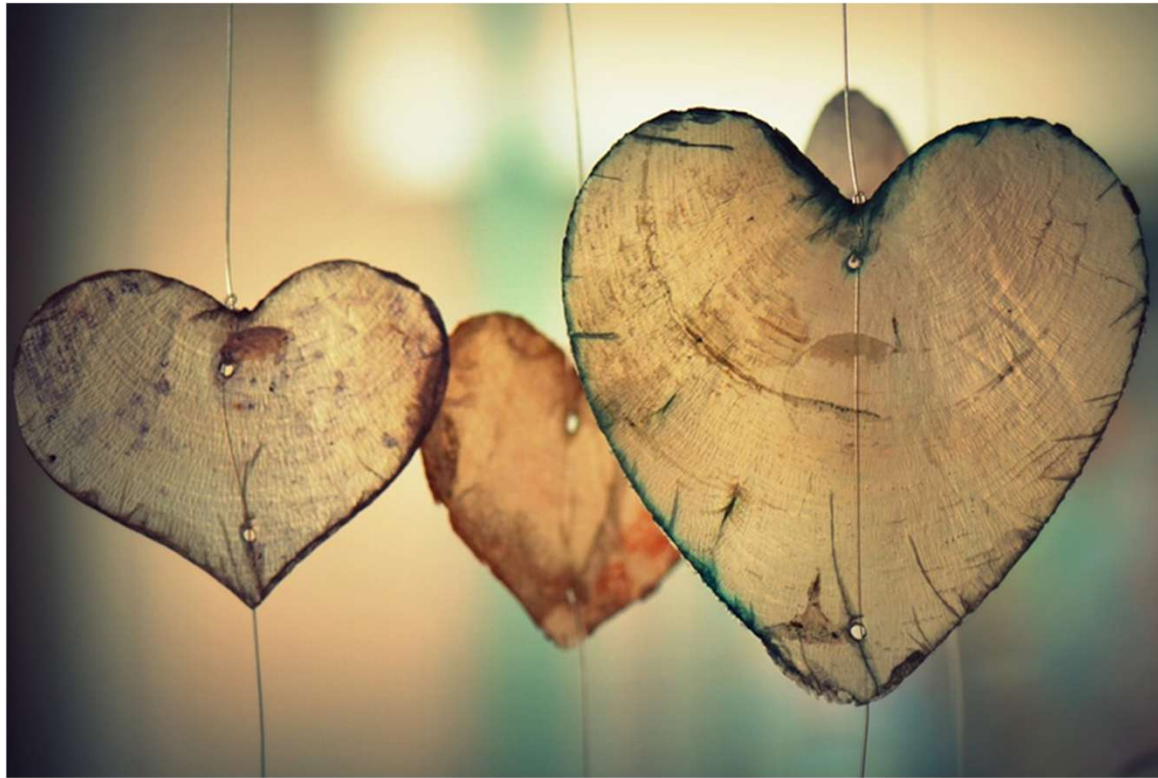
- ▶ Acknowledge – That makes sense you are not taking your meds due to fear of hypo.
- ▶ What about just taking metformin?
- ▶ If we can get strips for your meter, would you be interested in checking your BG?



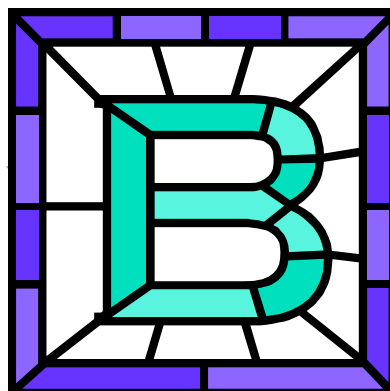
curiosity

- ▶ 34-year-old transgender female, with type 2 diabetes, ends up in urgent care with an abscess due to elevated blood glucose – A1C 9.4%. Living with roommates. On glipizide and metformin, but not taking because can't afford strips to check glucose. Afraid of glucose going too low.
- ▶ History of diabetes distress and anxiety.

Empowering and Promoting Health for Individuals and Populations



Our Actions Make a Difference



- ◆ Beliefs about health and diabetes
- ◆ Barriers can be confused with non-compliance
- ◆ Burnout lookout. On extended diabetes vacation due to diabetes distress?
- ◆ Bouncing back – leaning into resilience

When Treatment Goals aren't met

- ▶ Reassess treatment regimen and barriers
 - ▶ Social determinants of Health
 - ▶ Health & Numerical Literacy
 - ▶ Language barriers
 - ▶ Diabetes related distress or depression
 - ▶ Competing demands
 - ▶ Medication costs



Action Steps

- Provide Diabetes Self-Management Education
- Refer to RD/RDN
- Social Services
- Community Health Worker
- Support Group
- Other

Individualized Care Strategies

- ▶ Consider individualized care and create environmental structures to support people with:
 - ▶ Food insecurity
 - ▶ Living situation & Housing
 - ▶ Refugee, Migrant farm laborers
 - ▶ Language barriers
- ▶ Health disparities related to:
 - ▶ Ethnicity, racism, culture, sex, socioeconomic status, LGBTQ



Food Insecurity

- ▶ *Food insecurity is the unreliable availability of nutritious food and the inability to consistently obtain food without resorting to socially unacceptable practices*
- ▶ Up to 20% in diabetes
 - ▶ Higher in African American, Latinos, low income, single moms
- ▶ Type 2 diabetes risk doubled in those with food insecurity



Living Situation impacts self-care

- ▶ The prevalence of diabetes in the unhoused population is estimated to be around 8%
- ▶ Need secure places to keep supplies and meds
- ▶ Help connect with social resources



Housing insecurity has been shown to be directly associated with a person's ability to maintain their diabetes self-management

Refugee, Migrant & Seasonal Workers

- ▶ Higher risk of having diabetes, CV Disease
- ▶ Lower income associated with chronic stress, food insecurity and higher risk of diabetes
- ▶ Many barriers to care:
 - ▶ Migration
 - ▶ Culture and language
 - ▶ Lack of funds for transportation
 - ▶ Other barriers

Health care professionals need to attune to individual's working and living conditions



Look Beyond – What impacts DSM

- ▶ Improving diabetes treatment outcomes requires looking at multiple factors:
 - ▶ Living situation
 - ▶ Childhood trauma
 - ▶ Adequacy of medical management
 - ▶ Cost-related barriers to medication use
 - ▶ Duration of diabetes
 - ▶ Other health related problems
 - ▶ Social structural factors
 - ▶ Access to Care



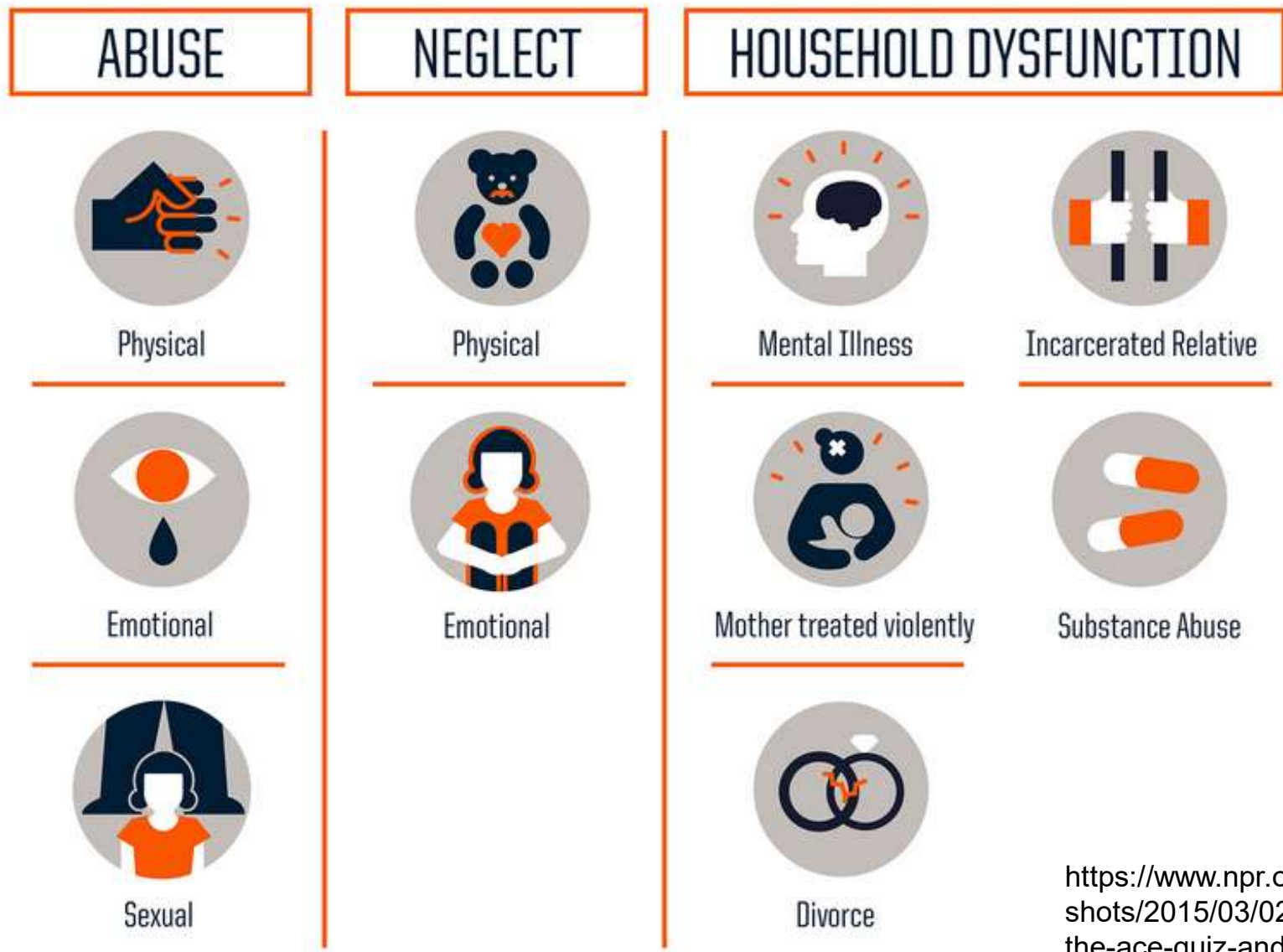
Question - What is ACE?

- ▶ ACE =
 - ▶ Adverse
 - ▶ Childhood
 - ▶ Experiences
 - ▶ (before 18 yrs)

- ▶ What is the relationship between childhood trauma and health?



10 Assessment Areas for ACE – Use 10 Question Screening Tool to Assess



<https://www.npr.org/sections/health-shots/2015/03/02/387007941/take-the-ace-quiz-and-learn-what-it-does-and-doesnt-mean>

ACE increases risk for 9 out of 10 leading causes of death in US

Leading Cause of Death	Odds Ratio with ≥ 4 ACEs
▶ Heart Disease	▶ 2.1
▶ Stroke	▶ 2.0
▶ Diabetes	▶ 1.4
▶ Kidney Disease	▶ 1.7
▶ Cancer	▶ 2.3
▶ Alzheimer's	▶ 4.2
▶ Suicide(attempts)	▶ 37.5

Supportive Relationships & Resilience



The clinical response to identification of toxic stress should include:

1. Applying principles of trauma-informed care, including establishing trust, safety, and collaborative decision-making.

2. Supplementing usual care for ACE-Associated Health Conditions with patient education on toxic stress and discussing strategies that can help regulate the stress response, including:

- Supportive relationships, including with caregivers (for children), other family members, and peers
- High-quality, sufficient sleep
- Balanced nutrition
- Regular physical activity
- Mindfulness and meditation
- Experiencing nature
- Mental health care, including psychotherapy or psychiatric care, and substance use disorder treatment, when indicated



3. Validating existing strengths and protective factors.

4. Referrals to patient resources or interventions, such as educational materials, social workers, school agencies, care coordination or patient navigation, and community health workers.

Awareness >> to Healing

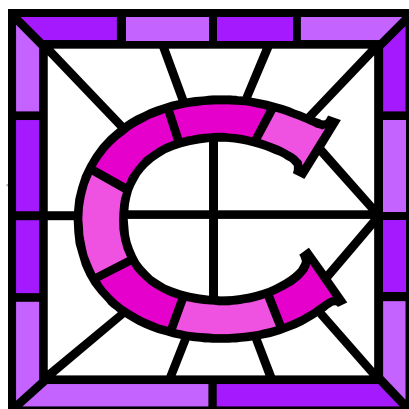
<https://www.acesaware.org>

A promotional banner for ACEs Aware Training Webinars. The background is primarily orange with a teal triangle in the top right corner. A black rectangular box in the center contains the text 'ACEs Aware Training Webinars' in white. Below this box, there is a paragraph of text and a red button with white text. The overall design is clean and modern.

ACEs Aware Training Webinars

We have a variety of live and on-demand trainings available on the ACEs Aware Learning Center

ACCESS WEBINARS



- ◆ Having the Conversation
- ◆ Coaching that highlights *their* knowledge and resilience.
- ◆ Carrots – problem solve together and dig for solutions that are meaningful in everyday life.
- ◆ Compassion for the people in our care and ourselves.
- ◆ Connection – What is one thing you want me to know about you?

Example of A More Helpful Expectation: From Perfectionism to “Healthy Good Enough”

Perfectionistic thinking: has 2 speeds, perfect or failure, not achievable for very long, exhausting, contributes to burnout

Healthy Good Enough

- Personalized
- Ambitious and realistic
- Allows for normal fluctuations, mistakes and experiments
- Sees small steps as valuable
- Focus is on efforts made, not numbers
- Forward looking: What now?

Used with permission from ReVive 5 Program; Larry Fisher, PhD & Susan Guzman, PhD

Poll question 2

- ▶ LR is a 16-year-old on an insulin pump and Continuous Glucose Monitor and is feeling very distressed because their glucose keeps going above target range. What is an appropriate intervention?
- ▶ A. Encourage them to ask their provider about starting medications for anxiety.
- ▶ B. Help them set a SMART goal to improve carb to insulin ratios.
- ▶ C. Explore their feelings.
- ▶ D. Remind them that alcohol can actually lower blood glucose.

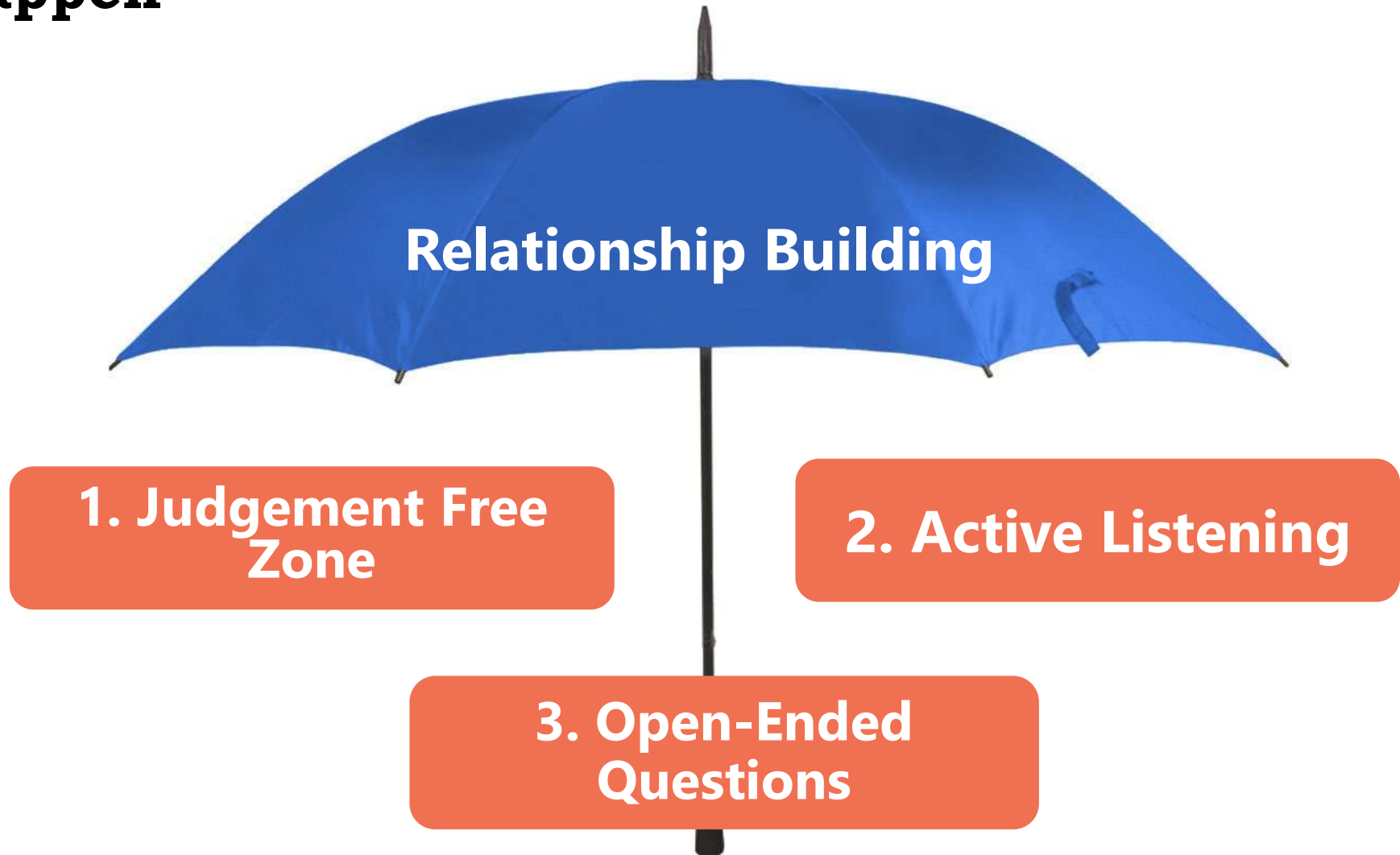


Time In Range – Person Centered



▶ Sometimes you need a donut!

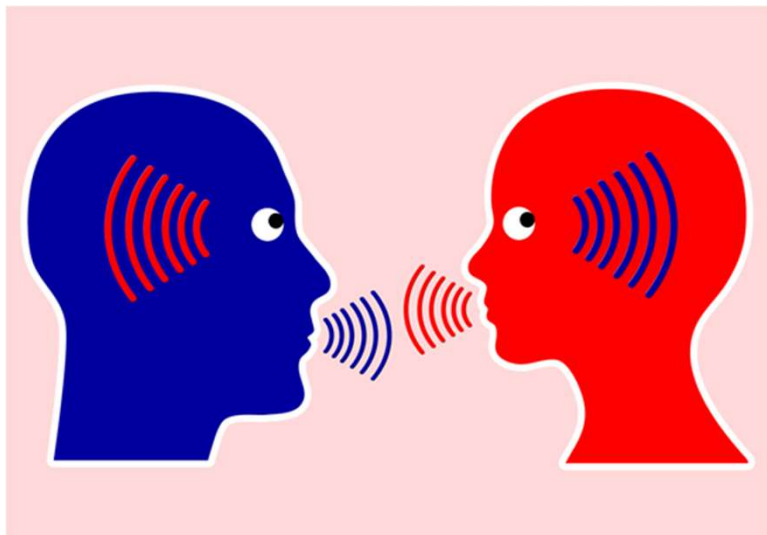
Relationship Building | Three Tools To Make It Happen



Conversational Tools You Can Use To Address Diabetes Distress

The goal is to help people label, verbalize, share, consider, and evaluate these frequently unaddressed and often hidden feelings and thoughts about diabetes.

Building the relationship with conversational skills is the intervention!



Start with Open Ended Questions

Clinical Engagement Tools: Label & Address Feelings

Common feeling words:

- Sad
- Frustrated
- Scared/fearful
- Disappointed
- Angry
- Hopeless
- Defeated
- Ashamed/embarrassed
- Burned out



Having the Conversation

Review and summarize the story you hear:

“Do I have this right?”

“Is there anything missing?”

Then ask:

“How does all of this strike you?”

“Does any of this surprise you?”

RT Loves Eating Out

- ▶ RT loves to eat dinner out with their friends 2-3 times a week.
- ▶ However, blood sugars always seem to go above target on those evenings.
- ▶ Want to have improved time in range to feel better, worry less and enjoy time with friends.
- ▶ States - I am such a failure, my blood sugars are always going too high. Makes me not even want to try.

Having the Conversation

- Elicit diabetes story
- Listening for the major diabetes distress themes
- Communication Approaches
 - Open ended questions (O) -What, How, Why
 - Reflect feelings words (R) – Sad, upset, worried, hopeful, angry, happy, scared etc.
 - Summarize (S) – So what your saying is...
Did I get that right?
 - Normalize (N) – A lot of people with diabetes feel that same way.
 - Active listening with empathy (E) – I hear you.
That sounds really tough

Our response to RT

You Say / Ask

- ▶ It sounds like you feel like you are a failure if your blood sugars go above a certain level? Did I get that right?
- ▶ I am also hearing that going out with your friends for dinner is important for you?
- ▶ A lot of people living with diabetes say the same thing.
- ▶ I hear you. This sounds really tough.
- ▶ What do you envision are some next steps?

RT Sets up Experiment/ Takes Action

Steps

- ▶ Make a small change
- ▶ Realize, that the story and tough feelings can be major barrier to change.
- ▶ Discover an unexpected issue.

RT Changes

- ▶ Be present with her fear of failure
- ▶ Look up carbs on app/website.
- ▶ Ask her friends for support
- ▶ Asking for help is hard, but I think it will help.
- ▶ See how drinking wine with dinner affects BG

Checking in with RT 2 weeks later

You Say / Ask

- ▶ Thank you for keeping logs on your eating out days.
- ▶ What kind of feelings showed up for you?
- ▶ Were you able to try any of your new approaches?
- ▶ Did you discover anything new?

RT Responds

- ▶ We went to the same restaurant 2 times in the same week. My friends helped me figure out the carbs in my favorite dish, but the first night, it still went high. I noticed the DD story of feeling like a failure.
- ▶ A few nights later, I tolerated my DD, ordered the same dish, and increased my bolus by 2 units. My blood sugar was right on track!

Checking in with RT 2 weeks later

You Say / Ask

- ▶ I know you also mentioned you wanted to see how wine affected your blood sugars.
- ▶ Did you discover anything new?

RT Responds

- ▶ I didn't have a chance to check that out yet. But next time, I am going to eat the same dish, take the same amount of insulin and add have a glass of wine to see what happens.
- ▶ I see that I need to keep challenging myself to not give in to feeling like a failure and keep making new choices.

Support Self-Confidence

- ▶ Support positive expectations for change...
 - ▶ emphasize personal responsibility,
 - ▶ instill confidence and hope,
 - ▶ increase sense of ability to cope.

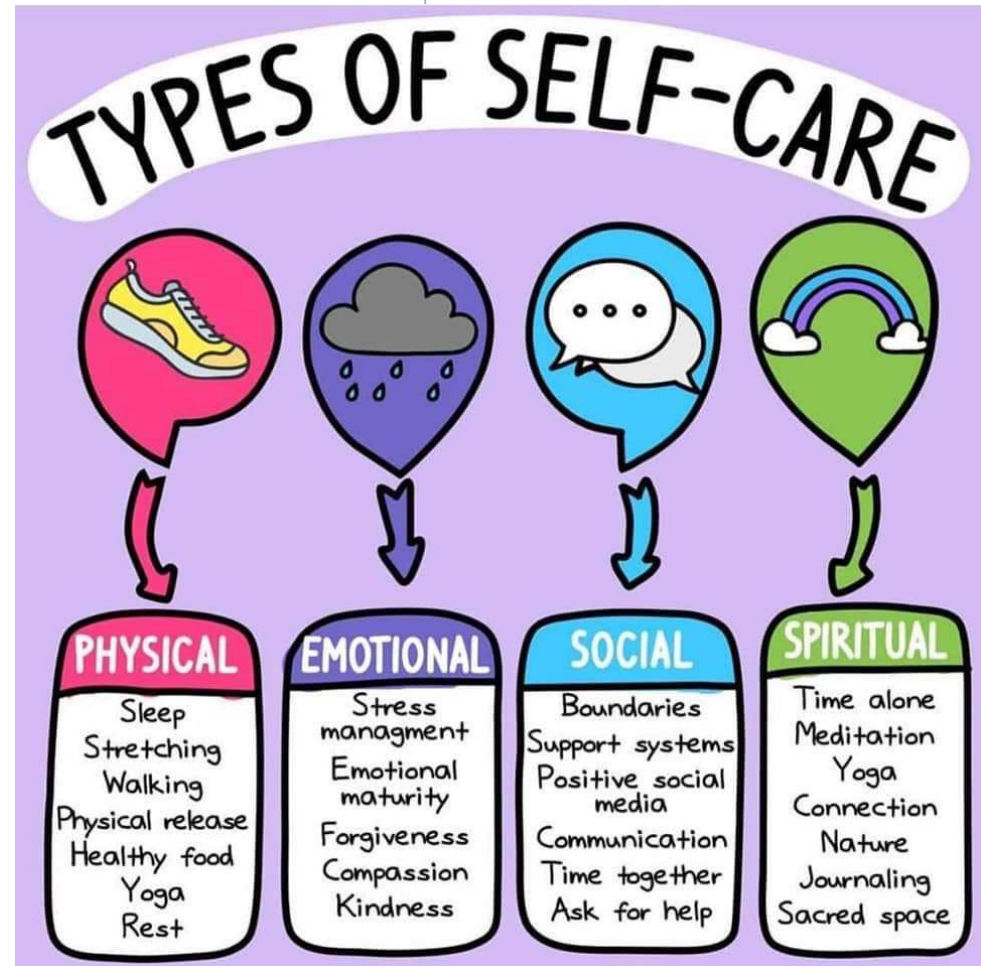


“From what you’ve told me about your past successes...it really seems like you can do this!”


Step 8

Compassion for Yourself

- Get enough sleep
- Keep active
- Remind yourself that you are not responsible for the decisions of others. Love and release.
- Connect with friends and family
- Investigate unhealthy behaviors
- Nourish your body
- Consider a hobby



Self Care For YOU



Considering the Diabetes Connection as a Sacred Space

- Have the stories of people living with diabetes stayed with you long after the conversation ended? Have their words, struggles, and triumphs echoed in your thoughts, quietly influencing the way you provide care?
- Listening to these stories isn't simply an exchange of information; it's an invitation into someone's lived experience. When we truly listen, with presence and without judgment, we enter a sacred space within diabetes care, where healing transcends clinical roles and traditional hierarchies. In these moments, connection becomes the medicine. The person receiving care feels seen, heard, and valued. And something extraordinary happens for us as HCPs, too.
- We are reminded of our purpose. We feel reconnected to our humanity.

Celebrate and Recognize

In conclusion: Celebrate and Recognize Each Person's Efforts.

- ▶ Making behavior changes, like losing weight or adjusting lifelong eating habits, can be extremely difficult.
- ▶ **Find a way to recognize and affirm their efforts even if there is no or little change in clinical measures.**



Our belief in people makes a difference!

Thank You –



- ▶ Thanks for joining us!
- ▶ Questions?
- ▶ Info@diabetesed.net
- ▶ Call us at 530-893-8635
- ▶ www.DiabetesEd.net