

UNDERSTANDING DIABETES: STRATEGIES FOR PREVENTION AND CARE



Marilyn Murrillo, EdD, Project Director

Etta Johnson, PhD, Director, Communication and Outreach

Bernard Gogo, MSc, Director, Data Monitoring and Evaluation

Beverly Keguna, MPH, Director, Operations and Partnerships



Beverly Keguna, MPH

PRESENTATION OUTLINE



- ❖ **Overview of Diabetes**
- ❖ **Types of Diabetes**
- ❖ **Causes, Risk Factors, & Complications**
- ❖ **Signs and Symptoms**
- ❖ **Global Burden of Diabetes**
- ❖ **Prevention and Treatment**

OVERVIEW OF DIABETES



- ❖ Metabolic Disease
- ❖ Affects how the body converts food into energy
- ❖ Leads to serious damage to organs of the body

(Source: WHO, 2022)

TYPES OF DIABETES

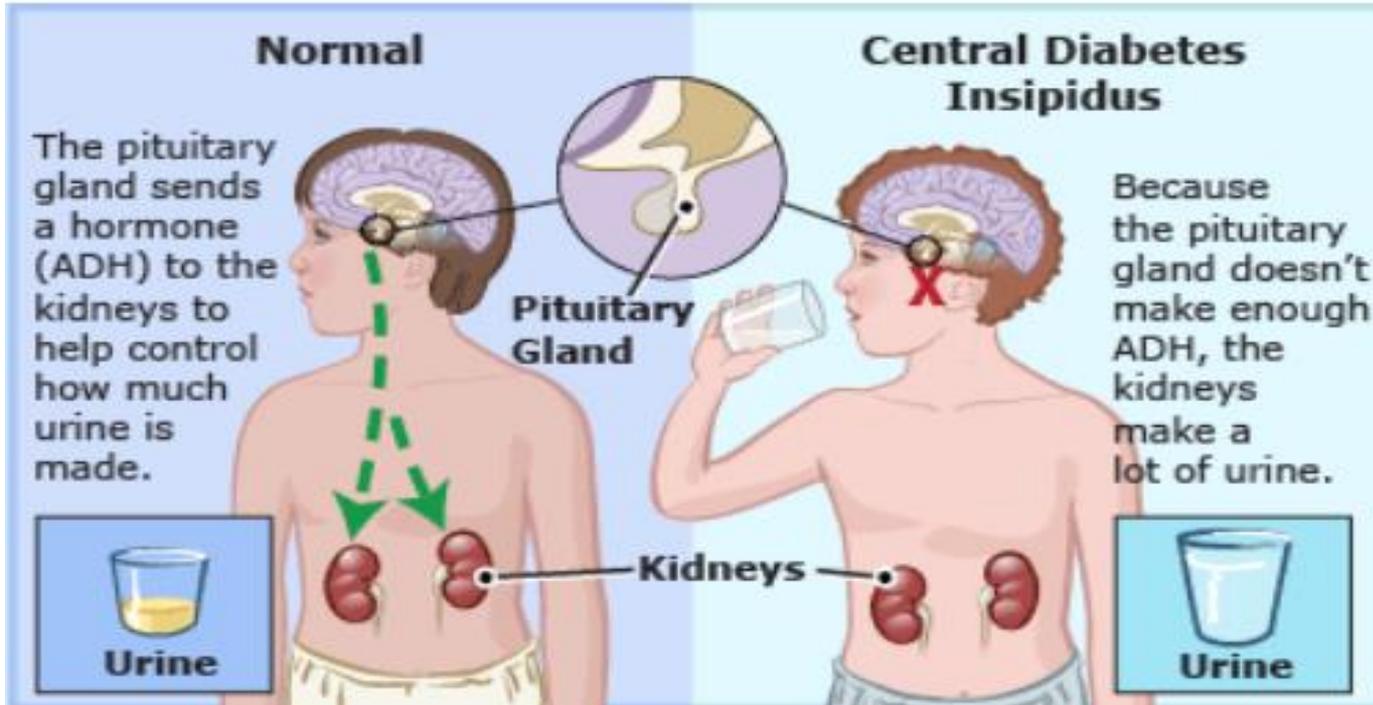


- ❖ Diabetes Insipidus (Cook Children's Health Care System, 2022)
- ❖ Diabetes Mellitus (CDC, 2022c)
- ❖ Diabetes due to pregnancy (Abbas and Devi, 2021, Pedro et al, 2015)

DIABETES INSIPIDUS



Uncommon disorder that causes fluid imbalance in the body



Source: Cook Children's Health Care System, 2022.

DIABETES MELLITUS



Involves Insulin in two different types –Type 1 and Type 2

Type 1	Type 2
❖ Body attacks itself (Autoimmune Disease)	❖ Peripheral insulin resistance
❖ Body doesn't make insulin	❖ Body doesn't use insulin
❖ 5-10 % occurrence	❖ 90-95% occurrence
❖ Acute symptoms	❖ Chronic Symptoms
❖ Mostly in children, teens, and adolescent	❖ Mostly in adults (also occurs in children, teens and adolescents)
❖ Continuous injection of insulin (CDC, 2022c)	❖ Delayed or prevented by lifestyle changes (CDC, 2022c)

DIABETES DUE TO PREGNANCY



There are two types of Diabetes induced by pregnancy:

- ❖ Gestational Diabetes Mellitus (Abbas and Devi, 2021)
- ❖ Transient Diabetes Insipidus in Pregnancy (Pedro et al, 2015)

DIABETES DUE TO PREGNANCY



Gestational Diabetes Mellitus

- ❖ Frequently occurs usually between second and third trimester
- ❖ Occurs in 15-25% of pregnant women
- ❖ Glucose Intolerance
- ❖ Can reoccur later in life
- ❖ Short and long term complications
- ❖ Prone to breast cancer and reproductive disorders
- ❖ Risk factor for both reproductive, metabolic, and cardiometabolic diseases (Abbas and Devi, 2021)

Transient Diabetes Insipidus in Pregnancy

- ❖ Rare condition, usually develops in third trimester
- ❖ Occurs in 2-4% of pregnant women
- ❖ Excessive vasopressinase activity
- ❖ Remits 4-6 months after delivery
- ❖ Challenging diagnosis (Pedro et al, 2015)



Etta Johnson, PhD.

CAUSES OF DIABETES



- ❖ Hereditary
- ❖ Pancreas makes excess or no insulin
- ❖ Pituitary gland malformation
- ❖ Blood sugar levels rise higher than normal
- ❖ Unmanaged prediabetes stage
(CDC, 2021)

DIABETES COMPLICATIONS



- ❖ Cancer
- ❖ Nerve Damage
- ❖ Vision Loss
- ❖ Hearing Impairment
- ❖ Prolonged or inability of injuries to heal

(CDC 2022a)

- ❖ Heart Disease
- ❖ Poor Oral Health
- ❖ Chronic kidney disease
- ❖ Mental health instability

RISK FACTORS



- ❖ Prediabetes
- ❖ Overweight
- ❖ Age - 45 or older
- ❖ Family history - Parent, brother/sister
- ❖ Physically inactive - physically active less than 3 times/week
- ❖ History of gestational diabetes or birthed baby over 9 lbs
- ❖ Race

(CDC, 2022a)

SIGNS AND SYMPTOMS



- ❖ May take several years to develop
- ❖ Usually starts in adulthood
- ❖ Hard to spot /may not be noticeable
- ❖ Known risk factors
- ❖ Get blood sugar tested
- ❖ Early detection/treatment can decrease risks

(CDC, 2021c)

SIGNS & SYMPTOMS CONTD.

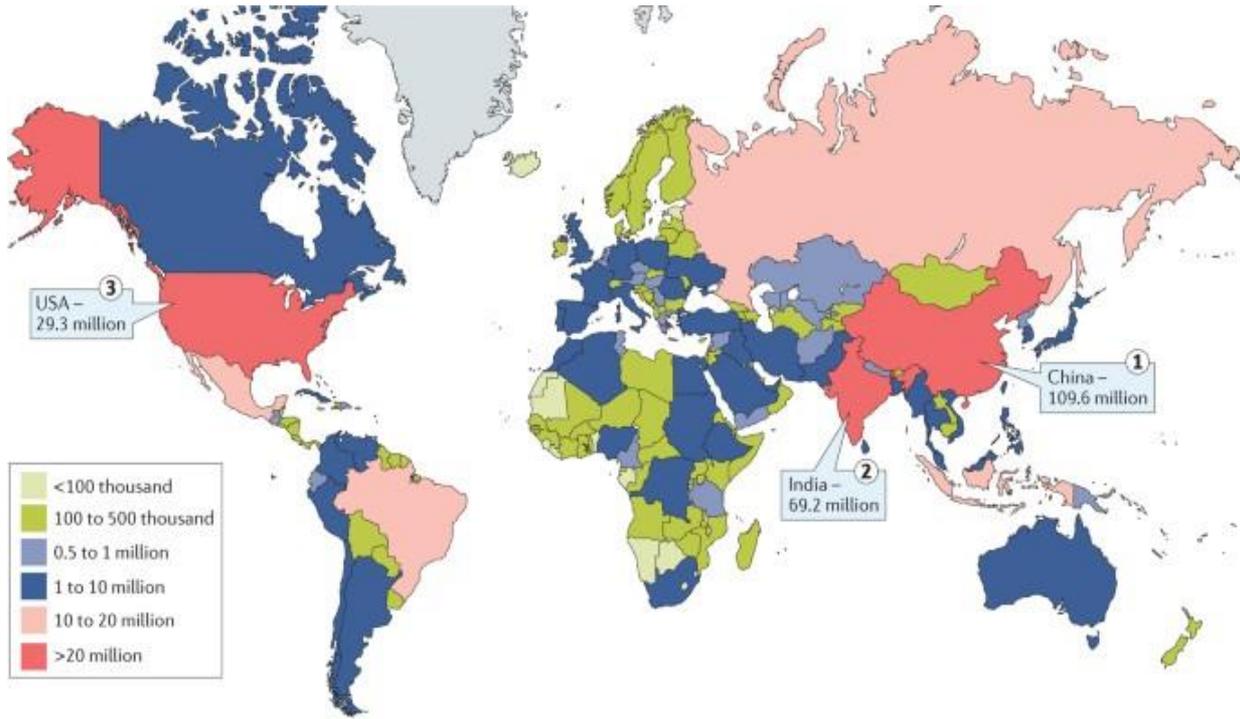


- ❖ Frequent Urination
 - ❖ Feeling very thirsty
 - ❖ Feeling very hungry
 - ❖ Extreme fatigue
 - ❖ Blurry vision
 - ❖ Slow healing cuts/bruises
 - ❖ Tingling, pain or numbness – feet/hands
- (American Diabetes Association, 2022d)



Bernard Gogo, MSc.

GLOBAL BURDEN OF DIABETES



537 million adults have diabetes worldwide in 2021 (IDF, 2021)

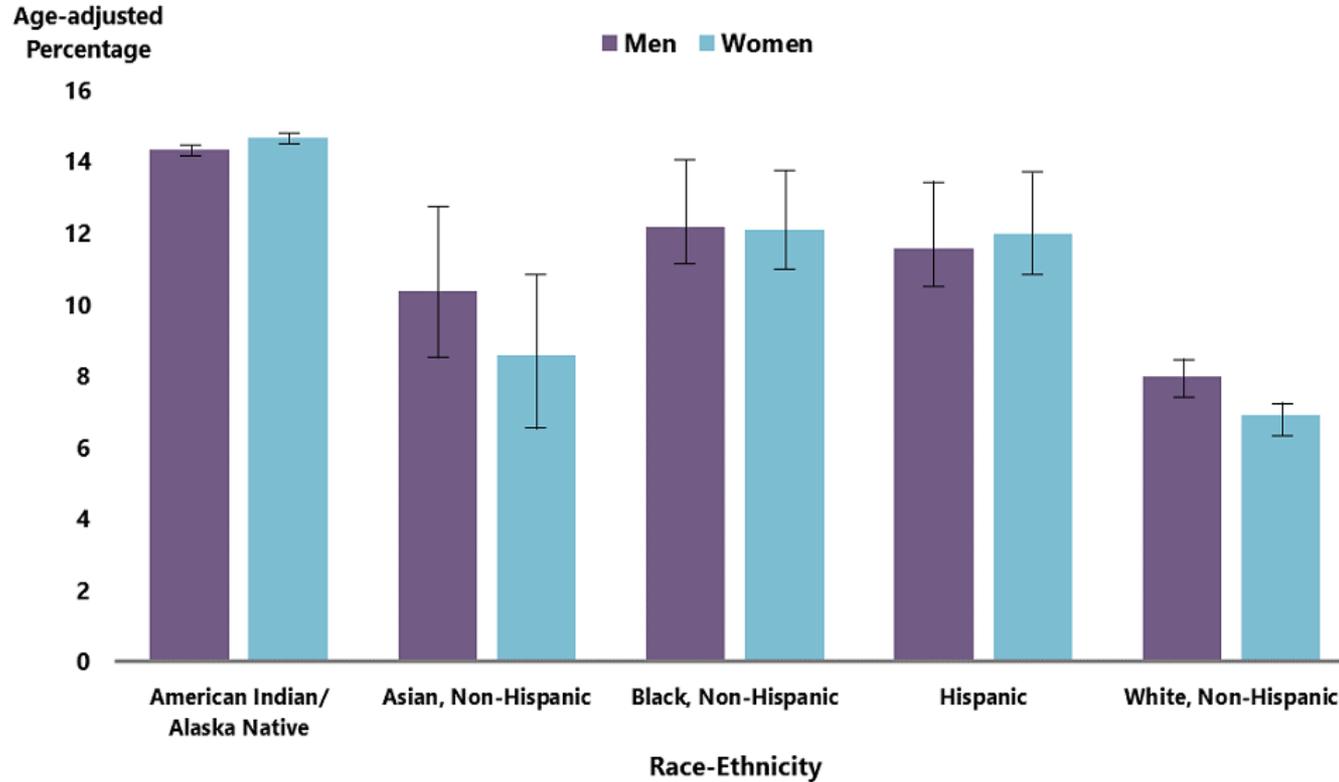
783 million expected global projections by 2045 (IDF, 2021)

374 million people are at high risk of developing type 2 diabetes worldwide (IDF, 2021)

Nature Reviews | Endocrinology

(Zheng *et al.*, 2018)

GLOBAL BURDEN OF DIABETES



(U.S CDC, 2018–2019 National Health Interview Survey)

GLOBAL BURDEN OF DIABETES



2017 diabetes burden

Region	Prevalence (cases per 100,000)	Burden of suffering (DALY per 100,000)
Global	6059	751
Europe	8529	842
Germany	9091	820
France	6843	564
Italy	9938	1083
Spain	8796	773
Netherlands	11,344	924
Switzerland	10,040	815
Sweden	10,448	877
Turkey	6483	889
Russia	6865	740
United Kingdom	8663	644

(Moien et al., 2020)

GLOBAL BURDEN OF DIABETES

2017 diabetes burden



Region	Prevalence (cases per 100,000)	Burden of suffering (DALY per 100,000)
Asia	5961	729
China	6262	635
India	4770	663
Japan	6737	553
South Korea	8835	1044
Taiwan	10,012	1294
Saudi Arabia	7661	623
Iran	7000	851
Australia	5235	593
America	7060	1036
United States	8911	1046
Canada	7095	829
Brazil	4240	780
Africa	3916	537
South Africa	7360	1374

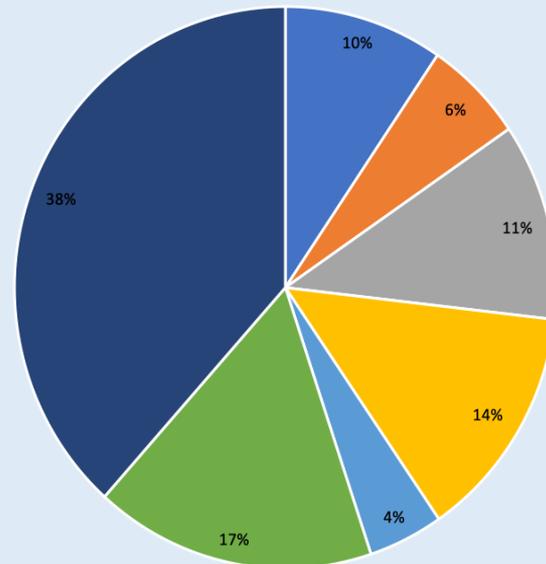
(Moien et al., 2020)

GLOBAL BURDEN OF DIABETES



Diabetes Around the World in 2021

Source: IDF Atlas 10th Edition



- North America and Caribbean (51 million people)
- Europe (61 million people)
- Africa (24 million people)
- Western Pacific (206 million people)
- South and Central America (32 million people)
- Middle East and North Africa (73 million people)
- South East Asia (90 million people)

(International Diabetes Federation Atlas 10th edition, 2022)

GLOBAL BURDEN OF DIABETES



Parameters / Region	2045 projections	Undiagnosed rate%	Death rate	Cost (\$)
Africa	55 million	54%	416,000 thousand	13 billion
Europe	69 million	36%	1.1 million	189 billion
North America and Caribbean	63 million	25%	931,000 thousand	415 billion
South and Central America	49 million	33%	410,000 thousand	65 billion
Western Pacific	260 million	50%	2.3 million	241 billion
Middle East and North Africa	136 million	33%	796,000 thousand	33 billion
South East Asia	151 million	50%	747,000 thousand	10 billion

(International Diabetes Federation, IDF 2021)

GLOBAL STATISTICS



Number of people with diabetes worldwide:

1 in 12



People with diabetes who do not know they have it:

1 in 2



DIABETES: A GLOBAL VIEW

FACTS & STATS

Lives lost globally from diabetes:

one every 7 seconds

OR

almost 5 million annually

Where 77% of people with diabetes live:

77%

Low & middle-income countries

Source: Based on information from the International Diabetes Federation
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(International Diabetes Federation, 2016)



Marilyn Murrillo, Ed.D.

PREVENTION



- ❖ Weight Loss, Healthy Diet, Regular Exercise, Stop Smoking
- ❖ Doctor/Health Clinic – Health Checkups, Cholesterol, Blood Pressure
- ❖ A1C Tests, Fasting Blood Sugar Tests (CDC, 2021a)
- ❖ Exercise More Often – Walking, Aerobics, Stretching, Bicycle, Swimming
- ❖ National Diabetes Prevention Program (CDC, 2021b)

PREVENTION



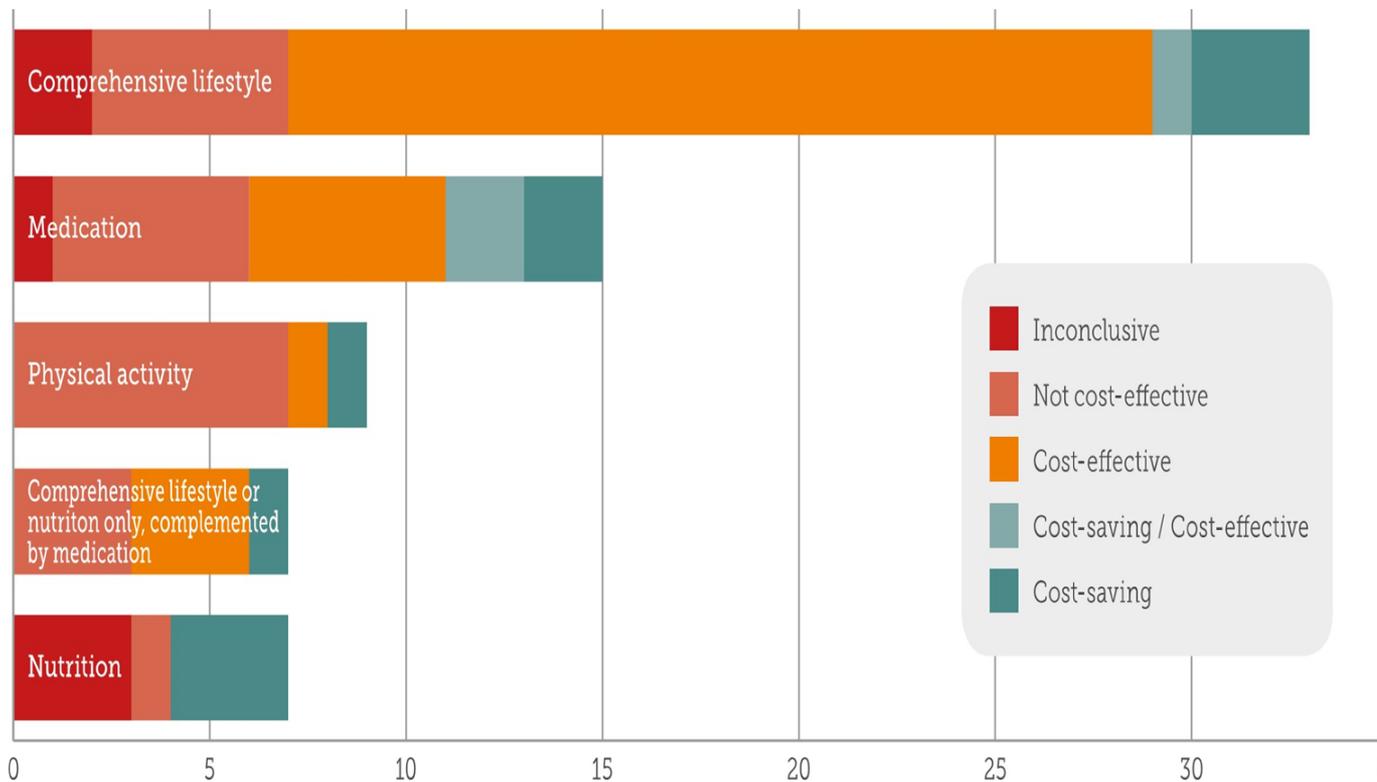
- ❖ Portion Control, Less Red Meat, Skinless Chicken Breast
- ❖ Eat Healthier Foods, Fresh Fruits and Vegetables
- ❖ Lifestyle Change Program, Drink More Water, Restful Sleep
- ❖ **Low Carbs – Less breads, Tortillas, Naan, Rice, Avoid Pastries/Desserts**

(International Diabetes Federation, 2020)

COST-EFFECTIVENESS OF PREVENTION



How cost-effective is primary prevention of type 2 diabetes?



(International Diabetes Federation, 2016, p. 51)

PREVENTION AND TREATMENT



- ❖ Doctor/Health Clinic – Health Appts, Exams, Lab Tests
- ❖ Check Blood Sugar, Insulin Treatment, Medications
- ❖ Healthy Diet, Diabetic Socks, Healthy Feet, Annual Diabetic Eye Exam
- ❖ World Diabetes Foundation – Diabetes Compass in Developing Countries

(World Diabetes Foundation, 2021)

CONCLUSIONS



- ❖ **Overview of Diabetes**
- ❖ **Types of Diabetes**
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- ❖ **Signs and Symptoms**
- ❖ **Global Burden of Diabetes**
- ❖ **Prevention and Treatment**

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THANK YOU!

Q&A