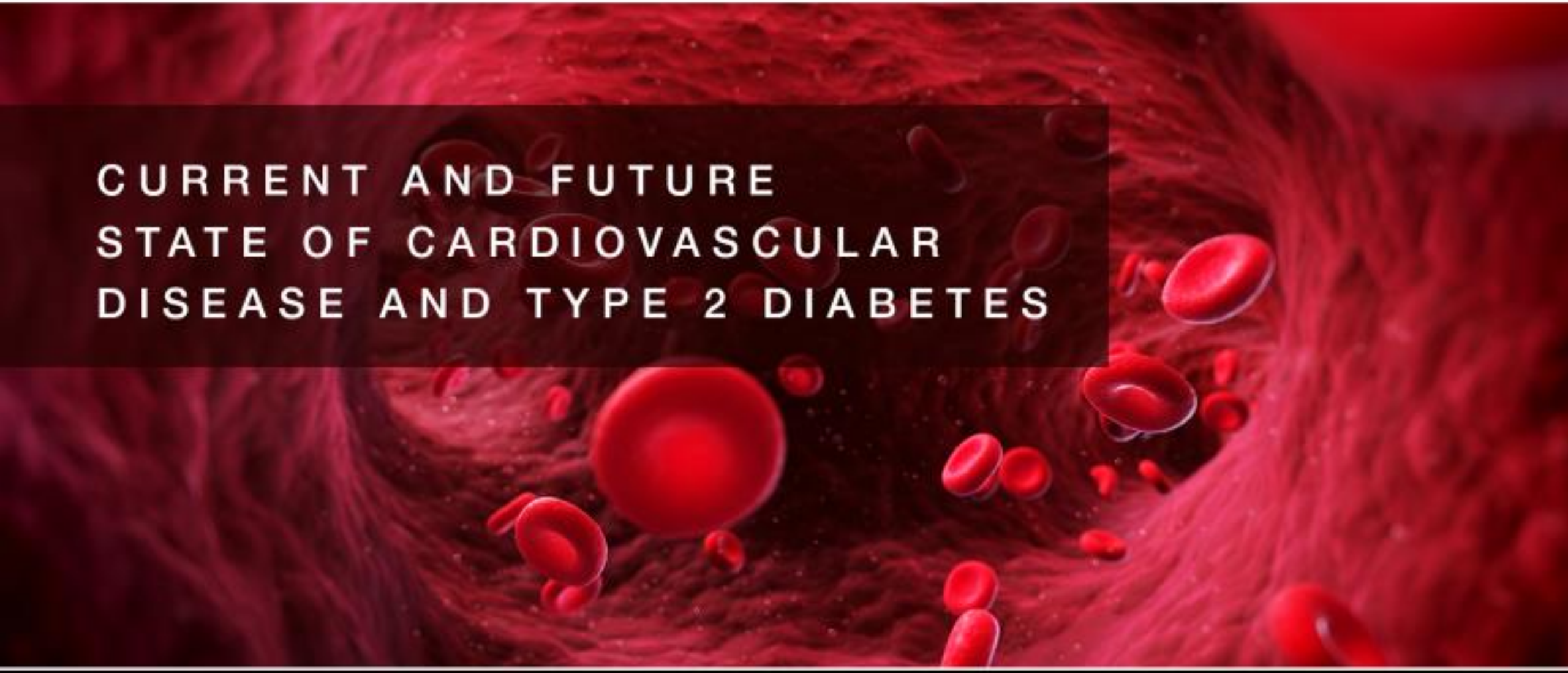


# CURRENT AND FUTURE STATE OF CARDIOVASCULAR DISEASE AND TYPE 2 DIABETES

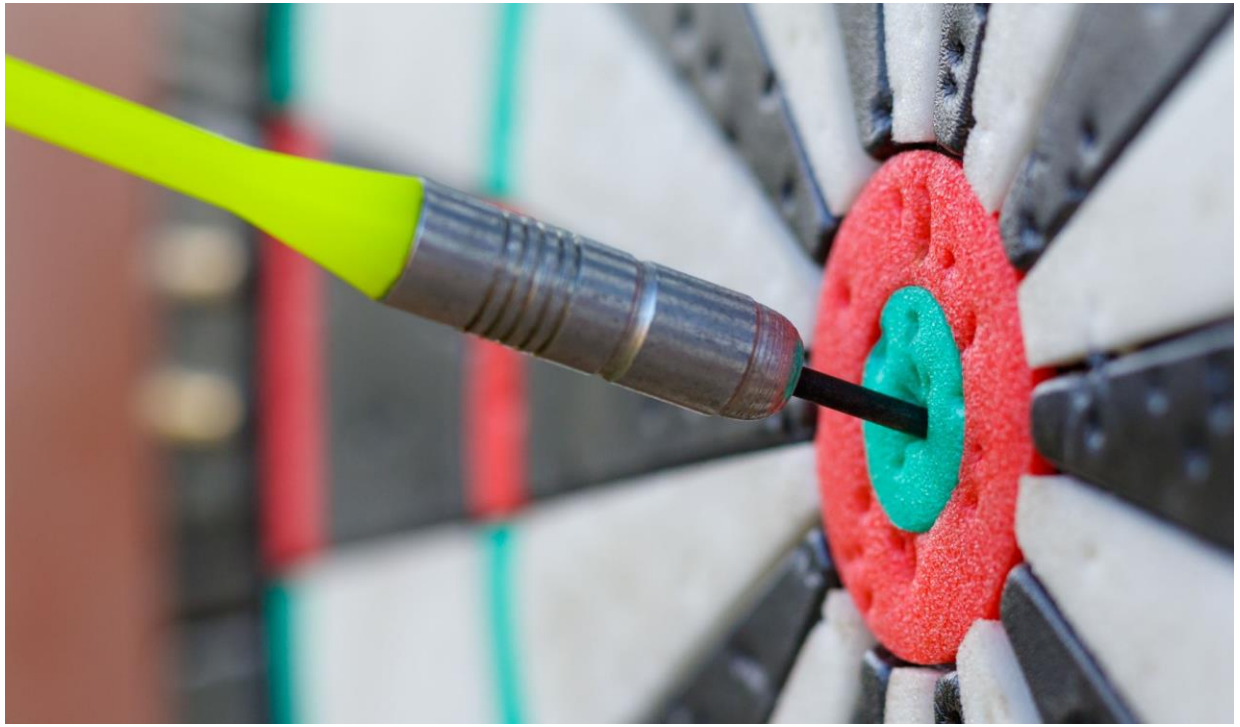
AAFP

AANP
American Association of NURSE PRACTITIONERS

AAPA

ENDOCRINE SOCIETY

# Prediabetes: A Primary Call To Action



*"The more you prepare, the luckier you appear"*

-Terry Josephson

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# Faculty

**Chair:**
Jonathan Purnell, MD
Professor of Medicine, Division of Cardiovascular Medicine
Oregon Health and Science University

**Speakers:**
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Nurse Practitioner- Hendricks Endocrinology
Medical Director- Diabetes Youth Foundation of Indiana

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Director, Unger Concierge Primary Care Medical Group
Director, Metabolic Studies; Catalina Research Institute

Jonathan Weber, MA, PA-C, FAAPA
Assistant Professor & Associate Director of Didactic Education, Section of General Internal Medicine, Yale School of Medicine Physician Associate Program
Yale Medicine, Endocrine & Metabolism Division

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# Disclosures

## Jonathan Purnell, MD

- *Novo Nordisk*: Consultant, Advisory Board

## Angela Thompson, DNP

- *Novo Nordisk*: Consultant, Focus Group

## Jeff Unger, MD, FAAFP,  FACE

- *Novo Nordisk:* Consultant, Speaker, Advisory Board, Primary Investigator; *Abbott Diabetes:* Consultant, Advisory Board, Speaker; *Allergan:* Speaker

## Jonathan Weber, MA, PA-C

- *Nothing to disclose*

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# Accreditation Statements

- The AAFP has reviewed Current and Future State of Cardiovascular Disease and Type 2 Diabetes, and deemed it acceptable for AAFP credit. Term of approval is from 11/17/2020 to 11/16/2021. Credit approval includes the following session(s):
  - 1.00 Enduring Materials, Self-Study AAFP Prescribed Credit(s) - Case 1 - Prediabetes and Cardiovascular Risks: A Primary Call To Action.
- This activity is approved for 1.0 contact hour(s) of continuing education by the American Association of Nurse Practitioners. Activity ID# 20104576. This activity was planned in accordance with AANP Accreditation Standards and Policies.
- This activity has been reviewed by the AAPA Review Panel and is compliant with AAPA CME Criteria. This activity is designated for 1.0 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.
- The Endocrine Society designates this live activity for a maximum of 1.0 *AMA PRA Category 1 Credit*™ and 1.0 ABIM Medical Knowledge MOC point. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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*We thank Boehringer Ingelheim, Lilly USA, LLC and Novo Nordisk for generously supporting this program.*



# Learning Objectives

At the end of the learning session, the participant will be able to:

- Discuss the epidemiology of prediabetes and diabetes.
- Review risk factors, screening tools and diagnostic criteria for prediabetes and diabetes.
- Describe the pathophysiology and complications of prediabetes.
- Analyze the relationship between prediabetes and cardiovascular disease.
- Develop and implement screening strategies for a patient presenting with prediabetes.
- Formulate an evidence-based treatment plan for patients with prediabetes including lifestyle and pharmacologic interventions.

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# Patient Case: Meet Lisa

- 31-year-old Hispanic female presenting for annual exam
- **Medications/Supplements:** None
- **Medical History:** Gestational diabetes mellitus (GDM) 7 years ago
- **Family History:** Both parents have obesity and T2DM. Mom has CKD and dad had NSTEMI at age 61
- **Lifestyle:**
  - Weight gain of 12 pounds over the past year
  - Works night shift as a deputy sheriff
  - Sleeps 5-6 hours/night
  - No regular exercise, nicotine, or alcohol



T2DM = Type 2 Diabetes Mellitus
CKD = Chronic Kidney Disease
NSTEMI = Non-ST-Elevation Myocardial Infarction

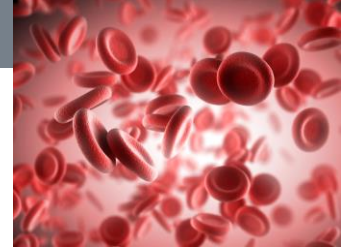
# Physical Exam

- **BP**: 128/82, Pulse: 84
- **BMI:** 32 kg/m$^2$
- **Waist Circumference**: 38 inches
- **Skin Exam**: Acanthosis nigricans on neck and axilla

Images provided by the Endocrine Society.

BP = Blood Pressure
BMI = Body Mass Index

# Lisa's Laboratory Results



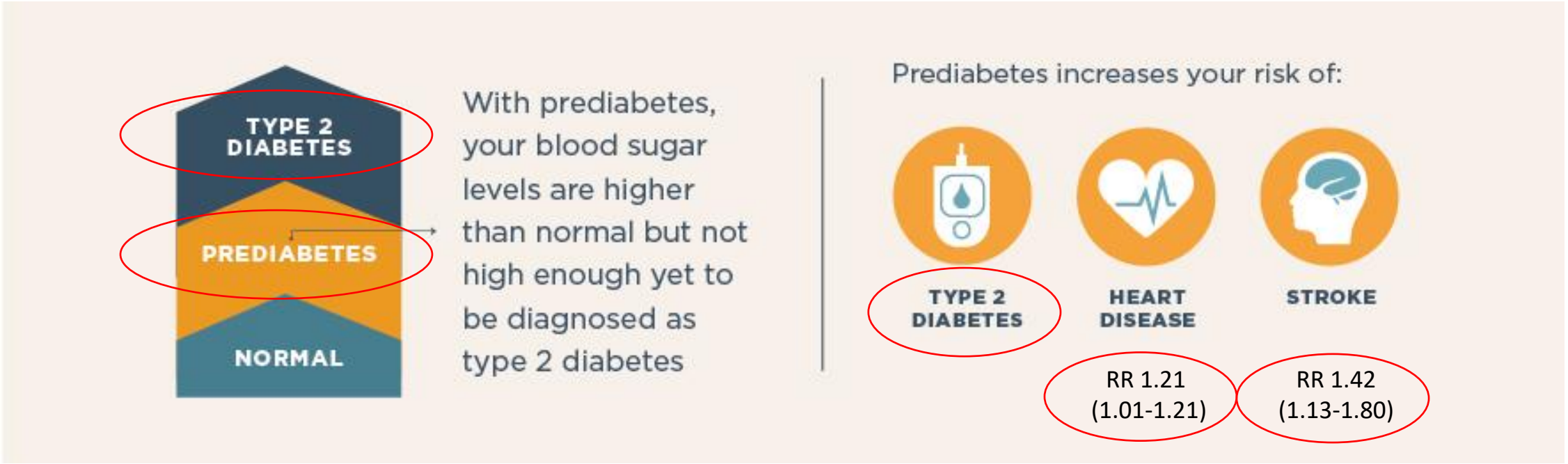
- A1C = 6.0%
  - 1 year ago A1C was 5.8%
- eGFR = 87 mL/min
- Lipids:

| | |
|---|---|
| Total Cholesterol: 212 mg/dL | LDL-C: 134 mg/dL |
| Triglycerides: 234 mg/dL | HDL-C: 31 mg/dL |
| APO B: 121 mg/dL | Non-HDL-C: 181 mg/dL |

A1C = hemoglobin A1C
eGFR = Estimated Glomerular Filtration Rate
APO B = Apolipoprotein B-100
LDL = Low-Density Lipoprotein Cholesterol
HDL = High-Density Lipoprotein Cholesterol

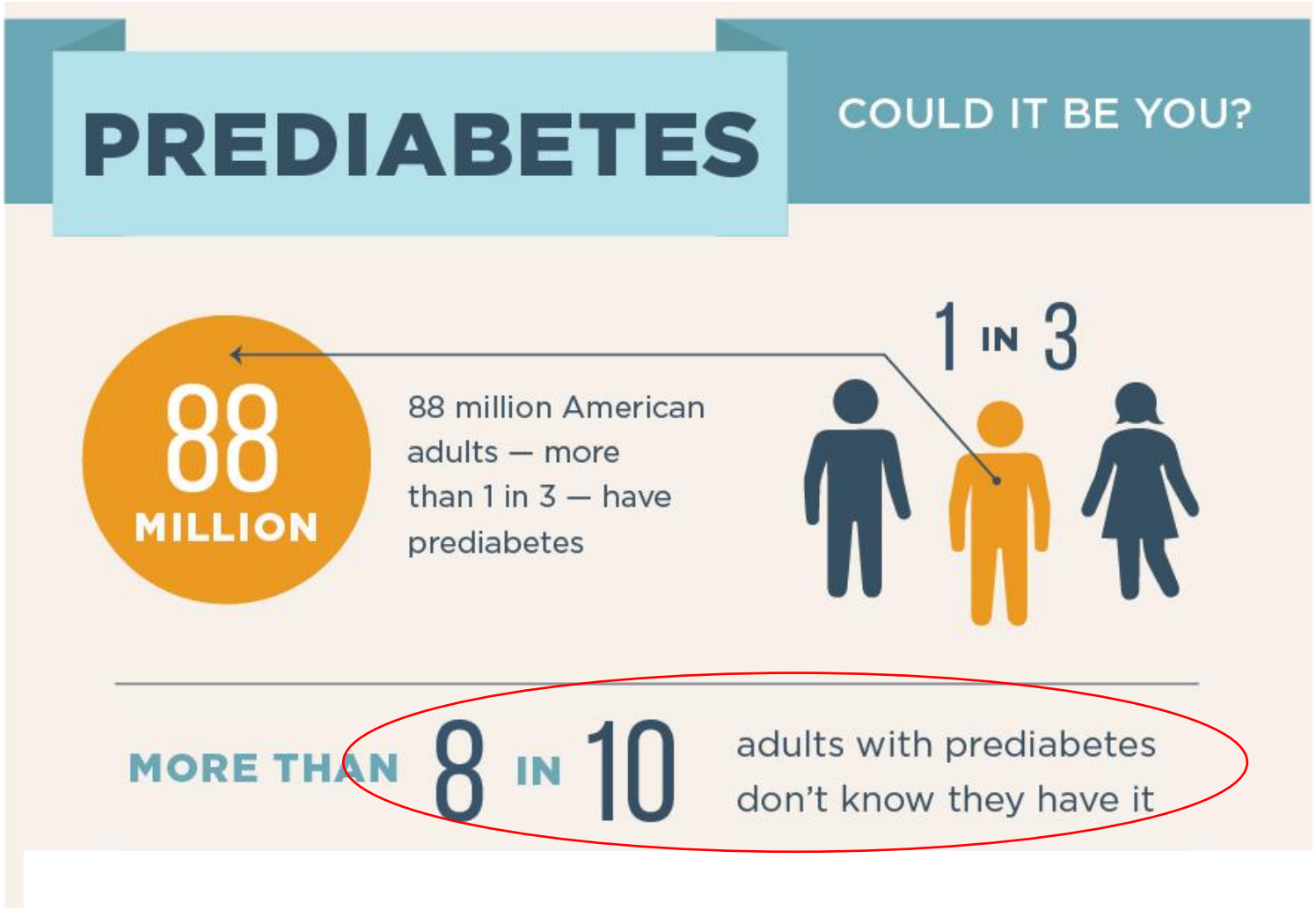
# Prediabetes

First described in 1956 in the context of gestational diabetes



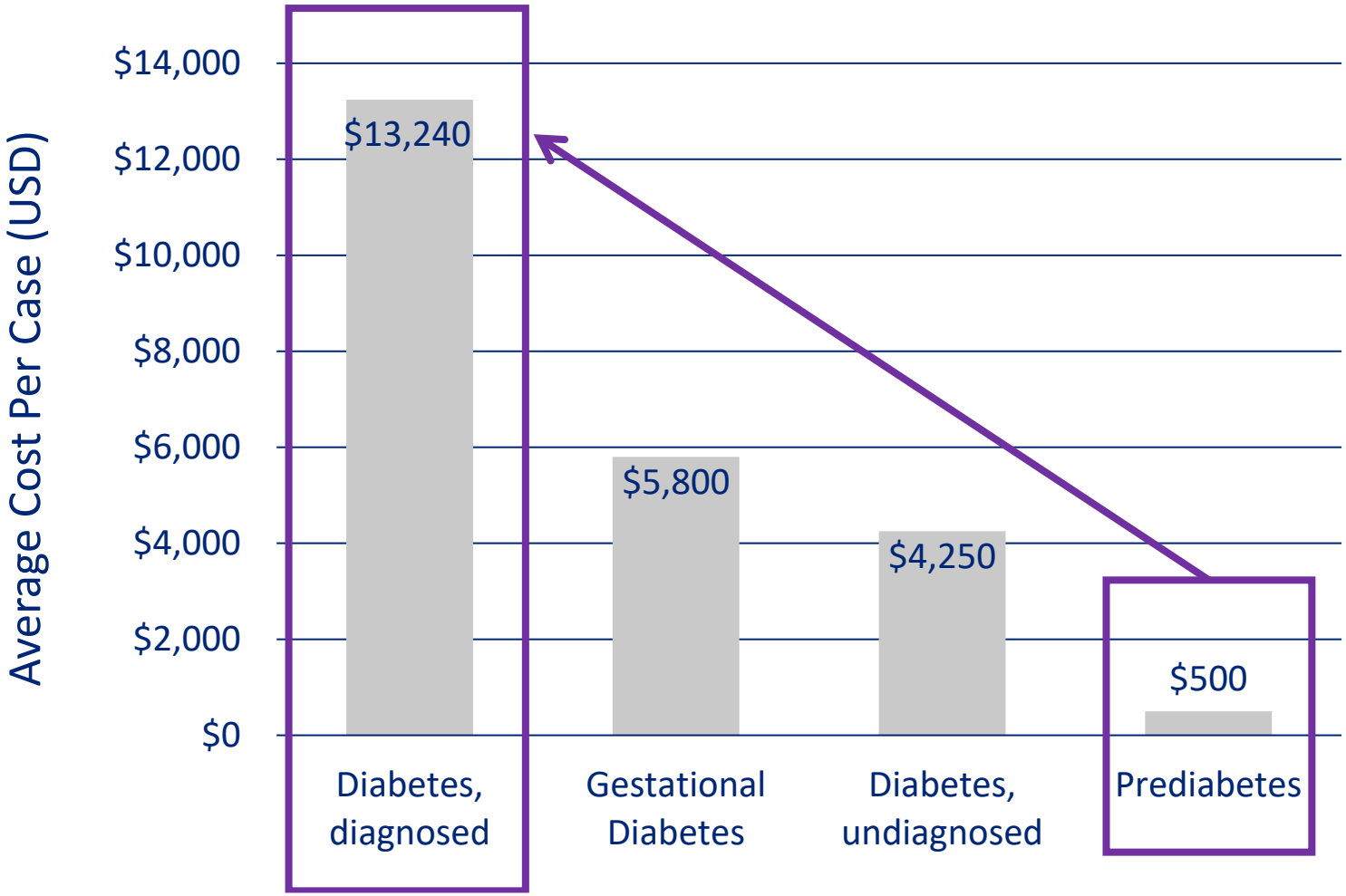

Unger J. *Diabetes Management in Primary Care*, 2nd ed. Philadelphia, PA: Lippincott, Williams & Wilkins; 2012
https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf
Pay Y, et al. *Journal of Stroke and Cerebrovascular Diseases*, 2019. 28:683- 692.
*Endocrine Practice*, 2018; 24 (11)

# Prevalence



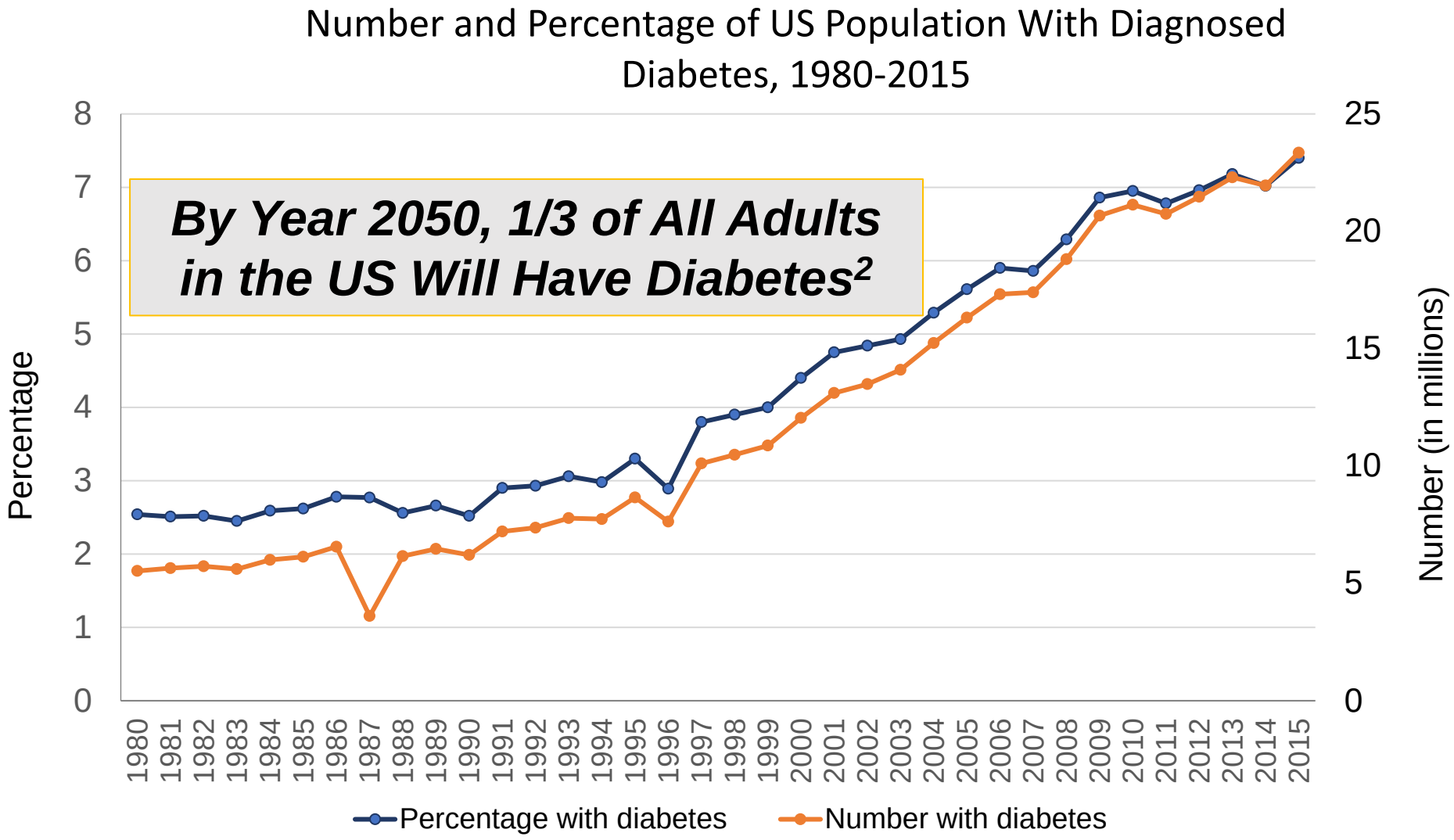

Unger J. *Diabetes Management in Primary Care*, 2nd ed. Philadelphia, PA: Lippincott, Williams & Wilkins; 2012
https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf

# Economic Burden of Hyperglycemia




Dall TM, et al *Diabetes Care*. 2019;42:1661-68

# Bad News: The Diabetes Epidemic Starts with Prediabetes




CDC's Division of Diabetes Translation. United States Diabetes Surveillance System available at http://www.cdc.gov/diabetes/data

# The Good News

- Early intervention can reduce incidence and prevalence rates of complications associated with the disorder, reduce cost and improve long-term quality of life

- 90% of all pre-diabetes and diabetes management occurs within the primary care setting

*Endocrine Practice,* 2018; 24 (11)

# Screening Criteria: Adults

- Age ≥ 45 years
- Family history of T2D
- History of gestational diabetes or delivery of a baby weighing more than 4 kg (9 lb)
- PCOS, acanthosis nigricans, NAFLD
- Hypertension (BP > 140/90 mm Hg or therapy for hypertension)
- Sleep disorders† in the presence of glucose intolerance
- History of cardiovascular disease (CVD)
- Medication use:
  - Antipsychotic therapy
  - Chronic glucocorticoid exposure
- Member of an at-risk racial or ethnic group: Asian, African American, Hispanic, Native American, and Pacific Islander
- BMI 25-29.9 kg/m$^2$ plus other risk factors* or BMI ≥ 30 kg/m$^2$
- Increased waist circumference (race specific)
- Dyslipidemia
  - HDL-C < 40 mg/dL (Male) or < 50 mg/dL (Female)
  - Triglycerides > 150 mg/dL
- Fasting glucose > 100 mg/dL

- Screen at-risk individuals with glucose values in the normal range every 3 years
- Consider annual screening for patients with 2 or more risk factors

*At-risk BMI may be lower in some ethnic groups; consider using waist circumference.
†Obstructive sleep apnea, chronic sleep deprivation, and night shift occupations.

*Am Fam Physician.* 2016 Jan 15;93(2):103-109.

IFG = Impaired Fasting Glucose; IGT = Impaired Glucose Tolerance; NAFLD = Nonalcoholic Fatty Liver Disease; PCOS = Polycystic Ovary Syndrome

# Screening Criteria: Children

**Consider for all children who are overweight and have 2 of any of the following risk factors:**

- **Family history of type 2 diabetes in first- or second-degree relative**
- **High-risk race/ethnicity**
- **Signs of insulin resistance or conditions associated with insulin resistance**
- **Maternal history of diabetes of GDM during child's gestation**

**Begin screening at age 10 years or onset of puberty**
**Screen every 3 years**
**A1C test is recommended for diagnosis in children**

Adapted from ADA. Testing for Diabetes in Asymptomatic Patients. *Diabetes Care.* 2014;37(suppl 1):S17-18.

# Diagnostic Criteria

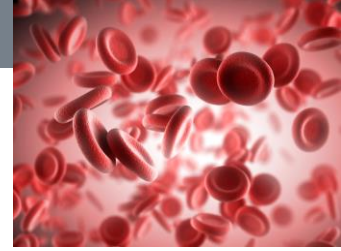
| Test | Normal | Prediabetes |
|---|---|---|
| Fasting Plasma Glucose (FPG) | < 100 mg/dL IFG | 100-125 mg/dL |
| 2 Hour Plasma Glucose (PG) | < 140 mg/dL IGT | 140-199 mg/dL |
| A1C | < 5.6% | 5.7 to 6.4%<br>For screening of prediabetes† |

†A1C should be used only for screening prediabetes. The diagnosis of prediabetes, which may manifest as either IFG or IGT, should be confirmed with glucose testing.

In all cases, the diagnosis should be confirmed on a separate day by repeating the glucose or A1C testing. When A1C is used for diagnosis, follow-up glucose testing should be done when possible to help manage diabetes mellitus.

IFG = impaired fasting glucose
IGT = impaired glucose tolerance

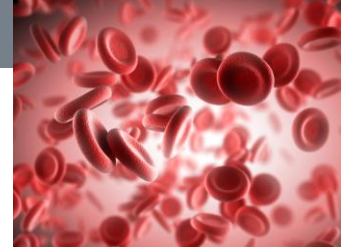
AACE. *Endocrine Pract*. 2010;16:155-156



# Patient Case: Back to Lisa

- **31-year-old Hispanic female presenting for annual exam**
- **Medications/Supplements:** None
- **Medical History:** Gestational diabetes mellitus (GDM) 7 years ago
- **Family History:** Both parents have obesity and T2DM.

  Mom has CKD and dad had NSTEMI at age 61
- **Lifestyle:**
  - Works night shift as a deputy sheriff
  - Sleeps 5-6 hours/night
  - No regular exercise, nicotine, or alcohol
- **PE:**
  - Weight gain of 12 lbs over the past year
  - Waist circumference > 35 in
  - Acanthosis nigricans on neck and axilla
- **LAB DATA:**
  - **A1C** = 6.0% (1 year ago A1C was 5.8 %)
  - **Mixed hyperlipidemia**: Elevated TC, LDL, TG & low HDL



# Patient Case: Faculty Discussion

How might you first engage Lisa about her diagnosis?

How would you advise this patient regarding disease progression and risk modification?

Would you recommend any additional testing?

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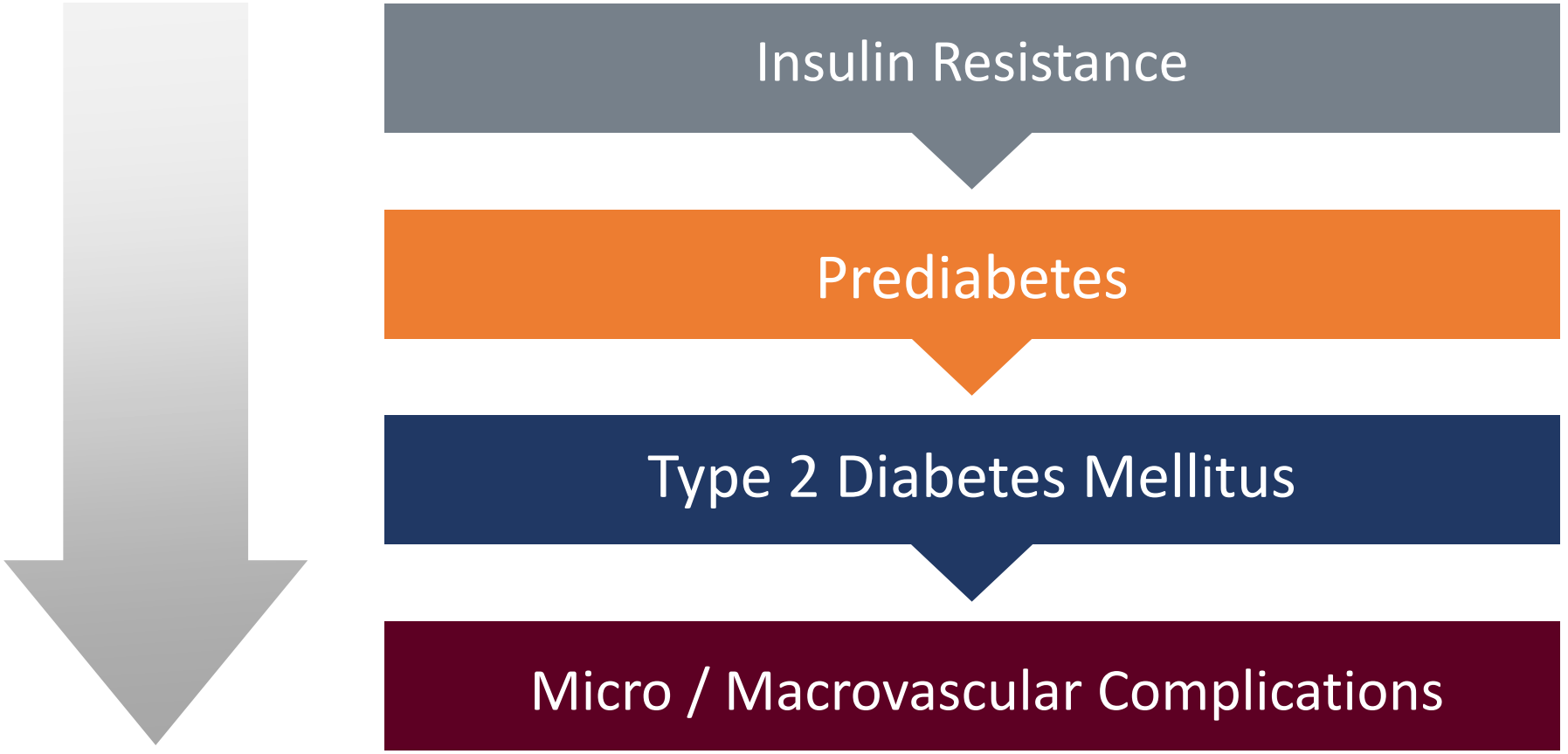
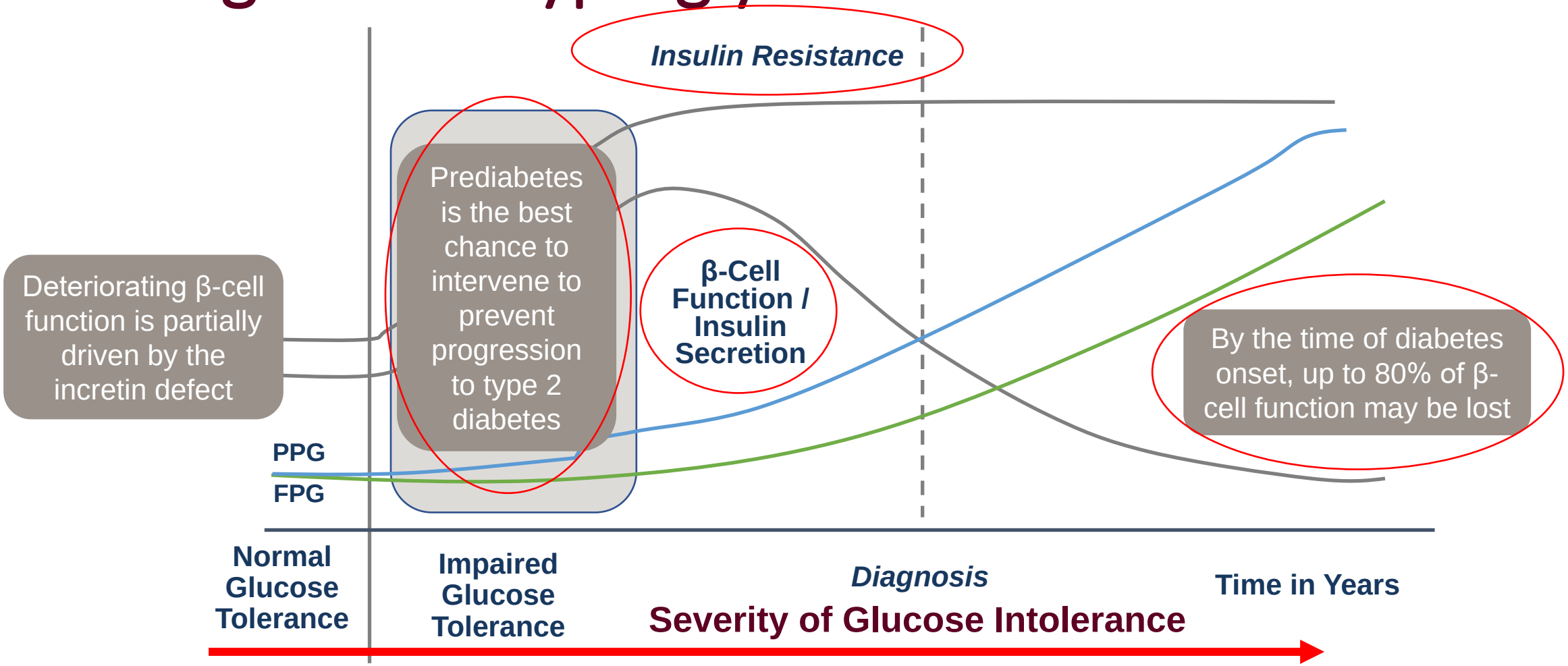
# Making the Connection: Prediabetes to Diabetes



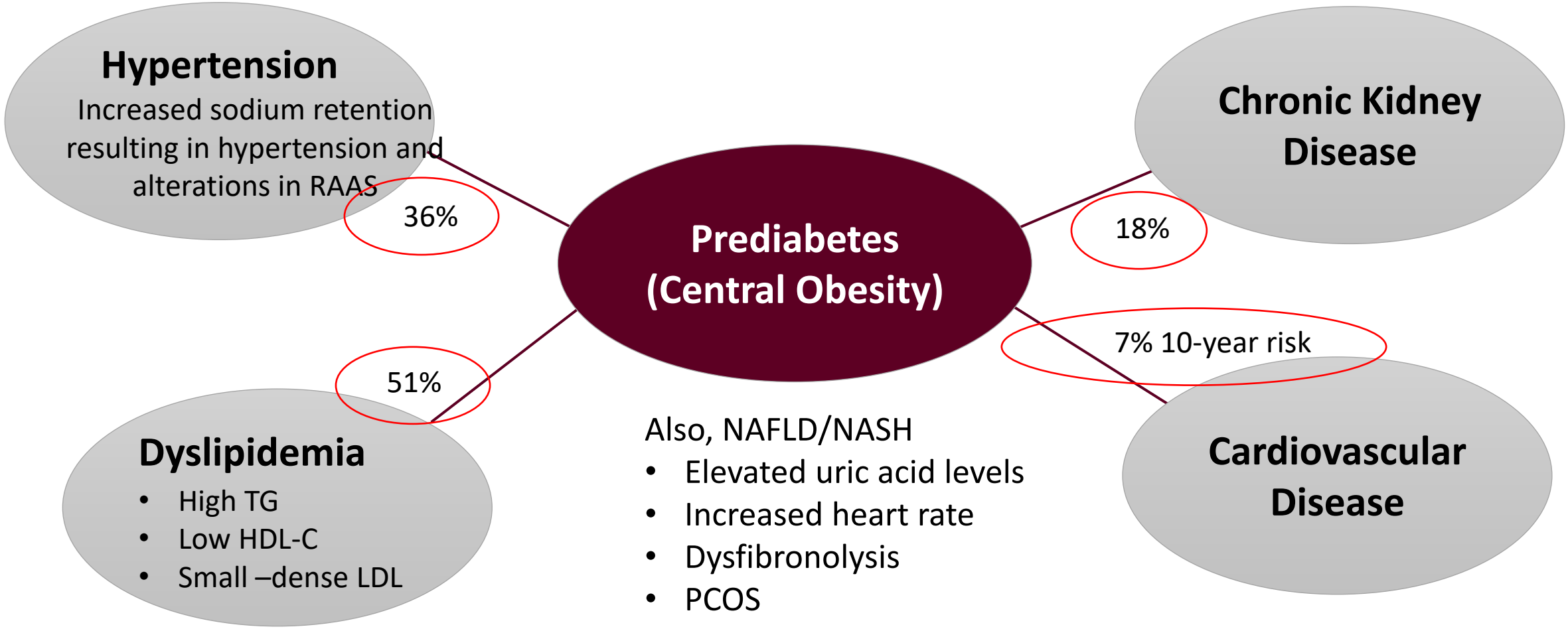
# Progressive β-Cell Dysfunction Is a Key Driver of Progressive Hyperglycemia in T2DM




Defronzo RA. *Diabetes.* 2009;58:773-795. 2. Fehse F, et al. *J Clin Endocrinol Metab*. 2005;90:5991-5997.
Adapted from Kendall DM, et al. *Am J Med*. 2009;122(6 Supp):S37-S50.

PPG = postprandial plasma glucose

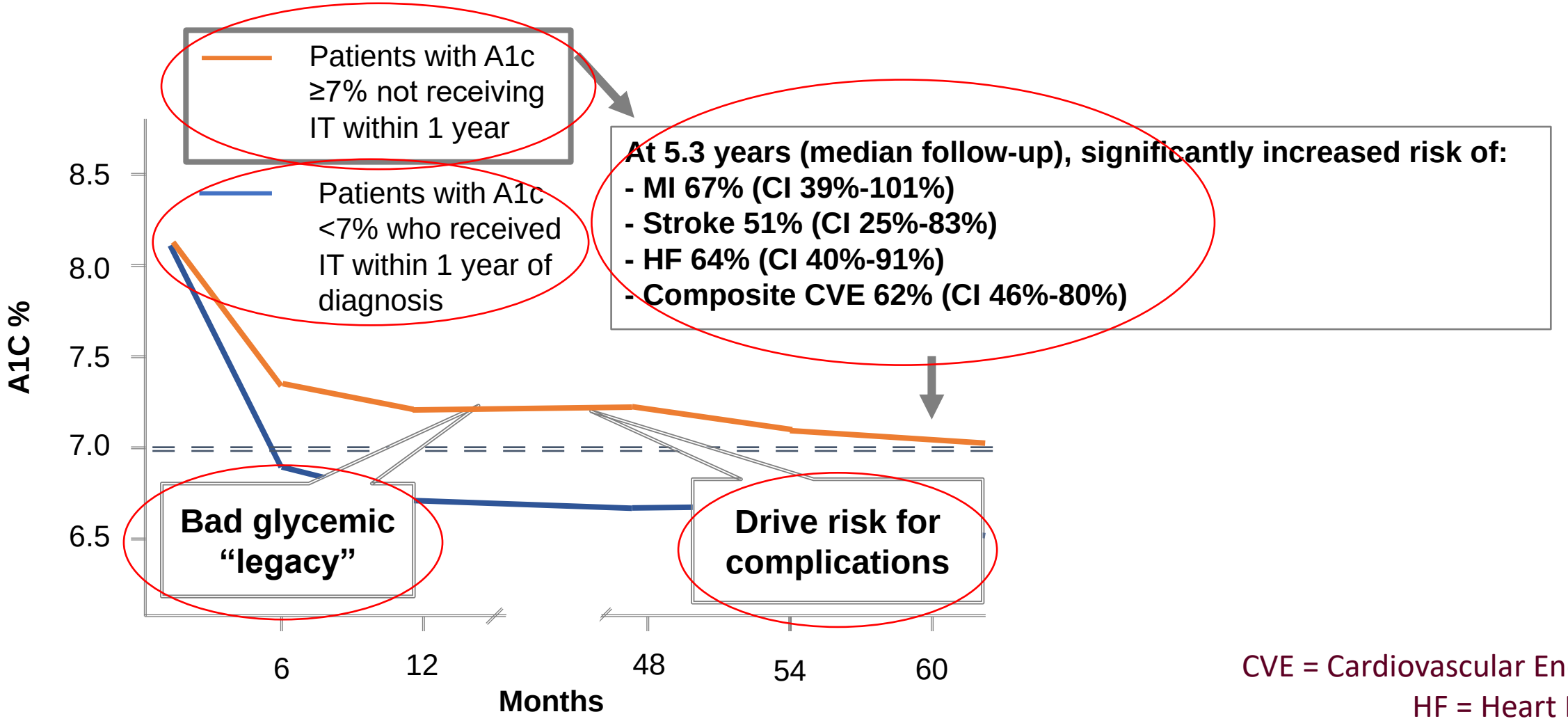
# Prediabetes and Prevalence of Comorbidities




RAAS = Renin-Angiotensin-Aldosterone System
NAFLD = Non-Alcoholic Fatty Liver Disease
NASH = Nonalcoholic Steatohepatitis

Ali, MK, et al. Cardiovascular and renal burdens of prediabetes in the USA; analysis of data from serial cross-sectional surveys, 1988-2014. *Lancet Diabetes Endocrinol*. 2018: 6:392-403

# Consequences of Delayed Intervention

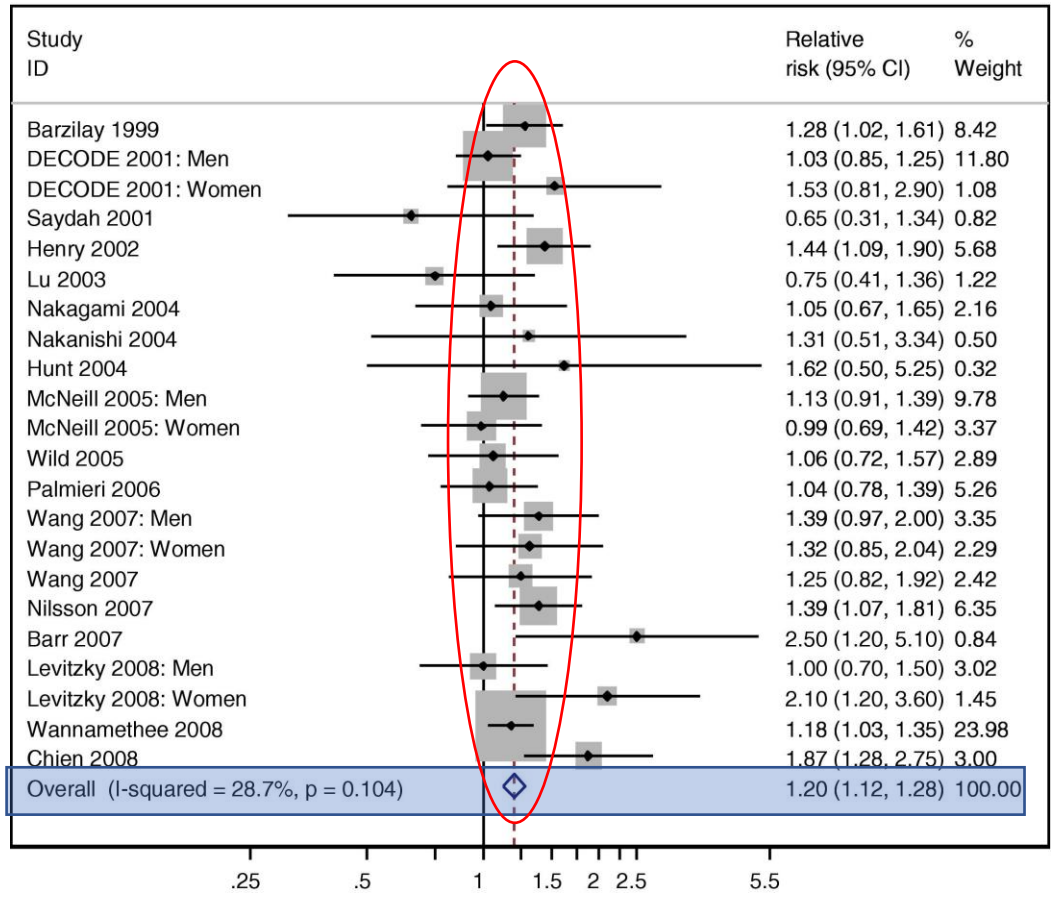



CVE = Cardiovascular Endpoint
HF = Heart Failure
IT = Intensive Treatment
MI = Myocardial Infarction

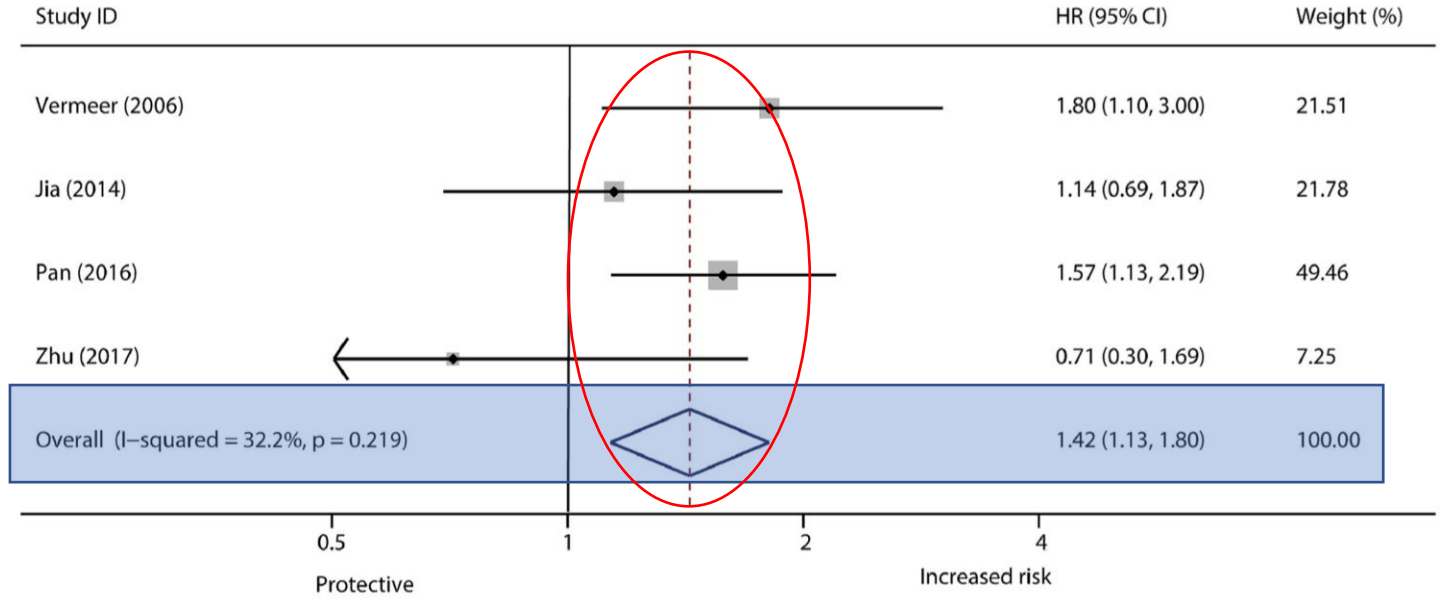
Adapted from Paul S et al. *Cardiovasc Diabetol* 2015;14:100

# Pre-DM & CVD and Stroke Risk

## ↑ 20% RR for CV Outcomes




## ↑ 42% HR for Stroke

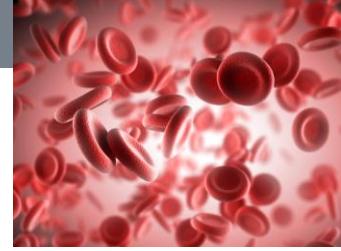



Pan Y, et al. *J Stroke Cerebrovasc Dis*. 2019. 28:683-92.

Permissions purchased from Ford ES, et al. *J Am Coll Cardiol*. 2010; 55: 1310-17

RR = Relative Risk
HR = Hazard Ratio

# Patient Case: Faculty Discussion



What interventions might you recommend at this time and what are considered “best practice” strategies?

What pharmacological interventions would you recommended based on current guidelines or emerging evidence?

How does patient preference weigh into this shared decision making?

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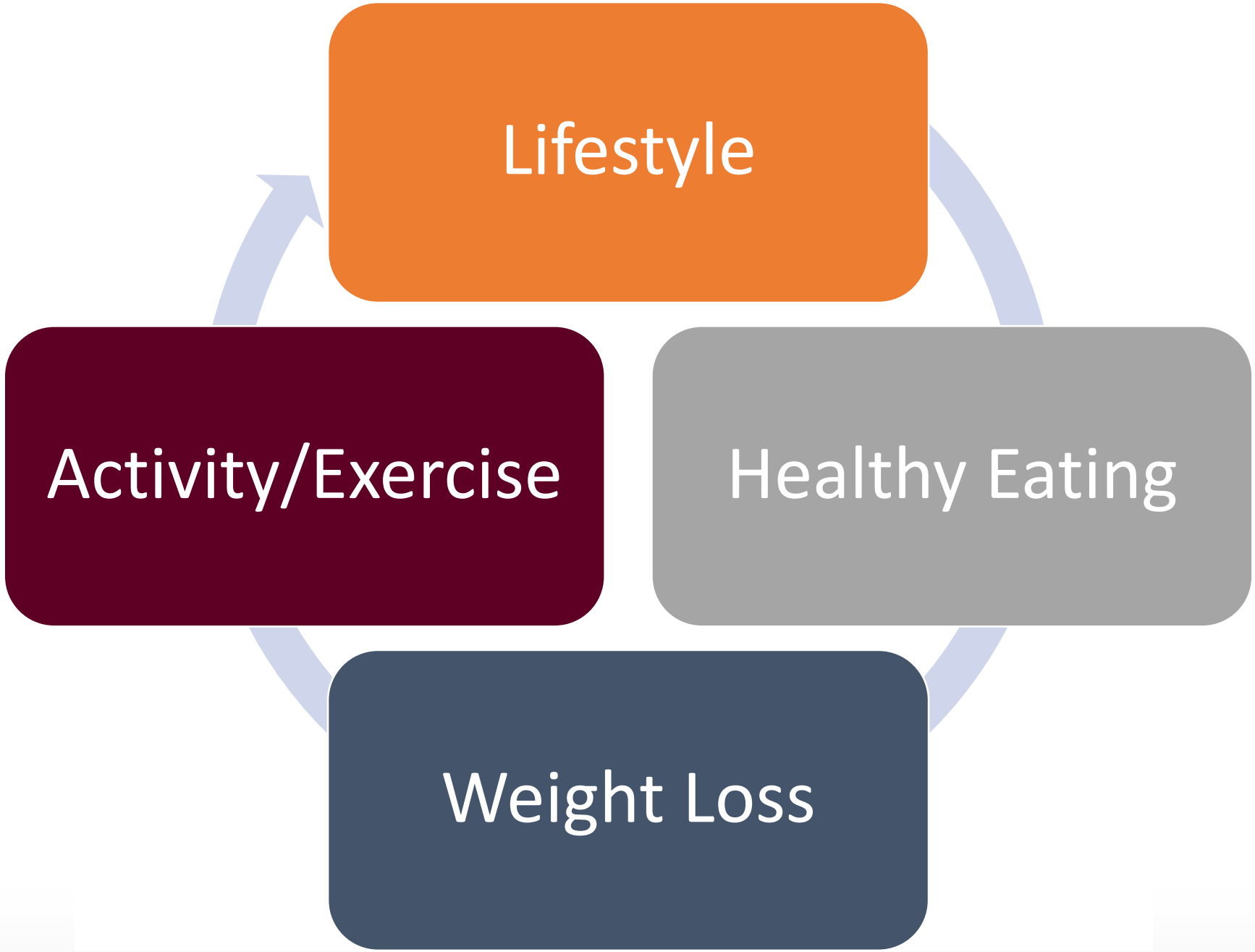
# Treatment Considerations

Restore normal glucose regulation

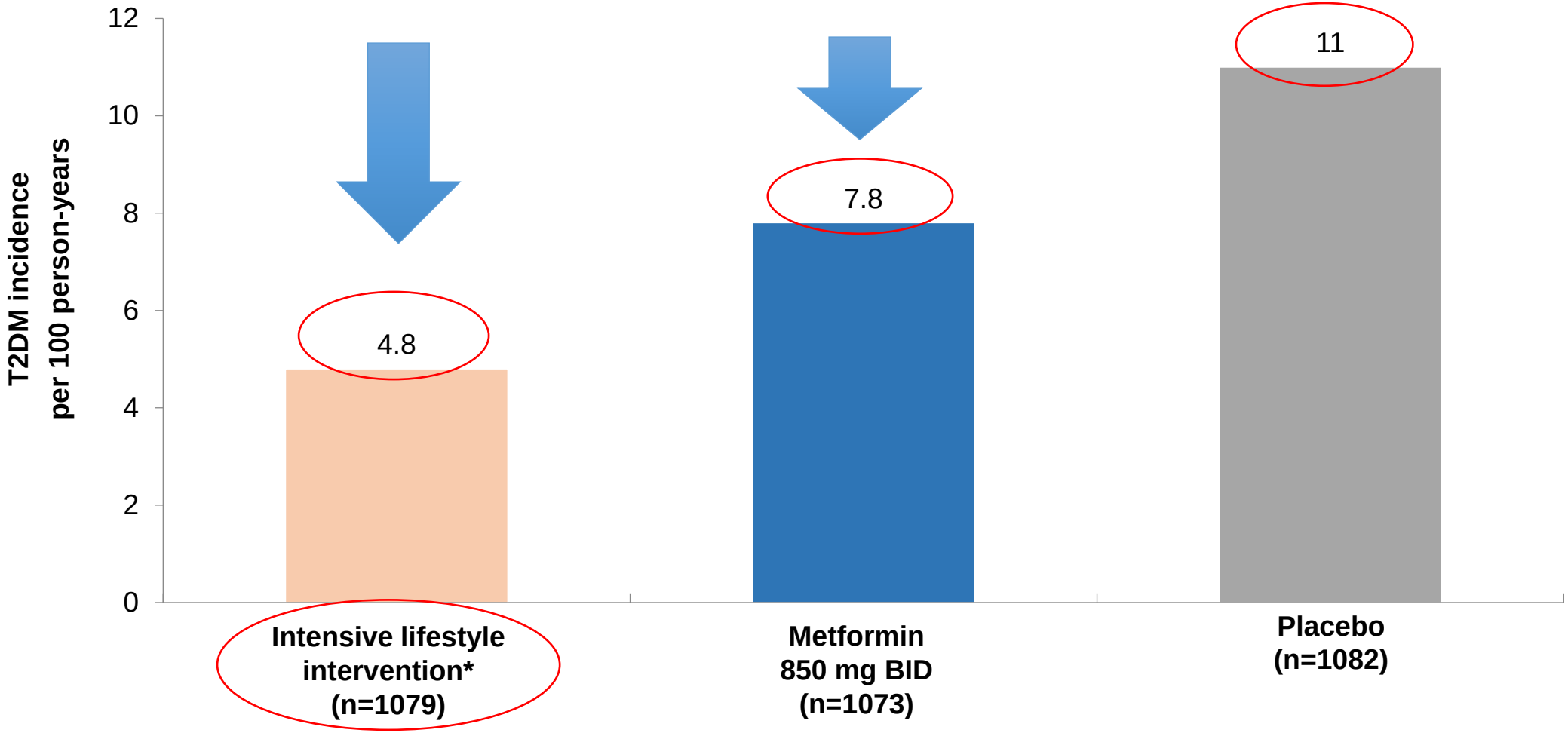
Preserve beta cell function and mass

Reduce A1C as a surrogate marker for CVD and CV mortality

Reduce “glycemic burden” to lesson disease progression and risk of complications


Lifestyle
Healthy Eating
Weight Loss
Activity/Exercise

# DPP: Lifestyle Interventions & Diabetes Incidence



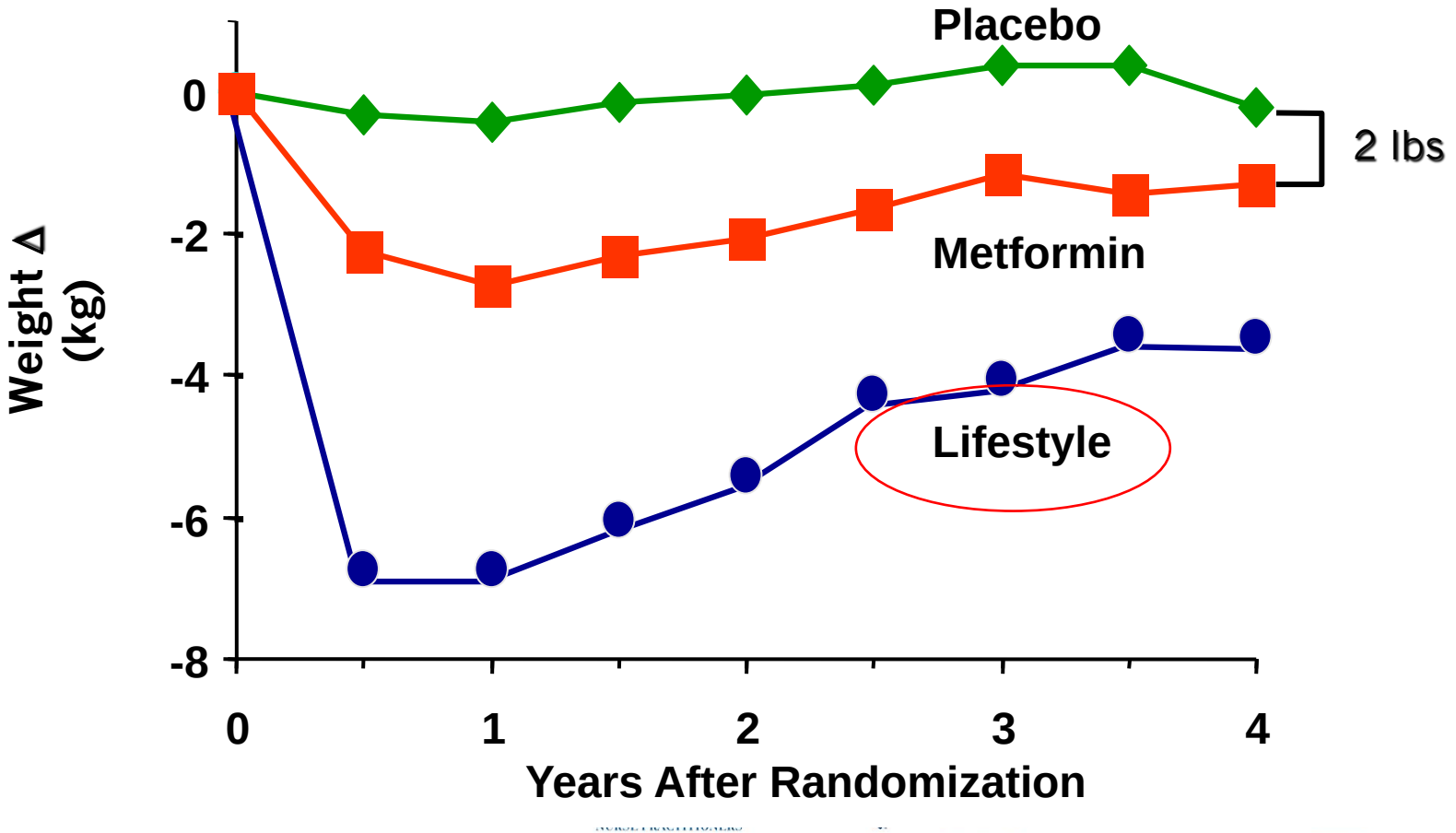

*Goal: 7% reduction in baseline body weight through low-calorie, low-fat diet and ≥150 min/week moderate intensity exercise.

DPP Research Group. *N Engl J Med*. 2002;346:393-403.

DPP = Diabetes Prevention Program

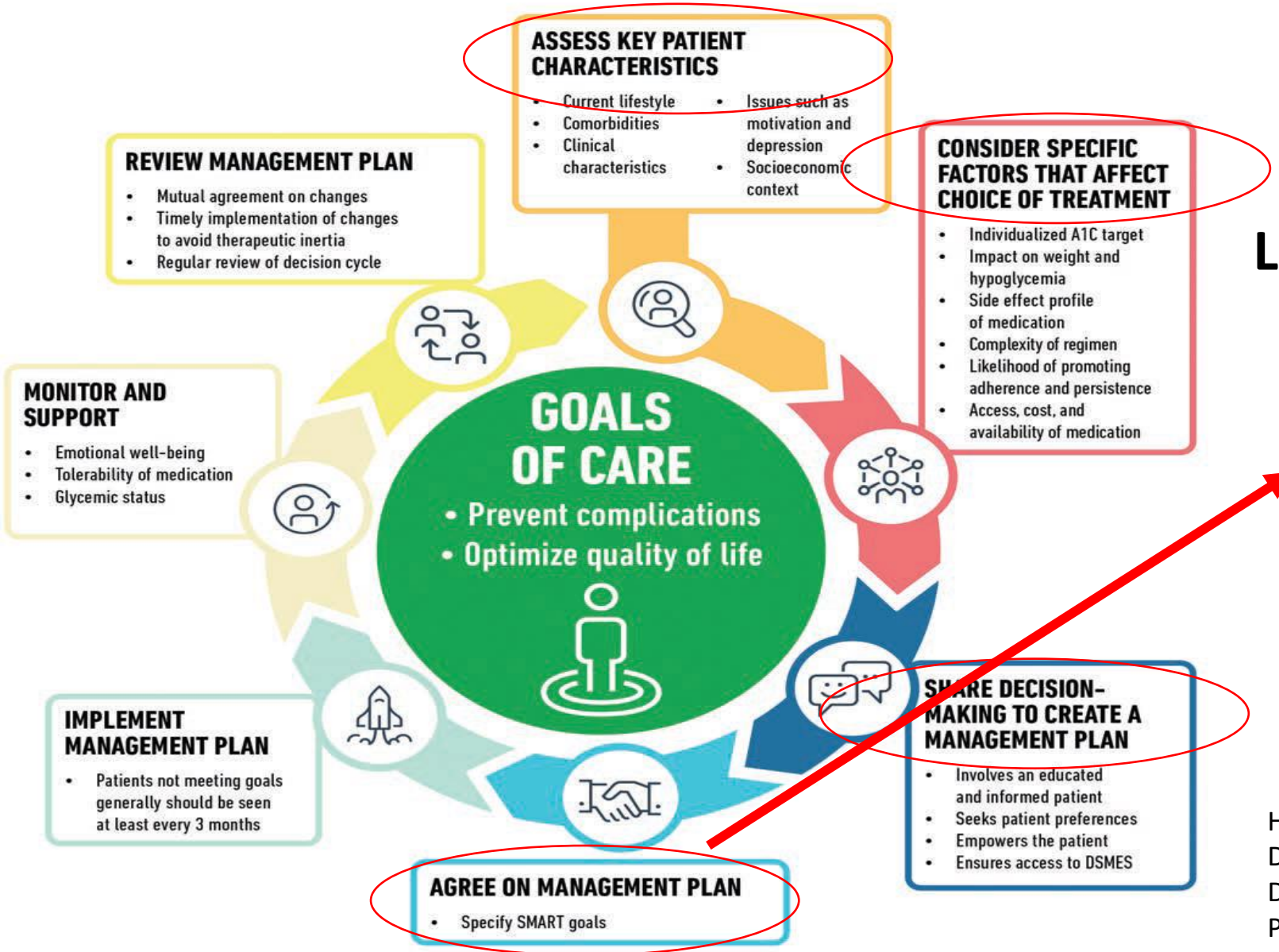
# Diabetes Prevention Program: Mean Weight Change

Lifestyle intervention with weight loss and exercise was most effective way of reducing progression from prediabetes to clinical diabetes in the Diabetes Prevention Program (DPP)




Adapted from: Knowler WC, et al. *N Engl J Med*. 2002;346:393-403.

# ADA/EASD Management Decision Cycle




**Lifestyle "SMART" Goals:**

- Specific
- Measurable
- Achievable
- Realistic
- Time limited

Harris, Stewart B et al. Person-Centered, Outcomes-Driven Treatment: A New Paradigm for Type 2 Diabetes in Primary Care. Published by ADA 2020. Permissions to use received October 12, 2020.

# Lifestyle Medicine – *"The Secret Sauce"*

**The evidence-based practice of assisting individuals and families to adopt and sustain behaviors that can improve health and quality of life.**


Lianov L, Johnson M. Physician Competencies for Prescribing Lifestyle Medicine. *JAMA.* 2010;304(2):202–203. doi:10.1001/jama.2010.903

# Lifestyle Recommendations: Activity/Exercise

- Structured lifestyle interventions that include at least 150 min/week of physical activity and dietary changes resulting in weight loss of 5%–7% are recommended to prevent or delay the onset of type 2 diabetes in populations at high risk and with prediabetes.

- Daily exercise, or at least not allowing more than 2 days to elapse between exercise sessions, is recommended to enhance insulin action.

- Adults with type 2 diabetes should ideally perform both aerobic and resistance exercise training for optimal glycemic and health outcomes.

- Children and adolescents with type 2 diabetes should be encouraged to meet the same physical activity goals set for youth in general.

*Diabetes Care* 2016 Nov; 39(11): 2065-2079.

# Principles of Healthy Eating

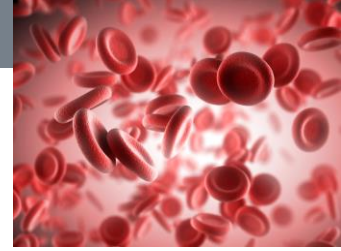
| | |
|---|---|
| **General** | Don’t skip meals and keep serving sizes consistent<br>Portion control is the key |
| **Carbohydrates** | Healthy carbohydrates (fresh fruits/vegetables, legumes, whole grains)<br>Target 7-10 servings per day |
| **Fats** | Healthy fats (avocado, certain plant oils, fish)<br>Limit saturated fats (butter, fatty red meats, tropical plant oils, fast foods) & trans fat<br>Choose fat-free or low-fat dairy products |
| **Proteins** | Consume protein foods with low saturated fats (fish, egg whites, beans)<br>Limit processed meats |
| **Micronutrients** | Recommended vitamin supplements for patients at risk of insufficiency or deficiency<br>Routine supplementation is not necessary |

Grams J, et al. *Curr Obes Rep*. 2015 Jun;4(2):287-302. doi: 10.1007/s13679-015-0155-x

# Information Gathering: Assessing “Lifestyle Vitals”

**Suggested key questions on assessing baseline activity, diet & engaging in goal setting**

- How much physical activity do you engage in each week?
- What other kinds of activity/exercise do you do each week?
- What do you think stops you from being active or exercising?
- How many meals and/or snacks do you eat in a day?
- Do you skip any meals?
- Do you take any supplements?
- How many meals a week to do you eat out?



# Back to Lisa: Lifestyle Analysis

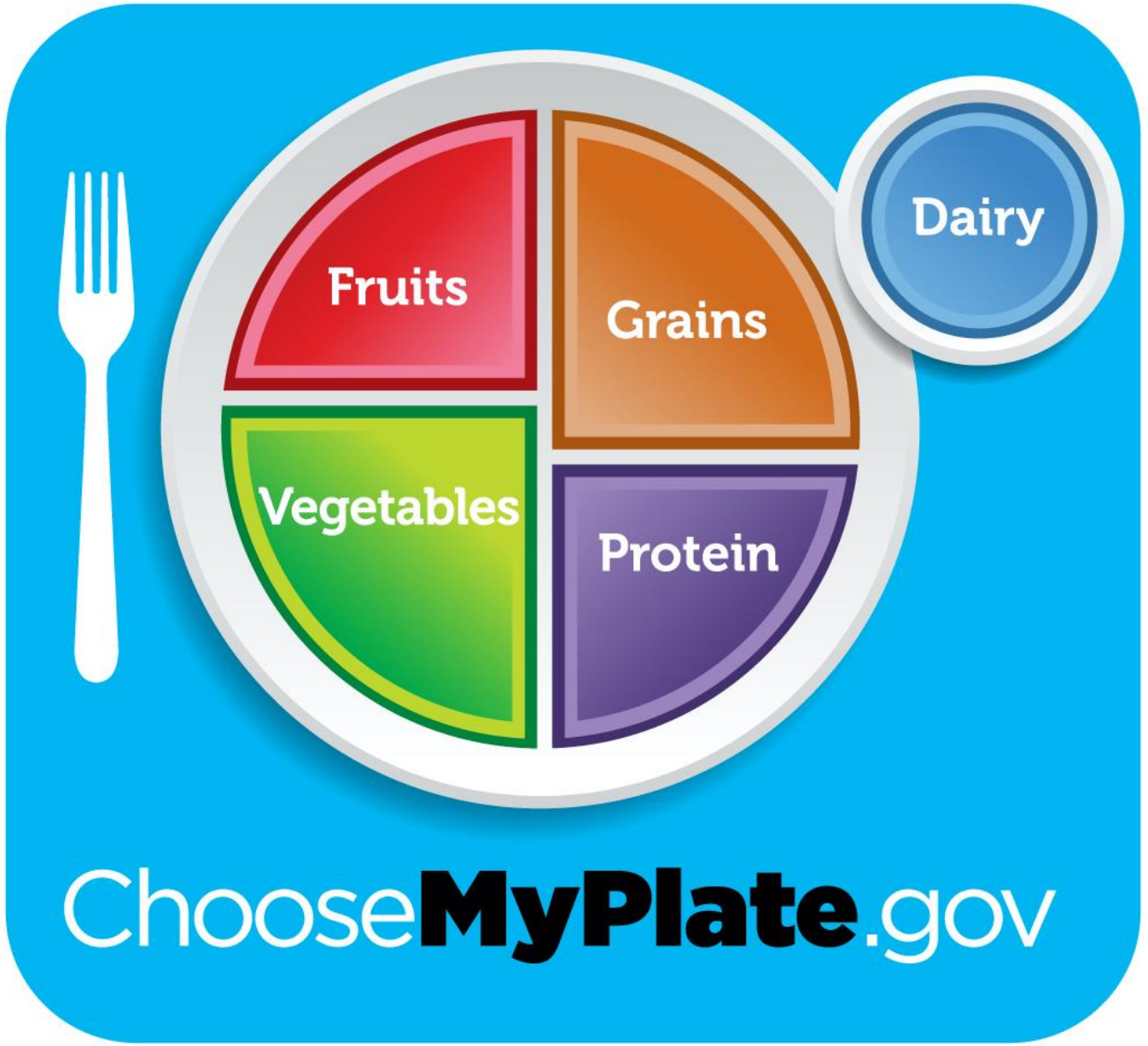
- Married with 2 children ages 7 and 11
- Works overnight shift from 6pm–6am and sleeps 5-6 hours
- No regular exercise and unable to find time for exercise with home and work responsibilities
- Consumes regular soda 3-4 times a day
- Eats 2 meals a day
  - Largest meal in the evening at 4-5pm with family before heading to overnight work
  - Usually picks up fast food on her way home from work at 7-8am before going to sleep for the day
- Goes out to eat 3-4 times a week for convenience

# Lifestyle Recommendations: Healthy Eating

- Use visual tools such as healthy plate method
- Emphasize portion control
- Provide simple/quick methods or tips for improving nutrition
- Dispel misconceptions
- Help set realistic yet specifics goals (1-2 changes at a time)
- Provide various resources through internet sites, applications or written recommendations

# Plate Portions

- Half plate of fruits & vegetables
  - Focus on whole fruits
- Half plate of grains & protein
  - Focus on whole grains
  - Vary the protein
    - Seafood, beans, peas, nuts, seeds, soy products, eggs, lean meats & poultry
  - Move to low fat or fat free milk
- Drink water; avoid soda or sugary drinks




https://www.choosemyplate.gov

# Portion Size Examples

| Item | Portion Size | Item | Portion Size |
|---|---|---|---|
|  | 1 teaspoon |  | ¼ cup |
|  | 1 tablespoon |  | 1 cup |
|  | 3-4 ounces |  | 2 cups |

| Eat These Foods MORE Often | | Eat These Foods LESS Often | |
|---|---|---|---|
| Non-starchy Vegetables | leafy greens, green beans, cucumbers, carrots, cauliflower, brussel sprouts | Added Sugar | candy, calorie containing drinks, baked goods and desserts |
| Lean Protein | fish (salmon, tuna, cod, catfish, trout), chicken, turkey, eggs, nuts and soy foods | High Fat Meats | beef, ribs, bacon, sausage, deli and processed meats like salami, bologna and hot dogs |
| Healthy Fats | plant-based oils like vegetable, olive or canola | High Saturated Fat | butter, lard, tropical oils (coconut, palm) ice cream and desserts |
| Fruit | small piece like apple, orange, peach or pear small cup of berries | Salty Snacks | potato chips, French fries, pickles, canned soups and table salt |

ADCES Self-care behaviors: Healthy eating. Retrieved from https://www.diabeteseducator.org/living-with-diabetes/aade7-self-care-behaviors

# Options for Healthier Cooking

- Marinate your proteins with herbs and spices for more flavor
- Bake, broil, or stew meals and fish instead of frying
- Use nonfat or low-fat salad dressings, mayonnaise and margarine
- Use nonfat or 1% mild and low-fat cheeses
- Grill, roast, or steam vegetables instead of cooking them in butter or oil, and add herbs and spices like cumin, garlic, cilantro, and chili powder for more flavor

Diabetes Educator: https://www.diabeteseducator.org/docs/default-source/prevention-files/options-for-healthier-cooking-eng.pdf?sfvrsn=0

# Prediabetes Diet Misconceptions

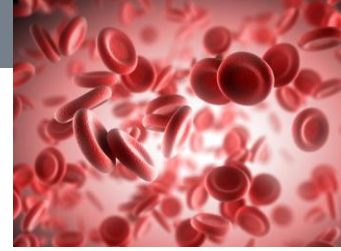
- People with prediabetes should be on a special diet
- People with prediabetes can't consume white starchy foods (bread, potatoes, pasta)
- People with prediabetes can't eat chocolate or sweets
- People with prediabetes need to avoid foods that contain "sugar"
- People with prediabetes can eat all of the meat and fat they want since they don't contain carbohydrates

ADA: https://www.diabetes.org/diabetes-risk/prediabetes/myths-about-diabetes

# Lifestyle Recommendations: Weight

| IF YOU WEIGH: | LOSING 5-10% IS: |
|---|---|
| 150 POUNDS | 8 TO 15 POUNDS |
| 175 POUNDS | 9 TO 18 POUNDS |
| 200 POUNDS | 10 TO 20 POUNDS |
| 225 POUNDS | 11 TO 23 POUNDS |
| 250 POUNDS | 13 TO 25 POUNDS |
| 300 POUNDS | 15 TO 30 POUNDS |

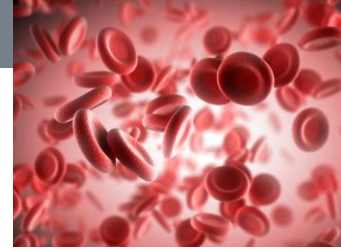
- Maintaining health weight as general recommendation
- Weight loss for those overweight & obese
- 5-10% of total body weight



# Back to Lisa: Lifestyle Recommendations

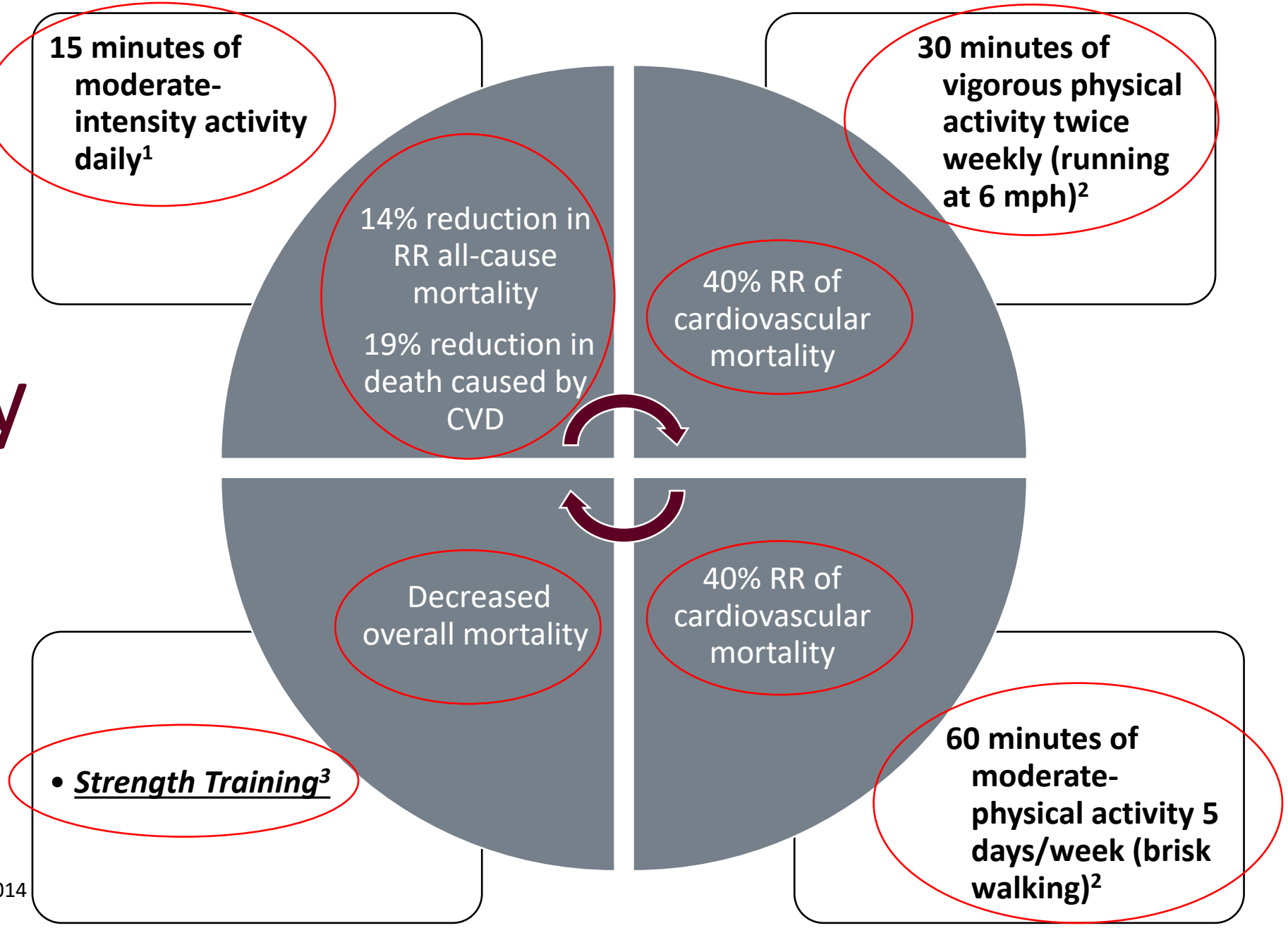
- Cut soda down to 1 a day and replace the rest with water, flavored water, or carbonated water
- Drink full glass of water before sitting down to eat a meal
- Start tracking your food with apps or logging
- Limit starchy vegetables to ¼ of your plate
- Avoid going back for 2nd helpings
- Consume ½ order when out to eat
- Add more activity in your daily routine
  - Park in farther parking spaces
  - Take stairs instead of elevator
  - Walk or some additional form of activity 10 mins a day or get 5,000 steps a day

# Back to Lisa: 6 Week Follow-Up



- A1C is 5.8% and has lost 3 pounds
- Walking 5,000 steps a day
- Cut out drinking soda and now eating breakfast at home
- Not sure how to cook for family and still lose weight/meet goals
- Wanting to lose more weight but feels hungry all of the time
- Wanting information on tools to help track nutrition and structured exercise program options

# All Activity Matters




[1]Chi Pang Wen, et al. *Lancet* 2011
[2]Duck-chul, Lee, et al. *Am College of Cardiology* 2014
[3]Kraschnewski, JL, et al. *Prev Med*. 2016
O'Donovan, Gary, et al. *JAMA Intern Med* 2017

# RX

NAME_____AGE_____

ADDRESS_____DATE_____

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DIRECTIONS:

1. Add 2-5 mins each week to your walking routine to reach 10,000 steps a day most days of the week
2. Take a 5-10 mins walk at work when able
3. Walk or march in place during commercials when at home

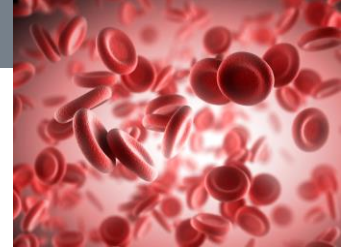
_____

SIGNATURE

# Low-Calorie Snack Options

- 1 cup blueberries with 2 tablespoons whipped topping
- 1 block dark chocolate, or three squares
- 1⁄2 frozen banana dipped in two squares melted dark chocolate
- 1⁄2 cup sunflower seeds
- 20 pistachios or 13 almonds
- 1 small latte with skim milk
- 6 cups microwave popcorn
- 1 small nonfat blueberry smoothie
- 1 cup tomato soup
- 10 baked pita chips with 1⁄4 cup salsa
- 1 small oatmeal cookie
- 2 medium kiwis
- 3 tablespoons hummus
- 1⁄2 cup fat-free yogurt
- 1 slice raisin bread
- 1 medium apple
- 1 orange
- 1 cup strawberries
- 1 stick low-fat string cheese
- 8 baby carrots with one tablespoon dip
- 1⁄2 apple (sliced) with 1 teaspoon natural peanut butter
- 1 small sliced avocado

# Lisa's Treatment Plan



- Burn 500 more calories daily than you consume
  - Add 2-5 mins/wk to walking routine for 10,000 steps/day goal
  - Take a 5-10 mins walk at work when able
  - Walk or march in place during commercials when at home
  - Use soup cans, milk jugs, or weight gym bag to add resistance activities
- Use application to track foods/activity
- Weigh daily and record
- Use lo-calorie snacks to prevent hunger between meals
- Refer to Certified Diabetes Educator (CDE) for more structured program and follow-up

# Lifestyle Resources

## Applications

- CalorieKing ®
- MyFitness pal ®
- MyPlate Calorie Counter ®
- Pacer Pedometer ®
- DeckWorkout ®
- 30 day fitness ®
- Home Workout ®
- Map My Walk ®

## Website Resources

- https://www.diabeteseducator.org
- https://www.choosemyplate.gov/
- https://www.cdc.gov/diabetes/prevention/resources/curriculum.html
- https://diabetes.org/diabetes

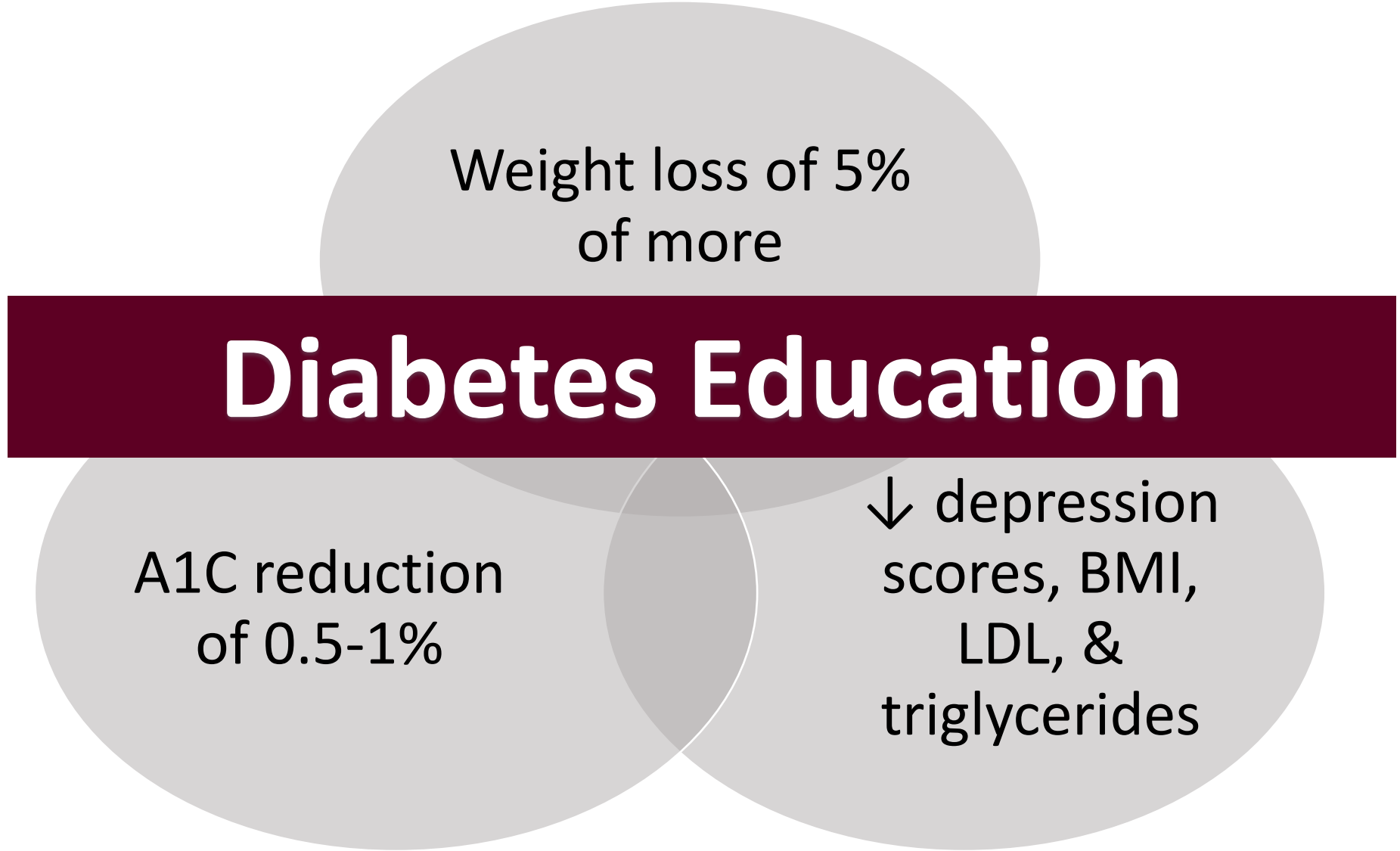
# Diabetes Education Programs

- Assist in developing customized plans
- Provide patients tools & ongoing support
- Improve diabetes outcomes including CVD risk reduction
- Covered by most commercial healthcare plans, Medicare & Medicaid

- Find a Diabetes Education Program in Your Area

  Association of Diabetes Care and Education Specialists

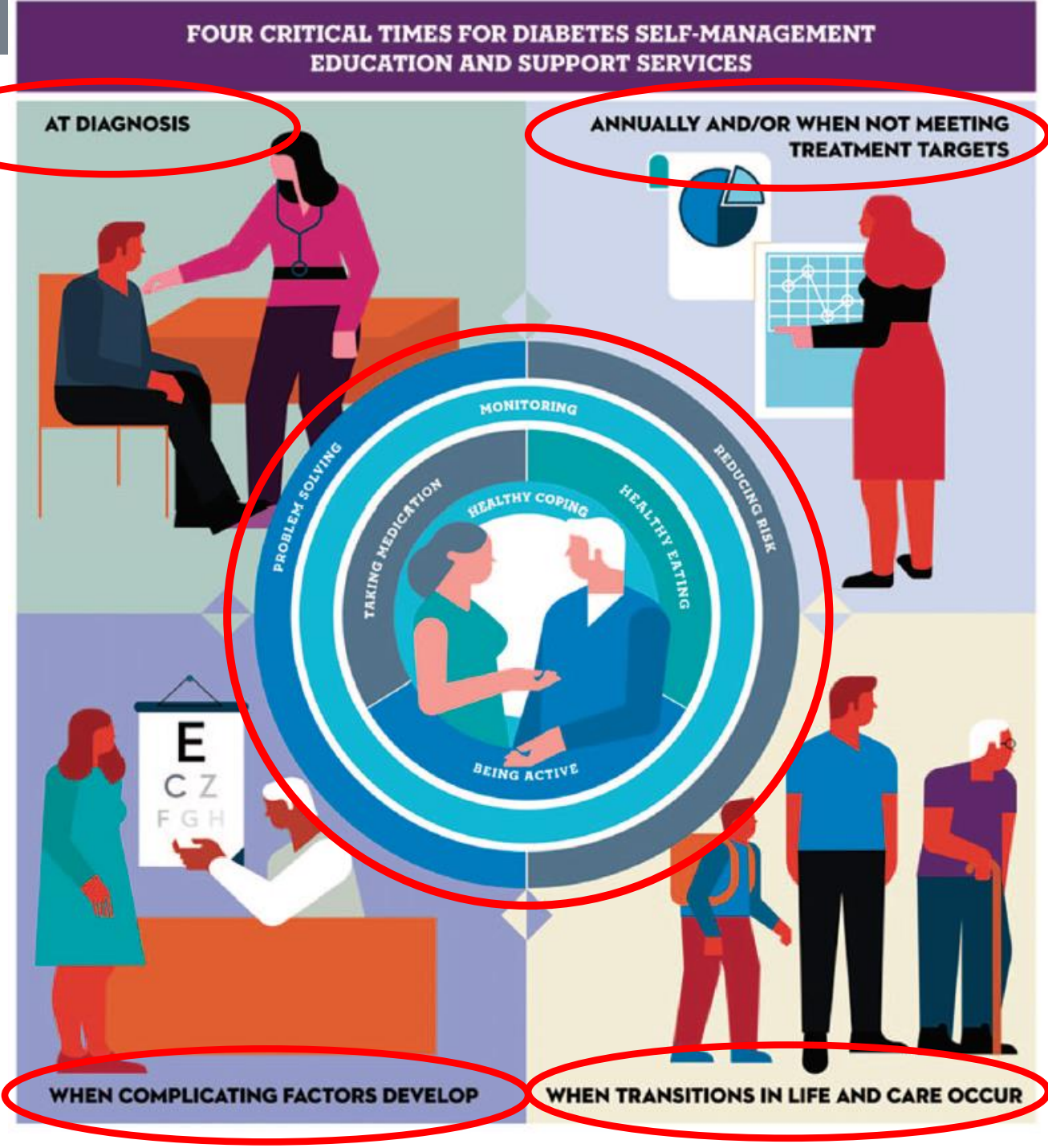
*Diabetes Educ*. 2016 Dec;42(6):678-685.




*Patient Educa Couns.* 2016 Jun;99(6):926-43.

*Popul Health Manag*.2019; 22 (6): 522-528

# Four Critical Times to Provide & Modify Diabetes Self-Management Education and Support (DSMES)




Powers MA, Bardsley JK et al. *Diabetes Self-management Education and Support (DSMES) in Adults with Type 2 Diabetes: A Consensus Report* of the ADA, ADCES, AND, AAFP, AAPA, AANP, APhA. The Diabetes EDUCATOR. Volume 46, Number 4, August 2020.

# Summary

- Prediabetes should be assessed and managed within primary care
- Prediabetes can progress to clinical diabetes and result in both microvascular and macrovascular complications
- Managing cost of prediabetes is minimal compared with cost of treating long term complications
- Management strategies should focus on:
  - Shared-decision making encouraging “progress over perfection”
  - Lifestyle Medicine interventions (activity, nutrition and weight loss)
  - Pharmacologic interventions (when appropriate)
  - Routine follow-up

AAFP AANP American Association of NURSE PRACTITIONERS AAPA ENDOCRINE SOCIETY

# Resources

- **ADA Standards of Care in Diabetes – 2020**
  https://care.diabetesjournals.org/content/diacare/suppl/2019/12/20/43.Supplement_1.DC1/Standards_of_Care_2020.pdf
- **American Association of Diabetes Educators -** ***Heart Disease & Diabetes Prevention***
  https://www.diabeteseducator.org/docs/default-source/living-with-diabetes/tip-sheets/cardiovascular-disease/cvdprevention.pdf?sfvrsn=12
- **Harvard School of Medicine – Institute of Lifestyle Medicine**
  https://www.instituteoflifestylemedicine.org/
- **American Heart Association -** ***Diet and Lifestyle Recommendations***
  https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics/aha-diet-and-lifestyle-recommendations
- **CDC - Physical Activity Basics**
  https://www.cdc.gov/physicalactivity/basics/index.htm
- **Diabetes Education Programs in US**
  https://www.diabeteseducator.org/living-with-diabetes/find-an-education-program
- **Diabetes Cost Savings Program**
  https://www.diabeteseducator.org/docs/default-source/practice/educator-tools/insulin-cost-saving-resources-3-4-19.pdf?sfvrsn=2