Best Diabetes Care for People with Developmental Disabilities Workshop

Taft ARC

Diabetes Education SERVICES

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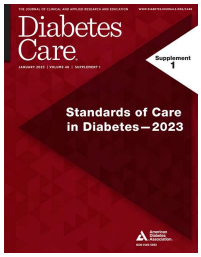
Diabetes Nurse
December 3, 2023

Beverly has no conflicts of interest

- Not on any speaker's bureau
- Does not invest in pharmaceutical or device companies
- Gathers information from reading package inserts, research and standards



Majority of Content from ADA Standards www.Diabetes.org

Topics for Best Diabetes Care

- From Prediabetes to Diabetes – How to Identify and Goals of Care.
- New diabetes medications that do more than just lower blood sugars.
- Identifying the highs and lows
- Eating healthy
- Steps to keep feet healthy
- Everyone's voice matters- strategies to collaborate with clients.
- The impact of social determinants and childhood experiences on our health – a Message of Hope

Type 2 Diabetes in America 2023

- 11.3% with Diabetes
  - 37 million adults
  - 23% don't know they have it
- 38% with Prediabetes – 96 mil

Figure 3. Age-adjusted, county-level prevalence of diagnosed diabetes among adults aged 20 years or older, United States, 2004, 2012, and 2019

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

CDC Announces

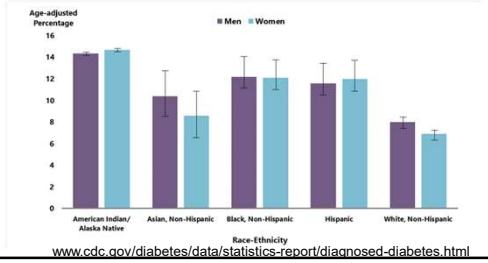
35% of Americans will have Diabetes by 2050

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

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

In Your Community

- Barriers to Healthy Living
- Opportunities for Healthy Living

Social Determinants of Health

- The conditions in which people:
  - Play
  - Live
  - Work
  - Learn
  - Pray

Directly affects their health risks and outcome

AADE Population Health & Diabetes Educators Evolving Role 2019

Socioeconomics – Diabetes Prevalence

- Prevalence of diabetes varied significantly by education level
  - 7.1% - More than high school education
  - 9.2% - High school education
  - 13.4% - Less than high school education
  - 13.7 – 14.4% of men and women with income below federal poverty level have highest prevalence of diabetes.

CDC 2023

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

Tailoring Treatment for Social Context

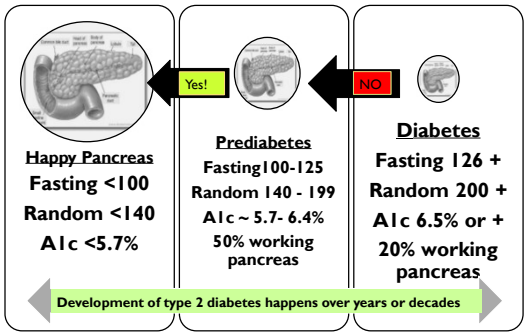
- "Social determinants of health (SDOH)—*often out of direct control of the individual* and potentially representing lifelong risk—contribute to health care and psychosocial outcomes and must be addressed to improve all health outcomes"

The ADA recognizes this relationship and is taking action.

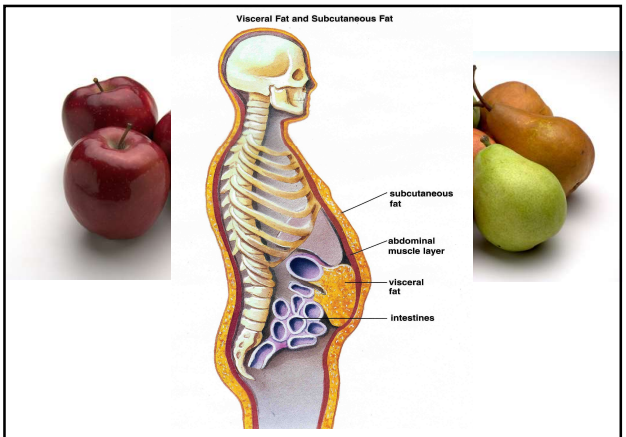
1. Improving Care and Promoting Health in Populations. *Standards of Care in Diabetes—2023*

Diabetes is Complex

Natural History of Diabetes



Preventing Pre Diabetes and Diabetes

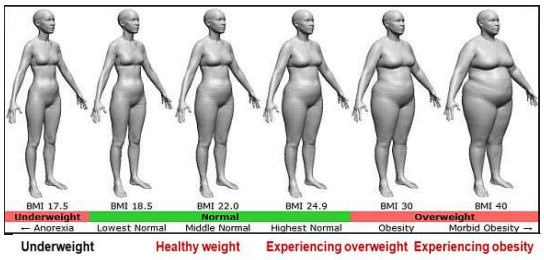


Pre Diabetes & Type 2- Screening Guidelines (ADA 2023 Clinical Practice Guidelines)

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

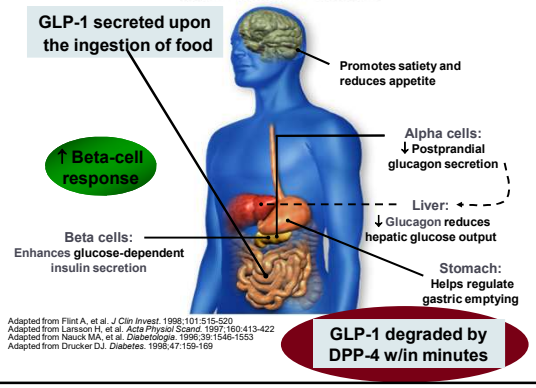
- First-degree relative w/ diabetes
- Member of a high-risk ethnic population
- Habitual physical inactivity
- PreDiabetes*
- HIV on antiretroviral meds*
- History of heart disease

BMI – Visual Image



Weight is a Heavy Issue

GLP-1 Effects in Humans
Understanding the Natural Role of Incretins



Adapted from Flint A, et al. *J Clin Invest*. 1998;101:515-520
Adapted from Larsson H, et al. *Acta Physiol Scand*. 1997;160:413-422
Adapted from Nauck MA, et al. *Diabetologia*. 1996;39:1546-1553
Adapted from Drucker DJ. *Diabetes*. 1998;47:159-169

GLP-1 Receptor Agonist Devices

Byetta

5mcg or 10mcg pen
1 pen/month
Requires Rx for needles

Ozempic

3 pen options: 0.5, 1, 2mg
1 pen/month
Comes with needles

Victoza

1.2mg, 2 pens/mo
- (15 doses per pen)
1.8mg, 3 pens/month
- (10 doses per pen)
Requires Rx for needles

Adlyxin

Contains 14 doses (20mcg)
2 pens/month
Requires Rx for needles

Bydureon

2mg pen
4 pens/month
Shake 15 seconds
Never see needle

Trulicity

0.75, 1.5, 3, 4.5mg pens
4 pens/month
Never see needle

Tirzepatide Clinical Use

Benefits of GLP-1 & GIP Meds

"Gut Hormone Imitators"

A1C lowering 1-3%	Weight loss 4-13%	Cardiovascular
Less Appetite	Help with fatty liver?	Once a week Injection

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

- Avoid if personal or family history of medullary thyroid cancer
- Start at lower dose and gradually increase
- Eat smaller *nourishing* meals to reduce nausea
- Avoid high fat meals
- Reconsider nausea as feeling full
- Store extra pens in fridge
- Report any sudden abdominal pain or pancreatitis symptoms

Diabetes 2 - Who is at Risk?

(ADA Clinical Practice Guidelines)

Screen using A1c, Fasting Blood Glucose or OGTT.

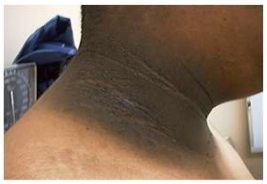
If negative, repeat screening at least every 3 years.

*If prediabetes, on antiretroviral meds, recheck yearly

Risk factors cont'd

- BP > 140/90
- HDL < 35 or triglycerides > 250
- History of Gestational Diabetes Mellitus
- Polycystic ovary syndrome (PCOS)
- Other conditions assoc w/ insulin resistance:
  - Elevated BMI, acanthosis nigricans (AN)

Acanthosis Nigricans (AN)



- Signals high insulin levels in bloodstream
- Patches of darkened skin over parts of body that bend or rub against each other
  - Neck, underarm, waistline, groin, knuckles, elbows, toes
  - Skin tags on neck and darkened areas around eyes, nose and cheeks.
- No cure, lesions regress with treatment of insulin resistance

Diabetes Detectives Needed

- On average – takes 6.5 years to diagnose diabetes
- 1/4 of all people with diabetes don't know they have it
- 50% of Latino and Asians are undiagnosed

Signs of Diabetes

- Going to Bathroom
- Super thirsty
- Super hungry
- Weight loss without trying
- Fatigue – so tired
- Skin and other infections
- Blurry vision

CHANGINGlife WITHDIABETES

Hyperglycemia (High Blood Glucose)

Causes: Too much food, too little insulin or diabetes pills, illness, or stress.
Onset: Often starts slowly.

Some Symptoms:

HIGH BLOOD GLUCOSE MAY LEAD TO A MEDICAL EMERGENCY IF NOT TREATED.

Action

Test blood sugars

Drink fluids

Check ketones

Missed meds/injections?

Decrease carbs till figure out solution

Report any signs of infection.

Diabetes Education SERVICES

Diabetes Classifications

- Type 1
- Type 2
- Gestational
- Secondary

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

What is Type 2 Diabetes?

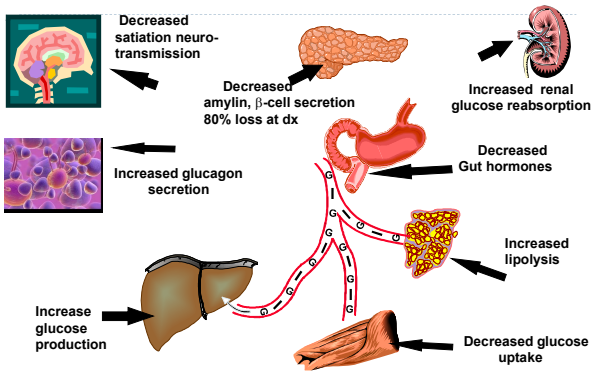
- Complex metabolic problem
  (Insulin resistance and deficiency)

with social, behavioral and environmental factors unmasking genetic risk.

It's no one's fault they have diabetes.

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

8 things Amiss - Type 2 Diabetes



SGLT2 Inhibitors- "Glucoretics"

- **Action**: decreases renal reabsorption of glucose proximal tubule of kidneys (reset renal threshold)
- **Preferred** diabetes treatment for people with heart and kidney failure. Decreases BG & CV Risk.
- AWP: ~$650 a month

Class/Main Action	Name(s)	Daily Dose Range	Considerations
SGLT2 Inhibitors "Glucoretic" • Decreases glucose reabsorption in kidneys	Canagliflozin* (Invokana) Dapagliflozin* (Farxiga) Empagliflozin*† (Jardiance) Ertugliflozin (Steglatro) Bexagliflozin (Brenzavvy)	100 - 300 mg 1x daily 5 - 10 mg 1x daily 10 - 25 mg 1x daily 5 – 15 mg 1x daily 20 mg 1x daily	**Side effects:** hypotension, UTIs, genital infections, increased urination, weight loss, ketoacidosis. **Heart Failure, CV & Kidney Protection:** 1st line therapy for Heart Failure (HF), Kidney Disease (CKD), Cardiovascular Disease, before or with metformin. **Considerations:** See Package Insert (PI) for GFR cut-offs, dosing. Limited BG lowering effect if GFR < 45, still benefits kidneys & heart at lower GFR. If CKD & GFR ≥20, use SGLT-2 to reduce CVD, HF, preserve renal function. (ADA/EASD) **Benefits:** SGLT-2s* reduce BG, CV death & HF, slow CKD. †Approved for peds, 10 yrs +. Lowers A1C 0.6% to 1.5%.

Benefits of SGLT-2 Inhibitors

"Glucoretics" – Urinate out Sugar

A1C lowering 0.6-1.5%	Weight loss 3-5 pounds	Cardiovascular
Protects Kidneys (GFR & UACR)	Helps with Heart failure	Blood pressure lowering

Side Effects of SGLT-2 Inhibitors

"Glucoretics" – Urinate out Sugar

- Genital infections
- Volume depletion
- Increased urination
- Hypotension
- Urinary Tract Infection
- Diabetes ketoacidosis (DKA)

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

Quick Question 1

- A potential side effect of SGLT-2 Inhibitors is:

a. Genital Infections
b. Hypertension
c. Kidney tenderness
d. Increased uric acid

Case Study

Profile: 5'8", 192 lb male

Diabetes 12 years, on insulin 3 yrs

What type of DM and how do you know?

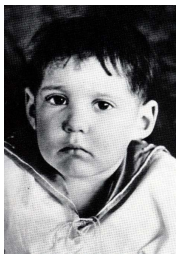
2. 5'6", 108 lb female

On insulin 3u bolus before meals, 10u basal insulin at bedtime

What type of DM and how do you know?

The Miracle of Insulin

Patient J.L., December 15, 1922



February 15, 1923

Incidence of Type 1 in Youth

- **General Pop 0.3%**
- **Sibling 4%**
- **Mother 2-3%**
- **Father 6-8%**
- Rate doubling every 20 yrs
- Many trials underway to detect and prevent (Trial Net)

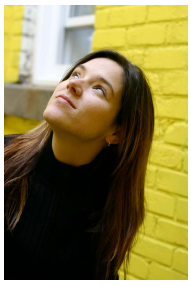
Type 1 Rates Increasing Globally

- 23% rise in type 1 diabetes incidence from 2001-2009
- Why?
  - Autoimmune disease rates increasing over all
  - Changes in environmental exposure and gut bacteria?
  - Hygiene hypothesis
  - Excess weight?

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 environmental factors
- Signs can include:
  - Increased thirst and hunger
  - Frequent urination or new bed-wetting at hs
  - Unintended weight loss
  - Fatigue and irritability

Type 1 Diabetes Features?



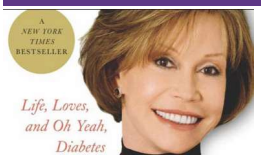
- AJ, 22 yr old admitted to the ICU with a blood glucose of 476 mg/dl, pH of 7.1. Recently lost 13 pounds.

Type 1 Most Discriminative Features

- Younger than 35 years at diagnosis
- Lower BMI (<25 kg/m^2)
- Unintentional weight loss
- Ketoacidosis
- Glucose 360 mg/dl or greater.

CONSENSUS REPORT | OCTOBER 19 2021
The Management of Type 1 Diabetes in Adults. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)

What Does Type 1 Look Like?



Mary Tyler Moore

Justice Sonia Sotomayor

Nick Jonas

Kate Moss' daughter Lila praised for wearing insulin pump on the catwalk: 'An inspiration to so many living with Type 1 diabetes'

Lila Grace Moss

Living with PreDiabetes or Diabetes?

How do we move from Dis-Ease to Well-Being?

Comparison of Type 1 and Type 2

Feature	Type 1	Type 2
Excess weight	x	xxx
Insulin dependence	xxx	30%
Respond to oral agents	x	xxx
Antibodies present	xxx	0
Typical age of onset	puberty	40-65
Insulin Resistance	x	xxx

DiaBingo

B Frequent skin and yeast infections can indicate?
B A BMI of ____ or more increases risk of diabetes
B To reduce complications, control **A**1c, **B**lood pressure, **C**holesterol
B PreDiabetes – fasting glucose level of ___ to ____
B Erectile dysfunction indicates greater risk for ____
B Diabetes – fasting glucose level____ or greater
B Type 1 diabetes is best described as an _____ disease
B People with diabetes are _____ times more likely to die of heart dx
B Each percentage point of A1c = _____ mg/dl glucose
B At dx of type 2, about __% of the beta cell function is lost
B Diabetes – random glucose ____ or greater

Diabetes Toolkit

- CGM / Meter Supplies
  - Strips that aren't expired?
- Pump & Supplies
- Site Evaluation
- Low Glucose Plan
- Meds & Disaster Plan

- Can access glucose reports?
- Diabetes ID
  - Phone, medic alert, on person
- Carbohydrate source
  - Granola bar, glucose tabs, GU, gummy bears
- Glucagon Rescue Meds

Devices to Inject insulin

Syringe Pen Injector Pump

Choice of device is person centered and based on:

- Preference
- Cost
- Convenience

Poll Question 2

- RT says they keep using the same site for their insulin pump, since it doesn't hurt as much. When you evaluate their abdomen, you notice a large lump at the site. Why are you worried about this practice?
- A. Magnified risk of hypoglycemia
- B. Acanthosis nigricans
- C. Development of a lipoma
- D. Decreased insulin absorption

Evaluate Insulin & Injection Sites

- Keep unopened insulin in refrigerator
- Look for:
  - Lipodystrophy (a)
  - Lipohypertrophy (b)
- Make sure insulin isn't expired
- Proper disposal
- Review person's ability to in insert and rotate sites for CGM, Pumps, injections

Basal Insulin

Another name is background insulin

- For those on an insulin pump, rapid acting insulin is infused through the pump 24 hours a day and referred to as the **basal insulin.**
- For those on injections they may use NPH, detemir, glargine, degludec.
- A person with a working pancreas, releases about 0.5 units of insulin an hour.

Insulin PocketCard™ Diabetes Education Services Pinnacle Success Get Our Free CDCES Coach App

Action		Insulin Name	Onset	Peak	Effective 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.
	Rapid Acting Analogs	Lispro-aabc (Lyumjev)	15 - 17 min	2 - 3 hrs	5 - 7 hrs	
		Aspart (Novolog)	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	
	Long Acting	Detemir (Levemir)	3 - 8 hrs	No peak	6 - 24 hrs	
		Glargine (Lantus*/Basaglar/Semglee/Rezvoglar)	2 - 4 hrs		20 - 24 hrs	
		Degludec (Tresiba)*	~ 1 hr		< 42 hrs	

Let's Move to Bolus Insulin

- These rapid acting insulins are used to cover the carbs in a meal or correct a high blood sugar.
- People with diabetes imitate the bolus release of insulin by injecting insulin or taking a bolus using a pump.

Insulin PocketCard™ Diabetes Education Services Pinnacle Success Get Our Free CDCES Coach App

Action		Insulin Name	Onset	Peak	Effective Duration	Considerations
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Continuous Glucose Monitoring (CGM)

- Lowers A1c ~0.26% (compared to SMBG)
- Consider CGM in children to adults on insulin, pregnancy
- Useful tool in those frequent hypoglycemia or hypoglycemia unawareness (alarm features)
- Measures percent of time in, above and below range
- Given variable adherence to CGM, assess ind readiness

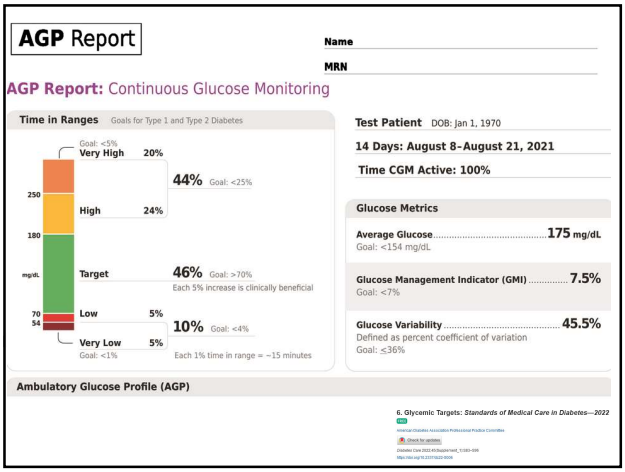
CGM uses interstitial glucose – correlates with plasma glucose
Report glucose in
- Real time or
- Or intermittent scanning "flash" (isCGM) like FreeStyle Libre

Diabetes Wise – Non-Profit Site

Ambulatory Glucose Report

- 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 under 25 years, with A_{1c} goal is < 7.5%, time-in-range target is set to about 60%.



Bolus Insulin and Carb Counting

- The insulin bolus covers the carbs consumed as evidenced by post meal glucose levels on target.
- The goal is to make sure that carb count is accurate, or else the person either
  - ends up taking too much or too little insulin
  - and glucose levels are above or below target.

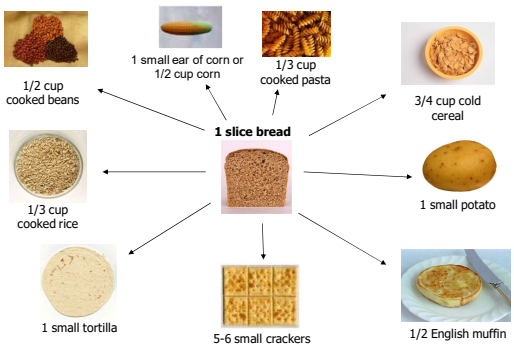
During the Embark Trial, many people were struggling with carb counting.

Write down what you ate:

- For breakfast today
- For dinner last night
- Which foods were carbs?

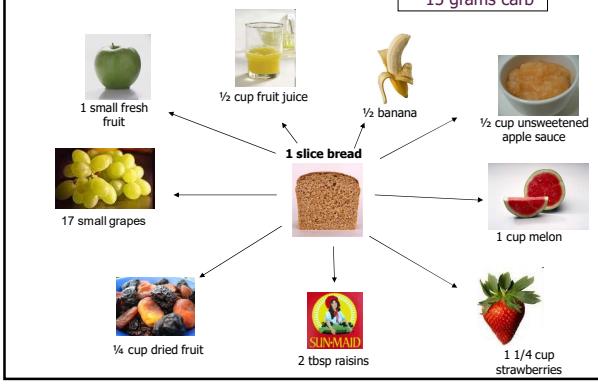
Carb counting- starch

Each Food has:
80 Calories
15 grams carb



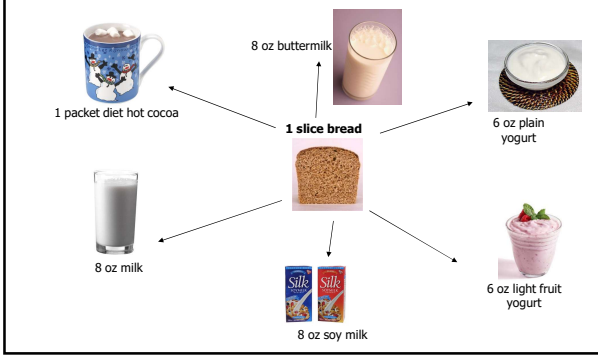
Carb counting- fruit

Each Food has:
60 Calories
15 grams carb



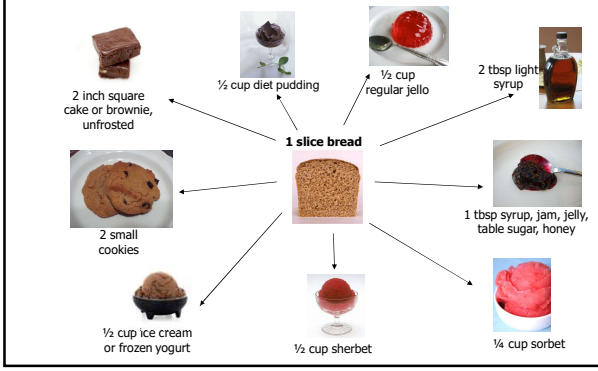
Carb counting- milk

Each Food has:
90-150 calories
12-15 grams carb



Carb counting - sweets

Each Food has:
Calories vary
15 grams carb



Bolus Dosing for Carbs – How Much?

You might want to ask the person you are working with, how much insulin would they give for each example.

Example: If carb ratio is 1 unit for each 15g CHO

Poll 3: How many grams of carb in this breakfast?

Poll 4: How many units of insulin for this breakfast?

Tips on Accurate Carb Counting

- Here are some strategies people can use to count carbs accurately (or come up with a really good estimate).
- Most people use a "best guess," but for checking the accuracy of carb ratios, the count needs to be very accurate.
- **Here are some helpful tools:**
  - Food labels
  - Phone apps (Calorie King, My Fitness Pal)
  - Websites
  - Carb counting books
  - Cookbooks
  - Fast food and chain restaurant brochures

Medic Alert – Just in Case

LaurensHope.Com

MedicAlert.org

Elegant Medical Alert

CHANGINGlife WITHDIABETES

Hypoglycemia (Low Blood Glucose)

Some Symptoms:

Causes: Too little food or skipping a meal; too much insulin or diabetes pills; more active than usual.

Onset: Often sudden.

IF LOW BLOOD GLUCOSE IS LEFT UNTREATED, YOU MAY PASS OUT AND NEED MEDICAL HELP.

Hypoglycemia: Identify, Treat, & Prevent

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

SCAN ME

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

www.DiabetesEd.net

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Treatment for Low Blood Sugars

Glucagon Rescue Medications for Diabetes-Related Hypoglycemia

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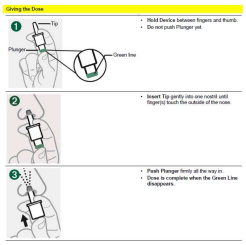
Name/Delivery	Supplied	Dose Range		Age / Route / Storage
		Adult	Peds / Age WT Dosing	
Glucagon Emergency Kit injection requires mixing glucagon powder	1mg / 1mL vial + syringe	1mg	0.03mg/kg or < 6yrs or < 25 kgs | 0.5mg ≥ 6yrs or > 25kgs | 1mg	All ages approved SubQ or IM admin Expires in 2 years at room temp.
Baqsimi Nasal glucagon powder	3 mg intranasal device	3 mg	< 4 yrs: not recommended 4 yrs or older | 3mg dose	Approved Age 4+ Nasal admin Expires ~ 2 years at room temp (keep in shrink-wrapped tube).
Gvoke Injectable liquid stable glucagon solution	0.5mg/1.0mg prefilled syringe or 0.5mg/1.0mg HypoPen auto-injector	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 (Zegalogue) 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.*

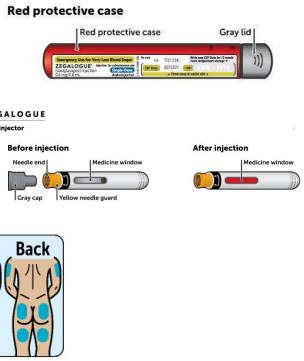
Nasal Glucagon - Baqsimi

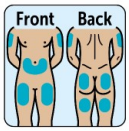
- Approved for ages 4 +
- Absorbed nasally
- No reconstitution or refrigeration needed
- Kept in temps up to 86
- Raises BG 67-73 mg/dl
- Don't use in those with
  - Pheochromocytoma
  - Insulinoma
  - See package insert



Gvoke HypoPen – Single dose injector

Dasiglucagon (Zegalogue)





Toolkit Detail Summary

Device/Med	Tips
Meter	▪ Ensure that strips are stored properly and are not expired. ▪ Ensure sample is not contaminated – fruit juice, lotion, etc. ▪ Use to double check CGM or if CGM is not in use
Insulin	▪ Check storage temperature and expiration date. ▪ Start new vial/pen at least once each month.
Insulin Pump	▪ Check tubing for air. ▪ Change set site every 3 days. ▪ Consider insulin flow interruption – crimped set.
Injection Site	▪ Rotate sites ▪ Avoid overused areas
CGM	▪ Calibrate if needed – best to do when BG is stable.

ABC's of Diabetes

- A1C less than 7% (individualize)
  - Pre-meal blood sugar 80-130
  - Post meal blood sugar <180
  - AGP - Time in Range (70-180) 70% of time
- Blood Pressure < 130/80
- Cholesterol – Age 40+, cholesterol medication recommended (statin)
  - LDL <70 (lousy cholesterol) if at higher risk
  - LDL <55 if had heart attack or stroke

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)

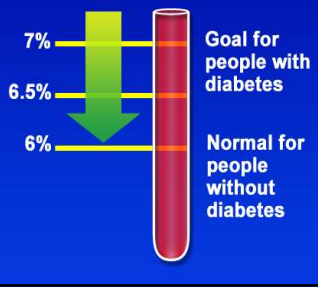
6. Glycemic Targets: *Standards of Medical Care in Diabetes—2020*

American Diabetes Association
Diabetes Care 2020 Jan; 43(Supplement 1): S66-S76.
https://doi.org/10.2337/dc20-S006

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

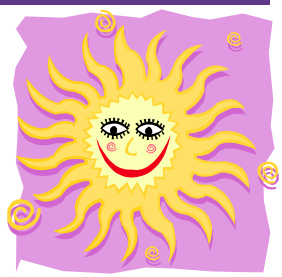
A1C Blood Test

This blood test checks the average blood glucose over the past 2 – 3 months

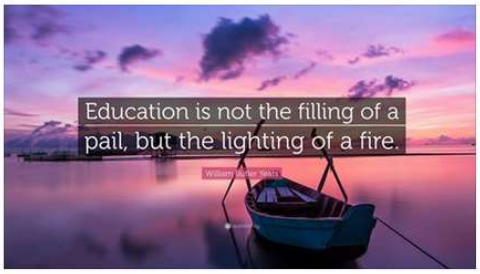


Why bother? Blood sugars matter!

- Every 1 point drop in A1c causes a 35% decrease in diabetes problems.
- By getting active and eating healthy.
- Medications like insulin, injections and pills help too.
- Keep your pancreas happy.
- It's worth it!



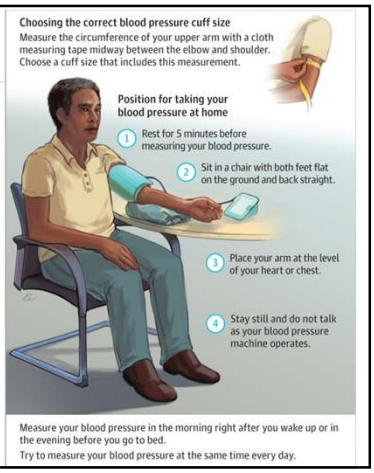
Motivation comes from within.



Rediscover the Spark

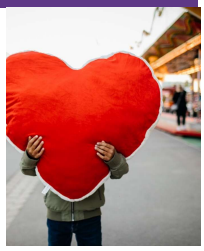
Blood Pressure is really important.

Goal is 130/80 or less (if safe for you).



Cholesterol Goals

- **Cholesterol** – If over 40 years, cholesterol medication (statin) + diet and exercise recommended.
- **Goals**
  - **LDL (lousy)**
    - LDL (lousy) cholesterol target less than 70 if at high risk
    - LDL cholesterol target less than 55 if had heart attack or stroke
  - Triglycerides less than 150
  - HDL (happy) more than 40



Statin Dosing

High Intensity:
Lowers LDL ≥50%

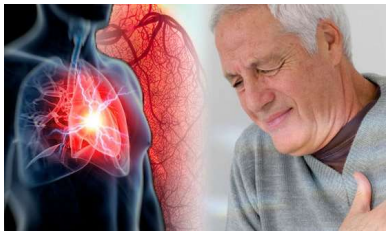
- Lipitor (atorvastatin)
  - 40-80mg
- Crestor (rosuvastatin)
  - 20-40mg

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

Moderate Intensity:
Lower LDL 30-<50%

- Lipitor (atorvastatin)
  - 10-20mg
- Crestor (rosuvastatin)
  - 5-10mg
- Zocor (Simvastatin)
  - 20-40mg
- Pravachol (pravastatin)
  - 40 – 80mg
- Mevacor (lovastatin) 40 mg
- Lescol (fluvastatin) XL 80mg
- Livalo (pitavastatin) 2-4mg

Cardiovascular Disease is the Leading Cause of Death in Diabetes



Stroke and Heart Attack

- Pain or discomfort in your arms, back, jaw, neck, or stomach
- Shortness of breathing
- Sweating
- Nausea
- Light-headedness

Make sure people with diabetes know the signs and seek immediate help.

People with diabetes may not experience intense chest or jaw pain during heart attack due to neuropathy.

DiaBingo- G

G ADA goal for A1c is less than ____%

G Blood pressure goal is less than

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

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 these kidney tests yearly
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
G Name 3 healthy foods to include in daily meal plan

Self Reflective Question

- A individual is admitted and tells you they are only taking their daily insulin injection about 4 times a week.
- What feelings would that evoke?
  - Patient doesn't care
  - Non-compliant
  - Lazy
  - Better scare them
  - Exasperation
  - Other feeling

curiosity

Language of Diabetes Education

Old Way	New Way
Control diabetes	Manage
Test BG	Check
Patient	Participant
Normal BG	BG in target range
Non-adherent, compliant	Focus on what they are accomplishing
Refuse	Decided, chose

American Diabetes Association, Diabetes Care
The Use of Language in Diabetes Care and Education, 2017

Language of Diabetes Education

Old Way	New Way
Can't, shouldn't, don't, have to	Have you tried…" What about…" May I make a suggestion…"
Regimen	Plan, choices
Refused	Declined, Chose not to
Victim, suffer, stricken	..lives with diabetes …has diabetes

American Diabetes Association, Diabetes Care
The Use of Language in Diabetes Care and Education, 2017

Life Study – Mrs. Jones

Mrs. Jones is 62 years old, with a BMI of 36 and complains of feeling tired and urinating several times a night. She has an urinary tract infection. Her A1c is 8.3%, glucose 237.

She is hypertensive with a history of gestational diabetes. No ketones in urine.

- What are her risk factors and signs of diabetes?
- You find a few moments to teach and she asks you some questions.

Mrs. Jones asks you What Do You Say?

- What is diabetes?
- They say I am a diabetic because I am obese?
- How am I going to control this?
- What is a normal blood sugar?
- Do I have to test my blood sugars?
- My doctor told me to stay away from white foods. Is that true?

Mrs. Jones asks you
What Do You Say?

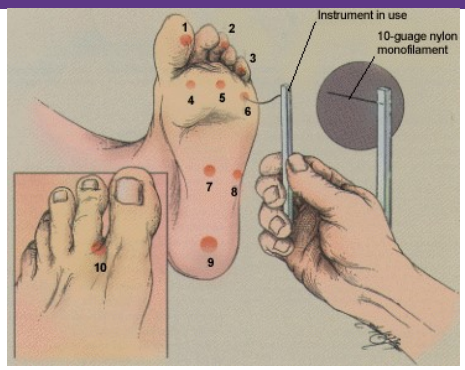
- You are wondering if your weight caused your diabetes?
- You can manage your diabetes and improve your health at the same time.
- For people without diabetes, fasting blood sugar is less than 100 and A1c is less than 5.7%
- Checking blood sugars can help you figure out if the plan in working.

Lower Extremities

- Lift the Sheets and Look at the Feet

No Bathroom Surgery

5.07 monofilament = 10gms linear pressure



Three Most Important Foot Care Tips

Inspect and apply lotion to your feet every night before you go to bed.

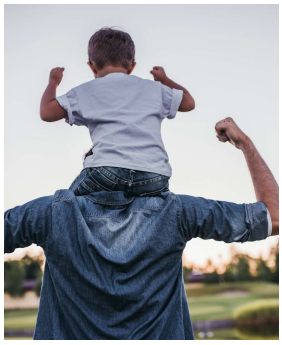
Do NOT go barefoot, even in your house. Always wear shoes!

Every time you see your provider, take off your shoes and show your feet.

Diabetes Education SERVICES

Let's Be Health Warriors

- Every day actions make a big difference
- Protect against health issues and improve outcomes if you do have an event.
- Keep strong.



Good Exercise Info

- **"Passagiata" – take an after meal stroll**
- Exercise decreases A1c 0.7%
- No change in body wt, but 48% loss in visceral fat
  - ADA PostGrad 2010

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

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

Financial Advisor

- Mid 30s, friendly, he smiles to greet you and you notice his gums are inflamed. He tells you he has prediabetes and is worried that he might have diabetes soon,
- If you could give him some health-related suggestions, what would they be?

Your teeth need extra special attention

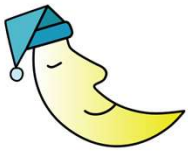
- Goal: Brush teeth at least twice daily and floss at least once daily.
- See dentist at least yearly.
- Teeth cleaning twice a year.

Ditch the Nicotine Stick

- Goal: Quit Smoking (vaping) and Don't Start

Be a Sleep Warrior

- Make time for sleep
- Restorative
- Decreases hunger
- Lowers Blood Sugar
- Improves ability to cope



Goal: Get at least 7 hours of sleep a night.
You deserve it.

Best Shake For People with Diabetes

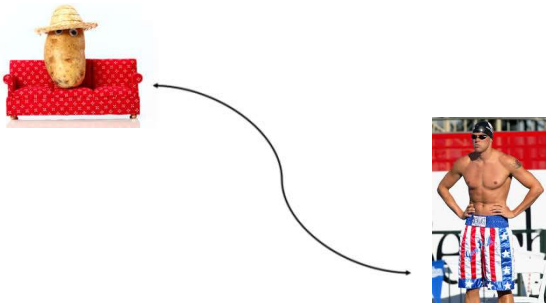
"The only diet shake I recommend is the shake your booty makes when you exercise."

From Debbie Nagata's slide collection

Keep Active

- Goal: Work toward 30 minutes of activity a day plus strengthening exercises twice a week.
- Don't forget balance too (Tai Chi, Yoga).

Where are you on this continuum?



A hard truth

- Exercise alone doesn't cause weight loss
- But….
  - It helps keep weight off
  - Decreases visceral fat
  - Decreases CV Risk
- To combat obesity, we need to change the food environment
- "You cannot outrun a bad diet"

Exercise benefits

- Sleep better.
- Less diabetes kidney disease, retinopathy
- Improved mood and vitality
- Improved sexual health
- Less urinary incontinence
- Better Knee health
- Less need for medications
- Decreased health care costs

Meds for Type 2 – Sulfonylureas and Metformin

- Sulfonylureas
  - Glipizide
  - Glyburide
  - Glimepiride (Amaryl)
- Lower A1C 1-2%
- Cheap ($4 month)
- Cause low blood sugar/ weight gain

- Metformin
  - Lowers A1C 1-2% points
  - Cheap ($4 a month)
  - Lowers LDL cholesterol
  - Take with meals
  - Use extended release to prevent nausea
  - Does not harm kidneys
  - Don't take if GFR less than 30

Meds – DPP-IV's and Actos

- DPP-IV's: Januvia, Onglyza, Tradjenta, Nesina
  - Lower A1C 0.6% -1.5
  - Expensive $600 /mo
  - No low blood sugar or weight gain.
  - Can cause joint pain (rare)

- TZD - Actos
  - Actos cost $35 a month
  - Lower A1C by ~1.0%
  - Can cause fluid weight gain
  - Not for people with heart failure
  - Actos is recommended post-stroke and for those with fatty liver

Move toward the Tomato

Immediately Improve Your Health
Eat Less Junk Food & Sugary Drinks –

- Less Processed Foods
- Less Sugary Beverages
  - increase visceral adiposity
  - With sugar or
  - High fructose corn syrup

Average American Consumes
25 teaspoons of sugar a day (400 cals)

- One soda has 12 teaspoons sugar
- ADA guidelines “limit sodas and beverages with sugar, High Fructose Corn Syrup, (HFCS)
- Goal- 6 teaspoons of sugar a day

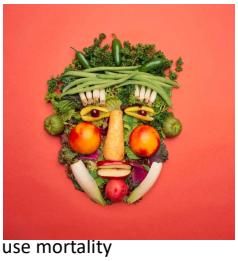
Your health can only get better

Fiber – the New "F" Word

- Goal:
  - 14 gms / 1000 calories ~ 30 gms a day
- How?
  - Whole, intact grains, beans, fruits, veggies, nuts, avocados
- Why?
  - Associated with lower mortality for people with type 2.
  - Fiber intake inversely associated with type 2 diabetes
- Avoid highly processed foods
  - If label says 0-2gms of fiber per serving, low fiber food.

Limit refined carbs and added sugars Instead eat more HIGH Fiber foods:

- High fiber carbs loaded with vitamins, minerals and phytonutrients
- 25+ gms of fiber a day
- Power Carbs include:
  - Beans
  - Veggies
  - Fruits
  - Whole grain foods



Associated with decrease in all cause mortality

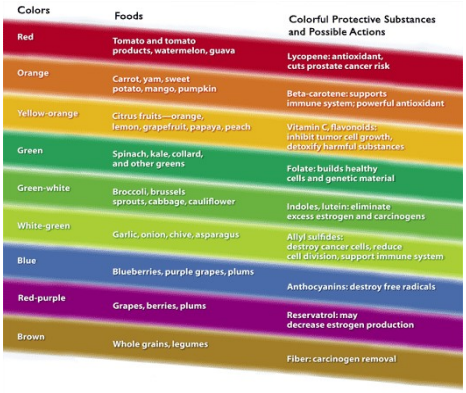
Improves microbial diversity

Super Foods

Found in the pigments, chemicals, and fiber of plants

Sources include:

- Greens: Kale, spinach, bok choy
- Deep orange fruit and veggies: carrots, winter squash, apricots, sweet potatoes
- Red and purple fruits and veggies: berries, beets, plums, red grapes and red peppers
- Nuts, onions, citrus, cruciferous vegetables, dark chocolate!



10 Super Foods

- Beans
- Dark Green Leafy Vegs
- Citrus Fruit
- Sweet Potatoes
- Berries
- Tomatoes
- Fish High in Omega-3 Fatty Acids
- Whole Grains
- Nuts
- Fat-Free Milk and Yogurt

USDA Food Pyramid
www.myplate.gov

Balancing Calories

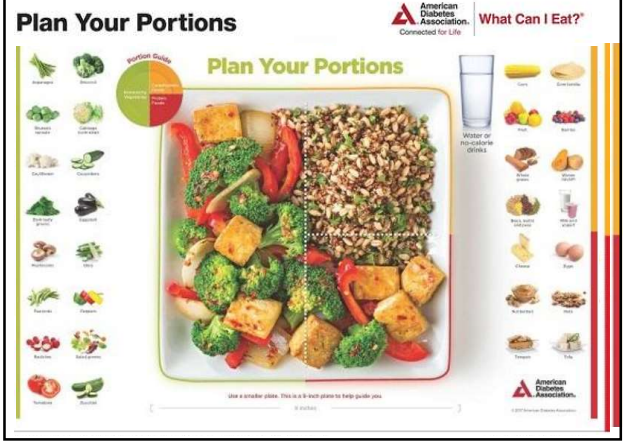
- Enjoy your food, but eat less.
- Avoid oversized portions.

Foods to Increase

- Make half your plate fruits and vegetables.
- Make at least half your grains whole grains.
- Switch to fat-free or low-fat (1%) milk.

Foods to Reduce

- Compare sodium in foods like soup, bread, and frozen meals — and choose the foods with lower numbers.
- Drink water instead of sugary drinks.



Handy Meal Plan

- Per Meal Serving
  - Each finger = 15 gms carb (can have 3-4 servings/meal)
  - Palm of hand = 3 oz's protein
  - Thumbnail = 1 tsp fat serving

Enjoy the Ultimate Beverage – H20

- Goal: Keep hydrated by enjoying plenty of water

Goals for Diabetes

- **A1C** – less than 7%
  - Premeal sugar target is 80-130
  - 1-2 hours after a meal, less than 180
- **Blood Pressure** – less than 130/80
- **Cholesterol** – If over 40, cholesterol medication + diet and exercise recommended
  - LDL (lousy) cholesterol target less than 70 if at high risk
  - LDL cholesterol target less than 55 if had heart attack or stroke
- **Drugs** – Know the medications you are taking, keep updated list on phone or paper and
- **Eyes** – Get checked yearly, report any vision changes
- **Feet** – Check them daily, and if you notice and sores or infection, let your provider know
- **Food** - Healthy eating, more fiber, vegetables, beans, whole grains, fruits. Meet with dietitian.
- **Kidneys** – Check for kidney health annually by knowing your:
  - GFR (goal is more than 60) and
  - UACR (urine test) with goal of less than 30 mg/gm.

Collaborate with Health Care Team

- Learn about diabetes
- Be familiar with your health /labs
- Ask what action you can take to improve your health
- Referrals as needed
- Your interest increases engagement

- Keep an eye on the ABC's of your diabetes.

Diabetes Bingo
"DiaBingo" Shout out Right Answer

DiaBingo - N

N DPP demonstrated that exercise and diet reduced risk of DM by__%
N Average A1c of 7% = Avg BG of ____
N An _____a day can help prevent heart attack and stroke
N Scare tactics are effective at motivating behavior
N Losing ___ % of body weight, can improve blood glucose, BP, lipids
N Drugs that can cause hyperglycemia
N 2/3 cups of rice equals _____ serving carbohydrate
N One % drop in A1c reduces risk of complications by ___ %
N 1 gm of fat equal _____kilo/calories
N Metabolic syndrome = hyperinsulinemia, hyperlipidemia, hypertension
N Average American consumes 15 teaspoons of sugar a day.
N Medication that was derived from the saliva of the Gila Monster

Look Beyond Diabetes

- ACE – Adverse Childhood Experiences
- Feelings around their diabetes
- Cultural traditions, family system.
- Social, religious and employment influences
- Personal factors: attitudes, cognitive factors, literacy, learning styles, health beliefs
- Depression, anxiety
- Mental illness
- Addiction issues

Look Beyond – What impacts DSM

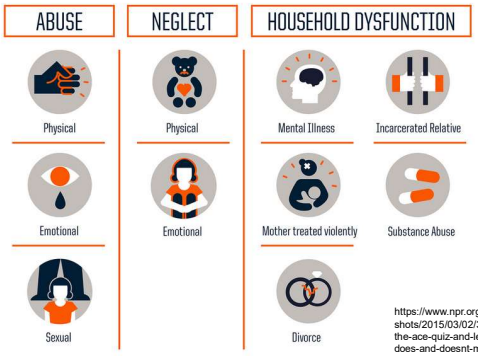
- Improving diabetes treatment outcomes requires looking at multiple factors:
  - Living situation
  - Adequacy of medical management
  - Duration of diabetes
  - Weight gain / weight loss
  - Other health related problems
  - Social structural factors
  - Childhood trauma – Adverse Childhood Experiences

Question - What is ACE?

- ACE =
  - Adverse
  - Childhood
  - Experiences
    - (before 18 yrs)
- What is the relationship between childhood trauma, diabetes and health?

www.AcesAware.org

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

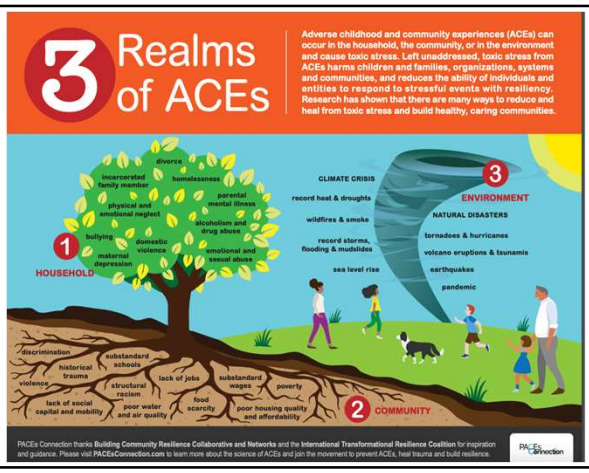


https://www.npr.org/sections/health-shots/2015/03/02/387007941/take-the-ace-quiz-and-learn-what-it-does-and-doesnt-mean

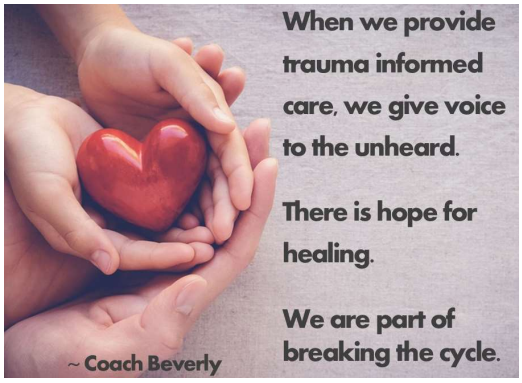
ACE increases risk for 9 out of 10 leading causes of death in US

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

https://www.cdc.gov/vitalsigns/aces/index.html



The Act of Recognition is Healing



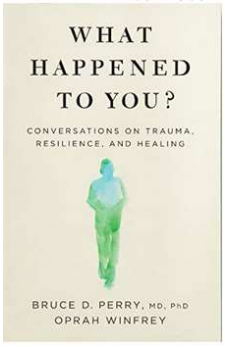
Helping with Healing

How do you manage your triggers?

How can you show yourself the same compassion you show others?

Quotes from "What Happened to You?"

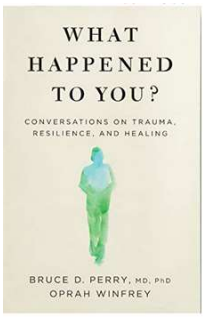
- The lesson is that no matter what has happened, you get a chance to rewrite the script.
  (You are not your number.)
- I wouldn't be who I am without my trauma, so I own it.
- I use my trauma in service to others - empathy, compassion and forgiveness.



Quotes from "What Happened to You?"

All of us who have been broken and scarred by trauma have the chance to turn those experiences into post-traumatic wisdom.

Forgive yourself, forgive them. Step out of your history and into the path of your future.



Remember by Joy Harjo – Poet Laureate

- Remember the earth whose skin you are: red earth, black earth, yellow earth, white earth, brown earth, we are earth.
- Remember the plants, trees, animal life who all have their tribes, their families, their histories, too. Talk to them, listen to them. They are alive poems.
- Remember the wind. Remember her voice. She knows the origin of this universe.
- Remember you are all people and all people are you.
  Remember you are this universe and this universe is you.
  Remember all is in motion, is growing, is you.
  Remember language comes from this.
  Remember the dance language is, that life is.
  Remember.

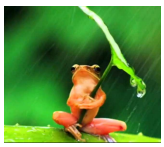
We are all connected

Keep Connected with friends and family who love you just the way you are!

- Goal: Self-care is important

Take moment to enjoy nature and find enchantment

- Goal: Step into nature daily. Moments of Awe



GREAT DREAM

Ten keys to happier living

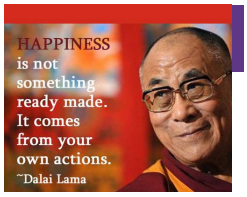
Action for Happiness has developed the 10 Keys to Happier Living based on a review of the latest scientific research relating to happiness.

Everyone's path to happiness is different, but the research suggests these ten things consistently tend to have a positive impact on people's overall happiness and well-being.

The first five relate to how we interact with the **outside** world in our daily activities. The second five come more from **inside** us and depend on our attitude to life.

GIVING	Do things for others
RELATING	Connect with people
EXERCISING	Take care of your body
APPRECIATING	Notice the world around
TRYING OUT	Keep learning new things
DIRECTION	Have goals to look forward to
RESILIENCE	Find ways to bounce back
EMOTION	Take a positive approach
ACCEPTANCE	Be comfortable with who you are
MEANING	Be part of something bigger

ACTION FOR HAPPINESS



"People will forget what you said, people will forget what you did, but people will never forget how you made them feel" ~ Maya Angelou

Actionforhappiness.org

Thank You – We DID IT

- Questions? Please email info@diabetesed.net
- Website www.DiabetesEd.net

Diabetes Education SERVICES