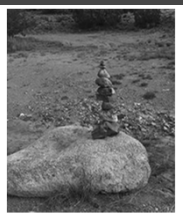
Exploring Diabetes – a Curiosity Based Approach

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

Schedule of Topics

- Where we are at with diabetes
- Patient Centered Approach
- Head to Toe



Spiritual Care

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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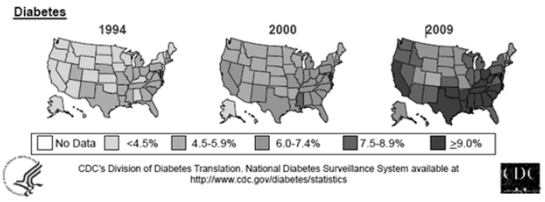
Diabetes in America 2016

- 29 million or > 9.3%
- 27% don't know they have it
- 37% of US adults have pre diabetes (86 mil)



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Why Should Zip Code Determine Life Expectancy?

California Endowment – look up your zip code at www.measureofamerica.org

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Table 2: Estimated Diagnosed Diabetes Prevalence (%) 2012-2013, NM BRFSS

Has a doctor, nurse, or other health professional EVER told you that you have diabetes?

	Percent of Adults			Percent of Adults
New Mexico	9.6		**Health Region**	
Female	9.2		Northwest	12.1
Male	10.1		Northeast	7.3
			Metro	8.8
Age Group			Southeast	11.0
18-39 years	2.0		Southwest	10.9
40-59 years	12.1			
60 years & older	20.1			
Household Income			**Race/Ethnicity**	
< $15,000	15.2		American Indian/Alaska Native	18.1
$15-24,999	11.8		Asian/Native Hawaiian /Other Pacific Isle*	8.4
$25-34,999	11.1		Black/African American	9.0
$35-49,999	9.4		Hispanic	12.6
> $50,000	5.8		White	6.1

Data Source: New Mexico Department of Health, Behavioral Risk Factor Surveillance System (BRFSS), 2012 & 2013. Two years of data are used to increase the reliability of some of the rates. All rates except age group rates are age-adjusted to the 2000 US standard.

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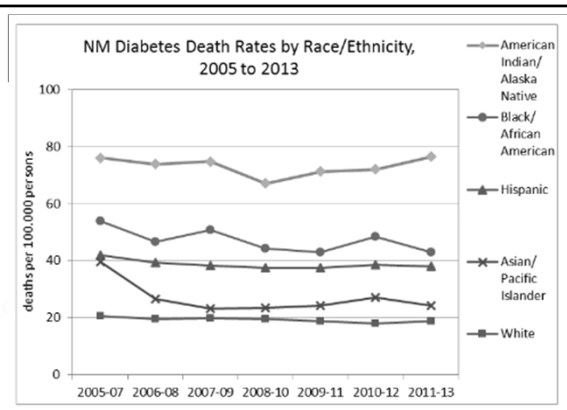

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Type 2 in Kids

TODAY Treatment Options for type 2 Diabetes in Adolescents & Youth

- 7 fold increase 1990
- 1 in 6 overwt kids (age 12- 19) have prediabetes.
- ~2,500 to 3,700 new cases in U.S. annually.
- Highest risk: very obese, minority, female, low socioeconomic status, limited education
- In age range 12-19, less than 1% have Type 2 – NHANES
- Environmental changes to urgently needed

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Global Epidemic

- Every 10 seconds
  - 1 person dies with diabetes
  - 2 people develop diabetes
- Every year
  - 3 million deaths
  - 6 million new cases
- World Diabetes Day is November 14
- March is ADA Sound the Alert Day "find people w/ undetected diabetes"

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World Diabetes Day

November 14

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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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Path to Type 2 Diabetes

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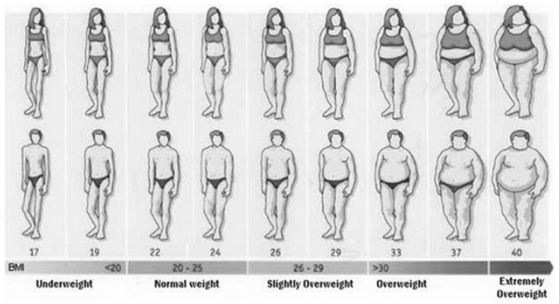
BMI Categories



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Patti Labelle

"divabetic"

"I have diabetes, it doesn't have me"

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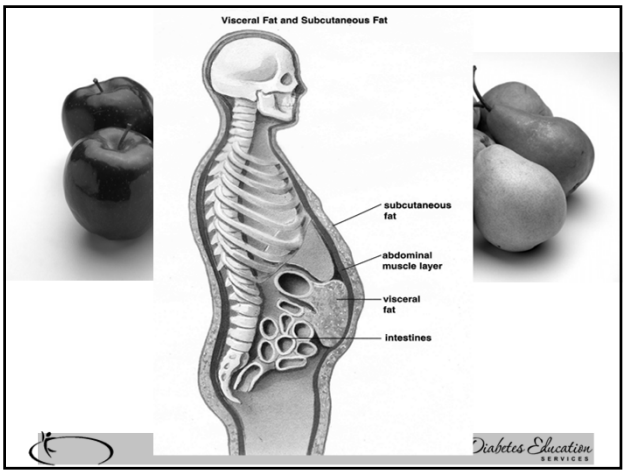

2. Classification and DM Diagnosis

- Pre Diabetes & Type 2- Screening Guidelines
- Start screening at age 45 or for anyone who is overweight (BMI ≥ 25, Asians BMI ≥ 23) with one or > additional **risk factor**:
  - First-degree relative w/ diabetes
  - Member of a high-risk ethnic population
  - Habitual physical inactivity
  - PreDiabetes
  - History of heart disease

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Diabetes 2 - Who is at Risk?

(ADA Clinical Practice Guidelines)

Risk factors cont'd

- HTN - BP > 140/90
- HDL < 35 or triglycerides > 250
- baby >9 lb or history of Gestational Diabetes Mellitus
- Polycystic ovary syndrome (PCOS)
- Other conditions assoc w/ insulin resistance:
  - Severe obesity, acanthosis nigricans (AN)

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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

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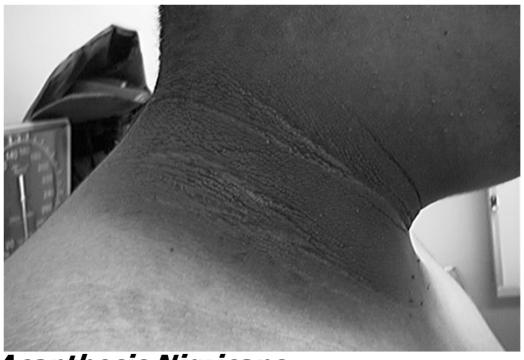

Acanthosis Nigricans

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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

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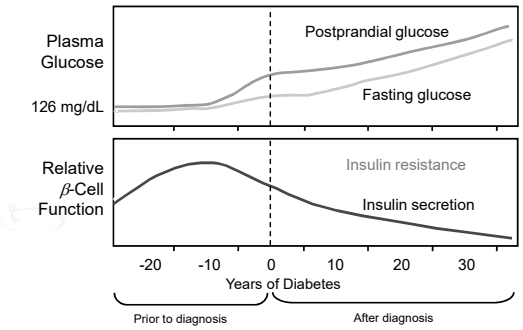
Natural Progression of Type 2 Diabetes



Adapted from Bergenstal et al. 2000; International Diabetes Center.

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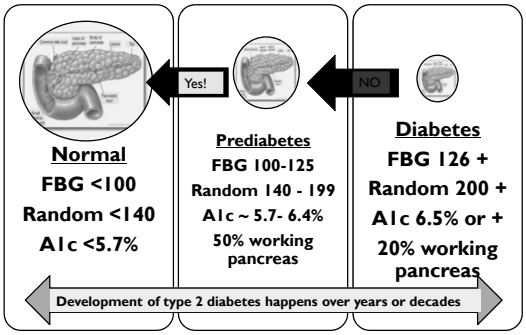
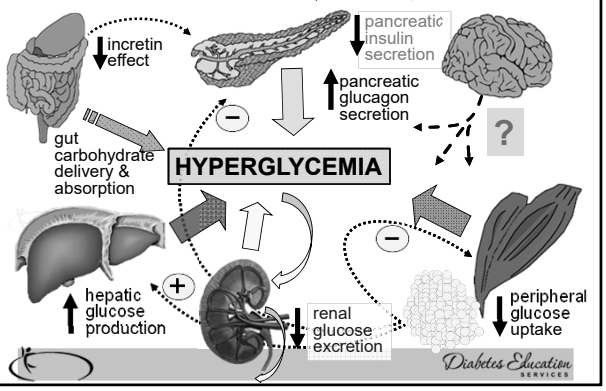
Natural History of Diabetes



Multiple, Complex Pathophysiological Abnormalities in T2DM

Adapted from: Inzucchi SE, Sherwin RS in: *Cecil Medicine* 2011



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DiaBingo

B Frequent skin and yeast infections
B A BMI of ____ or greater is considered overweight
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 Elevated triglycerides, < HDL, smaller dense LDL
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

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Life Study – Mrs. Jones

Mrs. Jones is 62 years old, overweight and complaining of feeling tired and urinating several times a night. She is admitted with a urinary tract Infection. Her WBC is 12.3, glucose 237. She is hypertensive with a history of gestational diabetes. No ketones in urine.

- What are her risk factors, signs of diabetes
- What type of diabetes does she have?
- Does she have insulin resistance?

What Do You Say? Mrs. Jones asks you

- What is type 2 diabetes?
- Will this go away?
- Will I get complications?
- Will I need to take diabetes medication for the rest of my life?
- How come I got diabetes?
- Do I have to check my blood sugars?

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Strategies – One Baby Step at a Time

Pause

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No one is Unmotivated

…. to lead and long and healthy life

- **These are the 3 usual Critical Barriers**
  - Perceived worthlessness
  - Too many personal obstacles
  - Absence of support and resources

Bill Polonsky, PhD, CDE

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Overcoming barriers

- Confront the key misbelief. Ask the question, does dm cause complications?
- Offer pts evidence based hope message –
- Frequent contact
- Paired glucose testing
- Ask pt, "Tell me 1 thing that is driving you crazy about your diabetes"
- Discuss medication beliefs
- To improve outcomes, see pts more often

Bill Polonsky, PhD, CDE

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How Often Should I Check?

- Be realistic!!
- Type 2 on orals – Medicare covers 100 strips for 3 months
- Based on individual - Consider:
  - Types and timing of meds
  - Goals
  - Ability (physical and emotional)
  - Finances / Insurance

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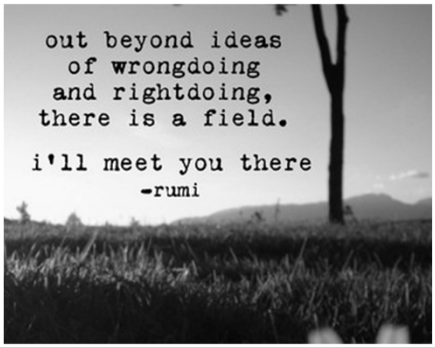
Give the gift of Non-Judgment



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Complications - Why?

- Degree of hyperglycemia "glucose toxicity"
- Duration of hyperglycemia
- Genes
- Multiple risk factors: smoking, vascular disease, dyslipidemia, hypertension, other

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Control Matters

- **Prevention**
- **Trials**
- **Practice Recommendations**

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Financial Advisor

- Mid 30s, friendly, he smiles to greet you and you notice his gums are inflamed. You'd guess a BMI of 26 or so, with most of the extra weight in the waist area.
- If you could give him some health related suggestions, what would they be?

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Can Type 2 be Prevented in Older Adults?

- Physical activity (30 mins a day)
- Dietary score (higher fiber intake, low saturated fat and *trans*-fat, lower mean glycemic index)
- Not Smoking
- Alcohol use (up to 2 drinks a day);
- BMI <25 and waist circumference

Dariush Mozaffarian, MD,
Arch Intern Med. 2009;169(8):798-807.

Overall, 9 of 10 new cases of diabetes attributable to these 5 lifestyle factors.

89% risk reduction when all at goal.

35% rel risk reduction for each additional

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Exercise – Getting Active

- "Physical activity is the closest thing we have to a wonder drug,"
- "Being active is one of the most important things people of all ages, sizes, and shapes can do to improve their health."
- *Dr. Thomas Frieden, Director of CDC*

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Exercise Recommendations

- **Activity update –Don't sit more than 90 minutes**
- Evidence supports that everyone, including with diabetes should be encouraged to reduce sedentary time, by not sitting for more than 90 minutes at a time.
- It is recommended that people with pre diabetes and diabetes engage in 150 minutes of activity a week and at **least 2 weekly sessions of resistance exercise.**

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Good Exercise Info / Quotes

- 20 % of people walk 30 mins a day
- Exercise decrease A1c 0.7%
- No change in body wt, but 48% loss in visceral fat
  - ADA PostGrad 2010

- "If you don't have time for exercise, you better make time for disease."

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

Mike Huckabee

Can we stop pre diabetes from progressing?

3, 234 people w/ Pre-Diabetes randomized:

- Placebo
- Diet/Exercise or
- Metformin

over a three year period

Diabetes Prevention Program (DPP) 2001

NATIONAL Diabetes PREVENTION PROGRAM

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Diabetes Prevention Program

- Standard Group - 29% developed DM
- Lifestyle Results - 14% developed DM
  - 58% (71% for 60yrs +) Risk reduction
    - 30 mins daily activity
    - 5-7% of body wt loss
- Metformin 850 BID - 22% developed DM
  - 31% risk reduction (less effective with elderly and thinner pt's)

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Weight loss and Prevention

- For every 2.2 pounds of weight loss, risk of type 2 diabetes was reduced by 13%.

NATIONAL Diabetes PREVENTION PROGRAM

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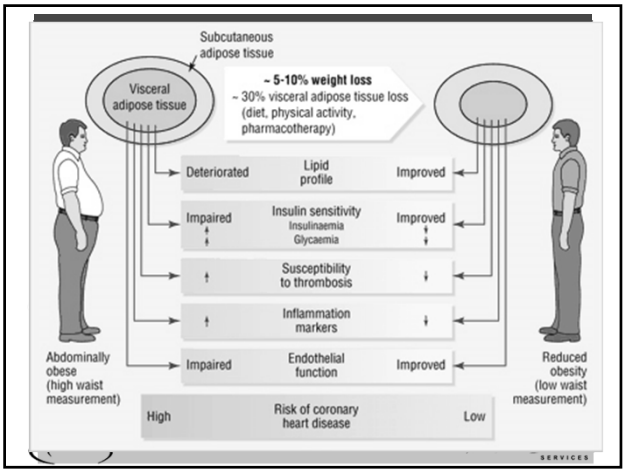

ABCs of Diabetes –

- A1c less than 7% (avg 3 month BG)
  - Pre-meal BG 80-130
  - Post meal BG <180
- Blood Pressure < 140/90
- Cholesterol
  - DM and 40 yrs, start statin
  - HDL >40
  - Triglyceride < 150
- E xercise, Education
- H ealthy Eating

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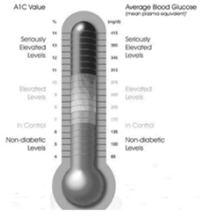
Glycemic Targets - ADA

- **Adult non pregnant A1c goals**
  - **A1c < 7%** - a reasonable goal for adults.
  - **A1c < 6.5%** - may be appropriate for those without significant risk of hypoglycemia or other adverse effects of treatment.
  - **A1c < 8%** - may be appropriate for patients with history of hypoglycemia, limited life expectancy, or those with longstanding diabetes and vascular complications.



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A1c and Estimated Avg Glucose (eAG) 2008

A1c (%)	eAG
5	97
6	126
7	154
8	183
9	212
10	240
11	269
12	298

Order teaching tool kit free at diabetes.org

eAG = 28.7 x A1c-46.7 ~ 29 pts per 1%

Translating the A1c Assay Into Estimated Average Glucose Values – ADAG Study
Diabetes Care: 31, #8, August 2008

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Older Adults - Considerations

- Reduced life expectancy
- Higher CVD burden
- Reduced GFR
- At risk for adverse events from polypharmacy
- More likely to be compromised from hypoglycemia

- ✓**Less ambitious targets**
- ✓**A1c <7.5–8.0%**
- ✓**Focus on drug safety**

Diabetes Care 2012;35:1364–1379
Diabetologia 2012;55:1577–1596

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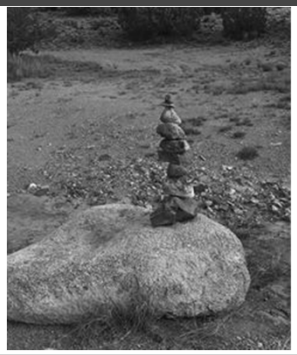
Diabetes and the Cairn



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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 my HDL cholesterol is more than

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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Antihyperglycemic Therapy – 1st Step

- Lifestyle Changes
  - Weight control
  - Healthy eating
  - Activity

ADA-EASD Position Statement: Management of Hyperglycemia in T2DM

Diabetes Care **2012;35:1364–1379**
Diabetologia **2012;55:1577–1596**

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Patient Centered Approach

"...providing care that is respectful of and responsive to individual patient preferences, needs, and values - ensuring that patient values guide all clinical decisions."

- **Gauge patient's preferred level of involvement.**
- **Explore, where possible, therapeutic choices.**
- **Utilize decision aids.**
- **<u>Shared</u> decision making – final decisions re: lifestyle choices ultimately lie with the patient.**

ADA-EASD Position Statement: Management of Hyperglycemia in T2DM

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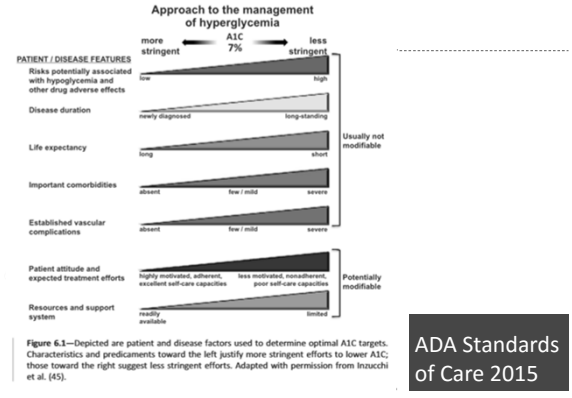

Figure 6.1—Depicted are patient and disease factors used to determine optimal A1C targets. Characteristics and predicaments toward the left justify more stringent efforts to lower A1C; those toward the right suggest less stringent efforts. Adapted with permission from Inzucchi et al. (45).

ADA Standards of Care 2015

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Treating Hyperglycemia with Meds

- For all of the following case studies, we assume we are providing ongoing education on lifestyle – including referral to the Diabetes Ed Team and other resources.
- In describing what meds match the patient best, we act as patient advocates and consultants to providers.

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Life Study

- 61 year old overweight woman with type 2 diabetes 3 months. Has been trying to control diabetes with diet and exercise. GFR in 90s. Worried about weight gain.
- Most recent A1c 6.9%
  - ADA
  - AACE
  - Cash pay or
  - Good insurance

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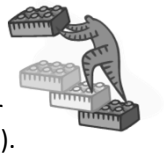
ADA Step Wise Approach to Hyperglycemia 2015



- Start with lifestyle coaching
- When lifestyle alone is not achieving A1c goal – Metformin should be added at, or soon after diagnosis (unless contraindicated).
- Metformin has a long standing evidence base for efficacy and safety, is cheap and may reduce CV risk.

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Other Considerations

- Cost
- Hypoglycemia
- Age
- Weight
- Comorbidities
  - Kidney disease
  - Heart disease – CHF, CAD
  - Liver dysfunction

ADA-EASD Position Statement: Management of Hyperglycemia in T2DM

Diabetes Care **2012;35:1364–1379**
Diabetologia **2012;55:1577–1596**

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Oral Diabetes Medications

Diabetes Education SERVICES — 15 years

Class/Main Action	Name(s)	Daily Dose Range	Considerations
Biguanides • Decrease hepatic glucose output • First line med at diagnosis of type 2	metformin (Glucophage)	500 – 2500 mg (usually BID w/meal)	Side effects: nausea, bloating, diarrhea. Use XR to minimize. Lactic acidosis precaution: avoid in pts with creat >1.4 women, 1.5 men, during illness or surgery. Benefits: decreased cholesterol, no wt gain or hypoglycemia. Lowers A1c 1.0% – 2.0%.
	Extended Release-XR (Glucophage XR) (Glumetza) (Fortamet)	(1x daily w/dinner) 500 – 2000 mg 500 – 2000 mg 500 – 2500 mg	
Sulfonylureas • Stimulates sustained insulin release	glyburide: (Micronase, Diabeta) (Glynase)	1.25 – 20 mg 0.75 – 12 mg	Can take once or twice daily before meals. Side effects include hypoglycemia and weight gain. Eliminated via kidney. **Caution:** Glyburide most likely to cause hypoglycemia. Lowers A1c 1.0% – 2.0%.
	glipizide: (Glucotrol) (Glucotrol XL)	2.5 – 40 mg 2.5 – 20 mg	
	glimepiride (Amaryl)	1.0 – 8 mg	
DPP – 4 Inhibitors • "Incretin Enhancers" • Prolongs action of gut hormones • Increases insulin secretion • Delays gastric emptying	sitagliptin (Januvia)	100 mg daily (eliminated via kidney*)	*If creatinine elevated, see pkg insert for dosing info. No wt gain or hypoglycemia. Side effects include nasopharyngitis, headache and upper-respiratory tract infection. Report signs of pancreatitis (abdominal pain, nausea, vomiting). Lowers A1c 0.6% – 0.8%.
	saxagliptin (Onglyza)	Up to 5 mg daily (eliminated via kidney*, feces)	
	linagliptin (Tradjenta)	5 mg daily (eliminated via feces)	
	alogliptin (Nesina)	25 mg once daily (eliminated via kidney)	

More medications on back. Note: These meds are for people with Type 2 diabetes and should not be used during pregnancy. Content is for educational purposes only: please consult prescribing information for details.

REV 01/2015 ©2015

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A Diabetes PocketCard® from Diabetes Education Services

Class/Main Action	Name(s)	Daily Dose Range	Considerations
SGLT2 Inhibitors • Decrease glucose reabsorption in kidneys • "Glucoretic"	Canagliflozin (Invokana) Dapagliflozin (Farxiga) Empagliflozin (Jardiance)	100 – 300 mg 1x daily 5 – 10 mg 1x daily 10 – 25 mg 1x daily	For all, monitor B/P, K+ and renal function. If GFR<45, stop Invokana. If GFR<60, stop Farxiga. Do not start pts w/ GFR<45 on Jardiance. Side effects: hypotension, UTIs, increased urination, genital infections. Avoid Farxiga in pts w/ bladder cancer. Lowers A1c 0.7% – 1.5%, lowers wt 1 – 3 lbs.
Thiazolidinediones "TZDs" • Increase insulin sensitivity	pioglitazone (Actos) rosiglitazone (Avandia)	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%
Glucosidase Inhibitors • Delay carb absorption	acarbose (Precose) miglitol (Glyset)	25 – 100 mg w/meals; 300 mg max daily dose	Start low dose, increase at 4-8 wk intervals to decrease GI effects. Caution with liver or kidney problems. In case of hypo, treat w/ glucose tabs. Lowers A1c 0.5– 1.0%.
Dopamine Receptor Agonists • Resets circadian rhythm	bromocriptine mesylate—Quick Release "QR" (Cycloset)	1.6 to 4.8 mg a day (each tab 0.8 mg)	Take within 2 hrs of waking. Side effects: nausea, headache, fatigue, hypotension, syncope, somnolence. Lowers A1c 0.6% – 0.9%.
Meglitinides • Stimulates rapid insulin burst	repaglinide (Prandin) nateglinide (Starlix)	0.5 – 4 mg w/meals (metabolized in liver) 60 – 120 mg w/meals (eliminated via kidney)	Take before meals. Side effects may include hypoglycemia and weight gain. Lowers A1c 1.0% – 2.0%.

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Diabetes Education Services
(530) 893-8635
Beverly Dyck Thomassian
RN, MPH, BC-ADM, CDE

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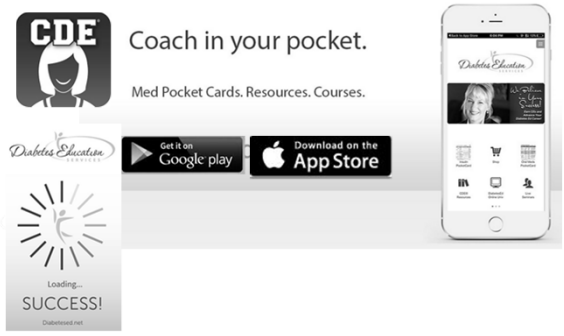
Injectables That Lower Glucose

Class/Main Action	Name	Dose Range	Considerations
GLP-1 Agonist "Incretin Mimetic" • Increases insulin release with food • Slows gastric emptying • Promotes satiety • Suppresses glucagon Lowers A1c 0.5 – 1.6% Wt loss of ~ 3lbs	exenatide (Byetta)	5 or 10 mcg BID (renally excreted)	**Side effects for all:** Nausea, vomiting, weight loss, injection site reaction. Report signs of acute pancreatitis (severe abdominal pain, vomiting), stop med. **Black box:** Thyroid C-cell tumor warning for liraglutide, exenatide XR, albiglutide, and dulaglutide (avoid if family history of medullary thyroid cancer, notify MD of hoarseness, throat lump).
	exenatide XR (Bydureon)	2mg 1x a week (renally excreted)	
	liraglutide (Victoza)	0.6 - 1.8 mg daily	
	albiglutide (Tanzeum)	30 and 50 mg 1x a week pen injector	
	dulaglutide (Trulicity)	0.75 and 1.5 mg 1x a week pen injector	
Amylin Mimetic • Slows gastric emptying • Supresses glucagon • Promotes satiety Lowers A1c 0.5 – 1%	pramlintide (Symlin)	Type 1: 15 - 60 mcg; Type 2: 60 - 120 mcg immediately before major meals	For Type 1 or 2 on insulin. **Black box warning:** severe hypoglycemic risk 3 hrs post injection. Prevent hypoglycemia, decrease insulin dose when starting pramlintide. Side effects: nausea, weight loss.

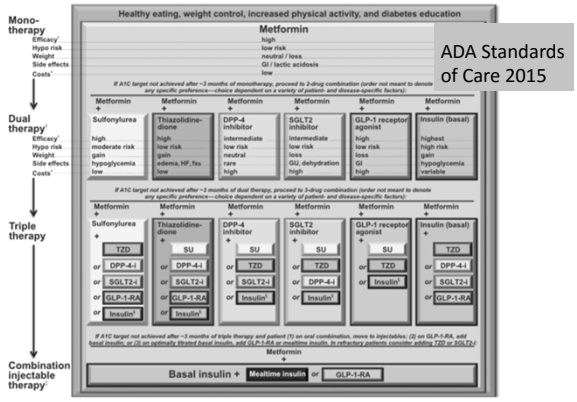
The information listed here are general guidelines only; please consult prescribing information for details.

Diabetes Education SERVICES

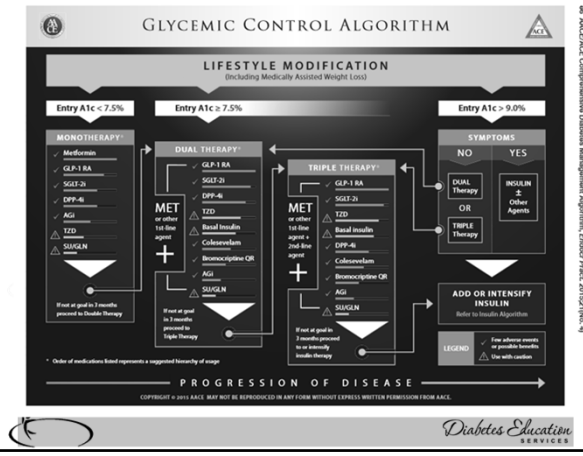
CDE® Coach App – Download Success



Diabetes Education SERVICES



ADA Standards of Care 2015



When goal is to avoid weight gain

- These meds are weight neutral
  - Metformin
  - DPP-IV Inhibitors: Januvia, Onglyza, Tradjenta, Nesina
  - Acarbose
- These meds associated with wt loss
  - GLP-1 agonists (Byetta, Bydureon, Victoza, Tanzeum, Trulicity)
  - SGLT-2 Inhibitors (Canagliflozin, Dapagliflozin, Empagliflozin)
  - Symlin (Pramlintide)

When goal is to minimize cost

- Go generic.
- Oral Meds -Metformin and Sulfonylureas
  - Walmart offers 3 mo supply of following meds for ~ $10
    - Metformin and Metformin XR
    - Glipizide, Glyburide, Glimepiride
- Insulins – Oldies but Goodies
  - NPH, Regular, 70/30 mix
  - $25 a vial at Walmart – ReliOn
  - Vials and needles cheaper

Diabetes Education SERVICES

Life Study

- 61 year old overweight woman with type 2 diabetes 3 months. Has been trying to control diabetes with diet and exercise. GFR in 90s. Worried about weight gain.
- Most recent A1c 6.9%
  - ADA
  - AACE
  - Cash pay
  - Good insurance
- Solutions?

Diabetes Education SERVICES

Life Study

- 61 year old overweight woman with type 2 diabetes 3 months. Has been trying to control diabetes with diet and exercise. GFR in 90s. Worried about weight gain.
- Most recent A1c 6.9%
  - ADA
  - AACE
  - Cash pay
  - Good insurance
- Solutions?
  - Consider no meds, monitor or start Metformin (ADA - Cash)
  - Start Metformin 500 mg 1-2 x a day (AACE)
  - If can't tolerate metformin, good insurance, consider?

Diabetes Education SERVICES

Life Study

- 54 year old smoker, has CVD disease, creatinine 1.2, BMI 27. Not checking BG, even though he has glucose meter. On Metformin 500mg BID for past 4 months. Had bad experience with hypoglycemia on glyburide.
- Most recent A1c 7.9%
  - ADA
  - AACE
  - Cash pay
  - Good insurance

Diabetes Education SERVICES

When goal is to avoid Hypoglycemia

- Avoid sulfonylureas
- Careful insulin dosing
- May need to up adjust glucose goals
- Monitor kidney function
- Reinforce for patients on insulin to "TIE"
  - Test
  - Inject
  - Eat

Diabetes Education SERVICES

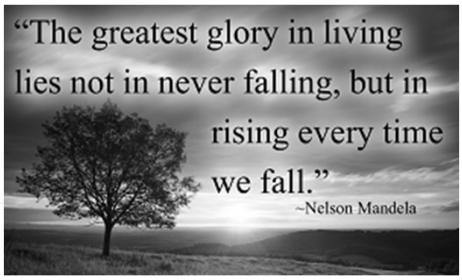
Life Study

- 54 year old smoker, has CVD disease, creatinine 1.2, BMI 27. Not checking BG, even though he has glucose meter. On Metformin 500mg BID for past 4 months. Had bad experience with hypoglycemia on glyburide.
- Most recent A1c 7.9%
- Solution:
  - Change to Metformin XR and double dose
    - Good insurance? Add GLP-1 or SGLT-2

If cash pay, increase Metformin, if needed add insulin or glipizide

Diabetes Education SERVICES

Diabetes Vacations



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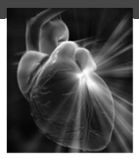
Other Meds Needed?

- 54 year old smoker, has CVD disease, creatinine 1.2, BMI 27. Not checking BG, even though he has glucose meter. On Metformin 500mg BID for past 4 months..
- Most recent A1c 7.9%
- Other Meds to protect against CVD?
  - In addition to LifeStyle Coaching

Diabetes Education SERVICES

8. Coronary Heart Disease



- In pts with known CVD, use:
  - Aspirin
  - Statin
  - B/P Med
    - Consider ACE Inhibitor to reduce risk of CV event
    - In pts with prior MI, Beta Blockers should be continued at least 2 years after the event
  - Don't use Actos or Avandia in pts with CHF
  - In pts with stable CHF, Metformin can be used in renal function normal and stable

Diabetes Education SERVICES

Life Study

- 71 year old woman with type 2 diabetes for past year. BMI 24. Has been trying to control diabetes by limiting carbs and exercise. Creat 1.6. Good social support.
- Most recent A1c 8.6%
  - She has great insurance or
  - She is cash pay or
  - She hates needles

Diabetes Education SERVICES

Life Study

- 71 year old woman type 2 diabetes. BMI 24. Has been trying to control diabetes by limiting carbs and exercise. Creat 1.6. GFR low 30s. Good social support.
- Most recent A1c 8.6%
- Solutions
  - Great insurance – GLP1, DPP-IV Inhibitor, Analog insulin
  - She is cash pay – Sulfonylurea or NPH or 70/30
  - She hates needles – Sulfonylurea, DPP-IV Inhibitor - if doesn't work, see if she will reconsider insulin, GLP1

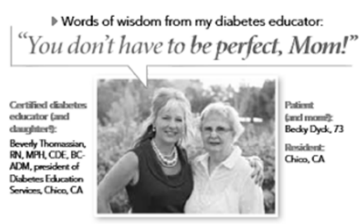
Diabetes Education SERVICES

Pattern Management

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

Diabetes

80 /20 Rule – Perfect Not Required



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DiaBingo - N

N DPP demonstrated that exercise and diet reduced risk of DM by ___%
N An _____a day can help prevent heart attack and stroke
N Rebound hyperglycemia
N Scare tactics are effective at motivating patients to change 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 A1c of 7% equals glucose of
N One % drop in A1c reduces risk of complications by ___ %
N 1 gm of fat equal _____kilo/calories

N Metabolic syndrome = hyperglycemia, hyperlipidemia, hypertension

N Average American consumes 25 teaspoons of sugar a day.

Diabetes Education SERVICES

Case Study

- 68 yr old, avid walker
- BMI 24, Weighs 90kg
- A1c – 8.6%, BG 270s during day for past wks
- On glyburide 10mg BID
- Doesn't have a glucose meter
- Tells you, "my foot hurts"

Diabetes Education SERVICES

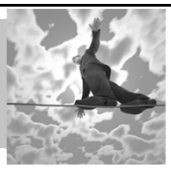
Diabetes and Lower Extremity Ulcers

- Up to 15% of DM patients have ulcers in their lifetime
- Mortality with foot ulcers is twice usual

Lower Extremity Amputations Dropping over past 10yrs

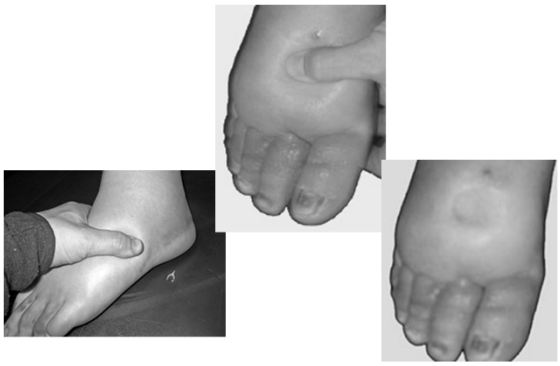
- 60% of amputations in 7% of pop
- Higher in men, elderly, minorities, Chronic Kidney Disease (CKD)
- Lower extremity complications represent 20% of hospitalizations for elderly
- Amputations cost $40,000
- Amputation associated w/ earlier death compared to revascularization
- 10 yr survival after LEA

Risk factors for Foot Ulcers/ Amputation

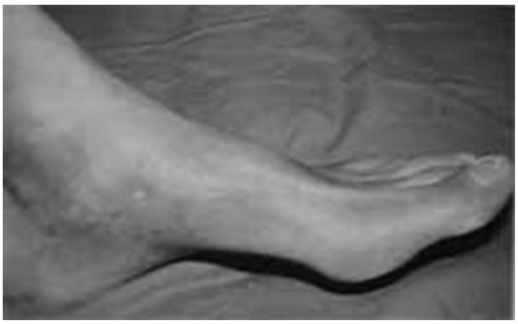


- Previous amputation
- Past foot ulcer history
- Peripheral neuropathy
- Foot deformity
- Peripheral vascular disease
- Visual impairment
- Diabetic nephropathy (especially patients on dialysis)
- Poor glycemic control
- Cigarette smoking
- ADA Task Force - 2008

Pitting Edema



Peripheral Arterial Disease Assessment



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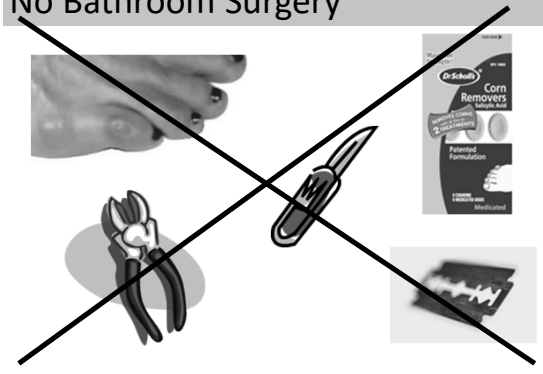
No Bathroom Surgery



You Can Make A Difference

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

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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 doctor, take off your shoes and show your feet. Report any foot problems right away!

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"Getting diabetes saved my life." ~ Sherri Sheperd

Sherri Shepard decided to embrace diabetes and use it as a motivator to improve her health.

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Patient Perspective Matters!

- **"I am no where."**

- **"I am now here!"**

PERHAPS FIGURING OUT
WHAT MATTERS MOST
MATTERS MOST

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Thank You

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