



# Behavioral Health and Diabetes: Bi-Directional Interaction

*National Healthcare for the Homeless  
Conference*

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# Presenters

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# Southern Arizona Health Village for the Homeless



**EL RIO**  
COMMUNITY HEALTH CENTER



 **CARONDELET**  
HEALTH NETWORK

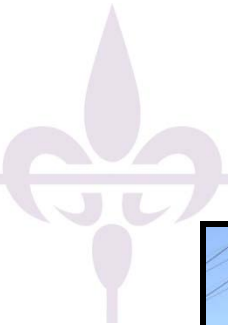


# Southern Arizona Health Village for the Homeless

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## Health Village Vision

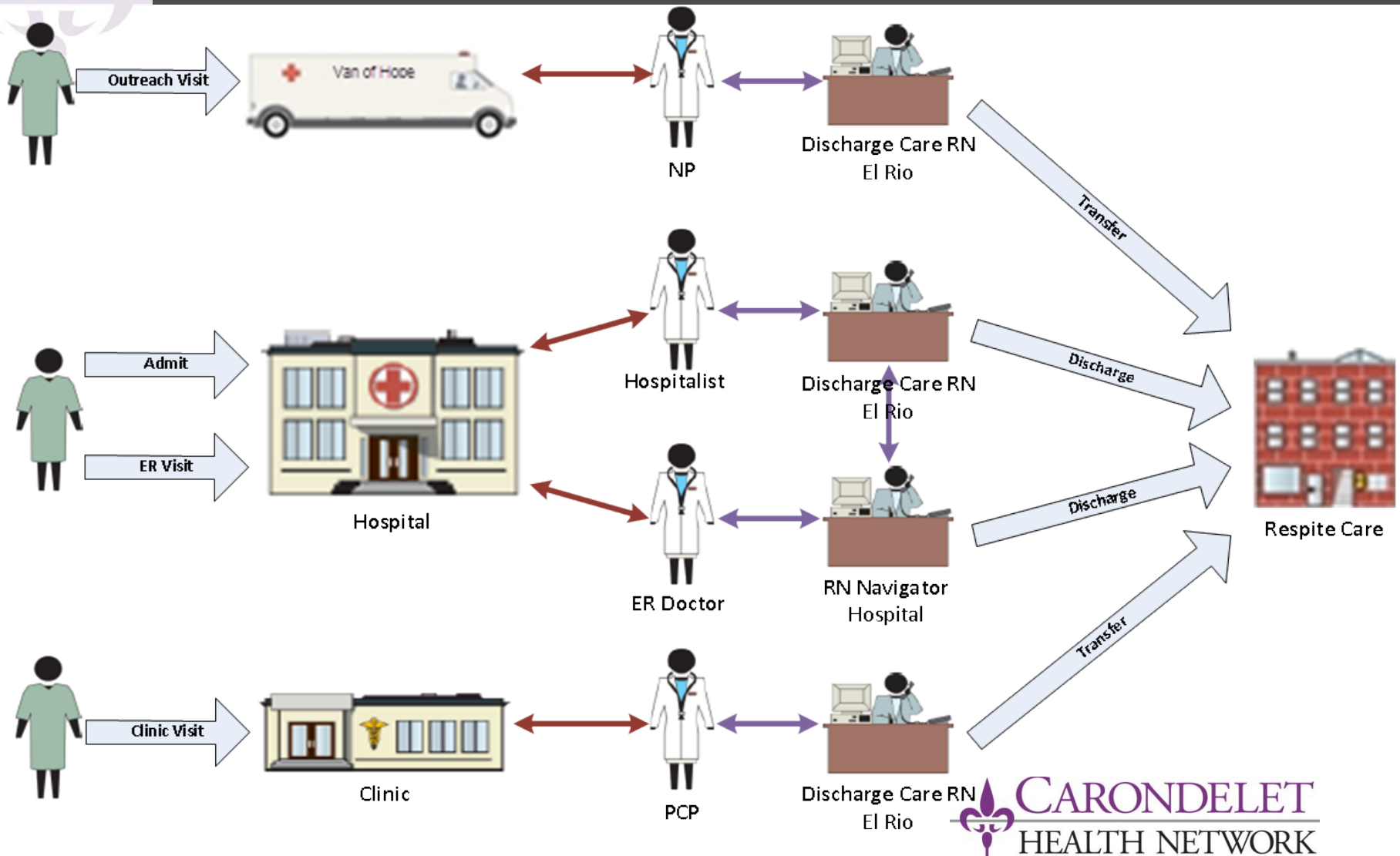
1. Establish a consortium of partners
2. Create the continuum of care for SAHVH
3. Improve clinical outcomes of the homeless
4. Improve access to care for people who are homeless
5. Reduce inappropriate utilization of emergency center resources and readmissions



# VAN OF HOPE HEALTH VILLAGE



# Post-Hospital Program





# Workshop Objectives

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- Become familiar with Diabetes, the prevalence, changes in metabolic processes and risk factors
- Increase awareness of the bi-directional interaction of Diabetes and Behavioral Health issues
- Recognize the negative effect of some anti-psychotics and anti-depressants on metabolic processes which increase the risk of Diabetes



# Workshop Objectives

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- Integrate knowledge into the management of Behavioral Health issues and prevention of Type 2 Diabetes
- Develop action plans with patients to assist in Diabetes prevention and management
- Recognize unique challenges of people experiencing homelessness







# Diabetes and Homelessness

**“Diabetes by itself can be a difficult disease, but diabetes and homelessness is a dangerous combination”** <sup>31</sup>

- **46-53%** of people experiencing homelessness report a chronic health condition  
(i.e. diabetes, high BP, asthma or cancer)
- **7-22%** reported having diabetes  
(72% of those reported difficulty managing their condition and 44% had inadequately controlled blood glucose levels) <sup>32</sup>



# Homelessness and Behavioral Health Issues

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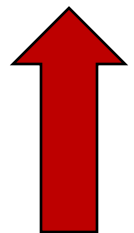
- Diabetes is rapidly increasing among the homeless
- **Up to 2/3** of homeless people are affected by behavioral health issues:
  - 24% → *have a serious mental illness (SMI)*
  - 38+ % → *have alcohol abuse issues*
  - 26% → *other drug abuse*

(These are often in combination) <sup>32,33,34,35,36,37,38</sup>

# What is Diabetes?

A disease that occurs when the body cannot use the sugar (glucose) in your blood for energy

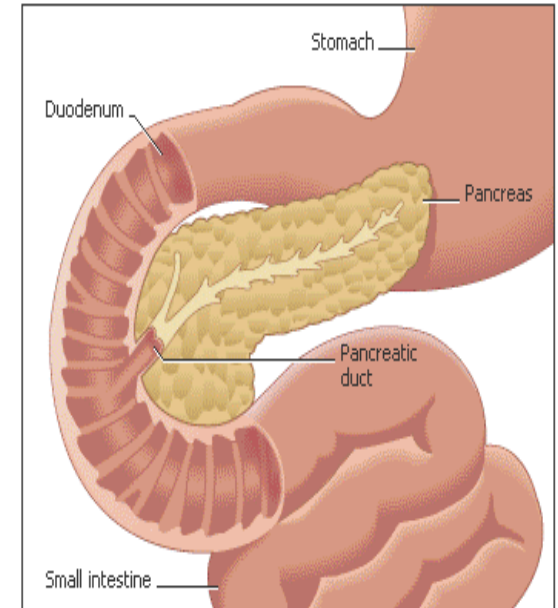
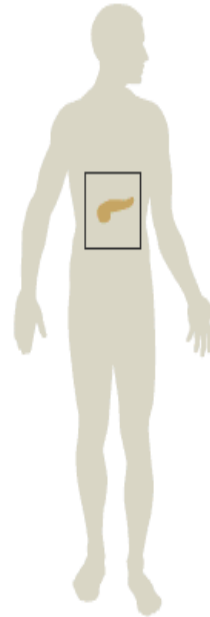
- Diabetes develops when:
- The body does not make enough insulin
- The body's cells can't use insulin
- The Result → High Blood Sugar



# What is Diabetes?

Insulin is a hormone

- Helps the body use sugar (glucose) for energy
- Made in pancreas (beta cells)

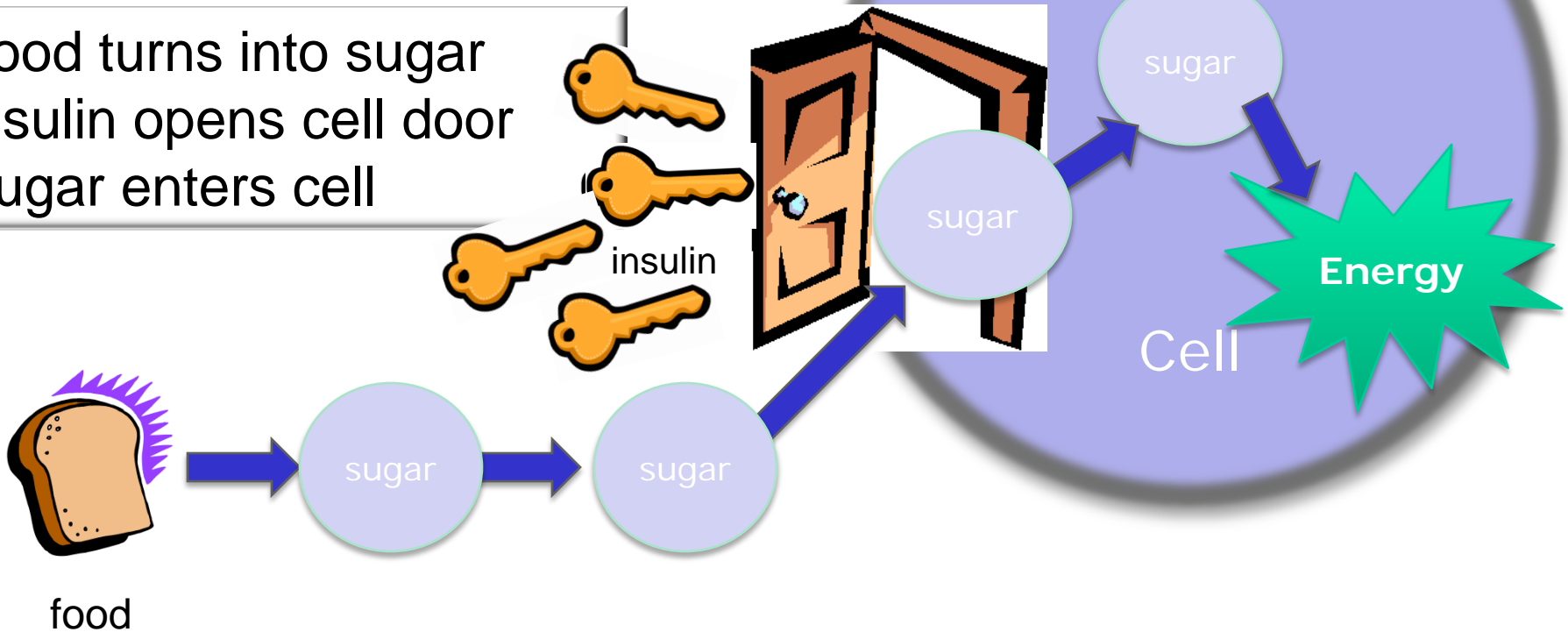


# What is Diabetes?



## No Diabetes

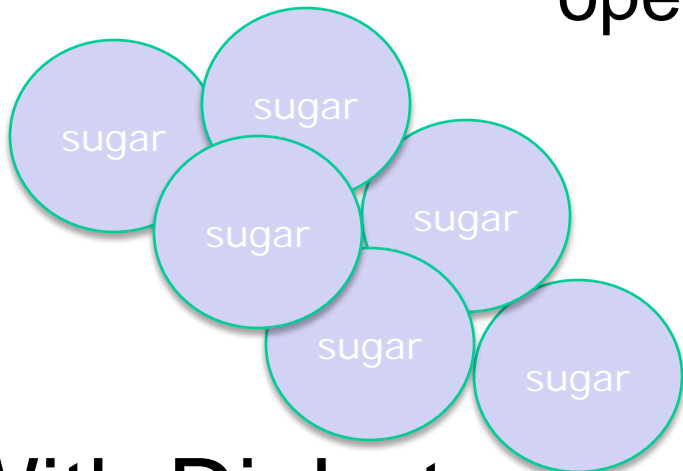
Food turns into sugar  
Insulin opens cell door  
Sugar enters cell



# What is Diabetes?

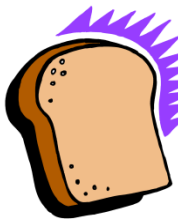


Insulin key won't open the door

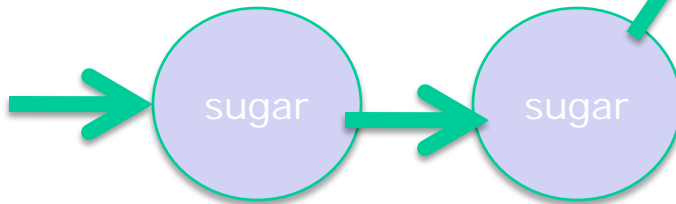


Cell

With Diabetes



food



# What is Diabetes?

- Diabetes is a **SILENT** disease
- At the time of diagnosis most people have had diabetes for years and are not aware of it
- Common signs/symptoms may be:
  - 3-P's: polyuria, polydipsia, polyphagia
  - increased urination, thirst, hunger
  - Increased fatigue
  - Blurry vision



# Diagnosing Diabetes

Test Stage	Fasting Plasma Glucose (FPG)* (Preferred Test)	Hemoglobin A1c	Oral Glucose Tolerance Test*
Diabetes	FPG $\geq 126$ mg/dl Random $\geq 200$ mg/dl with s/s	Greater than or equal 6.5%	Two-hour plasma glucose (2hPG) $\geq 200$ mg/dl
Pre-Diabetes	Impaired Fasting Glucose (IFG) = FPG $\geq 100$ and $< 126$ mg/dl	5.7% to 6.4%	Impaired Glucose Tolerance (IGT) = 2hPG $\geq 140$ and $< 200$ mg/dl
Normal	FPG $< 100$ mg/dl	Less than 5.7%	2hPG $< 140$ mg/dl

\*In the absence of unequivocal hyperglycemia, these need to be repeated on the second day





# Types of Diabetes

Type 1 Diabetes	Type 2 Diabetes
Body does not make insulin	Body's cells ignore the insulin ("insulin resistance") Over time, body makes less insulin
Often diagnosed in children	Usually diagnosed in adults Of those 85% are over weight
Less common 5-10%	Most common 90%

# Insulin Resistance

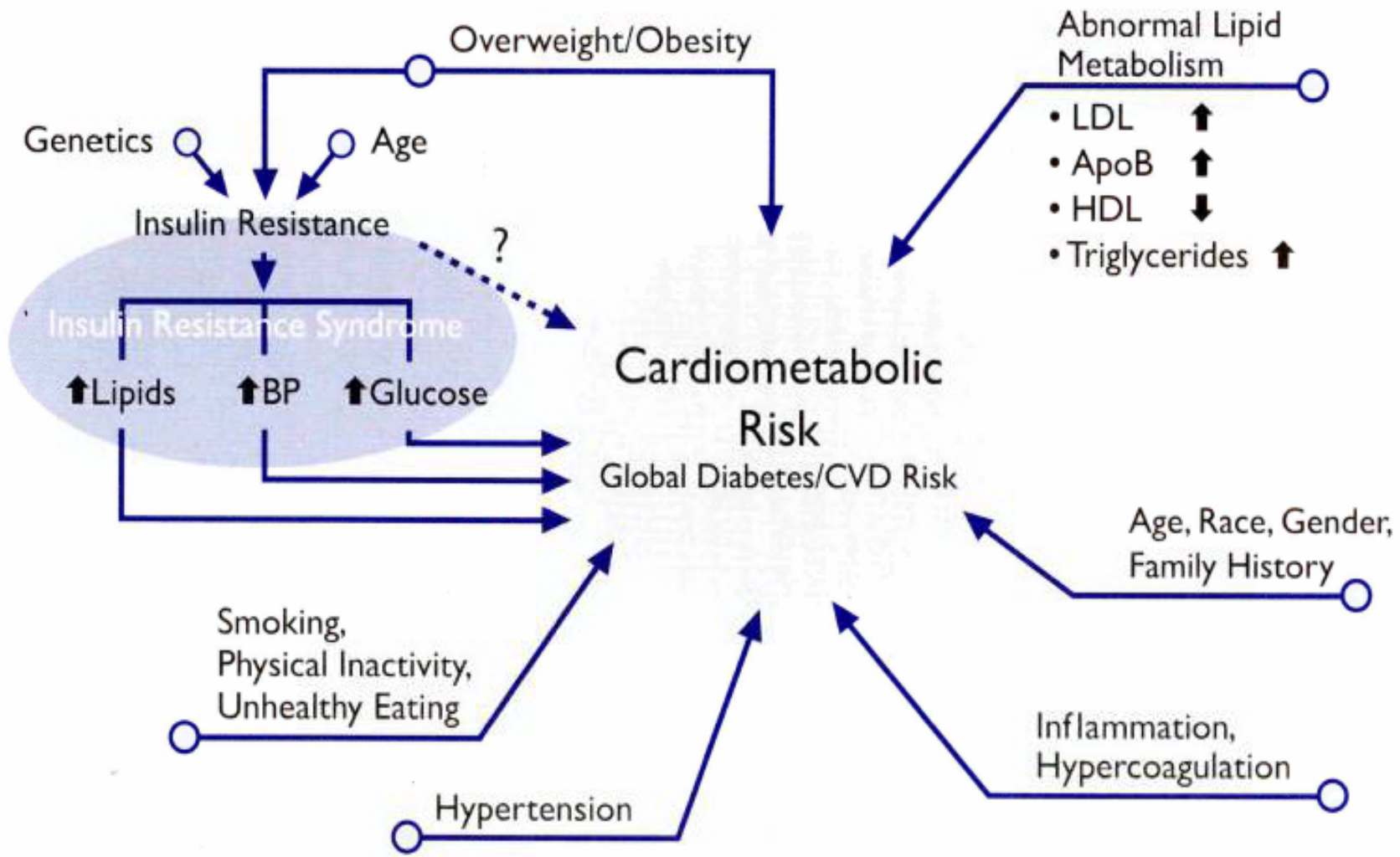
## INSULIN RESISTANCE

- Receptor cell defect
  - Decreased response to insulin
  - Increased insulin production

➡ Hyperinsulinemia
- Beta-Cell failure
  - Diabetes
- Multi-factorial causes
  - Genetic predisposition
  - Increased **STRESS** hormones
    - Cortisol
  - Obesity
  - Inactivity
  - Medication

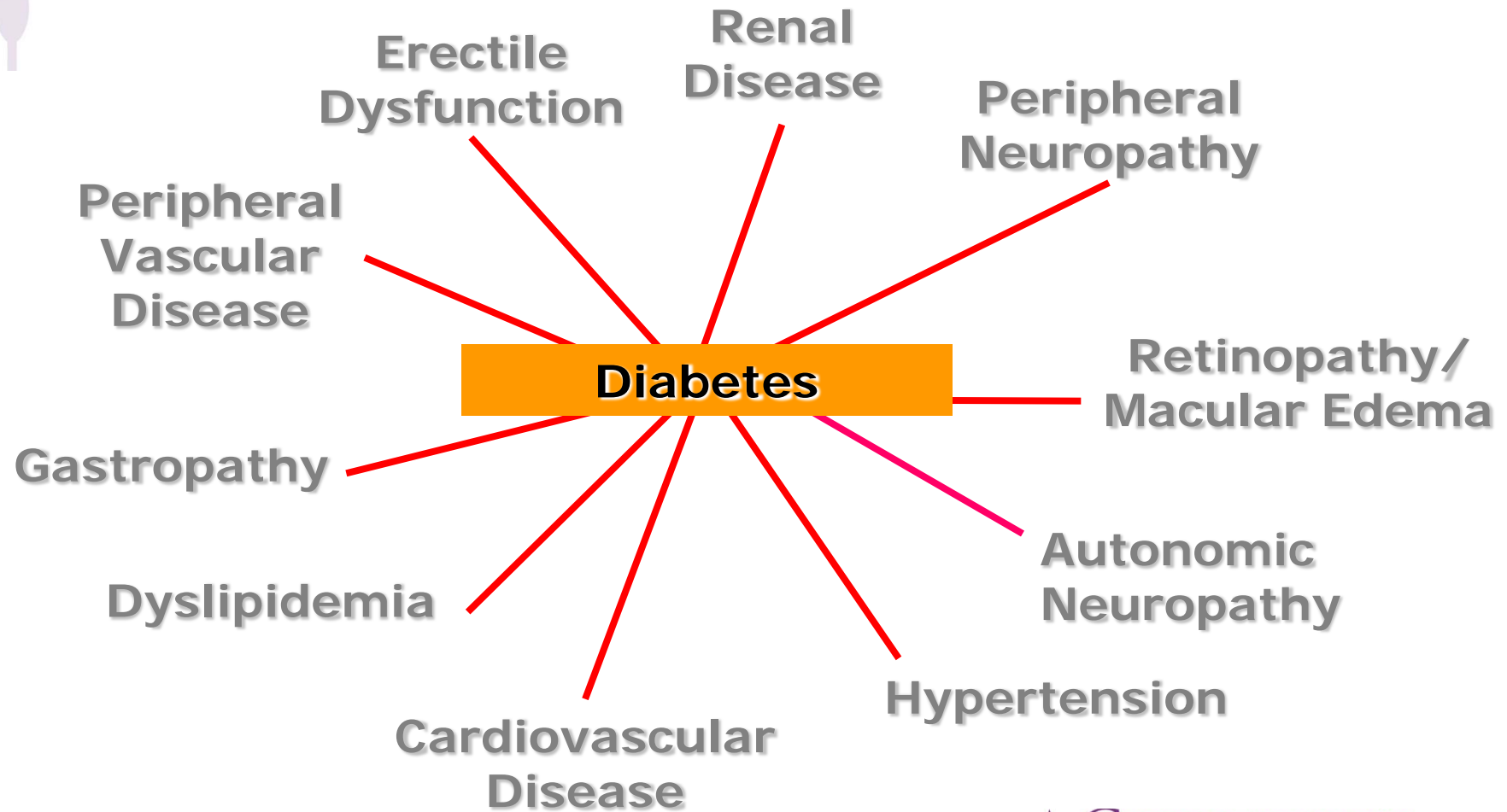


# Factors Contributing to Cardiometabolic Risk



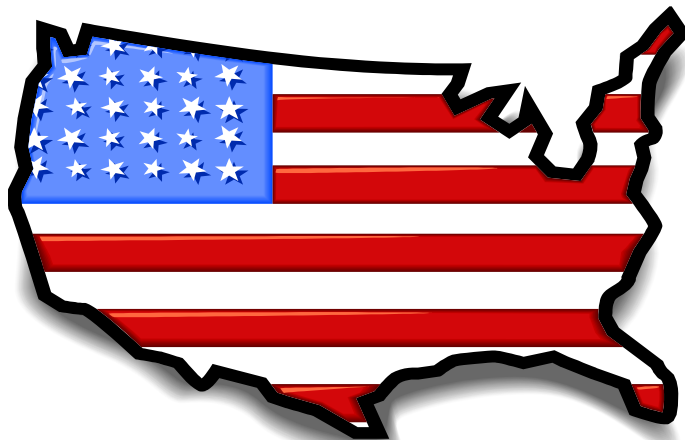


# A Constellation of Complications

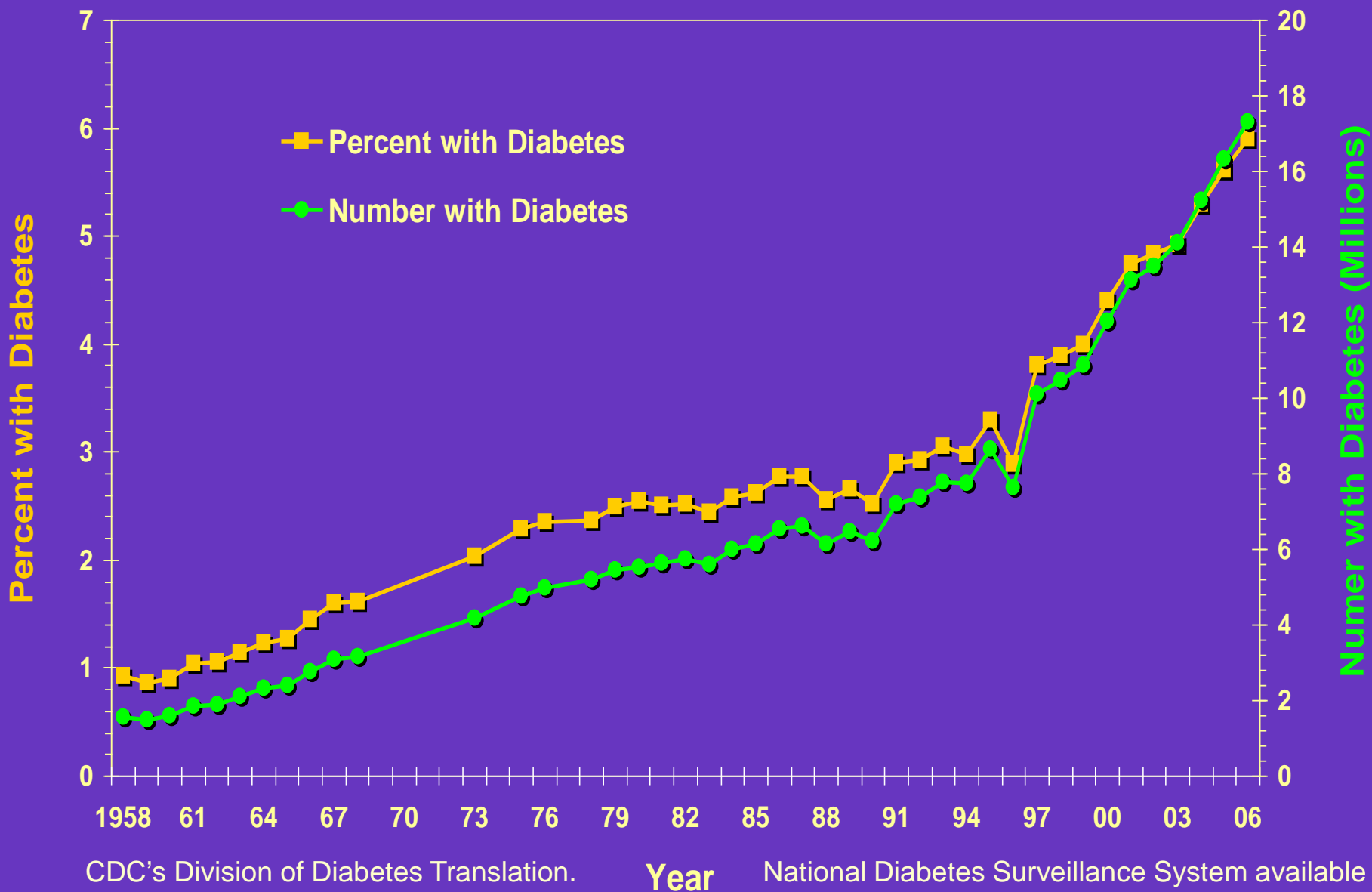


# Prevalence


- **Diabetes** is the **7th leading cause of death** in the U.S. and the prevalence has more than doubled in the last 10 years <sup>8, 24</sup>
- **25.8 million** people in the United States **have Diabetes** (1 out of 12)
  - 11.3% of people >20 years of age
- **7 million DO NOT KNOW** they have the disease



# Number and Percentage of U.S. Population with Diagnosed Diabetes



# Pre-Diabetes

- Blood glucose levels higher than normal but not at level for diagnosis
- Increased prevalence in the United States
- Estimated to be **79 million people** in the U.S.<sup>8,24</sup>
-  Risk of Type 2 diabetes & Metabolic syndrome
  - 35% of Americans over age 20
  - 50% of Americans over age 65





# Risk Factors for Type 2 Diabetes

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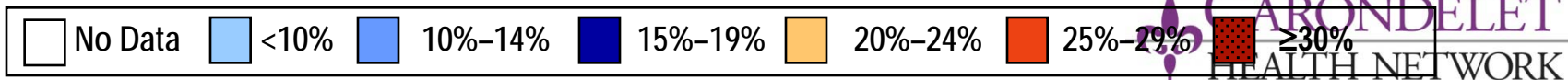
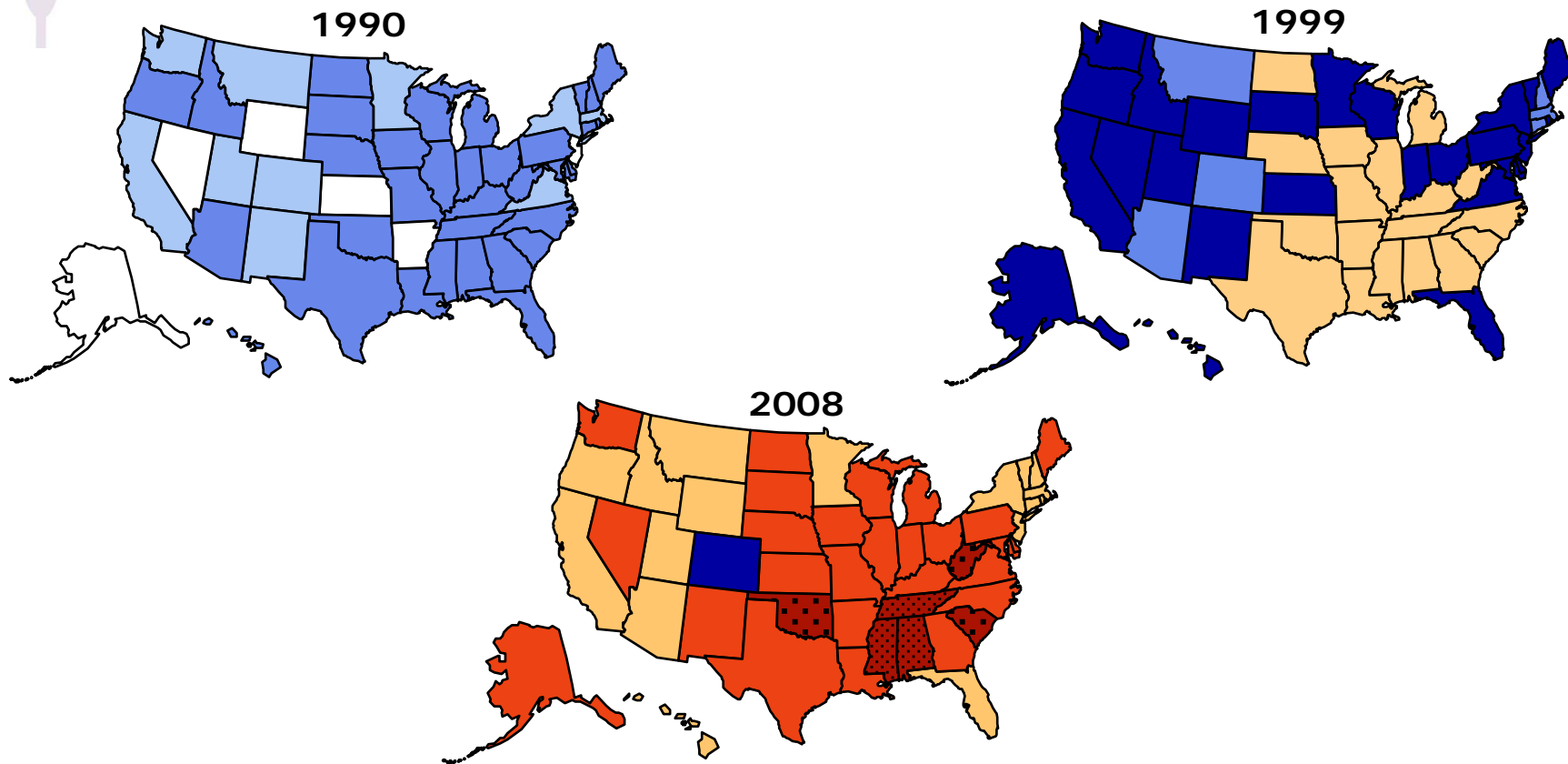
- Overweight
- Inactivity in daily life
- Increasing age
- Family history of diabetes or ethnic minority
- Evidences of acanthosis nigricans - dark, thick, velvety skin around the neck or under arms
- Hypertensive or hyperlipidemia



# Obesity Trends\* Among U.S. Adults

## BRFSS, 1990, 1999, 2008

(\*BMI  $\geq 30$ , or about 30 lbs. overweight for 5'4" person)



# Populations at **High Risk**

- 18.7 percent of all non-Hispanic blacks >20 yrs of age have diabetes
- 16.1 percent of Native Americans >20 years of age have diabetes
- 33.5 percent among Native Americans in Southern AZ
- 13.3 percent for Mexican Americans
- Compared to non-Hispanic whites, the risk of diagnosed diabetes is:
  - **77% higher among non-Hispanic blacks**
  - **66% higher among Latinos/ Hispanics** 8





James Harris drives through a field of corn in the Phoenix area. In 2003, a nonprofit group helped the traditional...

**DIABETES**  
I don't lose weight I'm going in five years

**Statistics**  
In the United States, 20 million live with diabetes.

- 6.2 million Americans have diabetes
- 10 percent have Type 1
- 25 percent have Type 2
- Diabetes is the sixth leading cause of death
- 75,000 new diagnoses each year
- 90 percent have Type 2

**DIABETES RISK FACTORS**

- Being over 40 years old
- Being overweight
- Having a family history of diabetes
- Being inactive
- Having high blood pressure
- Having high cholesterol
- Having a history of gestational diabetes
- Having a history of heart disease
- Having a history of stroke
- Having a history of hypertension
- Having a history of kidney disease
- Having a history of liver disease
- Having a history of thyroid disease
- Having a history of autoimmune disease
- Having a history of cancer
- Having a history of depression
- Having a history of anxiety
- Having a history of stress
- Having a history of poor diet
- Having a history of poor sleep
- Having a history of poor stress management
- Having a history of poor social support
- Having a history of poor self-care
- Having a history of poor adherence to medical advice
- Having a history of poor health insurance coverage
- Having a history of poor access to health care
- Having a history of poor health literacy skills
- Having a history of poor health beliefs and attitudes
- Having a history of poor health behaviors
- Having a history of poor health status



James Harris holds a member from the...

**BEATING DIABETES A SPECIAL REPORT**

# Southern Arizona: epicenter of an epidemic

**By Chris McClain**

...the epidemic of obesity and diabetes threaten...

**Food power**  
Living right fights obesity

**First of four**

"Diabetes" means that you have too much sugar in your blood. It's a chronic disease that can lead to blindness, kidney failure, heart disease, nerve damage, and even death.

...the epidemic of obesity and diabetes threaten...



Health worker Elizabeth Davis, front, leads a health fair at the Maricopa Community Health Center's Phoenix Rehabilitation Center in Phoenix, Ariz.

**BEATING DIABETES A SPECIAL REPORT**

## Aggressive attack on body-racking disease

**Second of four parts**

**By Chris McClain**

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PHOTO: JAMES HARRIS/STAFF PHOTOGRAPHER; PHOTOS: JAMES HARRIS/STAFF PHOTOGRAPHER



# Populations at **Higher Risk**

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- People with serious behavioral health diagnoses are **TWICE** as likely to develop Type 2 diabetes <sup>22</sup>
- As many as 40% of patients with diabetes have significantly elevated levels of depressive symptomology <sup>22</sup>
- Diabetes is 2-3 times greater in persons with schizophrenia <sup>3</sup>



# Populations at Higher Risk

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## People experiencing homelessness have:

- Higher rates of chronic illnesses  
(diabetes, hypertension, mental health problems)
- Greater access barriers to needed health care services
- Less likely to have health insurance or regular providers
- More likely to be addicted to drugs & alcohol

32, 34, 35, 37



# Populations at Higher Risk

## People experiencing homelessness:

- Have less control over diet and keeping hydrated
- High diabetes risk populations are disproportionately represented:
  - African Americans 42% of homeless /11% of US population,
  - Hispanic 13% / 9%,
  - Native American 4% / 1%
- Up to 66% have behavioral health or substance abuse issues combined 32, 35, 37



# Deadly Combination

- People with diabetes & significantly depressed were 2½ times (250%) more likely to die over an 8-year study period <sup>21</sup>
- People with diabetes & depression had 30% increased risk of mortality vs diabetics who were not depressed <sup>21</sup>
- Depression is linked to poor glucose control, poor diabetes self-care, increased risk of long-term complications and higher health care costs

9, 24

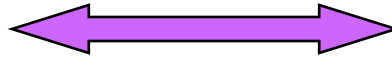




# Bi-Directional Interaction

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The connection between obesity, insulin resistance, diabetes and mental health problems is no longer questioned

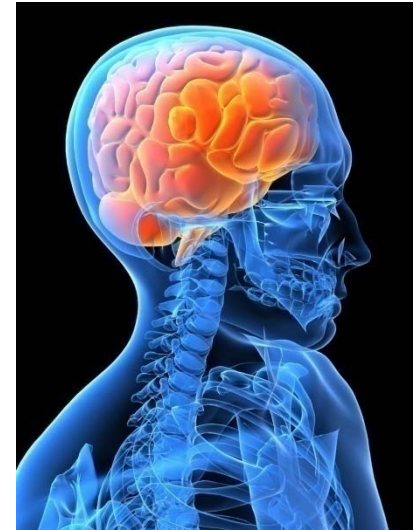


- Reasons for this association:
  - psychotropic medications cause weight gain & promote the metabolic syndrome
  - social stigma associated with obesity
  - lifestyle changes associated with diabetes
  - inflammatory activation due to poor diet, high insulin and glucose levels, changes in brain neurochemistry



# Bi-Directional Interaction

**Brain areas which are affected in mood disorders and diabetes significantly overlap**



The association with diabetes, obesity and insulin resistance extends beyond just mood disorders, to major psychiatric syndromes such as bipolar disorder and schizophrenia <sup>6,7, 24</sup>



# Diabetes and Mental Health Impact

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- Poor diabetes control slows mental functioning early on, specifically reduction in executive functioning and processing speed <sup>20, 23, 29</sup>
- It becomes more difficult to manage self care & lifestyle changes needed to reduce the impact of diabetes and to cope with emotions <sup>20</sup>

# Diabetes and Mental Health Impact

## ➤ Healthy Eating

- Less carbohydrates, fats
- More fruits & vegetables
- Regular meal schedule



## ➤ Exercise

- ADA recommendation = 20" 5 days/week





# Diabetes Medications

## Oral Medications

- Metformin
  - Glucophage
- Sulfonylureas— **HYPO**
  - Glyburide/glipizide
- Januvia
- Onglyza



## Injectables

- Insulins - **HYPO**
  - NPH
  - Regular
  - 70/30
- Insulin Analogs - **HYPO**
  - Rapid
  - 24 hour
- Byetta
- Victoza





# Recognizing Symptoms

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## Hypoglycemia



- Blood sugar less than 70
- Causes:
  - Omit or irregular meals
  - Too much medication
  - Alcohol use
- Treat signs/symptoms
  - Weakness
  - Dizziness
  - Palpitations
  - Confusion
  - Sz and coma

Fast acting CHO: juice, glucose tabs, sugar packets

## Hyperglycemia



- Blood sugar over 200
- Causes:
  - Skip or stopped medication
  - Increase CHO
- Treat signs/symptoms
  - Increase fatigue
  - Increase thirst/urination
  - Unexplained weight loss
  - Coma

Increase fluids, begin medications

# Behavioral Health Medications

## ➤ Common medications for which weight gain is considered:

- “Problematic”: Clozaril, Zyprexa and Lithium.
- “Moderate”: Seroquel, Risperdal, Abilify, Depakote, Chlorpromazine (Thorazine), Remeron, Geodon, and all the tri- & tetra cyclic anti-depressants (like Imipramine, Clomipramine) <sup>10, 19</sup>



- Dilantin interferes with insulin secretion <sup>27</sup>
- Medications and chemicals which increase epinephrine work against the action of insulin <sup>2</sup>

# Managing Medications

It is considered best practice that before starting any of these medications:



- 1) Weigh patient & get baseline BMI
- 2) Test for pre-diabetes or diabetes
- 3) If pre-diabetes or diabetes is present, consider medication change
- 4) Test cholesterol & liver function levels
- 5) Monitor every 3 months for BMI, diabetes, A1c and cholesterol
- 6) Recommend simple & doable changes in food & medications



# Homeless Ramifications

- Difficult to carry out “best practice” because of the homeless condition
- Consistency, availability of resources and communication are barriers
- Limited drug formulary in many medical clinics



# Psychiatric Conditions

➤ *Schizophrenia, schizoaffective disorder or bipolar disorder* predisposes **metabolic syndrome** exacerbated by:

- Sedentary lifestyle
- Poor dietary habits
- Risk of limited access to care
- Antipsychotic drug-induced adverse effects



➤ 32% to 51% meet criteria for **metabolic syndrome** <sub>3</sub>



# Factors to Reduce Risk

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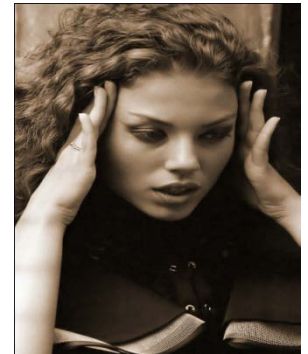
Factors that contribute to compliance in patient glucose management include:

- Consistency in provider
- Consistency in support & communication
- Reinforcement of goals
- Simple medication regimen



# Self Management

- Diabetes is a self-managed disease and requires self-motivation
- Collaborative care emphasizes providers setting goals **with** patients and providing ongoing support
- Empowerment readies patients to be fully responsible for diabetes self-care
- Cooperation and respect characterizes collaborative care with empowered patients



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# AADE 7

## ➤ **Healthy Eating**

- Plate Method

## ➤ **Being Active**

- Power of exercise

## ➤ **Monitoring**

- Blood sugar goals

## ➤ **Taking Medications**

- Easy regimen
- Recognize the interaction of meds

## ➤ **Problem Solving**

- Empowerment

## ➤ **Reducing Risks**

- Focus on control

## ➤ **Healthy Coping**

- Multiple issues affecting self-care





# Factors in Compliance

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- Patients satisfied with their relationship with their health care providers have better adherence to health regimens
- Psychological problems such as anxiety, depression, and eating disorders have been linked with worse diabetes management <sup>24</sup>





# Predictors of Poor Adherence to Medication

- Presence of psychological problems, depression
- Presence of cognitive impairment
- Treatment of asymptomatic disease
- Side effects of medication
- Patient's lack of belief in benefit of treatment
- Patient's lack of insight into the illness
- Cost of medication, copayment, or both
- Complexity of treatment <sup>13</sup>





# Significant Barriers

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- Inability to pay for transportation to healthcare services
- Lack of sensitivity from providers & distrust in them
- Adherence to simple treatment plans are sometimes not feasible
- Scheduling & logistics make following a regimen difficult
- Some shelter rules are barriers



# Significant Barriers

- Sporadic, unpredictable food intake
- Food served often not suitable for people with diabetes
- Traumatic Brain Injuries
- Violence & theft of needles and medication
- Binge drinking particularly makes glucose control difficult
- Untreated mental illness

34





# Behavioral Interventions

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- A) Behavior change is part of an interpersonal process. Patients are responsible for their own decisions
  
- B) Establish rapport – listen to patients and find out what is important to them <sup>12</sup>





# Behavioral Interventions

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- C) Provide a rationale for recommended treatments
- D) Reduce resistance by emphasizing personal choice and control
- E) Provide continuity of care <sup>12</sup>



# Group Education / Therapy

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- Any type of group support is useful<sup>14</sup>
  
- Recognition of cognitive deficits is important:
  - Instruction in specific skills
  - Frequent repetition of important content
  - Opportunities for behavioral rehearsal
  - Breaking material into small units
  - Aids to reduce requirements of memory and attention <sup>16</sup>



# Motivating Behavior Change

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**A patient-centered approach is effective to engage the patient in an active collaboration** <sup>12</sup>

➤ Outcomes improve with:

- Facilitating patient in defining personal goals
- Strategies to reach goals
- Making informed choices
- Developing behavioral and coping skills to support these choices <sup>12</sup>



# Motivating Behavior Change

- Behavioral interventions and diabetes treatment are especially effective for patients with a high level of distress related to diabetes <sup>15</sup>





# Best Chance for Success

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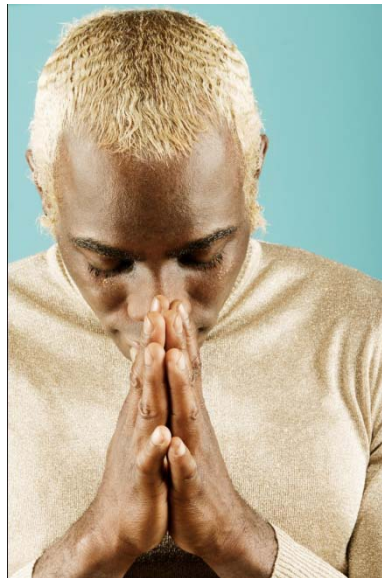
- Stabilized on psych meds before trying to help stabilize their diabetes
- Best approach is “Keep it very simple” KISS
- Teach to read food labels, maintaining hydration when blood sugar is high, and educate on avoiding complications
- Recognize the difficulty in management



# Patient Centered Approach

## Culturally Sensitive Consideration

“We filter our understanding of life's important experiences through the values and concepts of the culture in which we grew up.”

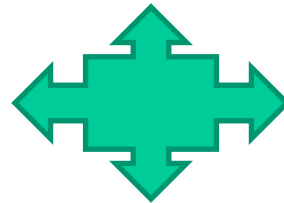




# Patient Centered Approach

## Patient Centered Care

"providing care that is respectful and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions" <sup>12</sup>



**The reality is that it is the patient who is in control and experiences the consequences of his or her choices**

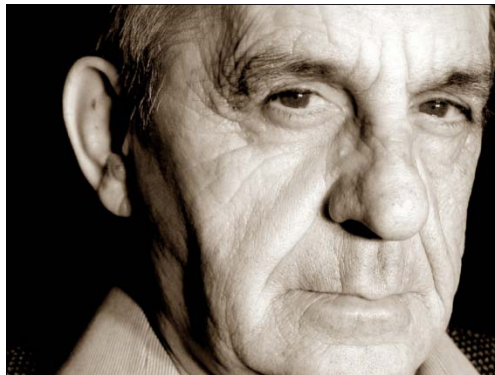


# Patient Centered Approach

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## The Patient

- a) **defines** why it is important to them
- b) **chooses** the level of action to be taken
- c) **sets** weekly/monthly goals
- d) **gives feedback** to the provider about the effectiveness about their help



# Patient Centered Approach

Step 1. Explore the Problem or Issue

Step 2. Clarify Feeling and Meaning

Step 3. Develop a Goal and Start a Plan

Step 4. Commit to Action

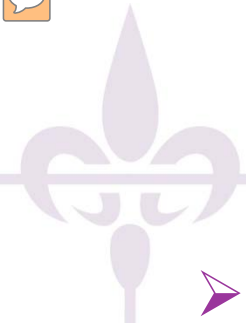
Step 5. Ask for Feedback



# What You Can Do

- Get connected to medical care!
- Keep message simple
- Encourage checking blood sugars
- Teach to read food labels for better choices
- Help see the connection between staying stable and feeling better
- Keep healthy snacks around as examples of what is okay to eat





# What You Can Do

- Remind everyone to pay attention to their bodies so they can head trouble off
- Insist providers simplify medication regimens
- Acknowledge it is hard
- Encourage better food choices with shelter food
- Use “teachable moments”
- Don’t give up!





# Positive Management

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- Depression and isolation: focus on the positive, multi-disciplinary intervention, education & support
- Risk factors: increase **awareness**, encourage patient to advocate for self and get screened
- Recognize the bi-directional interaction of diabetes & behavioral health



**CAN DO ATTITUDE**



# You Can Make A Difference

- People experiencing homelessness in Tucson, Arizona





# Summary

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- Diabetes is a serious disease
- Diabetes is a silent disease & often ignored
- Considered one of the most psychologically demanding of the chronic medical illnesses <sup>17</sup>
- Level of impact on behavioral health patients <sub>4, 14</sub>
- Everyone must be aware of risk factors and educated in management <sub>22</sub>





# QUESTIONS?





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