



Sonoma County Indian Health Project

Diabetes: Implementing Person Centered Care

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Founder - www.DiabetesEd.net

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Diabetes: Implementing Person Centered Care

Objectives:

- ▶ Review the changes & updates to the annual ADA *Standards of Medical Care in Diabetes*.
- ▶ Identify the key elements of the standards that improve clinical care for people with diabetes.
- ▶ Review and discuss use of the latest medications that address hyperglycemia and cardiorenal health.
- ▶ State the elements included in a lower extremity assessment.
- ▶ Describe person-centered education strategies that work.



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Coach Bev has no Conflict of Interest

- ▶ She's not on any speaker's bureau
- ▶ Does not invest or have any financial relationships with diabetes related companies.
- ▶ Gathers information from reading package inserts, research and articles
- ▶ The ADA Standards of Medical Care is main resource for course content

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CDC Announces



35% of Americans will have Diabetes by 2050

Boyle, Thompson, Barker, Williamson
2010, Oct 22:8(1)29
www.pophealthmetrics.com

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Poll Question 1

▶ What percent of total people in the U.S. are living with undiagnosed and diagnosed type 2 diabetes?

- ▶ A. About 30%
- ▶ B. 11.3%
- ▶ C. 16.8%
- ▶ D. 25.6%



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Type 2 Diabetes in America 2025

- ▶ 16.8% with Diabetes
 - ▶ 11% don't know they have it
- ▶ 38% with Prediabetes – 97 million adults

Figure 3. Age-adjusted, county-level prevalence of diagnosed diabetes among adults aged 20 years or older, United States, 2004, 2012, and 2019
<https://www.cdc.gov/nchs/data/databriefs/db516.pdf>



Year	Prevalence Range (%)
2004	3.3 – 6.5
2012	6.6 – 7.3
2019	7.4 – 8.4
2019	8.5 – 10.0
2019	10.1 – 19.5
No Data	No Data

Data sources: US Diabetes Surveillance System; Behavioral Risk Factor Surveillance System. NCHS Data Brief • No. 516 • November 2020

Centers for Disease Control and Prevention. National Diabetes Statistics Report. <https://www.cdc.gov/diabetes/data/statistics-report/index.html>. Accessed 1/23

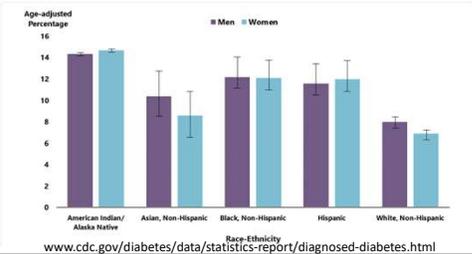
Prevalence of Total, Diagnosed, and Undiagnosed Diabetes in Adults—United States, August 2021–August 2023

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Diabetes Prevalence by Ethnic Group

- ▶ For adults, diabetes prevalence highest among:
 - American Indians and Alaska Natives (14.5%),
 - Non-Hispanic Blacks (12.1%),
 - People of Hispanic origin (11.8%),
 - Non-Hispanic Asians (9.5%)

Figure 2. Age-adjusted estimated prevalence of diagnosed diabetes by race/ethnicity group and sex for adults aged 18 years or older, United States, 2018-2019



www.cdc.gov/diabetes/data/statistics-report/diagnosed-diabetes.html

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17. Diabetes Advocacy

- ▶ People living with diabetes deserve to be free from the burden of discrimination.
- ▶ We need to all be a part of advocating to ensure a healthy and productive life for people living with diabetes.
- ▶ Decrease barriers to diabetes self-management.



Diabetes Care needs to meet outlined standards in all settings.

- In school setting
- Young children in childcare
- For Drivers
- In work settings
- In Detention Facilities
- Insulin Access & Affordability

17. Diabetes Advocacy: Standards of Care in Diabetes—2025
American Diabetes Association: Professional Practice Committee

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Equality vs Equity

Equality



Equity



© 2017 Robert Wood Johnson Foundation

Design and deliver diabetes care with goal of **health equity** across all populations.

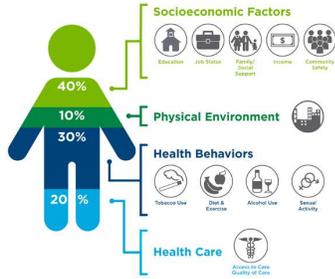
<https://coveragetoolkit.org/health-equity/defining-health-equity/>

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Address Barriers to Self Management

- ▶ **Barriers exist** within health system, payer, health care professional & individual.
- ▶ **Address barriers** through innovation, including community health workers, telehealth, other digital health solutions.
- ▶ **Consider social determinants of health** in the target population when designing care.

What Goes Into Your Health?



Source: Institute of Medicine (IOM). *Committee on Social and Clinical Health Equity: Considerations for Health Equity*. Washington, DC: National Academies Press; 2016. <https://coveragetoolkit.org/health-equity/defining-health-equity/>

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Social Determinants of Health

- ▶ SDOH are defined as the economic, environmental, political, and social conditions in which people live and are responsible for a major part of health inequality worldwide.



5. Improving Care and Promoting Health in Populations: Standards of Care in Diabetes—2025. <https://doi.org/10.23970/2025.SOCID25>

Greater exposure to adverse SDOH over the life course results in poor health. Use quality data to identify inequities & take action.

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Tailoring Treatment for Social Context

- ▶ “Social determinants of health (SDOH)—*often out of direct control of the individual* and potentially representing lifelong risk—contribute to health care and psychosocial outcomes and must be addressed to improve all health outcomes”



5. Improving Care and Promoting Health in Populations: Standards of Care in Diabetes—2025. <https://doi.org/10.23970/2025.SOCID25>

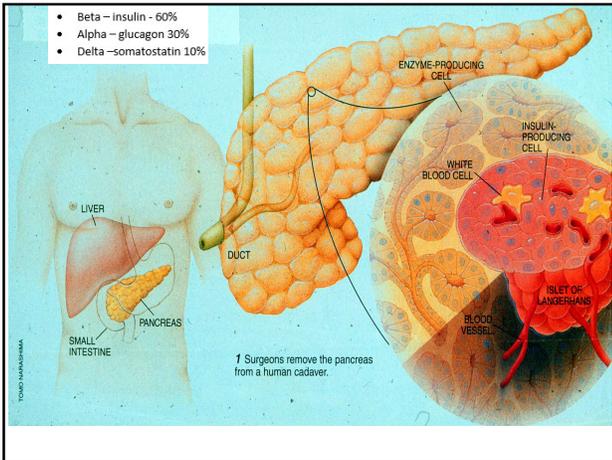
The ADA recognizes this relationship and is taking action.

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Now, let's get to the Nitty Gritty



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Hormones Effect on Glucose

Hormone	Effect
▶ Glucagon (pancreas)	⬆️
▶ Stress hormones (kidney)	⬆️
▶ Epinephrine (kidney)	⬆️
▶ Insulin (pancreas)	⬇️
▶ Amylin (pancreas)	⬇️
▶ Gut hormones - incretins (GLP-1) released by L cells of intestinal mucosa, beta cell has receptors)	⬇️

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Pre Diabetes & Type 2- Screening Guidelines (ADA 2025 Clinical Practice Guidelines)

1. Start screening all people at age 35.
2. Screen at any age if BMI \geq 25 (Asians BMI \geq 23) plus one or > additional **risk factor**:

- ▶ First-degree relative w/ diabetes
- ▶ Member of a high-risk ethnic population
- ▶ Habitual physical inactivity
- ▶ History of heart disease
- ▶ Check more frequently if taking high risk meds; antiretrovirals, 2nd generation antipsychotics or steroids, thiazide diuretics, statins
- ▶ History of pancreatitis, prediabetes, GDM, periodontitis



2. Diagnosis and Classification of Diabetes: Standards of Care in Diabetes—2025 ADA

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Diabetes 2 - Who is at Risk? (ADA 2024 Clinical Practice Guidelines)



Screen using A1C, Fasting Blood Glucose or OGTT.

Repeat screening at least every 3 years if negative.

*If prediabetes or on high risk meds, recheck yearly

Risk factors cont'd

- ▶ HTN - BP > 130/80
- ▶ HDL < 35 or triglycerides > 250
- ▶ History of Gestational Diabetes Mellitus
- ▶ Polycystic ovary syndrome (PCOS)
- ▶ Other conditions associated w/ insulin resistance:
 - ▶ Elevated BMI, acanthosis nigricans (AN)

2. Diagnosis and Classification of Diabetes: Standards of Care in Diabetes—2025 ADA

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Diabetes Screening Guidelines (ADA 2025 Clinical Practice Guidelines – Cheat Sheet)

RECOMMENDATIONS FOR DIAGNOSIS AND CLASSIFICATION OF DIABETES – 2025 CRITERIA FOR SCREENING FOR DIABETES AND PREDIABETES IN ASYMPTOMATIC ADULTS – TABLE 1

DIABETES TYPE	RISK FACTORS and FREQUENCY OF SCREENING and TESTING FOR DIABETES
Type 1	Screen those at risk for presymptomatic type 1 diabetes, by testing autoantibodies to insulin, GAD, islet antigen 2 or ZnT8. Also test antibodies for those with type 1 phenotypic risk (younger age, weight loss, ketoacidosis, etc.)
2.	Test all adults starting at age 35 for prediabetes and diabetes using Fasting Plasma Glucose, A1C or OGTT.
2.	Perform risk-based screening if BMI \geq 25 or BMI \geq 23 in Asian Americans 10yrs+ with 1 or more risk factors: <ul style="list-style-type: none"> • History of cardiovascular disease • Physical inactivity • First or second degree relative with diabetes • HDL \leq 35 mg/dl or triglyceride \geq 250 mg/dl • High risk ethnicity or ancestry • Hypertension \geq 140/90 or on therapy for HTN • Other conditions associated with insulin resistance (PCOS, Acanthosis Nigricans, Steatosis)
3.	If results normal, repeat test at a minimum of 3-year intervals or more frequently based on risk status.
4.	Test Yearly if A1C \geq 5.7% or Impaired Fasting Glucose or History of GDM (test at least every 1-3 years)
	Glassily monitor high-risk groups (before taking 2 nd generation antipsychotics, steroids, thiazide diuretics, statins, HIV meds and after initiating therapy) with history of pancreatitis, or periodontal disease.

DiabetesEd.net Cheat Sheets

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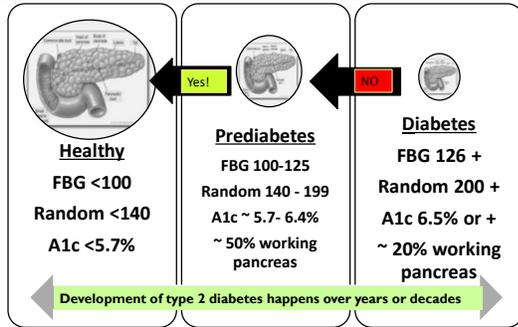
Poll Question 2

- ▶ Which of the following level is considered pre-diabetes range?
 - Fasting BG of 62
 - A1c of 5.9 %
 - After meal BG of 137
 - A1c of 7.1 %



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Natural History of Diabetes



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PreDiabetes is FREAKING ME OUT

- ▶ 96 million people in US
- ▶ 80% don't know they have it
- ▶ In 3-5 years, about 30% of predm will get diabetes
- ▶ Associated with higher rates of heart attack, stroke, neuropathy and vessel disease



3. Prevention or Delay of Diabetes and Associated Comorbidities: Standards of Care in Diabetes—2025

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Poll Question 3

- ▶ What best describes prediabetes in the U.S.?
 - a. Prediabetes affects 18-20% of people above the age of 20.
 - b. The prevalence of prediabetes and diabetes are almost equal.
 - c. Most people with BMI of 30 or greater have prediabetes.
 - d. Prediabetes is associated with increased risk of CV disease



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3. Prevent or Delay Diabetes for those with Prediabetes

- ▶ Prediabetes defined as:
 - ▶ A1c 5.7 – 6.4% or fasting BG 100 -125mg/dl
- ▶ Action:
 - ▶ Screen yearly for diabetes
 - ▶ For adults with BMI 23/25
 - ▶ Refer to DPP approved programs
 - ▶ Includes intensive behavioral lifestyle interventions with 7% wt reduction goal + 150 min exercise week
 - ▶ Provide in person or certified assisted programs



3. Prevention or Delay of Diabetes and Associated Comorbidities: Standards of Care in Diabetes—2025

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Get About 7 Hours of Quality Sleep to Prevent Diabetes

- ▶ Poor sleep quality was associated with a 40–84% increased risk of developing type 2 diabetes in a meta-analysis.
- ▶ Chronotype preference has been linked with many chronic diseases, including type 2 diabetes.
 - ▶ For those with a preference for evenings (i.e., going to bed late and getting up late)
 - ▶ 2.5-fold higher odds ratio for type 2 diabetes than for those with a preference for mornings (i.e., going to bed early and getting up early),
 - ▶ Independent of sleep duration and sleep sufficiency



3. Prevention or Delay of Diabetes and Associated Comorbidities: Standards of Care in Diabetes—2025

The composition of the gut microbiome may also affect the likelihood of developing type 2 diabetes.

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3. Pharmacologic Interventions

- ▶ Use more intensive approach for high-risk individuals:
 - ▶ BMI of 35+
 - ▶ If A1C is ~6.0 or FPG is 110
 - ▶ History of GDM
- ▶ No FDA approved med for prevention (off label)
- ▶ Consider Metformin Therapy for Prediabetes
 - ▶ Monitor B12 level (esp with neuropathy or anemia)
- ▶ CV Risk Mitigation important.
- ▶ Statin can increase BG, stop if notice elevation
- ▶ Consider low dose pioglitazone (Actos) if history of stroke.



3. Prevention of Onset of Diabetes and Associated Complications: Benefits of Care in Diabetes-2019 (2)

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Cost Related Barriers

- ▶ Among people with chronic illnesses, 2/3 of those who reported not taking medications as prescribed due to CRB never shared this with their physician.
- ▶ Especially associated with diabetes medications and



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Indications for Insulin Sensitizers

Rosiglitazone, Pioglitazone (Actos)

- ▶ **Action:** decrease insulin resistance by making muscle and adipose cells more sensitive to insulin. Decrease free fatty acids
- ▶ **Names:**
 - ▶ pioglitazone (Actos) – bladder cancer warning
 - ▶ Dosing: 15-45 mg daily
 - ▶ Consider adding low dose if history of stroke or have steatosis
 - ▶ rosiglitazone Dosing: 4-8 mg daily

Class/Main Action	Name(s)	Daily Dose Range	Considerations
Thiazolidinediones "TZDs" • Increases insulin sensitivity	pioglitazone (Actos) rosiglitazone	15 – 45 mg daily 4 – 8 mg daily	Black Box Warning: TZDs may cause or worsen CHF. Monitor for edema and weight gain. Increased peripheral fracture risk. Actos may increase risk of bladder cancer. Lowers A1c 0.5% – 1.0%



- ▶ **Efficacy/ Considerations**
 - ▶ Reduce A1C ~0.5-1.0%
 - ▶ 6 weeks for maximum effect
 - ▶ Actos \$5 a month, Avandia \$300 a month
 - ▶ Can cause fluid retention, not indicated w/ CHF

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Poll question 4

- JR is started on Metformin 500mg BID. Which of the following is true?
- Hold metformin if blood glucose below 90 mg/dl.
 - Evaluate B12 levels before starting medication.
 - Metformin is considered weight neutral
 - Metformin can cause kidney damage, so increase fluid intake



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Common Oral Diabetes Meds

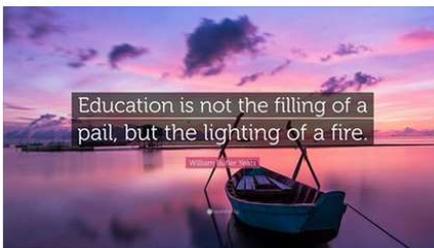
Diabetes Education Services
Get Our Free CDCCS Coach App

Class/Main Action	Name(s)	Daily Dose Range	Considerations
Biguanides • Decreases hepatic glucose output • First line med at diagnosis of type 2	metformin (Glucophage)	500 - 2550 mg (usually BID w/ meal)	Side effects: nausea, bloating, diarrhea, B12 deficiency. To minimize GI Side effects, use XR and take w/ meals. Obtain GFR before starting. <ul style="list-style-type: none"> • If GFR <30, do not use. • If GFR <45, don't start Metformin • If pt on Metformin and GFR falls to 30-45, eval risk vs. benefit; consider decreasing dose. For dye study, if GFR <60, liver disease, alcoholism or heart failure, restart metformin after 48 hours if renal function stable. Benefits: lowers cholesterol, no hypo or weight gain, cheap. Approved for pediatrics, 10 yrs + Lowers A1c 1.0%-2.0%.
	Riomet (liquid metformin)	500 - 2550 mg 500mg/5mL	
	Extended Release-XR (Glucophage XR) (Glumetza) (Fortamet)	(1x daily w/ dinner) 500 - 2000 mg 500 - 2000 mg 500 - 2500 mg	

Biguanide derived from:
 Goat's Rue *Galega officinalis*,
 French Lilac
 Does NOT harm kidneys
 \$10 for 3-month supply from Walmart & other pharmacies

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Let's meet people where they are at.



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Type 1 ~ Immune Mediated 5-10% of Diabetes

ADCES in Practice - March 2024
Recent Advances in Type 1 Diabetes: Teplizumab (Tzevid*)
Karen S. Fiano, PHARM.D., BCACP, Devada Singh-Franco, PHARM.D.,
CDECS, Young M. Kwon, BS, PHD

1.5 Million people have type 1 in U.S.

Prevalence increasing:

2001 – 1.48 per 1000 youths diagnosed with diabetes

2017 – 2.15 per 1000 youths diagnosed with diabetes

Incidence & Prevalence increasing

Highest incidence in Finland or Northern Europe.

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Type 1 – 10% of all Diabetes

- Auto-immune pancreatic beta cells destruction
- Most commonly expressed at age 10 - 14
- Insulin sensitive (require 0.5 - 1.0 units/kg/day)
- Expression due to a combo of genes and environment:
 - Autoimmunity tends to run in families
 - Exposure to virus or other environmental factors
- Signs can include:
 - Increased thirst and hunger
 - Frequent urination or new bed-wetting at hs
 - Unintended weight loss
 - Fatigue and irritability

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Poll 5. What Kind of Diabetes?

AJ, a 29 year old female admitted to the ICU with a blood glucose of 476 mg/dl and a pH of 7.1. (normal pH 7.35-7.45). Lost 13 pounds, BMI 23.

What further testing is needed to determine if person has type 1 or type 2 diabetes?

- Glutamic acid decarboxylase
- Beta cells auto antibodies
- Langerhan's antibody
- Endogenous insulin titer

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Antibody Testing for Type 1

- ▶ Glutamic acid decarboxylase (GAD) primary antibody measured
- ▶ If negative, test islet tyrosine phosphatase 2 (IA-2) and/or zinc transporter 8 (ZnT8) where these tests are available.
- ▶ In individuals who have not been treated with insulin, antibodies against insulin may also be useful.
- ▶ 5–10% of people with type 1 diabetes do not have antibodies.
 - ▶ In those diagnosed at <35 years of age who have no clinical features of type 2 diabetes or monogenic diabetes, a negative result does not change the diagnosis of type 1 diabetes.
- ▶ Rate of type 1 progression depends on:
 - ▶ age at first detection of autoantibody,
 - ▶ number of autoantibodies,
 - ▶ autoantibody specificity, and autoantibody titer.
 - ▶ Glucose and A1C levels may rise well before the clinical onset of diabetes



2. Diagnosis and Classification of Diabetes. Standards of Care in Diabetes—2023. ADA

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Miracle of Insulin



Patient J.L., December 15, 1922



February 15, 1923

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Beta-Cell Mass Loss

- ▶ In both type 1 and type 2 diabetes,
- ▶ *genetic and environmental factors can result in the progressive loss of β -cell mass and/or function*
- ▶ that manifests clinically as hyperglycemia.
- ▶ Once hyperglycemia occurs, people with all forms of diabetes are at risk for developing the same chronic complications, although rates of progression may differ.



2. Diagnosis and Classification of Diabetes. Standards of Care in Diabetes—2023. ADA

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Patti LaBelle
"divabetic"
"I have diabetes, it doesn't have me"

"I don't want diabetes to steal one more life."
 - Patti LaBelle

Join Patti LaBelle to Stop Diabetes®
 Donate now and give hope

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Signs of Diabetes

- ▶ Polyuria
- ▶ Polydipsia
- ▶ Polyphasia
- ▶ Weight loss
- ▶ Fatigue
- ▶ Skin and other infections
- ▶ Blurry vision

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Visceral Fat and Subcutaneous Fat

subcutaneous fat
 abdominal muscle layer
 visceral fat
 intestines

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What is Type 2 Diabetes?

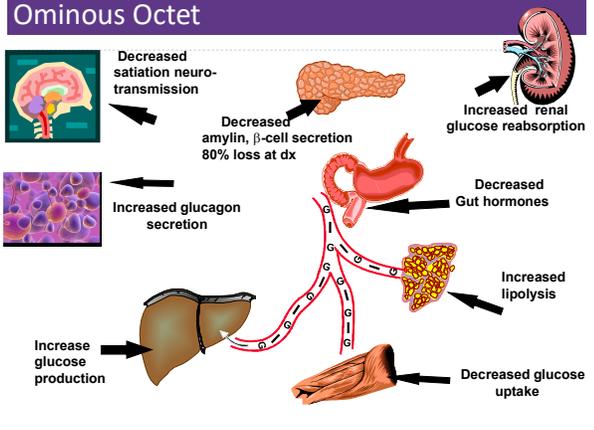
► Complex metabolic disorder ...
 (Insulin resistance and deficiency)
 with social, behavioral and
 environmental risk factors unmasking
 the effects of genetic susceptibility.

New Diagnosis?
 Call 800 – DIABETES to request
 "Getting Started Kit"
www.Diabetes.org



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Ominous Octet



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DiaBingo

- Frequent skin and yeast infections
- A BMI of ____ or greater indicates increased pre/diabetes risk?
- To reduce complications, control A1c, Blood pressure, Cholesterol
- PreDiabetes – fasting glucose level of ____ to ____
- Erectile dysfunction indicates greater risk for ____
- Diabetes – fasting glucose level ____ or greater
- Type 1 diabetes is best described as an ____ disease
- People with diabetes are ____ times more likely to die of heart dx
- Elevated triglycerides, < HDL, smaller dense LDL
- Each percentage point of A1C = ____ mg/dl glucose
- At dx of type 2, about ____% of the beta cell function is lost
- Diabetes – random glucose ____ or greater

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SGLT-2i Indications Summary				
Drug	Lower BG	Reduce CV Risk?	Use to treat Heart Failure?	Slow renal disease?
Dapagliflozin (Farxiga)	Yes	Yes	Yes +/- Diabetes	Yes
Empagliflozin (Jardiance)	Yes	Yes	Yes +/- Diabetes	Yes
Canagliflozin (Invokana)	Yes	Yes	Yes w/ Diabetes	Yes
Ertugliflozin (Steglatro)	Yes	No	Yes w/ Diabetes	Yes
Bexagliflozin (Brenzavvy)	Yes	NA	NA	NA

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Chronic Kidney Disease– 2025 Update

- Optimize glucose and BP to protect kidneys.
- Use SGLT-2 with demonstrated benefit to reduce CKD and CVD*
- To reduce CV risk and CKD, use a GLP-1* with demonstrated benefit.
- In people with CKD and albuminuria, a nonsteroidal MRA effective if GFR 25+
- Aim to reduce urinary albumin by ≥30% in people with CKD

Albuminuria Categories	Urinary Albumin Creatinine Ratio (UACR)
Normal to mildly increased – A1	< 30 mg/g
Moderately increased – A2	30 – 299 mg/g
Severely increased – A3	300 mg/g +

Kidney Disease Stage	GFR
Stage 1 – Normal	90+
Stage 2 – Mild loss	89 - 60
Stage 3a – Mild to Mod	59 - 45
Stage 3b – Mod to Severe	44 - 30
Stage 4 – Severe loss	29 - 15
Stage 5 – Kidney failure	14 - 0

- *SGLT-2i's
 - Empagliflozin (Jardiance), canagliflozin (Invokana), dapagliflozin (Farxiga)
- *GLP-1 RA's
 - Semaglutide (Ozempic), liraglutide (Victoza), dulaglutide (Trulicity)

11. Chronic Kidney Disease and Risk Management: Standards of Care in Diabetes—2025

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Standard 11 – Protect Kidneys

- Diabetes with CKD
 - GFR ≥20
- Start SGLT2 to reduce chronic kidney disease progression and cardiovascular events.
- Also consider GLP-1 RA – (ie semaglutide)
- If type 2 diabetes and established Chronic Kidney Disease (CKD)
 - Start nonsteroidal mineralocorticoid receptor antagonist (finerenone) and/or GLP-1 RA recommended for cardiovascular risk reduction.



11. Chronic Kidney Disease and Risk Management: Standards of Care in Diabetes—2025

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Poll Question 5

▶ FZ is older and lives alone and has CHF. Very concerned about avoiding hypoglycemia, since brother almost died from a hypoglycemic incident. Which medication class would you recommend?

- a. Meglitinides
- b. SGLT-2 Inhibitors**
- c. Sulfonylureas
- d. Analog insulins



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6. Glycemic Goals

A1C

Blood Pressure

**Cardiovascular risk
reduction**



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6. Glycemic Targets for Non-Pregnant Adults

- ▶ **A1c < 7%** - a reasonable goal for adults.
- ▶ **A1c < 6.5%** - for those without significant risk of hypoglycemia
- ▶ **A1c < 8%** - for those with history of hypoglycemia, limited life expectancy, or those with longstanding diabetes and vascular complications.
- ▶ **A1c Check Frequency:**
 - ▶ If meeting goal - At least 2 times a year
 - ▶ If *not* meeting goal – Quarterly
- ▶ **Also review Ambulatory Glucose Profile**



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6. Glycemic Targets Individualize Targets – ADA

- ▶ Pre-Prandial BG 80- 130
- ▶ 1-2 hr post prandial < than 180
*for nonpregnant adults
- ▶ Time in Range: 70%
▶ BG of 70-180 mg/dL



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A1c and Estimated Avg Glucose (eAG)

A1c (%)	eAG
5	97 (76-120)
6	126 (100-152)
7	154 (123-185)
8	183 (147-217)
9	212 (170 -249)
10	240 (193-282)
11	269 (217-314)
12	298 (240-347)



6. Glycemic Targets: Standards of Medical Care in Diabetes—2020

**eAG = 28.7 x A1c - 46.7 ~ 29 pts per 1%
Translating the A1c Assay Into eAG – ADAG Study**

American Diabetes Association
Diabetes Care 2020;Jan; 43(Supplement 1): S66-S76.
<https://doi.org/10.2337/ds20-006>

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Ambulatory Glucose Profile

- ▶ Standardized report with visual cues for those on CGM devices
- ▶ For most with type 1 or type 2 diabetes
 - > 70% of readings within BG range of 70-180mg/dL
 - < 4% of readings < 70 mg/dL
 - < 1% of readings < 54 mg/dL
 - < 25% of readings > 180 mg/dL
 - < 5% of readings > 250 mg/dL



For those with frailty or at high risk of hypoglycemia recommend:

- Target of 50% time in range
- Less than 1% time below range

6. Glycemic Goals and Hypoglycemia: Standards of Care in Diabetes—2025

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**"The highest form of wisdom is kindness."
The Talmud**



Diabetes Education Services

Published by Beverly Thomassian [?] · July 7 · 🌐

Kindness matters!

Learning to be less harsh or judgmental and more compassionate to oneself may help people with diabetes manage their disease and stave off depression, a recent study suggests.



Self-compassion may help people with diabetes achieve better glucose control and less depression

By Reyna Gobel(Reuters Health) – Learning to be less harsh or judgmental and more...

REUTERS.COM | BY REYNA GOBEL

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DiaBingo- G

G ADA goal for A1c is less than ____%

G People with DM need to see their provider at least every month

G Blood pressure goal is less than

G People with DM should see eye doctor (ophthalmologist) at least

G The goal for triglyceride level is less than

G Goal for LDL cholesterol for people 40+ with diabetes is _____

G The goal for blood sugars 1-2 hours after a meal is less than:

G People with DM should get this shot every year

G People with DM need to get urine tested yearly for _____

G Periodontal disease indicates increased risk for heart disease

G The goal for blood sugar levels before meals is:

G The activity goal is to do ___ minutes on most days

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Case Study - JR

▶ 38 yr old male, BMI 28, arrives in clinic for physical. Says he has been feeling tired lately, but attributes that to his job. In office fingerstick reads 228 mg/dl.

▶ 1. What lab tests are needed?

▶ 2. What would you include in your physical exam?

▶ 3. Next steps



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Lab Eval at Initial & Annual Visit

- ▶ A1c (each 3-6 mo's)
- ▶ Each year
 - ▶ Lipids, CBC with platelets
 - ▶ Liver function
 - ▶ Spot urinary albumin-to-creatinine ratio (UACR)
 - ▶ Serum creat and GFR
 - ▶ TSH, celiac (type 1)
 - ▶ B12 if on metformin >5yrs
 - ▶ Calcium, Vita D, and phosphorus if appropriate
- ▶ Serum K
 - ▶ If on ACE, ARBs or diuretics



4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2025
American Diabetes Association Professional Practice Committee

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Case Study - JR

- ▶ 38 yr old male, BMI 28, arrives in clinic for physical. Says he has been feeling tired lately, but attributes that to his job. In office fingerstick reads 228 mg/dl.
- ▶ 1. What lab tests are needed?
- ▶ 2. What would you include in your initial exam?
- ▶ 3. Reduce CV risk?



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Table 41—Components of the comprehensive diabetes medical evaluation at initial, follow-up, and annual visits

	Visit		
	Initial	Every follow-up	Annual
<ul style="list-style-type: none"> • Vitamin B12 if taking metformin for >5 years • CBC with platelets • Serum potassium levels in people with diabetes on ACE inhibitors, ARBs, or diuretics • Calcium, vitamin D, and phosphorus for appropriate people with diabetes 	✓	✓	✓
Physical examination <ul style="list-style-type: none"> • Height, weight, and BMI; growth and pubertal development in children and adolescents • Blood pressure determination • Orthostatic blood pressure measures (when indicated) • Fundoscopic examination (refer to eye specialist) • Thyroid palpation • Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, and lipohypertrophy) • Comprehensive foot examination • Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, and toenails) • Check pedal pulses and screen for PAD (see Table 42 for PAD diagnosis and risk factor management) • Determination of temperature, vibration or proprioception sensation, and 10-g monofilament exam • Screen for depression, anxiety, diabetes distress, fear of hypoglycemia, and disordered eating • Assessment for cognitive performance if indicated • Assessment for functional performance if indicated • Consider assessment for bone health (e.g., loss of height and kyphosis) 	✓	✓	✓

Standard 4 – Diabetes Medical Evaluation

4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2025
American Diabetes Association Professional Practice Committee

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Lab Test, BP, Family History

- ▶ A1C – 9.8%
- ▶ Cholesterol - 216
- ▶ LDL – 164 mg/dL
- ▶ HDL – 46
- ▶ Triglycerides – 276
- ▶ TSH – 1.43
- ▶ GFR - >60
- ▶ UACR - <30 mg/gm
- ▶ ALT, AST 90 & 85
- ▶ Platelets 217
- ▶ K+ 3.8
- ▶ Family history
 - ▶ Dad with type 2, history of stroke
- ▶ B/P
 - ▶ 156/88 then 148/82
- ▶ BMI 31
- ▶ Skin – some acanthosis nigricans visible on neck
- ▶ Lower extremities calluses and foot issues
- ▶ Mouth – gingivitis
 - ▶ Brush, floss, dentist

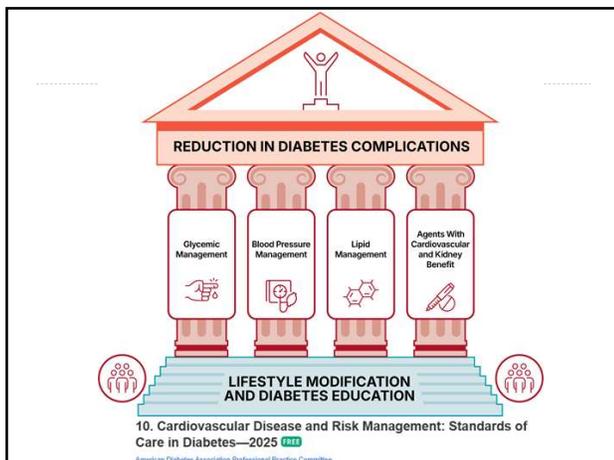
64

Acanthosis Nigricans

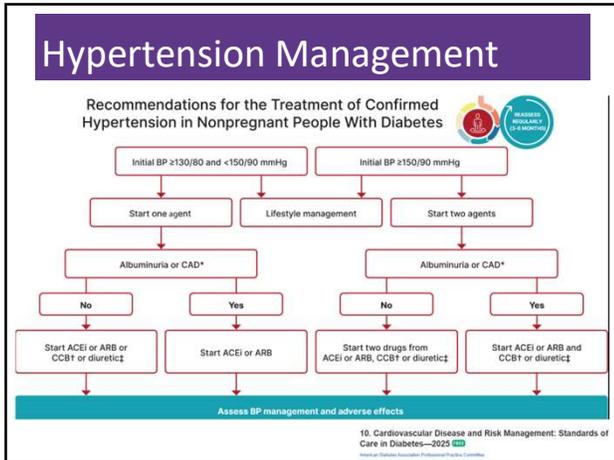


- ▶ A skin disorder characterized by darkening (hyperpigmentation) and thickening (hyperkeratosis) of the skin
- ▶ mainly in the folds of the skin in the armpit (axilla), groin and back of the neck.
- ▶ Acanthosis nigricans is not a skin disease per se but a cutaneous sign of an underlying condition or disease.
 - ▶ Associated with extra weight and insulin resistance

65



66



70

Poll Question 6

RZ is 47 years old with type 2 diabetes and hypertension. RZ takes metformin 1000 mg BID, plus lisinopril 20mg daily. RZ's LDL is 130 mg/dL. Based on the most recent ADA Standards, what is the LDL Cholesterol target for RZ?



- A. LDL less than 100 mg/dL.
- B. Lower LDL by 30%.
- C. LDL target of 65 mg/dL or less.
- D. Determine LDL target based on ASCVD risk.

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Lipid Goals – Primary Prevention

- ▶ For people with diabetes aged 40–75:
 - ▶ No ACSVD Risk – Start Moderate intensity statin
 - ▶ Higher cardiovascular risk*
 - ▶ (*HTN, Smoke, CKD, BMI 30+ albuminuria, family hx ACSVD)
 - ▶ High-intensity statin therapy is recommended
 - ▶ Reduce LDL cholesterol by at least 50% of baseline AND
 - ▶ Target LDL cholesterol <70 mg/dL.
- ▶ If LDL cholesterol 70 +
 - ▶ it may be reasonable to add ezetimibe or a PCSK9 inhibitor to maximum tolerated statin therapy.



10. Cardiovascular Disease and Risk Management: Standards of Care in Diabetes—2025

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Statin Dosing

High Intensity: Lowers LDL \geq 50%	Moderate Intensity: Lower LDL 30- $<$ 50%
<ul style="list-style-type: none"> ▶ Lipitor (atorvastatin) <ul style="list-style-type: none"> ▶ 40-80mg ▶ Crestor (rosuvastatin) <ul style="list-style-type: none"> ▶ 20-40mg 	<ul style="list-style-type: none"> ▶ Lipitor (atorvastatin) <ul style="list-style-type: none"> ▶ 10-20mg ▶ Crestor (rosuvastatin) <ul style="list-style-type: none"> ▶ 5-10mg ▶ Zocor (Simvastatin) <ul style="list-style-type: none"> ▶ 20-40mg ▶ Pravachol (pravastatin) <ul style="list-style-type: none"> ▶ 40 – 80mg ▶ Mevacor (lovastatin) 40 mg ▶ Lescol (fluvastatin) XL 80mg ▶ Livalo (pitavastatin) 2-4mg

*****If person can't tolerate intended statin dose, use maximally tolerated dose**

10. Cardiovascular Disease and Risk Management: Standards of Care in Diabetes—2025

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Lipid Goals for People *with* ASCVD

- ▶ For people of all ages with diabetes and atherosclerotic cardiovascular disease:
 - Add high-intensity statin to lifestyle therapy.
 - **Reduce LDL cholesterol by 50% or greater from baseline with LDL cholesterol goal of $<$ 55.**
 - Addition of ezetimibe or a PCSK9 inhibitor with proven benefit in recommended if goal is not achieved on maximum tolerated statin therapy.



Lipid Management for Secondary Prevention of Atherosclerotic Cardiovascular Disease Events in People With Diabetes

Use lifestyle and high-intensity statin therapy to reduce LDL cholesterol by \geq 50% from baseline to a goal of $<$ 55 mg/dL ($<$ 1.4 mmol/L).

→ Add ezetimibe or a PCSK9-directed therapy with demonstrated benefit if LDL cholesterol goals are not met on maximum tolerated statin therapy.

→ Use an alternative lipid-lowering treatment for those who are statin intolerant:

- PCSK9 inhibitor with monoclonal antibody treatment
- Bempedoic acid
- PCSK9 inhibitor with siRNA inclisiran

Recommendations for secondary prevention of atherosclerotic cardiovascular disease (ASCVD) in people with diabetes using cholesterol-lowering therapy. Adapted from: Standards of Care in Diabetes—2025. Copyright © 2025 American Diabetes Association. All rights reserved.

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Case Study - JR

- ▶ 38 yr old male, BMI 28, arrives in clinic for physical. Says he has been feeling tired lately, but attributes that to his job. In office fingerstick reads 228 mg/dl.
- ▶ 1. What lab tests are needed?
- ▶ 2. What would you include in your initial exam?
- ▶ What medications?
- ▶ What about his feet?



75

JR Started on These Medications

► Meds started:

- Metformin 1000 mg
- Glipizide 10 mg BID (sulfonylurea)
- Lovastatin 40 mg
- Lisinopril 20mg (ACE Inhibitor)
- Pioglitazone (Actos) 15mg



- B/P 142/94 Pulse 86
- A1C – 9.8%
- Cholesterol - 216
- LDL – 164 mg/dL
- HDL – 46
- Triglycerides – 276
- TSH – 1.43
- GFR - >60
- UACR - <30 mg/gm
- ALT, AST 90 & 85
- Platelets 217
- K+ 3.8

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Lower Extremities

► Lift the Sheets and Look at the Feet



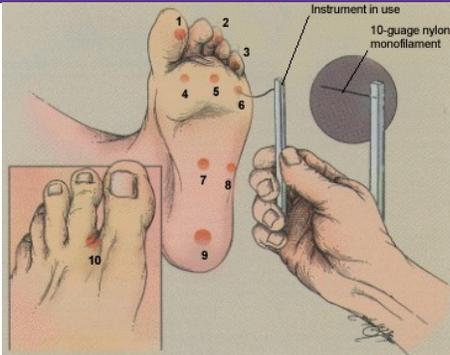
77

No Bathroom Surgery



78

5.07 monofilament = 10gms linear pressure



79

Three Most Important Foot Care Tips

- ▶ Inspect and apply lotion to your feet every night before you go to bed.
- ▶ Do NOT go barefoot, even in your house. Always wear shoes!
- ▶ Every time you see your provider, take off your shoes and show your feet.

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Case Study - JR

- ▶ 38 yr old male, BMI 28, arrives in clinic for physical. In office fingerstick reads 228 mg/dL A1C is 12.3%.
- ▶ How will we approach this new diabetes?



81





of Healing Through Connection

82



- ◆ Ask about their life (SDOH)
- ◆ Assess current self-management behaviors
 - ◆ Use opened ended questions
 - ◆ Listen for feeling words
- ◆ Assess your feelings

83

2 Responses to A1C of 12.3%

<p>▶ Well, you know the A1C target is less than 7%. You are going to get complications if you don't get your glucose under control.</p> 	<p>▶ Nobody can give themselves diabetes. It's not your fault. We are here to help you manage your diabetes.</p> 
---	--

84

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.

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

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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.



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FIVE M'S
FOR DIABETES SELF-MANAGEMENT

- Mood** (Icon: hand pointing to mood icons)
- Meals** (Icon: plate of food)
- Movement** (Icon: person walking)
- Medicines** (Icon: medicine bottles and syringe)
- Minutes** (Icon: alarm clock)

Based on 5 M Framework Tool by Funnell et al. www.DiabetesEd.net

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JR Returns in 1 month

- ▶ Blood glucose improved
- ▶ B/P 142/94 Pulse 86
- ▶ BMI 32 – trying to lose wt
- ▶ Meds started include:
 - ▶ Metformin 1000 mg
 - ▶ Glipizide 10 mg BID (sulfonylurea)
 - ▶ Lovastatin 40 mg
 - ▶ Lisinopril 20mg (ACE Inhibitor)
 - ▶ Pioglitazone (Actos) 15mg
- ▶ Provider increases metformin/glipizide and adds SGLT-2 Empagliflozin 10 mg
- ▶ JR checks BG 4-7 x's a week.
 - ▶ Lowest 152, Highest 289
 - ▶ What other issues do we need to evaluate?
 - ▶ Activity – mostly sedentary
 - ▶ Sleep: 6-7 hrs a night
 - ▶ Pain issues – knees
 - ▶ Brushing – once daily
 - ▶ Alcohol and other drug use
 - ▶ Drinks a few beers on weekends
 - ▶ Coping - okay
 - ▶ Steatosis – elevated LFTs
 - ▶ Affordability
 - ▶ Met with CDCES and RD

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B

- ◆ 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

90

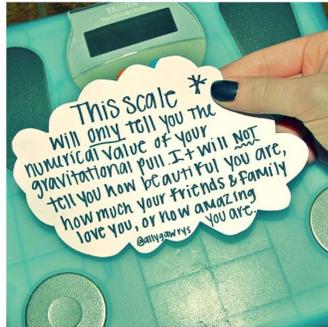
Diabetes is Complex

- ▶ Goal – achieve well being and negotiated outcomes
- ▶ Psychological factors:
 - ▶ Environmental
 - ▶ Social
 - ▶ Behavioral
 - ▶ Emotional
- ▶ Keep it person centered while integrating care into daily life
- ▶ Consider the individual



91

Weight is a Heavy Issue



92

Medical Nutrition Therapy Works

- ▶ MNT is effective and beneficial to people with diabetes.
- ▶ When delivered by an RDN, MNT is associated with A1C absolute decreases of
 - ▶ 1.0–1.9% for people with type 1 diabetes and
 - ▶ 0.3–2.0% for people with type 2 diabetes



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Healthy Eating Patterns/Approaches

Eating Patterns: Total Foods Consumed

- ▶ Mediterranean Diet
- ▶ Plant based eating
- ▶ DASH (Dietary Approaches to Stop Hypertension)
- ▶ Low Carbohydrate

Use Integrative food-based approach.
"People eat food, not nutrients".

Eating Approach: Tools for developing an eating pattern

- ▶ Diabetes Plate Method
- ▶ Carbohydrate Counting
- ▶ Individualized behavioral approaches



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5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2025

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Plan Your Portions

Use a smaller plate. This is a 9-inch plate to help guide you.

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Exercise Standards

- ▶ Adults – 150 min/wk moderate intensity
- ▶ over 3 days a week.
- ▶ Don't miss > 2 consecutive days w/out exercise
- ▶ Get up every 30 mins - Reduce sedentary time
- ▶ Flexibility and balance training 2-3 xs a week (Yoga and Tai Chi)
- ▶ T1 and T2 – resistance training 2 -3 x's a week



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A hard truth

▶ Exercise alone doesn't cause weight loss

▶ But....

- ▶ It helps keep weight off
- ▶ Decreases visceral adiposity
- ▶ Decreases CV Risk

IT TAKES 524 BURPEES

TO BURN OFF 1 LARGE FRIES
BURPEES VS. FRIES TO LOSE WEIGHT @GHEALTH



- ▶ To combat the rise in body weight, we need to change the food environment
- ▶ "You cannot outrun an unhealthy diet".

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Where are we on this continuum?



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Good Exercise Info / Quotes

▶ "Passagiata" – take an after meal stroll

▶ Exercise decreases A1C 0.7%

▶ No change in body wt, but 48% loss in visceral fat.



"Every minute of activity lowers blood sugar one point."

"I don't have time to exercise, I MAKE time."

99

JR Return Visit 3 months

- ▶ A1c 8.6% (was 9.8)
- ▶ TSH 1.9 mIU/L
- ▶ B/P 136/84 Pulse 76
- ▶ Has gained **about 4 pounds**
- ▶ Meds include:
 - ▶ Metformin 2000 mg
 - ▶ Empagliflozin 10 mg
 - ▶ Glipizide 20 mg BID
 - ▶ Lovastatin 40 mg
 - ▶ Lisinopril 20mg (increase to 40)
- ▶ JR checks BG each morning and sometimes at hs
 - ▶ Lowest 68 after taking meds (usually around 140ish)
 - ▶ Highest 249
- ▶ Has started walking after dinner.
- ▶ Is trying to eat healthier, but upset he gained wt.
- ▶ Says the meds are affordable so far.
- ▶ Made dental appt and is trying to brush 2x day



Provider increases lisinopril & empagliflozin to 25mg and adds 10 units basal insulin
 Would you suggest a different approach?

100

Sulfonylureas - Secretagogues or "Squirters"

- ▶ Mechanism: Stimulate beta cells to release insulin
- ▶ Dosed 1-2x daily before meals
- ▶ Adverse effects
 - ▶ Hypoglycemia, Weight gain, watch renal function
- ▶ Low cost, \$12 for 3 months supply
- ▶ Can help with glucose toxicity, lowers A1C 1-2%



Sulfonylureas • Stimulates sustained insulin release	glyburide: (DiaBeta) (Glynase PresTabs)	1.25 – 20 mg 0.75 – 12 mg	Can take once or twice daily before meals. Low cost generic. Side effects: hypoglycemia and weight gain. Eliminated via kidney.
	glipizide: (Glucotrol) (Glucotrol XL)	2.5 – 40 mg 2.5 – 20 mg	
	glimepiride (Amaryl)	1.0 – 8 mg	Caution: Glyburide most likely to cause hypoglycemia. Lowers A1c 1.0% – 2.0%.

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Hypoglycemia (Glucose) Alert Values

- ▶ **BG <70mg/dl – Level 1**
- ▶ Follow 15/15 rule and contact provider to make needed changes
- ▶ **BG < 54mg/dl – Level 2**
- ▶ Indicates serious hypo. Contact provider for med change. Glucagon Emergency Kit
- ▶ **Severe Hypoglycemia – Level 3**
- ▶ Requires external assistance – no threshold



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Hypoglycemia: Identify, Treat, & Prevent

PocketCards are updated twice yearly. Scan QR code to download or order the latest version.



Step 1

Identify your signs of hypoglycemia or low blood sugar:

- Sweaty
- Shaky
- Hungry
- Can't think straight
- Headache
- Irritated, grouchy
- Other

Step 2

If have signs of hypo, treat with carbs until glucose reaches 70+, then eat usual meal.

- Sugary drink, 4-8oz
- Piece of fruit
- Raisins, handful
- Glucose tabs, 4+
- Honey/glucose gel
- Skittles candy, 15+

Step 3

Have glucagon rescue meds available.

In case of severe hypo, identify someone (ahead of time) who can get medical help & give a glucagon rescue medication.

Notify your provider of low blood sugar events.

Hypoglycemia Levels:
 Level 1 - Glucose less than 70
 Level 2 - Glucose less than 54
 Level 3 - Severe, needs assistance

Identify Causes of Hypo & Problem Solve to Prevent Future Episodes

- » Low carb meal
- » Extra activity
- » Drinking alcohol
- » Delayed, missed meal
- » Too much insulin/meds
- » Insulin timing

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Glucagon Rescue Medications for Diabetes-Related Hypoglycemia

Name/Delivery	Supplied	Dose Range		Age / Route / Storage
		Adult	Peds / Age WT Dosing	
Glucagon Emergency Kit Injection requires mixing glucagon powder	1mg / 1mL vial + syringe	1mg	0.03mg/kg or < 6yrs or < 25 kgs 0.5mg ≥ 6yrs or > 25kgs 1mg	All ages approved SubQ or IM admin Expires in 2 years at room temp.
Baqsimi Nasal glucagon powder	3 mg intranasal device	3 mg	< 1 yrs: not recommended 1 yr or older 3mg dose	Approved Age 1+ Nasal admin Expires ~ 2 years at room temp (keep in shrink-wrapped tube).
Gvoke Injectable liquid stable glucagon solution	0.5mg or 1.0mg in -Prefilled syringe -HypoPen auto-injector -Kit with vial and syringe	1 mg	< 2yrs: not recommended 2- 12 yrs < 45kg 0.5mg ≥ 45kg 1mg 12 yrs or older 1mg	Approved Age 2+ SubQ admin in arm, thigh, abdomen Expires in 2 years at room temp (keep in foil pouch).
Dasiglucagon (Zepalogue) Stable liquid glucagon analog	0.6mg/0.6mL Prefilled syringe Autoinjector	0.6mg	< 6yrs: not recommended 6 yrs or older 0.6mg	Approved Age 6+ SubQ in abdomen, buttocks, thigh outer upper arm Expires in 1 year at room temp. (store in red protective case).

*All raise BG 20+ points. Can cause nausea, vomiting. After admin, roll person on side. Seek medical help. If no response after 1st dose, give 2nd dose in 15 mins. When awake, give oral carbs ASAP when safe to swallow. Please consult package insert for detailed info. All PocketCard content is for educational purposes only. Please consult prescribing information for detailed guidelines. DiabetesEd.net Copyright Diabetes Education Services

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JR Return Visit 6 months

- ▶ A1c 7.3% (was 8.6)
- ▶ TSH 1.9 mIU/L
- ▶ B/P 132/82 Pulse 76
- ▶ Denies any low blood sugar
- ▶ Lost 2 pounds
- ▶ Meds include:
 - ▶ Metformin 2000 mg
 - ▶ Empagliflozin 25 mg
 - ▶ Glipizide 20 mg BID
 - ▶ Lovastatin 40 mg
 - ▶ Lisinopril 40mg
 - ▶ 10 units basal insulin
- ▶ JR checks BG each morning and sometimes at hs
- ▶ Lowest 112 (usually around 130ish)
- ▶ Highest 230
- ▶ Still walking after dinner.
- ▶ Hasn't seen dentist
- ▶ Sometimes forgets to take meds at night
- ▶ Sleeping better
- ▶ Worried if meds are causing harm
- ▶ Started taking cinnamon capsules

Ask if he can try the medication that helps people lose weight?



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Incretins: GLP & GIP Receptor Agonists



GLP-1: glucagon like peptide 1
GIP: glucose-dependent insulinotropic polypeptide

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Pocket Card: GLP-1 & GIP RA

GLP-1 & GIP Receptor Agonists

Class/Main Action	Name	Dose Range	Considerations
GLP-1 RA - Glucagon Like Peptide Receptor Agonist "Incretin Mimetic" • Increases insulin release with food • Slows gastric emptying • Promotes satiety • Suppresses glucagon	exenatide (Byetta)	5 and 10 mcg BID	Side effects: nausea, vomiting, weight loss, injection site reaction. Report signs of acute pancreatitis or intestinal blockage (ileus) and stop med. Black box warning: Thyroid C-cell tumor warning (avoid if family history of medullary thyroid tumor). *Significantly reduces risk of CV death, heart attack, and stroke. §Approved to reduce risk of CKD †Approved for pediatrics 10-17 yrs Lowers A1C 0.5 – 1.6% Weight loss: 4-6% body weight loss.
	exenatide XR† (Bydureon)	2 mg 1x a week Pen injector - Bydureon BCise	
	liraglutide** (Victoza)	0.6, 1.2 and 1.8 mg daily	
	dulaglutide** (Trulicity)	0.75, 1.5, 3.0 and 4.5 mg 1x a week pen injector	
GLP-1 & GIP Receptor Agonist Activates receptors for GLP-1 (see above) & Glucose-dependent Insulinotropic Polypeptide (GIP).	semaglutide*§ (Ozempic) (Rybelsus) Oral tablet	0.25, 0.5, 1.0 and 2.0 mg 1x a week pen injector 3, 7, and 14 mg daily in a.m. Take on empty stomach with sip of water	Lowers A1C ~ 1.8 - 2.4% Weight loss: 7-13% body weight loss at max dose.
	Tirzepatide (Mounjaro)	2.5, 5.0, 7.5, 10, 12.5 and 15 mg 1x a week pre-filled single dose pen Increase dose by 2.5 mg once monthly to reach targets.	

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Counseling Points: GLP-1 RA & GLP-1/GIP

- ▶ Avoid if personal or family history of medullary thyroid cancer
- ▶ Avoid in combo with DPP-4 inhibitors
- ▶ Watch for intestinal obstruction
- ▶ Use of non-FDA compounded products not recommended
- ▶ Avoid with history pancreatitis
- ▶ If on tirzepatide, use back up contraception for first 4 weeks
- ▶ Ask about recent eye exam
 - ▶ Potential increase in diabetes retinopathy



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A Pharmaceutical Approach to Diabetes Treatment: Standards of Care in Diabetes - 2025 ADA

Sudden discontinuation of semaglutide and tirzepatide results in regain of one-half to two-thirds of the weight loss within 1 year. Consider trying lowest effective dose, using intermittent therapy, or stopping medication followed by close weight monitoring.

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Poll Question 7

AR is 36 years old with type 2 diabetes and a BMI of 41kg/m². Current diabetes medications include: metformin, sitagliptin (Januvia) and empagliflozin (Jardiance) at maximum doses. AR is prescribed tirzepatide (Mounjaro). Based on this information, what action do you recommend to the provider?

- A. Verify kidney function first.
- B. Stop the sitagliptin when initiating tirzepatide.
- C. Decrease the dose of metformin to prevent hypoglycemia.
- D. Evaluate thyroid function before starting tirzepatide.



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GLP-1/GIP Receptor Agonist Indications

"Recent clinical trial suggests that the GLP-1 RA semaglutide has beneficial effect on CVD, mortality, and kidney outcomes among people with CKD - recommend that semaglutide be used as another first-line agent for people with CKD".

Exenatide IR (Byetta) Lixisenatide (Adlyxin) Semaglutide (Rybelsus)	Yes		
Exenatide ER (Bydureon)	Yes for 10 yrs and older		<small>Pharmacist Approach to Diabetes Treatment: Standards of Care in Diabetes—2025</small>
Dulaglutide (Trulicity)	Yes for 10 yrs and older	Yes	
Semaglutide (Ozempic)	Yes	Yes Kidney protective	Yes Wegovy 2.4mg
Liraglutide (Victoza)	Yes for 10 yrs and older	Yes	Yes Saxenda 3mg
Tirzepatide (Mounjaro)	Yes	?	Yes, Zepbound up to 15 mg

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Assessing Malnutrition

At Risks Groups:

- ▶ Individuals on GLP-1 or GIP RA or after metabolic surgery
- ▶ Individuals with multiple chronic conditions
- ▶ Older age groups
- ▶ Food insecurity and poverty
- ▶ Screen:
 - ▶ For malnutrition and sarcopenia
- ▶ Recommend:
 - ▶ Whole- food-based eating pattern
 - ▶ Adequate protein
 - ▶ Resistance training

Malnutrition is defined by the World Health Organization as "deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients."



STANDARDS OF CARE | 2025 | 10.1016/j.jdiac.2025.01.001
S. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2025
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Liver Nomenclature Update

<p>Old Terms</p> <ul style="list-style-type: none"> ▶ Fatty Liver Disease ▶ Non-Alcoholic Steatohepatitis (NASH) ▶ Non-Alcoholic Fatty Liver Disease (NAFLD) 	<p>New Terms</p> <ul style="list-style-type: none"> ▶ Steatotic Liver Disease ▶ Metabolic Dysfunction-Associated Steatohepatitis (MASH) ▶ Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)
--	--

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

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Metabolic Syndrome & Steatohepatitis

Adults with type 2 diabetes.

- ▶ >70% have MASLD
 - ▶ Of those 50% have MASH*
 - ▶ 12-20% have fibrosis
- ▶ Adults with type 1
 - ▶ 20% have MASLD
- ▶ **Associated with :**
 - Increased BMI (30+)
 - Cardiometabolic risk factors
 - Over 50 yrs
 - *ALT & AST 30 units/L +



***ALT & AST**
(Eval if more if 30+ for 6 mo's - ADA)

4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2025

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Natural History of MASLD to MASH

The Spectrum of NAFLD

Fatty Liver



Fat accumulates in the liver

NASH



Fat plus inflammation and scarring

Cirrhosis



Scar tissue replaces liver cells

Stages of Liver Damage



STAGE 0
Healthy liver

STAGE 1
Beginning of liver damage

STAGE 2
Moderate liver damage

STAGE 3
Significant liver damage

STAGE 4
Severe liver damage (Cirrhosis)

MASLD – Metabolic Assoc Steatotic Liver Dx
MASH – Metabolic Assoc Steatohepatitis

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

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Screening for MASH – FIB-4

Fibrosis-4 (FIB-4) Calculator

The FIB-4 score helps to estimate the amount of fibrosis in the liver. Enter the required values to calculate the FIB-4 value. It will appear on the right in the box highlighted in yellow.

Age (years) x AST Level (U/L)

Platelet Count (10⁹/L) x $\sqrt{\text{ALT (U/L)}}$

= 1.57

FIB-4 = 1.57

- ▶ 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.

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).

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Other Treatments for MASLD and MASH

- ▶ Meds that lower glucose, cholesterol and weight
- ▶ Bariatric surgery
- ▶ Pioglitazone (Actos)
 - ▶ 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 Receptor Agonists



Support lifestyle changes

4. Comprehensive Medical Evaluation and Assessment of Comorbidities: Standards of Care in Diabetes—2025
American Diabetes Association Professional Practice Committee

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JR Return Visit 1 Year – Big Strides

- ▶ A1c 6.6%
- ▶ LDL 104 (was 164), Trig 169
- ▶ B/P 128/76
- ▶ UACR < 30, GFR >60
- ▶ Liver enzymes below 30
- ▶ Saw dentist
- ▶ Exercising regularly

Meds include:

- ▶ Metformin 2000 mg
- ▶ Empagliflozin 25 mg
- ▶ Pioglitazone 15mg (for liver)
- ▶ Glipizide 20 mg BID
- ▶ Basal insulin 15 units
- ▶ Lovastatin 40 mg (increase?)
- ▶ Lisinopril 40 mg
- ▶ Ozempic 0.5mg

JR checks BG 7 -10 times a week.

- ▶ Experiencing 2-3 lows a week
- ▶ Lowest BG was 54
- ▶ Highest 198

Decide to hold insulin and stop glipizide. If BG levels increase, add GLP-1 to plan. Return in 3 mo's



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JR Return Visit 3 Years – Stuck

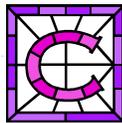
- ▶ A1c 9.6%, not losing wt
 - ▶ B/P 128/76
 - ▶ UACR < 30, GFR >60
 - ▶ Liver enzymes below 30
 - ▶ Saw dentist
 - ▶ Exercising regularly
- ▶ JR checks BG a few times a week.
 - ▶ “Diabetes is so much work”.

▶ Meds include:

- ▶ Metformin 2000 mg
- ▶ Empagliflozin 25 mg
- ▶ Semaglutide 2.0mg
- ▶ Pioglitazone 15mg (for liver)
- ▶ Lovastatin 40 mg
- ▶ Lisinopril 40 mg



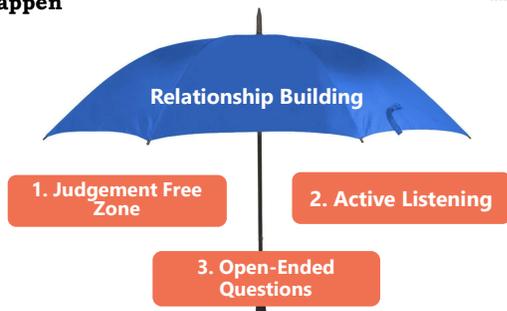
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- ◆ Having the Conversation
- ◆ Coaching that highlights *their* knowledge and resilience.
- ◆ Curiosity and Carrots.
- ◆ Compassion for the people in our care and ourselves.

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Relationship Building | Three Tools To Make It Happen

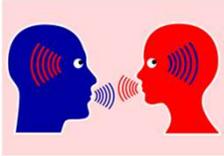


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Conversational Tools You Can Use To Address Diabetes Distress

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 Question
– How are you FEELING... ?

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Clinical Engagement Tools: Label & Address Feelings

Common feeling words:

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



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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?”

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Having the Conversation

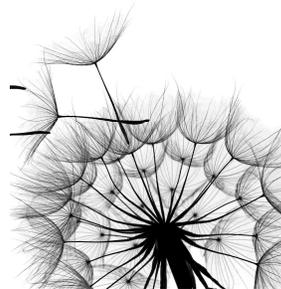
- Elicit diabetes story
- Listening for the major diabetes distress themes
- Communication Approaches
 - Open ended questions (O) -What, How, Why
 - Reflect feelings words (R) – Sad, upset, worried, hopeful, angry, happy, scared etc.
 - Summarize (S) – So what your saying is... Did I get that right?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

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Releasing the Distress 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.



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Releasing the Break MR

- ▶ MR is 69 years old, lives alone, works in an office but is currently out of work and very stressed.

“I’m going to be present with my fear of hypoglycemia and still adjust my insulin to get closer to target.”

- ▶ Looking at her ambulatory glucose profile, the TIR is around 46-50% and she has no episodes of hypo.
- ▶ Insulin includes 30units glargine at bedtime and 10-15 of apidra with meals based only on what she is going to eat.



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When Treatment Goals aren't met

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



Action Steps

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

5. Facilitating Positive Health Behaviors and Wellbeing to Improve Health Outcomes: Standards of Care in Diabetes—2025
https://doi.org/10.2337/25S005

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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?

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Avoid and Lean Into

- ▶ **AVOID: Pressure, fix, or control.**
- ▶ We are careful to avoid forced solutions or controlling language. Our job is to help the person with diabetes find their own answers and solutions.
- ▶ **Let's stop "Shoulding" on people.**
- ▶ It's time to let go of terms like "You must, you should, you have to, it's better, it's important, do it for me" since they fall under the category of "controlling motivation"—which can be hurtful and lead to the individual becoming defensive or shutting down.
- ▶ **Ditch the scare tactics too!**

- ▶ **Lean into - A person-centered approach energizes individuals to take the lead in managing their condition, in step with their providers and supporters.**



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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!"

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Healing Through Connection



- ▶ Assess & Listen
- ▶ Acknowledge
- ▶ Accept without judgment
- ▶ Advocate



- ▶ Beliefs
- ▶ Barriers
- ▶ Burnout



- ▶ Conversation
- ▶ Curiosity & Carrots
- ▶ Coaching with Compassion

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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



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Thank You



- ▶ Questions?
- ▶ Email: info@diabetesed.net
- ▶ Web: www.diabetesed.net
- ▶ Phone 530-893-8635



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