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The *voice* of the  
community  
pharmacist.

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# Exploring Diabetes Guideline Updates and Billing Opportunities

**Nicole Pezzino, PharmD, BCACP, CDCES**

Associate Professor of Pharmacy Practice  
Wilkes University, Nesbitt School of Pharmacy

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# Disclosure Statement

There are no relevant financial relationships with ACPE defined commercial interests for anyone who was in control of the content of the activity.



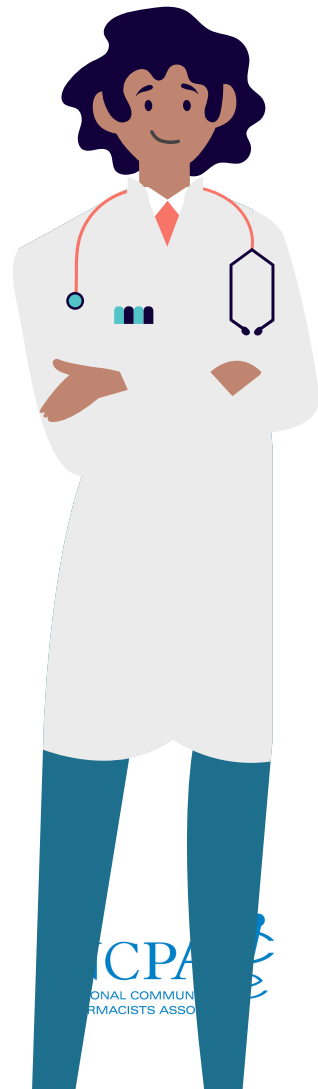
# Pharmacist and Technician Learning Objectives

1. Review pertinent updates to the American Diabetes Association (ADA) Standards of Care 2023.
2. Recognize your role in addressing social determinants of health and improving health outcomes for patients living with diabetes.
3. Identify billing opportunities for diabetes education.



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**Every 17 seconds,  
another individual is  
diagnosed with  
diabetes**



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# Updates in Diabetes Care





# Diabetes Guidelines

Guideline	Reference
<b>American Diabetes Association (ADA) – 2023</b>	<ul style="list-style-type: none"><li>American Diabetes Association. Standards of Medical Care in Diabetes—2023. Diabetes Care 2023;46(1 Suppl):S10–S280.</li></ul>
<b>American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD) – 2022</b>	<ul style="list-style-type: none"><li>Davies MJ, Aroda VR, Collins BS, et al. Management of hyperglycemia in type 2 diabetes, 2022. A consensus report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD). Diabetes Care 2022;45(11):2753-2786.</li></ul>
<b>American Association of Clinical Endocrinology Clinical Practice Guideline – 2022</b>	<ul style="list-style-type: none"><li>Blonde L, Umpierrez GE, Reddy SS, et al. American Association of Clinical Endocrinology Clinical Practice Guideline: Developing a Diabetes Mellitus Comprehensive Care Plan-2022 Update. Endocr Pract. 2022 Oct;28(10):923-1049. doi: 10.1016/j.eprac.2022.08.002. Epub 2022 Aug 11. Erratum in: Endocr Pract. 2023 Jan;29(1):80-81. PMID: 35963508</li></ul>



# Standards of Care in Diabetes

## Section 1: Improving Care and Promoting Health in Populations

Address the use of community health workers to support diabetes and cardiovascular risk, especially in underserved communities

- “Access to Care and Quality Improvement”: Social Determinants of Health (SDOH)

## Section 2: Classification and Diagnosis of Diabetes

Utility of point-of-care (POC) hemoglobin A1C testing for diabetes screening and diagnosis – A1C assays may be utilized for **monitoring** glycemic control





# Standards of Care in Diabetes

## Section 3: Prevention or Delay of Type 2 Diabetes and Associated Comorbidities

- Statin use and risk of type 2 diabetes
  - Monitor glucose regularly and enforce diabetes prevention approaches in those at high risk for diabetes
- Pioglitazone may be considered to lower the risk of stroke or MI
  - Balance risk with side effects – weight gain, edema, fractures
- Consideration of pharmacotherapy, which addresses weight management, minimizing progression of hyperglycemia, CV risk reduction, to support goals for people at high risk of developing diabetes





# Centers for Disease Control and Prevention Diabetes Prevention Recognition Program

Standards and Operating Procedures

[www.cdc.gov/diabetes/prevention/recognition](http://www.cdc.gov/diabetes/prevention/recognition)

May 1, 2021

# CDC Diabetes Prevention Recognition Program

<https://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>



# ADA risk test

[diabetes.org/socrisktest](https://diabetes.org/socrisktest)



Diabetes Care. 2022;46(Supplement\_1): S19-S40. doi:10.2337/dc23-S002

## Are you at risk for type 2 diabetes?

### Diabetes Risk Test:

- How old are you? .....  
 Less than 40 years (0 points)  
 40–49 years (1 point)  
 50–59 years (2 points)  
 60 years or older (3 points)
- Are you a man or a woman? .....  
 Man (1 point)      Woman (0 points)
- If you are a woman, have you ever been diagnosed with gestational diabetes?.....  
 Yes (1 point)      No (0 points)
- Do you have a mother, father, sister or brother with diabetes? .....  
 Yes (1 point)      No (0 points)
- Have you ever been diagnosed with high blood pressure? .....  
 Yes (1 point)      No (0 points)
- Are you physically active? .....  
 Yes (0 points)      No (1 point)
- What is your weight category? .....  
*See chart at right.*

WRITE YOUR SCORE IN THE BOX.

ADD UP YOUR SCORE.

Height	Weight (lbs.)		
4' 10"	119–142	143–190	191+
4' 11"	124–147	148–197	198+
5' 0"	128–152	153–203	204+
5' 1"	132–157	158–210	211+
5' 2"	136–163	164–217	218+
5' 3"	141–168	169–224	225+
5' 4"	145–173	174–231	232+
5' 5"	150–179	180–239	240+
5' 6"	155–185	186–246	247+
5' 7"	159–190	191–254	255+
5' 8"	164–196	197–261	262+
5' 9"	169–202	203–269	270+
5' 10"	174–208	209–277	278+
5' 11"	179–214	215–285	286+
6' 0"	184–220	221–293	294+
6' 1"	189–226	227–301	302+
6' 2"	194–232	233–310	311+
6' 3"	200–239	240–318	319+
6' 4"	205–245	246–327	328+
	1 point	2 points	3 points

If you weigh less than the amount in the left column: 0 points

Adapted from Bang et al., Ann Intern Med 151:775–783, 2009 • Original algorithm was validated without gestational diabetes as part of the model.

### If you scored 5 or higher:

You are at increased risk for having type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes, a condition in which blood glucose levels are higher than normal but not yet high enough to be diagnosed as diabetes. Talk to your doctor to see if additional testing is needed.

Type 2 diabetes is more common in African Americans, Hispanics/Latinos, Native Americans, Asian Americans, and Native Hawaiians and Pacific Islanders.

Higher body weight increases diabetes risk for everyone. Asian Americans are at increased diabetes risk at lower body weight than the rest of the general public (about 15 pounds lower).

### Lower Your Risk

The good news is you can manage your risk for type 2 diabetes. Small steps make a big difference in helping you live a longer, healthier life.

If you are at high risk, your first step is to visit your doctor to see if additional testing is needed.

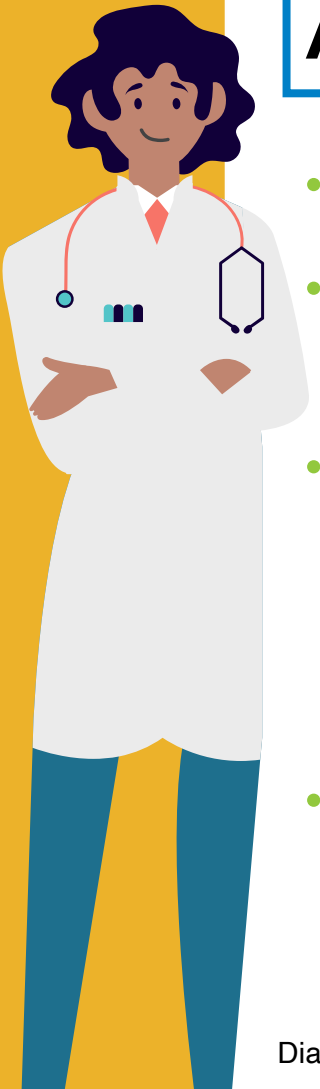
Visit [diabetes.org](https://diabetes.org) or call 1-800-DIABETES (800-342-2383) for information, tips on getting started, and ideas for simple, small steps you can take to help lower your risk.



# Standards of Care in Diabetes

## Section 4: Comprehensive Medical Evaluation and Assessment of Comorbidities

- Overall health status and setting initial goals
- Immunization updates (COVID-19, pneumococcal pneumonia vaccinations)
- Nonalcoholic Fatty Liver Disease (NAFLD) details, promoting weight loss, use of obesity pharmacotherapy with emphasis on GLP-1 receptor agonists, bariatric surgery and role of diabetes medications
- Updates to **Table 4.1** (next slide)







# Comprehensive Medical Evaluation & Assessment of Comorbidities

## Non-Alcoholic Fatty Liver Disease (NAFLD)

Risk Factors	Management	Treatment
<ul style="list-style-type: none"><li>• Obesity</li><li>• Sleep apnea</li><li>• Type 2 diabetes</li><li>• Metabolic syndrome</li><li>• Polycystic ovary syndrome</li><li>• High cholesterol and /or triglycerides</li></ul>	Healthy diet <ul style="list-style-type: none"><li>• Mediterranean diet (evidence)</li></ul> Weight loss <ul style="list-style-type: none"><li>• Goal: at least 5%, preferably &gt;10%</li></ul> Exercise regularly <ul style="list-style-type: none"><li>• Aerobic and resistance</li></ul> Obesity pharmacotherapy Bariatric surgery	<ul style="list-style-type: none"><li>• Pioglitazone*</li><li>• Some GLP-1 receptor agonist*</li></ul> <p>*not FDA approved</p>



# Standards of Care in Diabetes

## Section 4: Comprehensive Medical Evaluation and Assessment of Comorbidities



**Table 4.1 - Components of the comprehensive diabetes medical evaluation at initial, follow-up, and annual visits**

	INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT	
<b>PAST MEDICAL AND FAMILY HISTORY</b>	<b>Diabetes history</b>			
	▪ Characteristics at onset (e.g., age, symptoms)	✓		
	▪ Review of previous treatment plans and response	✓		
	▪ Assess frequency/cause/severity of past hospitalizations	✓		
	<b>Family history</b>			
	▪ Family history of diabetes in a first-degree relative	✓		
	▪ Family history of autoimmune disorder	✓		
	<b>Personal history of complications and common comorbidities</b>			
	▪ Common comorbidities (e.g., obesity, OSA, NAFLD)	✓		
	▪ High blood pressure or abnormal lipids	✓		✓
	▪ Macrovascular and microvascular complications	✓		✓
	▪ Hypoglycemia: awareness/frequency/causes/timing of episodes	✓	✓	✓
	▪ Presence of hemoglobinopathies or anemias	✓		✓
▪ Last dental visit	✓		✓	
▪ Last dilated eye exam			✓	
▪ Visits to specialists			✓	
<b>Interval history</b>				
▪ Changes in medical/family history since last visit		✓	✓	
<b>BEHAVIORAL FACTORS</b>	▪ Eating patterns and weight history	✓	✓	✓
	▪ Assess familiarity with carbohydrate counting (e.g., type 1 diabetes, type 2 diabetes treated with MDI)	✓		✓
	▪ Physical activity and sleep behaviors	✓	✓	✓
	▪ Tobacco, alcohol, and substance use	✓		✓
<b>MEDICATIONS AND VACCINATIONS</b>	▪ Current medication plan	✓	✓	✓
	▪ Medication-taking behavior	✓	✓	✓
	▪ Medication intolerance or side effects	✓	✓	✓
	▪ Complementary and alternative medicine use	✓	✓	✓
	▪ Vaccination history and needs	✓		✓
<b>TECHNOLOGY USE</b>	▪ Assess use of health apps, online education, patient portals, etc.	✓		✓
	▪ Glucose monitoring (meter/CGM): results and data use	✓	✓	✓
	▪ Review insulin pump settings and use, connected pen and glucose data	✓	✓	✓
<b>SOCIAL LIFE ASSESSMENT</b>	<b>Social network</b>			
	▪ Identify existing social supports	✓		✓
	▪ Identify surrogate decision maker, advanced care plan	✓		✓
	▪ Identify social determinants of health (e.g., food security, housing stability & homelessness, transportation access, financial security, community safety)	✓		✓

**Table 4.1 (cont.) - Components of the comprehensive diabetes medical evaluation at initial, follow-up, and annual visits**

	INITIAL VISIT	EVERY FOLLOW-UP VISIT	ANNUAL VISIT	
<b>PHYSICAL EXAMINATION</b>	▪ Height, weight, and BMI; growth/pubertal development in children and adolescents	✓	✓	✓
	▪ Blood pressure determination	✓	✓	✓
	▪ Orthostatic blood pressure measures (when indicated)	✓		
	▪ Fundoscopic examination (refer to eye specialist)	✓		✓
	▪ Thyroid palpation	✓		✓
	▪ Skin examination (e.g., acanthosis nigricans, insulin injection or insertion sites, lipodystrophy)	✓	✓	✓
	▪ Comprehensive foot examination			
	▪ Visual inspection (e.g., skin integrity, callous formation, foot deformity or ulcer, toenails)**	✓		✓
	▪ Screen for PAD (pedal pulses—refer for ABI if diminished)	✓		✓
	▪ Determination of temperature, vibration or pinprick sensation, and 10-g monofilament exam	✓		✓
<b>LABORATORY EVALUATION</b>	▪ Screen for depression, anxiety, and disordered eating	✓		✓
	▪ Consider assessment for cognitive performance*	✓		✓
	▪ Consider assessment for functional performance*	✓		✓
	▪ A1C, if the results are not available within the past 3 months	✓	✓	✓
	▪ If not performed/available within the past year	✓		✓
	▪ Lipid profile, including total, LDL, and HDL cholesterol and triglycerides <sup>†</sup>	✓		✓
	▪ Liver function tests <sup>‡</sup>	✓		✓
	▪ Spot urinary albumin-to-creatinine ratio	✓		✓
	▪ Serum creatinine and estimated glomerular filtration rate <sup>‡</sup>	✓		✓
	▪ Thyroid-stimulating hormone in people with type 1 diabetes <sup>§</sup>	✓		✓
▪ Vitamin B12 if on metformin	✓		✓	
▪ Serum potassium levels in people with diabetes on ACE inhibitors, ARBs, or diuretics <sup>¶</sup>	✓		✓	

ABI, ankle-brachial pressure index; ARBs, angiotensin receptor blockers; CGM, continuous glucose monitors; MDI, multiple daily injections; NAFLD, nonalcoholic fatty liver disease; OSA, obstructive sleep apnea; PAD, peripheral arterial disease.

\*At 65 years of age or older.

†May be needed more frequently in people with diabetes with known chronic kidney disease or with changes in medications that affect kidney function and serum potassium (see **Table 11.1**).

‡May also need to be checked after initiation or dose changes of medications that affect these laboratory values (i.e., diabetes medications, blood pressure medications, cholesterol medications, or thyroid medications).

§In people without dyslipidemia and not on cholesterol-lowering therapy, testing may be less frequent.

¶Should be performed at every visit in people with diabetes with sensory loss, previous foot ulcers, or amputations.



# Standards of Care in Diabetes

## Section 5: Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes

- 1 Diabetes Self-Management Education and Support (DSMES)
- 2 Medical Nutrition Therapy (MNT)
- 3 Physical Activity
- 4 Smoking Cessation: Tobacco and E-Cigarettes
- 5 Supporting Positive Health Behaviors
- 6 Psychosocial Care





# Positive Health Behaviors and Well-being

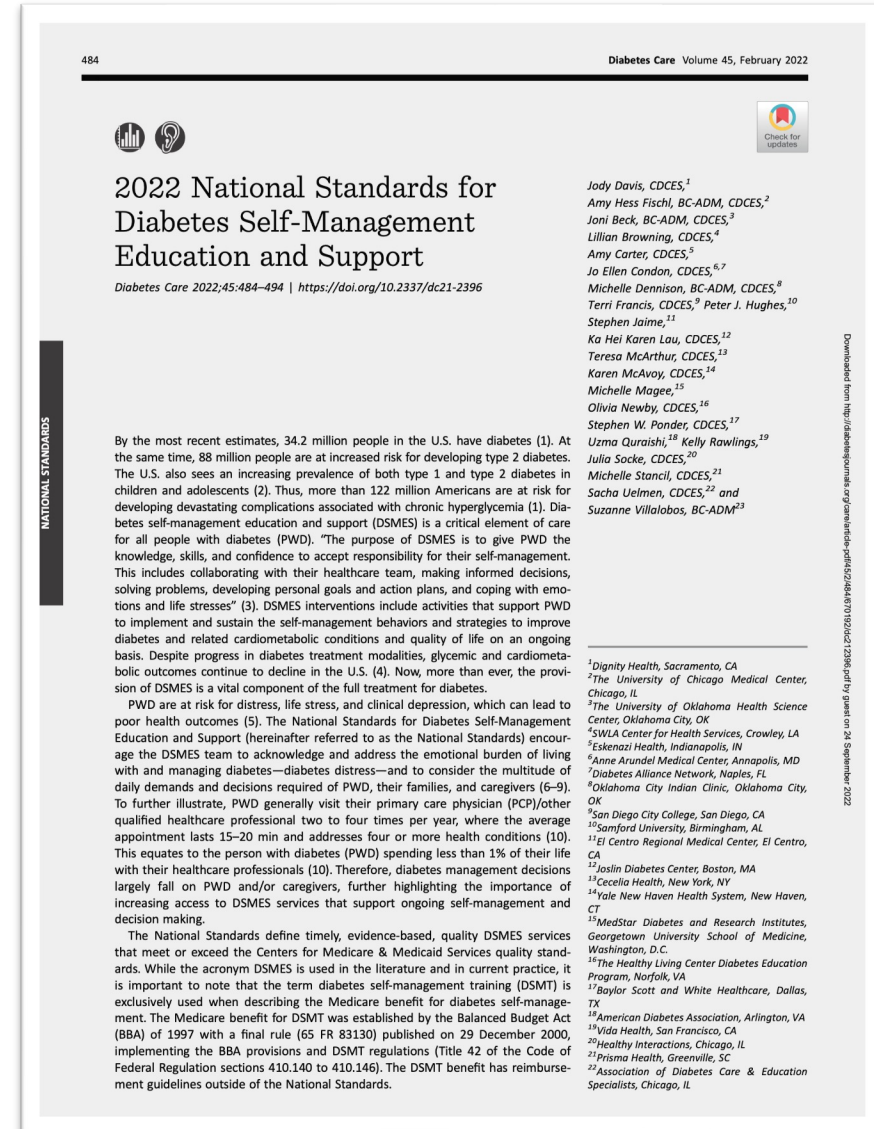
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## Diabetes Self-Management Education and Support (DSMES)

“All people with diabetes should participate in diabetes self-management education and support to facilitate the knowledge, decision-making, and skills mastery for diabetes self-care.”

DSMES focuses on **empowering** individuals with diabetes by providing people with diabetes the tools to make informed self-management decisions.

DSMES should be **person-centered**.





# Positive Health Behaviors and Well-being

3

## Physical Activity

- Engage in 150 minutes or more of **aerobic activity**/week, spread over at least 3 days
- Engage in 2-3 sessions/week of **resistance exercise**
- Decrease the amount of time spend in daily **sedentary behavior**. Interrupt prolonged sitting every 30 minutes for BG benefit
- **Flexibility training** and balance training 2-3 times/week for older adults

**Evaluate baseline physical activity and sedentary time. Promote increase in nonsedentary activities above baseline for sedentary individuals**





# Positive Health Behaviors and Well-being

5

## Supporting Positive Health Behaviors

“Behavioral strategies should be used to support diabetes self-management and engagement in health behaviors (e.g., taking medications, using diabetes technologies, physical activity, healthy eating) to promote optimal diabetes health outcomes.”







# Positive Health Behaviors and Well-being

6

## Psychosocial Care

”Diabetes care teams should implement psychosocial screening protocols that may include but are not limited to:

- attitudes about diabetes,
- expectations for treatment and outcomes,
- general and diabetes-related mood,
- stress and/or quality of life,
- available resources (financial, social, family, and emotional), and/or
- psychiatric history.

**Screening should occur at periodic intervals and when there is a change in disease, treatment, or life circumstances.”**

### Patient Health Questionnaire Nine (PHQ-9)

**Instructions:** For each statement, please tick the box below that best corresponds to your experience in the last two weeks.

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1 Little interest or pleasure in doing things	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
2 Feeling down, depressed, or hopeless	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
3 Trouble falling or staying asleep, or sleeping too much	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
4 Feeling tired or having little energy	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
5 Poor appetite or overeating	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
6 Feeling bad about yourself—or that you are a failure or have let yourself or your family down	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
7 Trouble concentrating on things, such as reading the newspaper or watching television	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
8 Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
9 Thoughts that you would be better off dead or of hurting yourself in some way	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

(Office use only) Total score =

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues, with an educational grant from Pfizer, Inc. No permission is required to reproduce, translate, display, or distribute. See: [www.phqscreeners.com](http://www.phqscreeners.com)

<https://professional.diabetes.org/meetings/mental-health-toolkit>





# Importance of 24-hour Physical Behaviors for T2D

## Sitting/ breaking up prolonged sitting

- Break prolonged sitting every 30 minutes
- Short bouts of walking
- Simple resistance exercise

## Stepping

- increasing 500 steps per day associated with 2-9% decrease risk of CV disease and all-cause mortality

## Sleep

- Aim for consistent, uninterrupted sleep
- Quantity: 6-8 hours
- Quality: irregular sleep results in poorer glycemic levels (insomnia, obstructive sleep apnea, restless leg syndrome)
- Chronotype: night owls vs. early birds

## Physical functional / Frailty / Sarcopenia

- Frailty phenotype in T2D unique
- Earlier age

## Sweating (moderate to vigorous activity)

- 150+ minutes/week of moderate intensity physical activity or > 75 minutes/ week vigorous-intensity activity
- spread over > 3 days/week
- no more than 2 consecutive days of inactivity
- include flexibility, balance, and resistance training

## Strength- ening

- Resistance exercise
- Improves insulin sensitivity
- Tai chi, yoga improve flexibility and balance



### SITTING/BREAKING UP PROLONGED SITTING

Limit sitting. Breaking up prolonged sitting (every 30 min) with short regular bouts of slow walking/simple resistance exercises can improve glucose metabolism.



### STEPPING

- An increase of only 500 steps/day is associated with 2-9% decreased risk of cardiovascular morbidity and all-cause mortality.
- A 5- to 6-min brisk-intensity walk per day equates to ~4 years' greater life expectancy.



### SLEEP

Aim for consistent, uninterrupted sleep, even on weekends.



**Quantity** - Long (>8 h) and short (<6 h) sleep durations negatively impact HbA<sub>1c</sub>.

**Quality** - Irregular sleep results in poorer glycemic levels, likely influenced by the increased prevalence of insomnia, obstructive sleep apnea, and restless leg syndrome in people with type 2 diabetes.

**Chronotype** - Evening chronotypes (i.e., night owl: go to bed late and get up late) may be more susceptible to inactivity and poorer glycemic levels vs. morning chronotypes (i.e., early bird: go to bed early and get up early).

### SWEATING (MODERATE-TO-VIGOROUS ACTIVITY)

- Encourage ≥150 min/week of moderate-intensity physical activity (i.e., uses large muscle groups, rhythmic in nature) OR ≥75 min/week vigorous-intensity activity spread over ≥3 days/week, with no more than 2 consecutive days of inactivity. Supplement with two to three resistance, flexibility, and/or balance sessions.
- As little as 30 min/week of moderate-intensity physical activity improves metabolic profiles.



### PHYSICAL FUNCTION

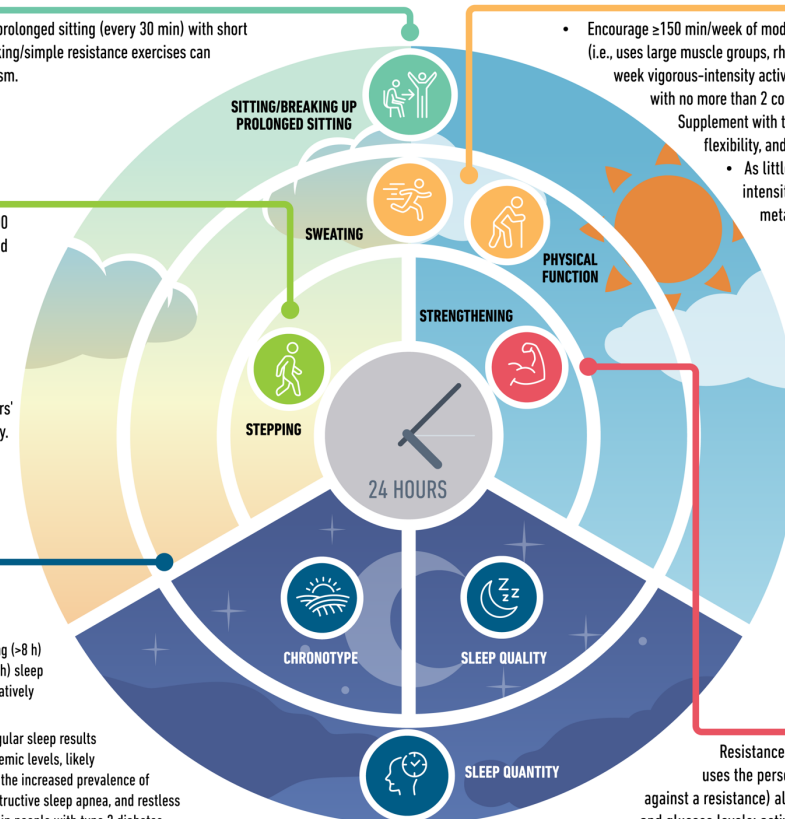
Physical function/frailty/sarcopenia

- The frailty phenotype in type 2 diabetes is unique, often encompassing obesity alongside physical frailty, at an earlier age. The ability of people with type 2 diabetes to undertake simple functional exercises in middle-age is similar to that in those over a decade older.



### STRENGTHENING

Resistance exercise (i.e., any activity that uses the person's own body weight or works against a resistance) also improves insulin sensitivity and glucose levels; activities like tai chi and yoga also encompass elements of flexibility and balance.



	Glucose/insulin	Blood pressure	HbA <sub>1c</sub>	Lipids	Physical function	Depression	Quality of life
SITTING/BREAKING UP PROLONGED SITTING	↓	↓	↓	↓	↑	↓	↑
STEPPING	↓	↓	↓	↓	↑	↓	↑
SWEATING (MODERATE-TO-VIGOROUS ACTIVITY)	↓	↓	↓	↓	↑	↓	↑
STRENGTHENING	↓	↓	↓	↓	↑	↓	↑
ADEQUATE SLEEP DURATION	↓	↓	↓	↓	?	↓	↑
GOOD SLEEP QUALITY	↓	↓	↓	↓	?	↓	↑
CHRONOTYPE/CONSISTENT TIMING	↓	?	↓	?	?	↓	?

### IMPACT OF PHYSICAL BEHAVIORS ON CARDIOMETABOLIC HEALTH IN PEOPLE WITH TYPE 2 DIABETES

↑ Higher levels/improvement (physical function, quality of life); ↓ Lower levels/improvement (glucose/insulin, blood pressure, HbA<sub>1c</sub>, lipids, depression); ? no data available; ↑ Green arrows = strong evidence; ↑ Yellow arrows = medium strength evidence; ↑ Red arrows = limited evidence.



# Community Partners



## Develop ongoing list of partners and resources in your community

- Dietitian
- Physical therapist
- Personal trainer
- Physicians
- Other prescribers
- Nurses
- Mental Health resources
- Social workers
- Gyms /gym owners
- Restaurants
- YMCA
- First responders
- Upcoming community events
- Etc.



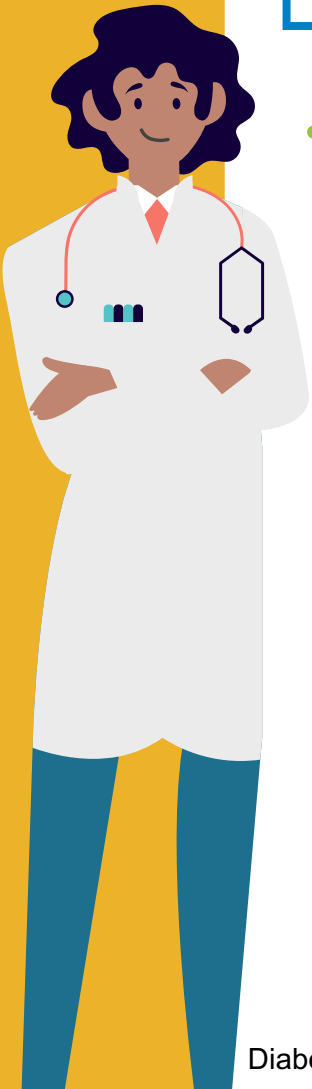
# Standards of Care in Diabetes

## Section 6: Glycemic Targets

- Individuals with frailty or high risk of hypoglycemia:
  - Target of >50% time in range (TIR) with <1% time below range (TBR)

### ADA 2023 Guidelines: Glycemic Targets

Population	A1c	Fasting	Postprandial (2hr)
Most Patients	< 7%	80-130 mg/dL	< 180 mg/dL
Special Population*	< 8%		





# Standards of Care in Diabetes

## Section 7: Diabetes Technology

- People with diabetes should have uninterrupted access to their supplies to minimize gaps in continuous glucose monitoring (CGM)

Higher Sensor Readings than Actual Glucose	
Acetaminophen, >4 g/day	Dexcom G6
Acetaminophen, any dose	Medtronic Guardian
Alcohol	Medtronic Guardian
Ascorbic acid, >500 mg/day	FreeStyle Libre
Hydroxyurea	Dexcom G6, Medtronic Guardian
Sensor Bias within Therapeutic Concentration	
Mannitol	Senseonics Eversense
Tetracycline	





# Standards of Care in Diabetes

## Section 8: Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes

- Obesity is a chronic disease
- Small and larger weight losses should be considered as treatment goals – notably larger (10% or more) weight loss may have disease-modifying effects, including diabetes remission and may improve long-term cardiovascular outcomes
- Dual GLP-1 receptor agonist / glucose dependent insulinotropic polypeptides (GIP) agonist (tirzepatide) added as glucose lowering option with potential for weight loss





# Standards of Care in Diabetes

## Section 9: Pharmacologic Approaches to Glycemic Treatment

- Updated to align with latest consensus report on management of hyperglycemia in type 2 diabetes by ADA and European Association for the Study of Diabetes (EASD)
- Recommendations added:
  - Healthy lifestyle behaviors, DSMES, avoidance of clinical inertia and SDOH
  - To indicate that in adults with type 2 diabetes and established/high risk of ASCVD, heart failure and/or chronic kidney disease – treatment plan should include agents that reduce cardiorenal risk
  - To address consideration of pharmacologic approaches that provide the efficacy to achieve treatment goals
  - To address weight management





# Oral Therapeutic Agents

Insulin Sensitizers		SGLT2 Inhibitors	Incretin-based Therapies	
Biguanides	Thiazolidinediones		DPP-IV Inhibitors	GLP-1 Receptor Agonists
Metformin	Pioglitazone Rosiglitazone	Canagliflozin Dapagliflozin Empagliflozin Ertugliflozin	Sitagliptin Linagliptin Saxagliptin Alogliptin	Semaglutide

Secretagogues		
Sulfonylureas (2 <sup>nd</sup> Gen)	Sulfonylureas (1 <sup>st</sup> Gen)	Meglitinides
Glimepiride* Glipizide* Glyburide*	Chlorpropamide Tolazamide Tolbutamide	Nateglinide Repaglinide

Other		
$\alpha$ -glucosidase inhibitors	Bile Acid Sequestrant	Dopamine Agonist
Acarbose Miglitol	Colesevelam	Bromocriptine



# Injectable Therapeutic Agents

Insulin			
Insulin	Basal	Prandial	Premixed
<b>Human</b>	NPH U100	Regular human insulin U100 Regular human insulin U500 Insulin inhalation powder	Regular human insulin 70/30
<b>Analog</b>	Degludec U100 Degludec U200 Detemir U100 Glargine U100 Glargine U300	Aspart U100 Glulisine U100 Lispro U100 Lispro U200 Ultra rapid acting aspart	Aspart protamine + aspart 70/30 Insulin degludec + insulin aspart 70/30 Lispro protamine + lispro 50/50 Lispro protamine + lispro 75/25

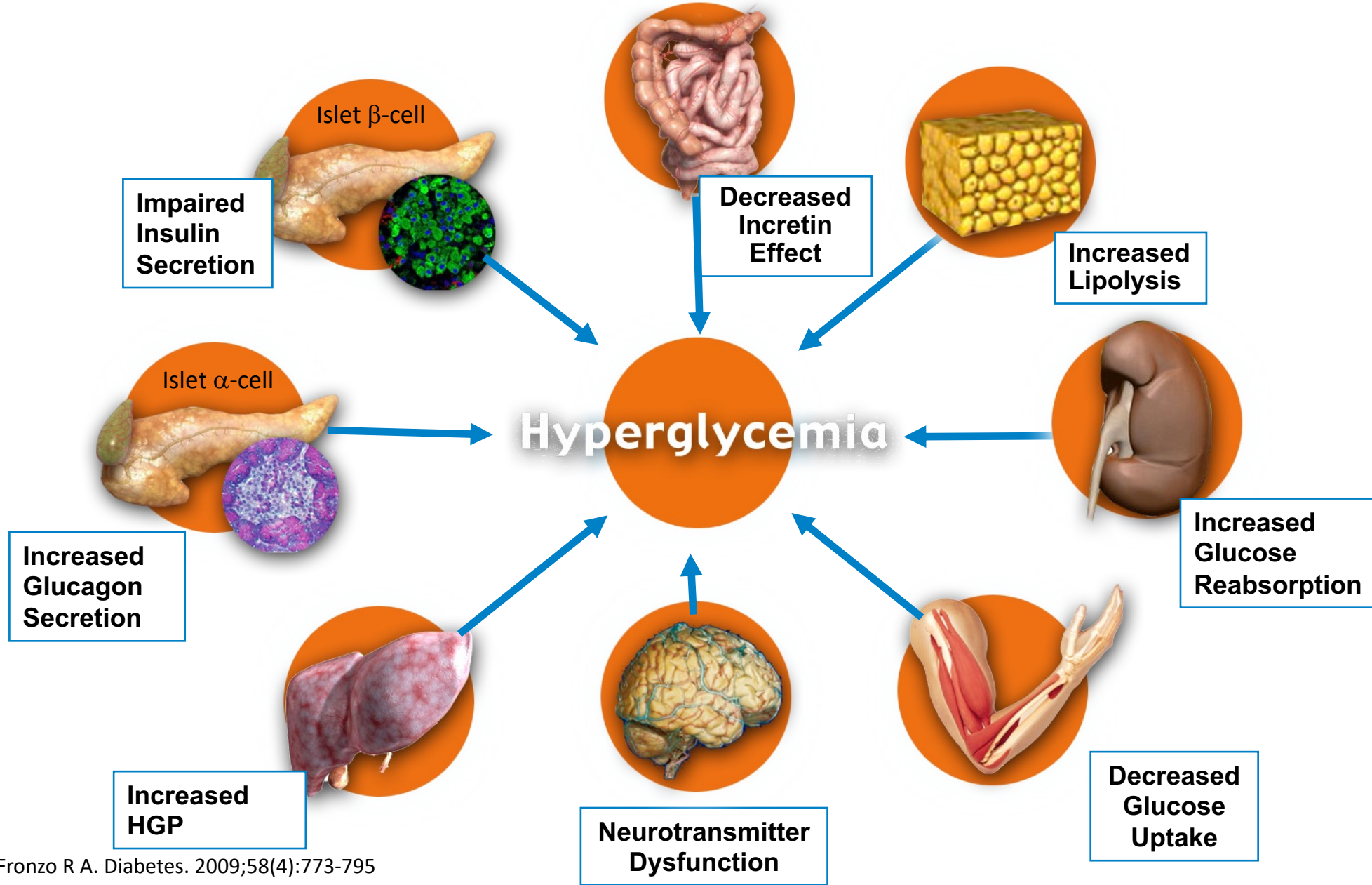
Incretin-based Therapies	
GLP-1 Receptor Agonists	Dual GLP-1/GIP Receptor Agonist
Dulaglutide Exenatide (Immediate & Extended-Release) Liraglutide Lixisenatide Semaglutide	Tirzepatide

Hormone Analogs
Amylinomimetics
Pramlintide



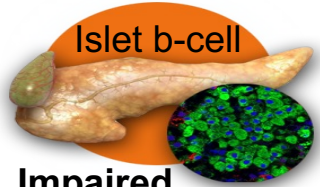


# The Ominous Octet





# Pharmacotherapy Options

Islet b-cell  
  
**Impaired Insulin Secretion**



DPP4 Inhibitors  
 GLP-1 Agonists  
 Insulin  
 Meglitinides  
 Sulfonylureas

AGI  
 Amylinomimetics  
 Bile Acid Sequestrants  
 GLP-1 Agonists



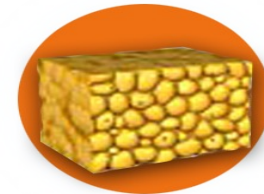
**Dietary Decreased Incretin Effect**

Islet a-cell  
  
**Increased Glucagon Secretion**

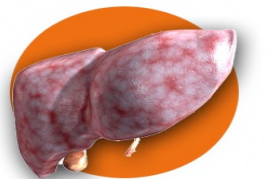


Amylinomimetics  
 DPP4 Inhibitors  
 GLP-1 Agonists

Biguanide  
 Insulin  
 TZD's



**Increased Lipolysis**



**Increased HGP**



Amylinomimetics  
 Biguanides  
 DPP4 Inhibitors  
 GLP-1 Agonists  
 TZD's

Biguanide  
 Insulin  
 TZD's



**Decreased Glucose Uptake**

  
**Neurotransmitter Dysfunction**



Amylinomimetics  
 Dopamine Agonists  
 GLP-1 Agonists

SGLT-2 Inh



**Increased Glucose Reabsorption**





# Metformin (Biguanides)

- Potential ASCVD benefit

Treating to **reduce risk** rather than a glycemic target

## Expectations

- Diarrhea (self-limiting)
- Black box warning (lactic acidosis)

## Counseling

- Gradual titration
- Take with food, ER option

## Follow-up

- Energy levels? Vitamin B12 levels?
- SMBG values?



# GLP-1 Receptor Agonists

- ASCVD Benefit: dulaglutide, liraglutide, semaglutide (SQ)
- Neutral: exenatide (once weekly), lixisenatide
- HF Neutral
- DKD Progression Benefit: dulaglutide, liraglutide, semaglutide (SQ)

## Expectations

- Nausea
- Box Warning
- Weight loss

## Counseling

- Gradual titration
- Injection technique
- Box Warning
- Pancreatitis

## Follow-up

- Cost?
- SMBG values?
- Low risk - hypoglycemia

# GLP-1 Receptor Agonists

	Exenatide BID	Lixisenatide	Liraglutide	Exenatide weekly	Dulaglutide	Semaglutide
Frequency	Short-acting Twice daily	Short-acting Once daily	Long-acting Once daily	Long-acting Once weekly	Long-acting Once weekly	Long-acting Once weekly
Efficacy (A1C lowering)	↓ 0.5-1%	↓ 0.7%	↓ 1.1%	↓ 1.1%	↓ 1.1%	↓ 1.5%
Dosing	Within 30-60 min of am/pm meal	Within 60 minutes of meal	Same time	Same day / week	Same day / week	Same day / week

## Semaglutide (oral):

- Once daily oral
- ↓ 1.2%
- Dosing: in morning, no more than 4oz of water, 30 minutes before food (more/less effects efficacy)



# GIP & GLP-1 Receptor Agonists

- ASCVD Benefit: under investigation
- HF Benefit: under investigation
- DKD Progression Benefit: under investigation

## Expectations

- Nausea
- Box Warning
- Weight loss\*\*

## Counseling

- Gradual titration
- Injection technique
- Box Warning
- Pancreatitis

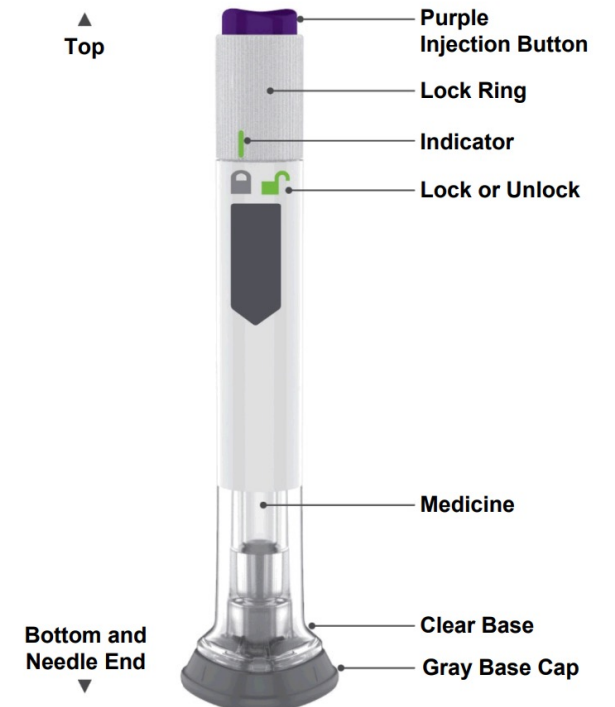
## Follow-up

- Cost?
- SMBG values?
- Low risk - hypoglycemia

# GIP and GLP-1 Receptor Agonists

## Tirzepatide (Mounjaro)

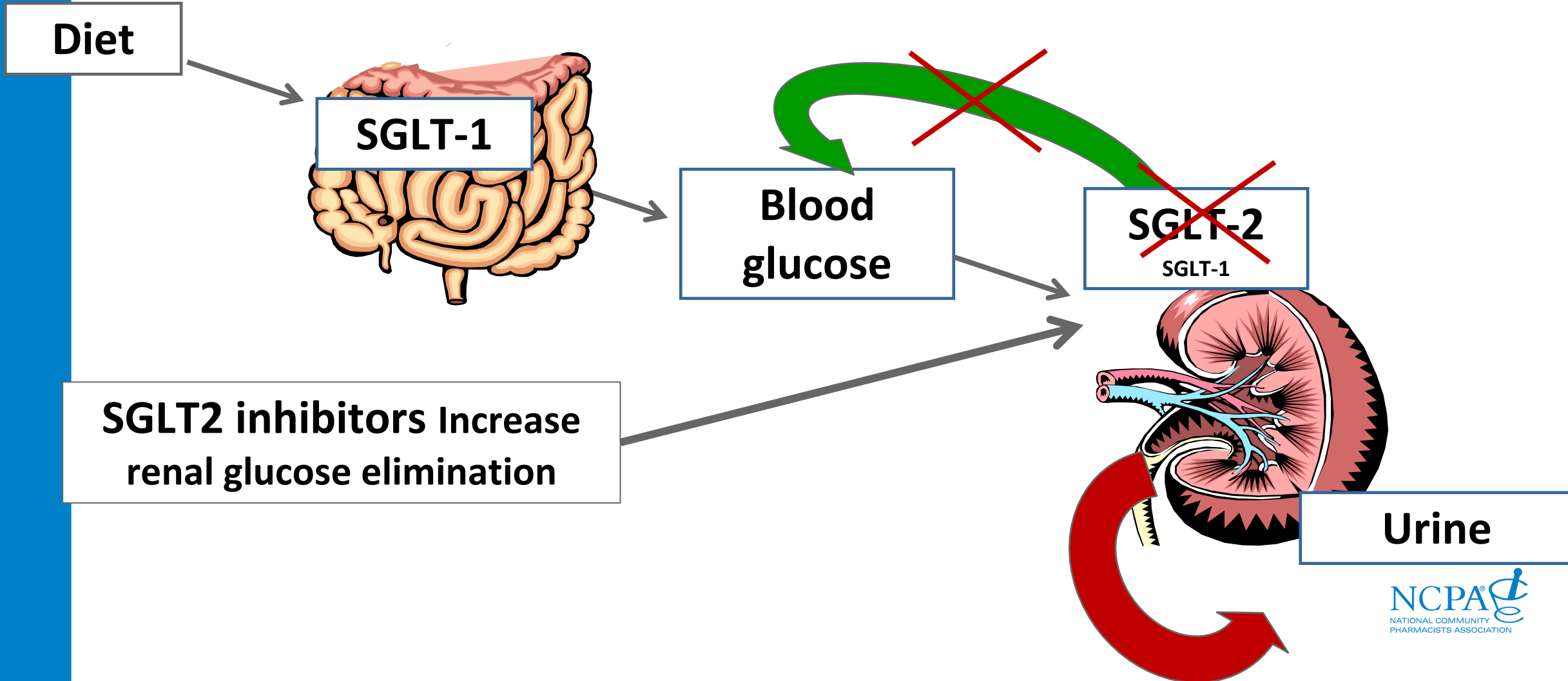
Dosing / Frequency	Inject 2.5 mg <b>subcutaneously once weekly</b> . Increase after 4 weeks to 5 mg once weekly. Can continue to increase dose by 2.5 mg to a max dose of 15 mg weekly.	
Efficacy (A1C lowering)	↓ 1.8 -2.3%	
Adverse Drug Events	<ul style="list-style-type: none"> <li>• Nausea</li> <li>• Diarrhea</li> <li>• <b>Decreased appetite</b></li> </ul>	<ul style="list-style-type: none"> <li>• Vomiting, constipation</li> <li>• Dyspepsia</li> <li>• Abdominal pain</li> </ul>
Warnings/Precautions	<ul style="list-style-type: none"> <li>• Risk of Thyroid C-cell tumors</li> <li>• Pancreatitis</li> <li>• Hypoglycemia with concomitant use of insulin secretagogues or insulin</li> </ul>	<ul style="list-style-type: none"> <li>• Acute kidney injury</li> <li>• Gastrointestinal disease</li> <li>• Diabetic retinopathy complications in patients with a h/o diabetic retinopathy</li> <li>• Acute gallbladder disease</li> </ul>







# Sodium-Glucose Co-transporter 2 (SGLT-2) Inhibitors







# SGLT-2 Inhibitors

- ASCVD Benefit: canagliflozin, empagliflozin
- HF Benefit: canagliflozin, dapagliflozin, empagliflozin, ertugliflozin
- DKD Progression Benefit: canagliflozin, dapagliflozin, empagliflozin

## Expectations

- Genitourinary infections
- Boxed warning (canagliflozin – amputation)
- Weight loss

## Counseling

- DKA Risk
- Timing

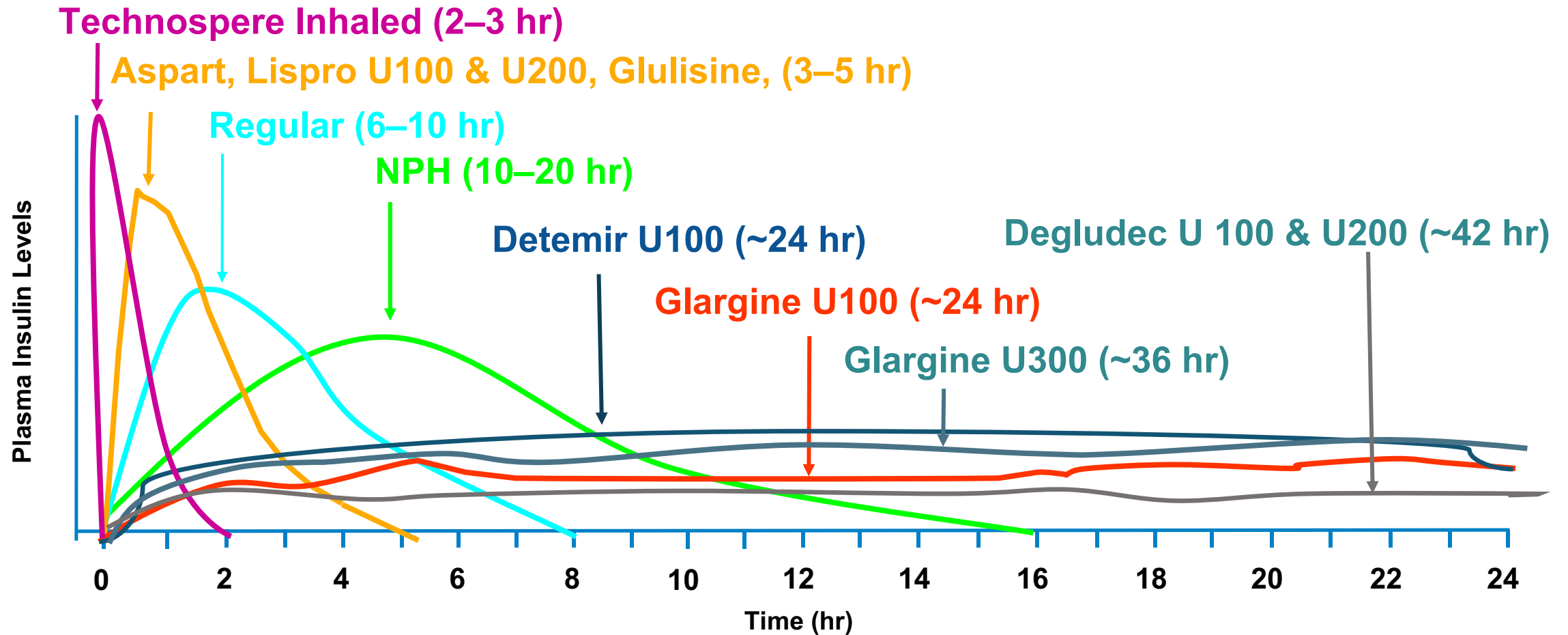
## Follow-up

- Cost?
- SMBG values?
- Low risk - hypoglycemia

# SGLT-2

	Canagliflozin	Dapagliflozin	Empagliflozin	Ertugliflozin
Efficacy (A1C lowering)	↓ 0.77 - 1.03%	↓ 0.8 – 0.9%	↓ 0.7 – 0.8%	↓ 0.7 – 0.8%
Dosing	100-300 mg once daily	5-10 mg once daily	10-25 mg once daily	5-15 mg once daily

# Insulin Profiles



Hirsch IB. N Engl J Med. 2005; 352:174-83.  
Flood TM. J Fam Pract. 2007; 56(suppl 1):S1-S12.  
Becker RH et al. Diabetes Care. 2015; 38:637-43.



# Insulin Considerations

## What is the **best insulin** for this patient?

- What are the appropriate treatment options for this patient?
- Potential benefits over alternatives
- Potential adverse effects and long term risks

## Will the patient be able to **use this medication** appropriately?

- Drug administration technique
- Initiating therapy and titrating the dose
- Monitoring therapy

## Will the patient have **access** to this medication?

- Cost issues
- Formulary considerations



# Insulin Overview

- Inject subcutaneously (thigh, upper arm, stomach/abdomen) once daily
- Rotate injection sites
- Prime with ~2 units
- Pen Needles vs. insulin syringe

Insulin  
Technique

Insulin Pen

- Units per pen; expectations
- Max dose
- Patient should hold for XX seconds

Stability

Counseling

- Stable out of refrigerator for XX days
- Expiration if refrigerated or not

- 15:15 rule for hypo
- Time to peak
- Insulin pens are for single person use
- Timing of doses (i.e., with food, same time daily, 8 hours apart)
- SMBG

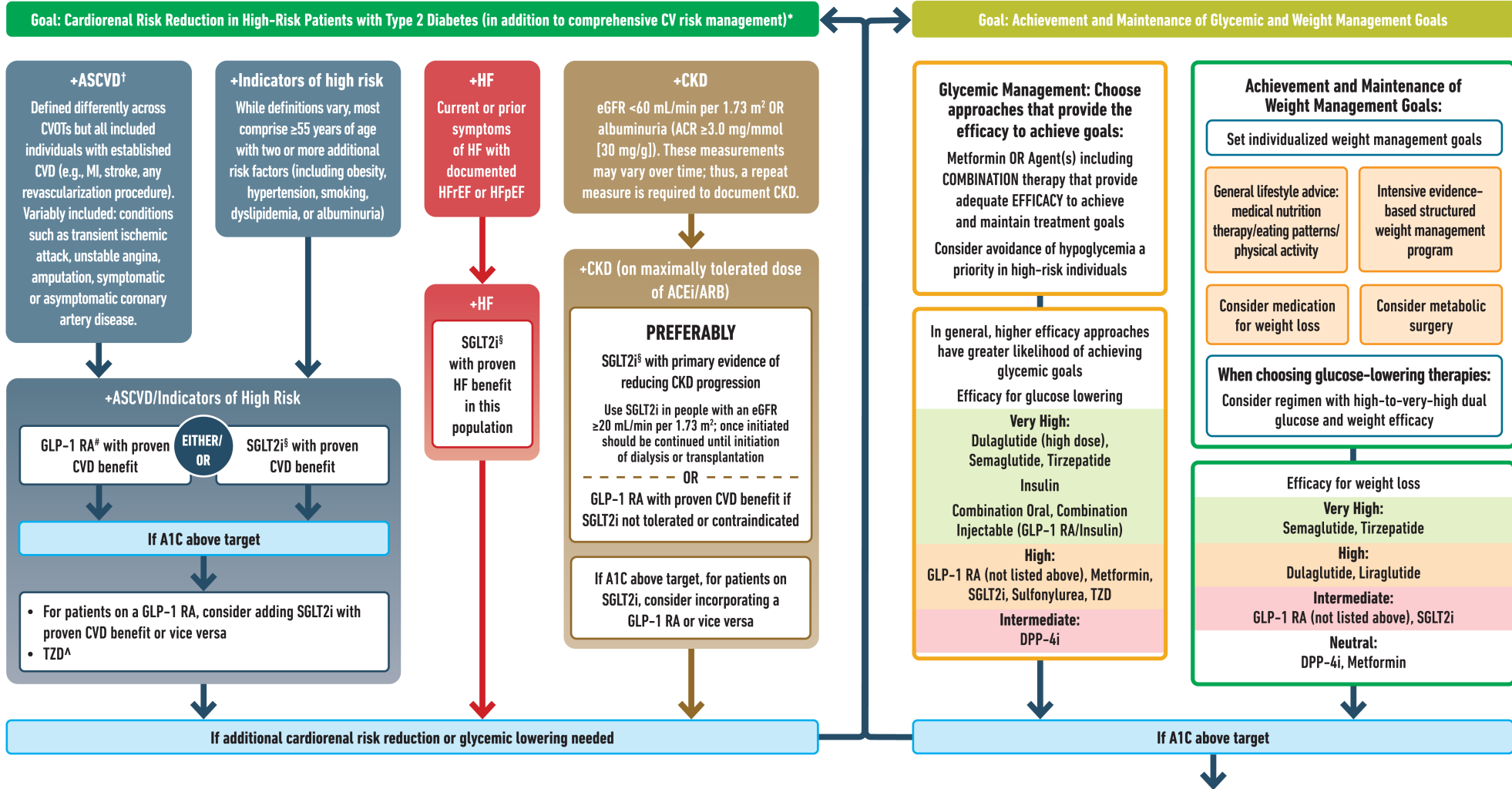


# Pharmacologic Approaches to Glycemic Treatment

GLP-1 receptor agonists with proven ASCVD benefits	Dulaglutide Liraglutide Semaglutide (subcutaneous)
SGLT-2 inhibitors with proven ASCVD benefits	Canagliflozin Empagliflozin
SGLT-2 inhibitors with proven HF benefits	Canagliflozin Dapagliflozin Empagliflozin Ertugliflozin
SGLT-2 inhibitor with primary evidence reducing CKD Progression	Canagliflozin Dapagliflozin Empagliflozin

# USE OF GLUCOSE-LOWERING MEDICATIONS IN THE MANAGEMENT OF TYPE 2 DIABETES

HEALTHY LIFESTYLE BEHAVIORS; DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (DSMES); SOCIAL DETERMINANTS OF HEALTH (SDOH)

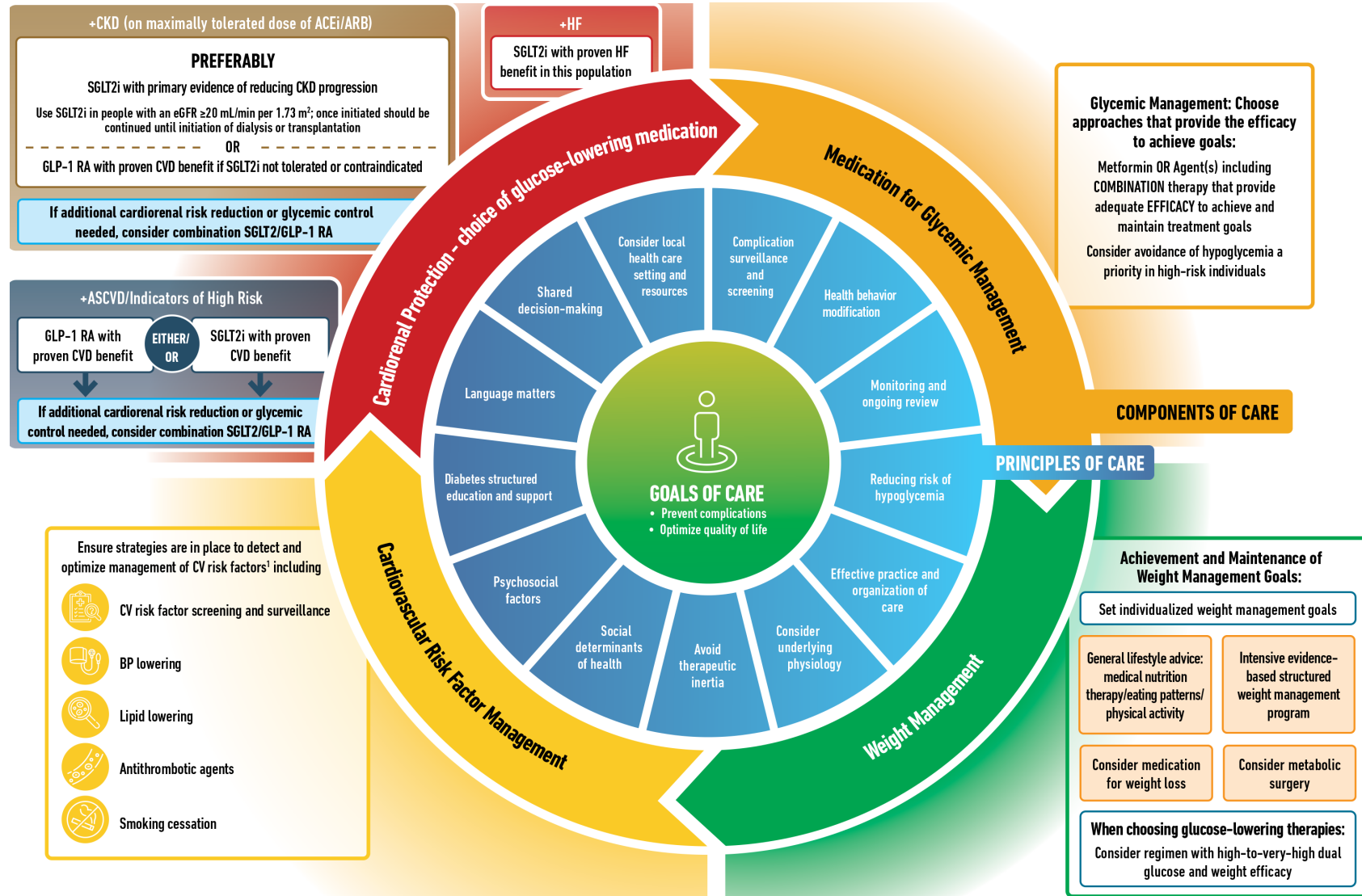


\* In people with HF, CKD, established CVD or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be independent of background use of metformin; † A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high CV risk. Moreover, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details; ^ Low-dose TZD may be better tolerated and similarly effective; § For SGLT2i, CV/renal outcomes trials demonstrate their efficacy in reducing the risk of composite MACE, CV death, all-cause mortality, MI, HFrEF, and renal outcomes in individuals with T2D with established/high risk of CVD; # For GLP-1 RA, CVOTs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke, and renal endpoints in individuals with T2D with established/high risk of CVD.

**Identify barriers to goals:**

- Consider DSMES referral to support self-efficacy in achievement of goals
- Consider technology (e.g., diagnostic CGM) to identify therapeutic gaps and tailor therapy
- Identify and address SDOH that impact achievement of goals

# Approach to T2D Management







# Standards of Care in Diabetes

## Section 10: Cardiovascular Disease and Risk Management

- Updated definitions of hypertension in line with ACC/AHA
  - Target blood pressure: <130/80 mmHg
- Statin use in individuals with diabetes aged 40-75 years with one or more ASCVD risk factor, reduce LDL cholesterol by  $\geq 50\%$  and to a target LDL of <70 mg/dL
  - Next slide
- Add finerenone in the treatment of individuals with type 2 diabetes and chronic kidney disease with albuminuria treated with and ACE inhibitor or ARB.





# Cardiovascular Disease & Risk Management

Primary Prevention	
Age 40-75 years without ASCVD	<b>Moderate-intensity Statin</b>
Age 40-75 years at higher CV risk (> 1 ASCVD risk factor)	<b>High-intensity Statin</b> <ul style="list-style-type: none"><li>· Reduce LDL by &gt; 50% of baseline</li><li>· Target LDL: &lt;70 mg/dL</li></ul> Add <b>ezetimibe</b> or <b>PCSK-9 inhibitor</b> as needed
Age >75 years already on statin therapy	<b>Continue Statin therapy</b>
Age >75 years not on statin therapy	<b>Consider initiating Moderate-intensity Statin</b>
Secondary Prevention	
Established ASCVD	<b>High-intensity Statin</b> <ul style="list-style-type: none"><li>· Reduce LDL by &gt; 50% of baseline</li><li>· Target LDL: &lt;55 mg/dL</li></ul> Add <b>ezetimibe</b> or <b>PCSK-9 inhibitor</b> as needed



# Standards of Care in Diabetes

## Section 11: Chronic Kidney Disease (CKD) and Risk Management

- SGLT-2 inhibitor use at eGFR rate  $\geq 20$  mL/min/1.83 m<sup>2</sup> and urinary albumin  $\geq 200$  mg/g creatinine

## Section 12: Retinopathy, Neuropathy, and Foot Care

- Screening details for autonomic neuropathy
- Neuropathy section addresses lipid and blood pressure control
- People who smoke should be referred to foot care specialists





# Standards of Care in Diabetes

## Section 13: Older Adults

- CGM use to improve glycemic outcomes, decrease glucose variability, reduce hypoglycemia
- Use of automated insulin delivery systems and devices for type 1 diabetes
- Lower blood pressure targets
- Simplification of complex treatment plans to reduce hypoglycemia and polypharmacy





# Standards of Care in Diabetes

## Section 14: Children and Adolescents

- More details added for referral to qualified mental health professional
- Changes in terms (girl to female individual; patient to young adult)

## Section 15: Management of Diabetes in Pregnancy

- Recommendation to endorse nutrition counseling to improve quality of carbohydrates (CHO) and promote balance of macronutrients
- Stricter blood pressure targets to improve outcomes (CHAP trial)



# Standards of Care in Diabetes

## Section 16: Diabetes Care in Hospital

- Expansion of the need for individualization to targets to include a target range of 100-180 mg/dL for non-critically ill people with new hyperglycemia and those with existing diabetes
- Use of personal CGM and automated insulin delivery (AID) devices during hospitalization when independent self-management is feasible

## Section 17: Diabetes Advocacy

- Section detailing advocacy statements from ADA



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# Pharmacist Role in SDOH and Health Outcomes





# Social Determinants of Health

Assess and refer to appropriate local community resources:

- food insecurity, housing insecurity/ homelessness, financial barriers, and social capital/social community support to inform treatment decisions

Provide patients with self-management support from lay health coaches, navigators, or community health workers

## Social Determinants of Health



Social Determinants of Health  
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 Healthy People 2030





# Social Determinants of Health

- Screenings in the Community Pharmacy
- Core 5 Screening [Tool](#)
  - Five yes/no items assessing food, housing, utilities, transportation, and safety needs
- AHA Health-related Screening [Tool](#)
  - Ten questions, meant to be self-administered

# Disproportionate Burden

- Disproportionate burden of diabetes on communities of color
- *Conditions in the places where people live, learn, work, and play that affect their health risks and outcomes. Compared to non-Hispanic Whites (7.5%) rates of diabetes among diverse populations are:*

American Indians/  
Alaska Natives  
**14.7%**

Hispanic Americans  
**12.5%**

African Americans  
**11.7%**

Asian Americans  
**9.2%**

Sources:


<sup>1</sup>CDC Vital Signs

<sup>2</sup>Center for Disease Control and Prevention

<sup>3</sup>Probst, J. C., PhD, & Ajmal, F., PhD. (2018). Social Determinants of Health among the Rural African American Population. Rural & Minority Health Research Center.


<sup>4</sup>U.S. Food and Drug Administration

# Additional Resources

 **African-American Adults (18.7%)** of 20 years of age and above have diagnosed or undiagnosed diabetes compared to **7.1%** of **White Americans**


**4.9 Million**



 African Americans are at **77%** higher risk of getting diabetes than **White Americans**



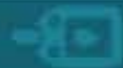
 The **5th** leading cause of Death for **Asian Americans** is **Diabetes**

 of Latino/Hispanic-Americans of 20 years of age and above have diagnosed diabetes and they are at **66%** higher risk of getting diabetes than **White American**

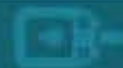
**11.8%**



 **American Indians** are at **3.5** times higher risk of diabetes-related **Kidney failure** than the rest of the US



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# Billing

## opportunities for diabetes education



# DSMES Medicare Reimbursement Guidance

Billable with certain restrictions under Medicare

- **Once in a lifetime benefit**
  - 10 initial hours
  - 2 follow up hours in subsequent years
  - Furnished in increments of 30 minutes or more

Sponsoring organization must achieve accreditation by ADCES or recognition by ADA

DME and Pharmacy Providers **must** enroll as Medicare Part B providers to bill

- Even if already Medicare “suppliers (855B v. 855S)

Must be billing and getting paid by Medicare for other services;  
**cannot** ‘just’ enroll to bill for DSMT

# DSMT Set Up with Medicare

1: Apply for  
**Pharmacy Medicare  
Provider PTAN  
(855B)**  
*if you don't already have one*

2: **Upload**  
accreditation  
certificate in PECOS  
System

3: Update  
pharmacy billing  
NPI to reflect  
**Diabetes Educator**

4: Register with your  
local MAC

5: Submit claims!

6: Get Paid



# PTAN Enrollment

- Apply for a **Pharmacy 855B PTAN** through the PECOS website
- You **cannot** bill for DSMT services under a **Mass Immunization (855S) PTAN**
  - DME POS Suppliers may still need to register as a Medicare B “provider”
    - Submit ADCES accreditation certificate or ADA recognition certificate with cover letter to local MAC for enrollment guidance
- Upload ADCES or ADA certificate under 855B PTAN
  - Can do on a new or update an existing enrollment



# NPI Updates

- Log in to **NPPES** and **update your Pharmacy NPI** to include the Taxonomy:
  - 193200000X Multi Specialty Group
  - 163WD0400X Registered Nurse Diabetes Educator
- You may also update **your personal NPI** with this same taxonomy
  - Primarily for ‘credentialing’ with insurers





# Other Billing Considerations

- Update **billing vendor** with appropriate PTAN
  - Can bill both DSMT and vaccines under a 855B Pharmacy PTAN
  - Consider withdrawing Mass Immunization PTAN
- Register with you local MAC portal for eligibility and claim status inquiries
  - 1-800-MEDICARE



# Claim Requirements

## Patient must meet **proper coverage criteria**

- Diagnosed with diabetes
- Order from treating physician

## Approved **place** of service

- Pharmacy
- Telehealth during COVID-19 Emergency

## Valid **Diagnosis Code**

## Rendering and Billing Provider → **Pharmacy NPI**



# Proper Coding

## CPT Codes for Medicare

- 1 unit = 30 min.
- G0108 (individual)
- G0109 (group)

## Average Reimbursement

- Individual:
  - \$54.45 / unit
- Group:
  - \$15.46 / unit

## Deductible and 20% coinsurance

- **Does** apply
- Educate patient



# Non-Medicare Payers

- DSMT coverage may vary by plan and require contracting/credentialing
- Facility or Ancillary Provider **Medical Contract**
  - Some will allow these services under a DME contract
- Can submit claims "out of network" without contract in place
  - must be transparent to the patient

Create a "**Letter of Interest**" explaining your services

- Find regional contact of the plan and reach out directly
- Send a LOI and copy of accreditation certificate on company letter head



# Billing Resources

## 1. Medicare Reimbursement Guidelines for DSMT

<https://www.cdc.gov/diabetes/dsmes-toolkit/reimbursement/medicare.html>

## 2. Medicare Preventative Services

[https://www.cms.gov/Medicare/Prevention/PrevntionGenInfo/medicare-preventive-services/MPS-QuickReferenceChart-1.html#DIABETES\\_SELF](https://www.cms.gov/Medicare/Prevention/PrevntionGenInfo/medicare-preventive-services/MPS-QuickReferenceChart-1.html#DIABETES_SELF)

## 3. ADCES Codes for Diabetes Self Management Training

<https://www.diabeteseducator.org/docs/default-source/practice/deap/faq/new-icd-10-codes.pdf?sfvrsn=0>

## 4. Medicare Coverage Guidelines for DSMT

[https://www.cdc.gov/diabetes/dsmes-toolkit/pdfs/Participating-Medicare-DSMT-Coverage-Guidelines-11-20-17\\_508tagged.pdf](https://www.cdc.gov/diabetes/dsmes-toolkit/pdfs/Participating-Medicare-DSMT-Coverage-Guidelines-11-20-17_508tagged.pdf)

# My Team in Action





# My Team in Action



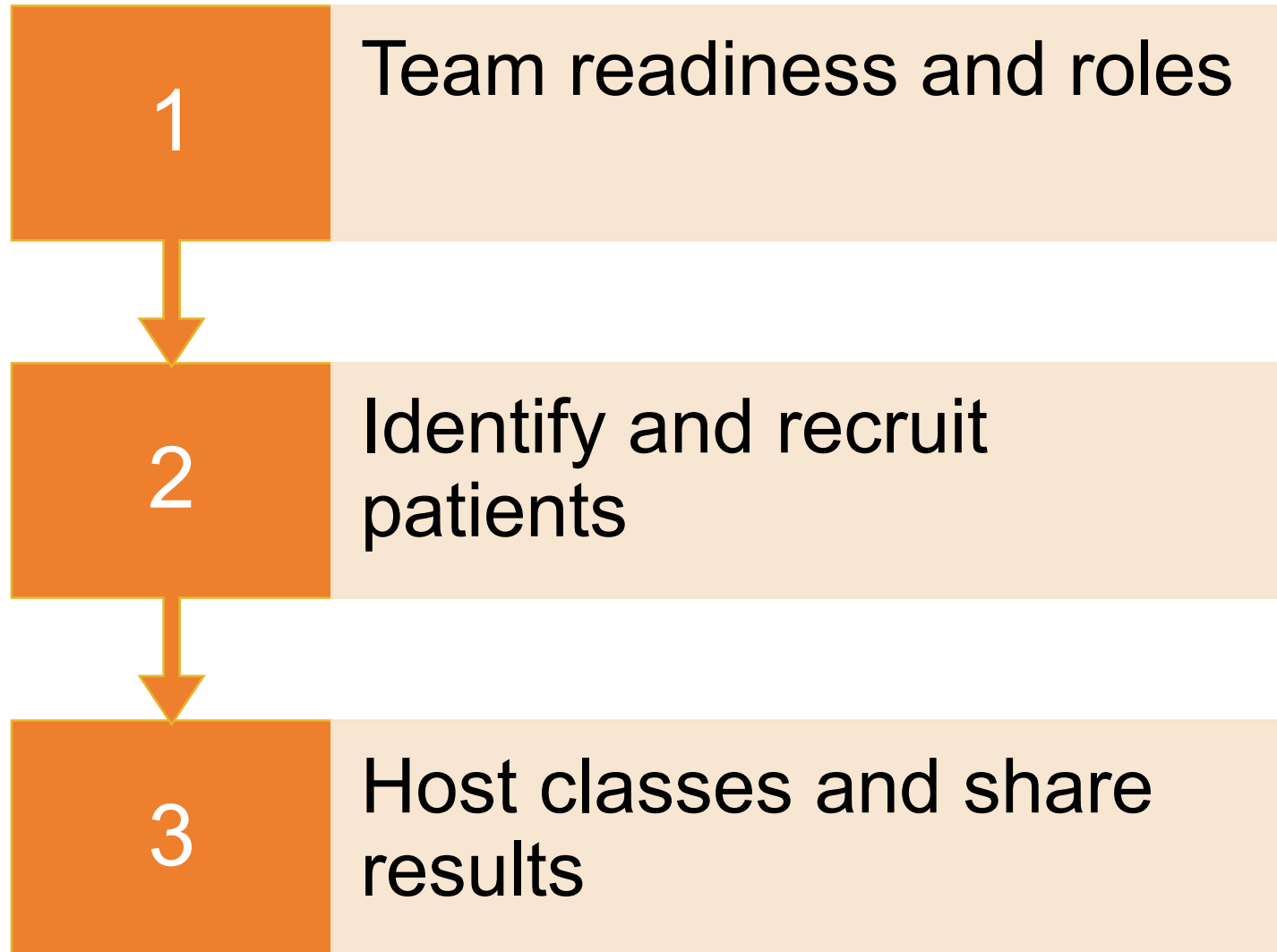


# My Team in Action





# Workflow



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# Helpful Resources

- Standards of Medical Care in Diabetes—2023 (American Diabetes Association)
- A consensus report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD).
- American Association of Clinical Endocrinology Clinical Practice Guideline: Developing a Diabetes Mellitus Comprehensive Care Plan-2022 Update.

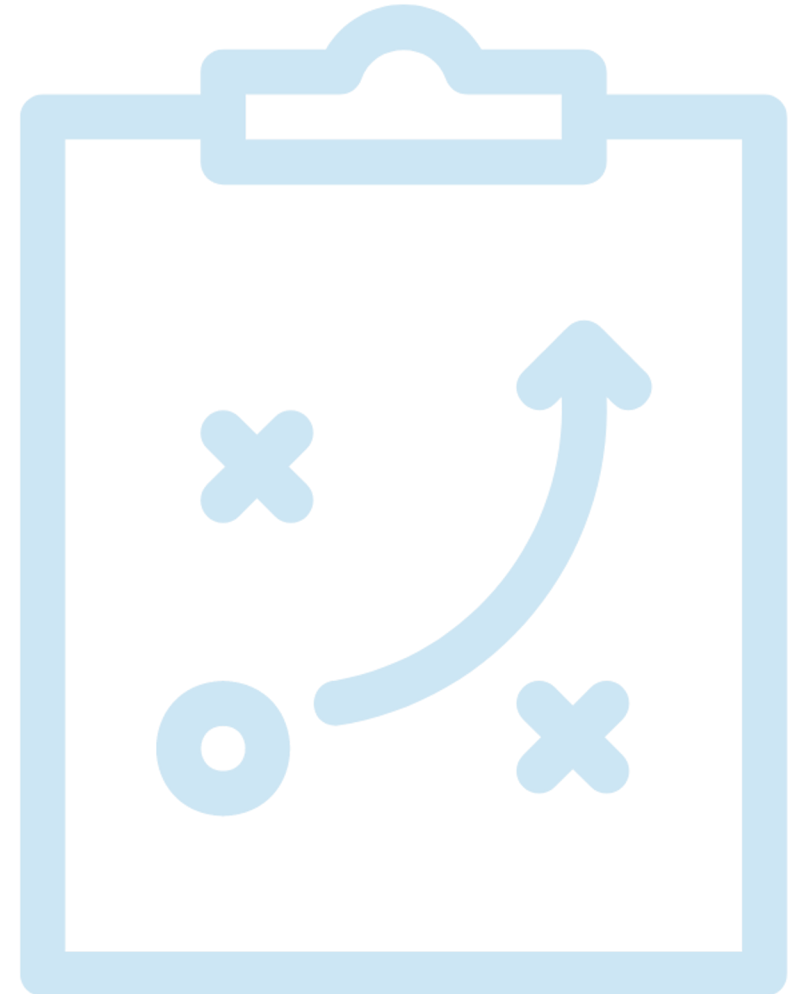
# Helpful Resources

- Diabetes Education Supplies: <https://www.novomedlink.com/>
- Diabetes Mental Health Resources:  
<https://professional.diabetes.org/meetings/mental-health-toolkit>
- Diabetes Medication Access :  
<https://www.diabeteseducator.org/practice/practice-tools/app-resources/affordability-resources>

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# Game Plan

1. **Lesson Learned:** Community pharmacy role in SDOH and diabetes care
2. **Replication:** Integrate diabetes education within already established pharmacy services
3. **Call to Action:** Develop plan for sustaining diabetes education program



# Nicole C Pezzino, PharmD, BCACP, CDCES

Director of Community Outreach & Innovation | Associate Professor  
**Wilkes University, Nesbitt School of Pharmacy**

Director of PGY-1 Community-based Residency Program | Clinical Pharmacist  
**Weis Markets**

[nicole.pezzino@wilkes.edu](mailto:nicole.pezzino@wilkes.edu)

 Instagram: @nicole\_pezzino

 Twitter: @nicole\_pezzino

 LinkedIn: Nicole Pezzino





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