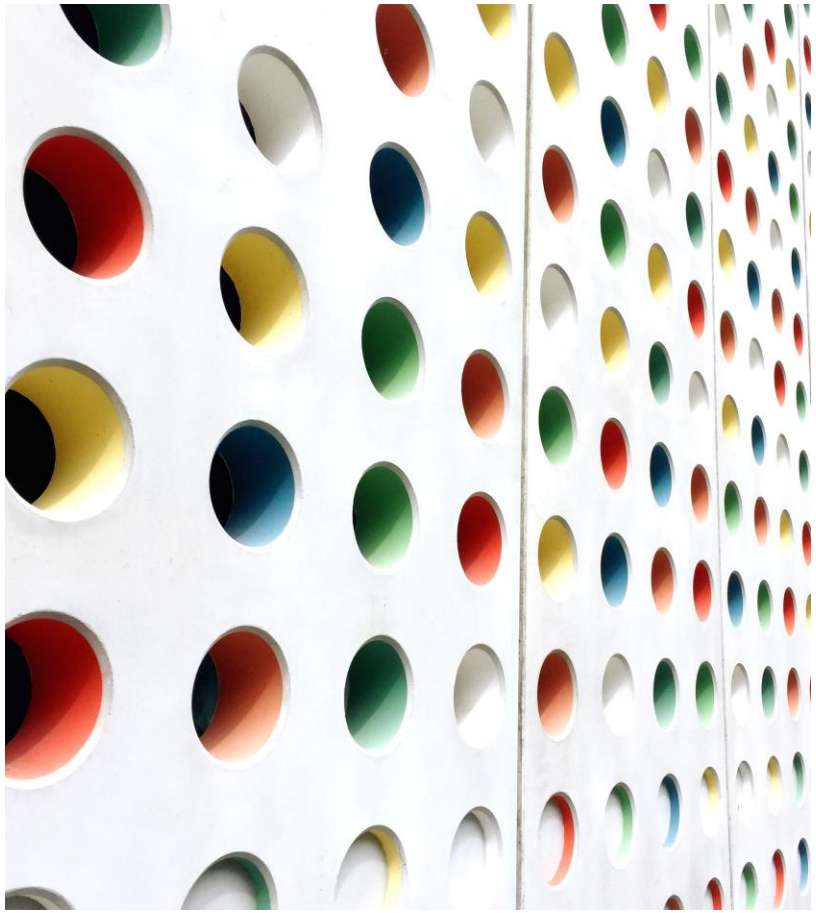
Diabetes Management: Updated Guidelines and Considerations for Community Health Centers

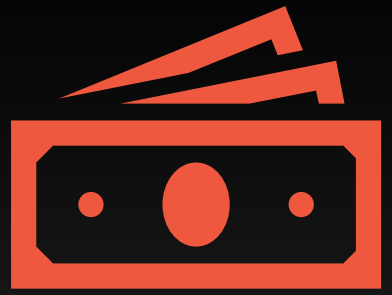
MERIAH WARD, DNP, FNP-BC

ADVANCE COMMUNITY HEALTH

WAKE & FRANKLIN COUNTY



Disclosures



I have no relevant financial relationships to disclose.

I will not disclose off label use or investigational use in my presentation.

Objectives

1. Describe new and updated guidelines from the ADA on managing diabetes

2. Describe nuances within community health centers on managing diabetes and how to optimize clinical outcomes with limited resources.

3. Identify new medications coming to the market for diabetes management.

4. Identify community resources to optimize clinical outcomes and patient care.

A Brief Overview

Type 1 Diabetes: Secondary to autoimmune beta-cell destruction; Insulin dependent.

Type 2 Diabetes: Secondary to a progressive loss of adequate beta-cell insulin secretion frequently on the background of insulin resistance.

Diabetes Secondary to Other Causes: Secondary to outside factors, likely temporary.

Gestational Diabetes: Secondary to pregnancy, typically present in the second or third trimester.

Diagnostic Criteria

FPG ≥126 mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 h.*
OR
2-h PG ≥200 mg/dL (11.1 mmol/L) during OGTT. The test should be performed as described by WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.*
OR
A1C ≥6.5% (48 mmol/mol). The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.*
OR
In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥200 mg/dL (11.1 mmol/L).

Diabetic Management within Community Health Centers (CHCs)

CHCs serve 1.9 million diabetes patients. One in seven patients has diabetes, nearly one in three of those have uncontrolled diabetes.

Social determinants of health create challenges in diabetic care.

CHCs often have limited resources and constraints that negatively impact diabetic care.

Diabetic Management within CHCs: Cost

CHCs' provide high quality chronic care, that meets or exceeds national practice standards at lower costs.

- $24 billion saved annually

Diabetes ranks highest in healthcare spending among all disease categories. Costs increase significantly for every 1% increase in A1c above 7%.

- $237 billion for direct medical costs
- $90 billion in indirect medical costs

Diabetic Management within CHCs: Diabetic Control

- A formal written, clinical policy
- Standing orders
- Patient recall/outreach
- Performance data shared at the provider/team level and site/organization level

Diabetic Management within CHCs: The 340b Program

- SGLT2 Inhibitors- Invokana; Farxiga; Jardiance
- GLP-1 Receptor Agonists- Byetta; Victoza
- DPP-4 Inhibitors- Tradjenta; Januvia
- Insulins- Lantus; Lispro; Levemir; Novolog; Humalog 75/25

Diabetic Management within CHCs: UDS

Preventive Care & Screening: BMI Screening & Follow-Up Plan	· Percentage of patients 18 years or older with a BMI documented and follow-up plan documented if BMI is outside of normal parameters.
Prevention Care & Screening: Tobacco Use- Screening & Cessation Intervention	· Percentage of patients 18 years or older who were screened for tobacco use one or more times during the measurement period and if identified to be a tobacco user received cessation counseling intervention.
Statin Therapy for the Prevention and Treatment of Cardiovascular Disease	· Percentage of patients at high risk for cardiovascular events who were prescribed or were on statin therapy.
Ischemic Vascular Disease: Use of Aspirin or Another Antiplatelet	· Percentage of patients 18 years of age or older with a diagnosis of IVD, AMI, CABG, or PCI procedures with aspirin or another platelet.

Diabetic Management within CHCs: UDS

Controlling High Blood Pressure

- Percentage of patients who had a diagnosis of HTN starting before and continuing into or starting during the first six months of the measurement period, and whose most recent BP reading was adequately controlled (<140/90).

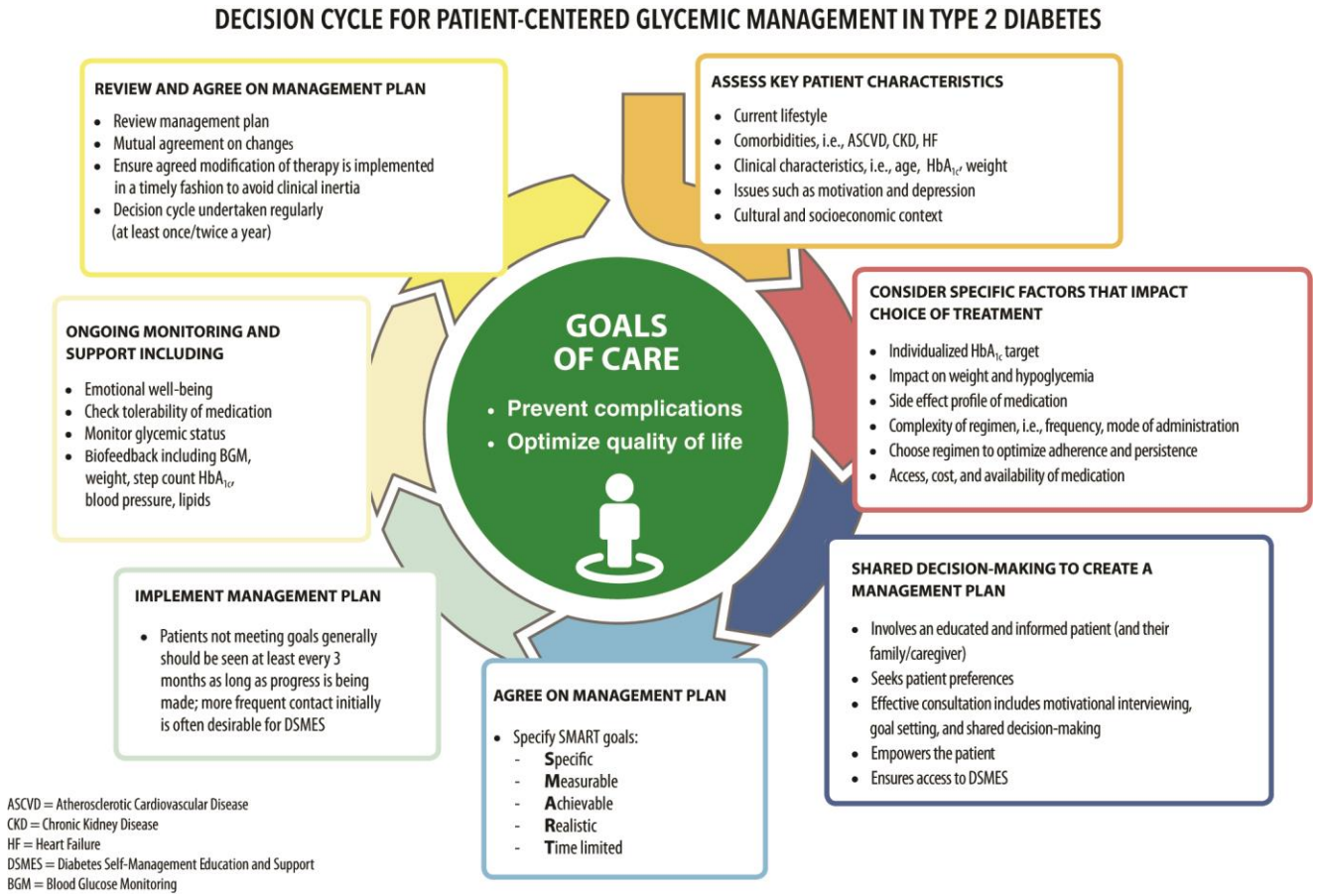
Hemoglobin A1c Poor Control (>9%)

- Percentage of patients 18-75 years of age with diabetes who had a hemoglobin A1c >9% during the measurement period.

Standards of Care, 2022: Diabetes & Population Health

- Treatments should be timely, rely on evidence-based practice, incorporate community support, and are made *with* patients to ensure their preferences, comorbidities, and social situation are considered.
- Utilize the Chronic Care Model. This model incorporates person-centered team care, integrated long-term treatment approaches to diabetes and comorbidities, and collaborative communication and goal setting between everyone.
- Assess food insecurity, housing insecurity, financial barriers, and social community support to inform treatment decisions.
- Provide patients with self-management support.

Goals of Care



Standards of Care, 2022: Comprehensive Medical Evaluation and Assessment of Comorbidities

- A complete medical evaluation should be performed at the initial visit to:
  - Confirm and classify the diabetes
  - Evaluate for diabetes complications and potential comorbid conditions
  - Review previous treatment and risk factor control in patients with established diabetes
  - Begin patient engagement in the formulation of a care management plan
  - Develop a plan for continuing care
- Ongoing management should be guided by the assessment of health status, diabetic complications, cardiovascular risk, hypoglycemia risk, and shared decision-making to set therapeutic goals.
- Diabetic men who have s/s of hypogonadism should have a morning serum testosterone level drawn.
- *Type 1 diabetics* should be screened for autoimmune thyroid disease routinely.
- *Type 1 diabetic* adults should be screened for celiac disease if demonstrating GI symptoms.

Standards of Care, 2022: Glycemic Targets

If well controlled, patients should have glycemic control checked every 6 months.

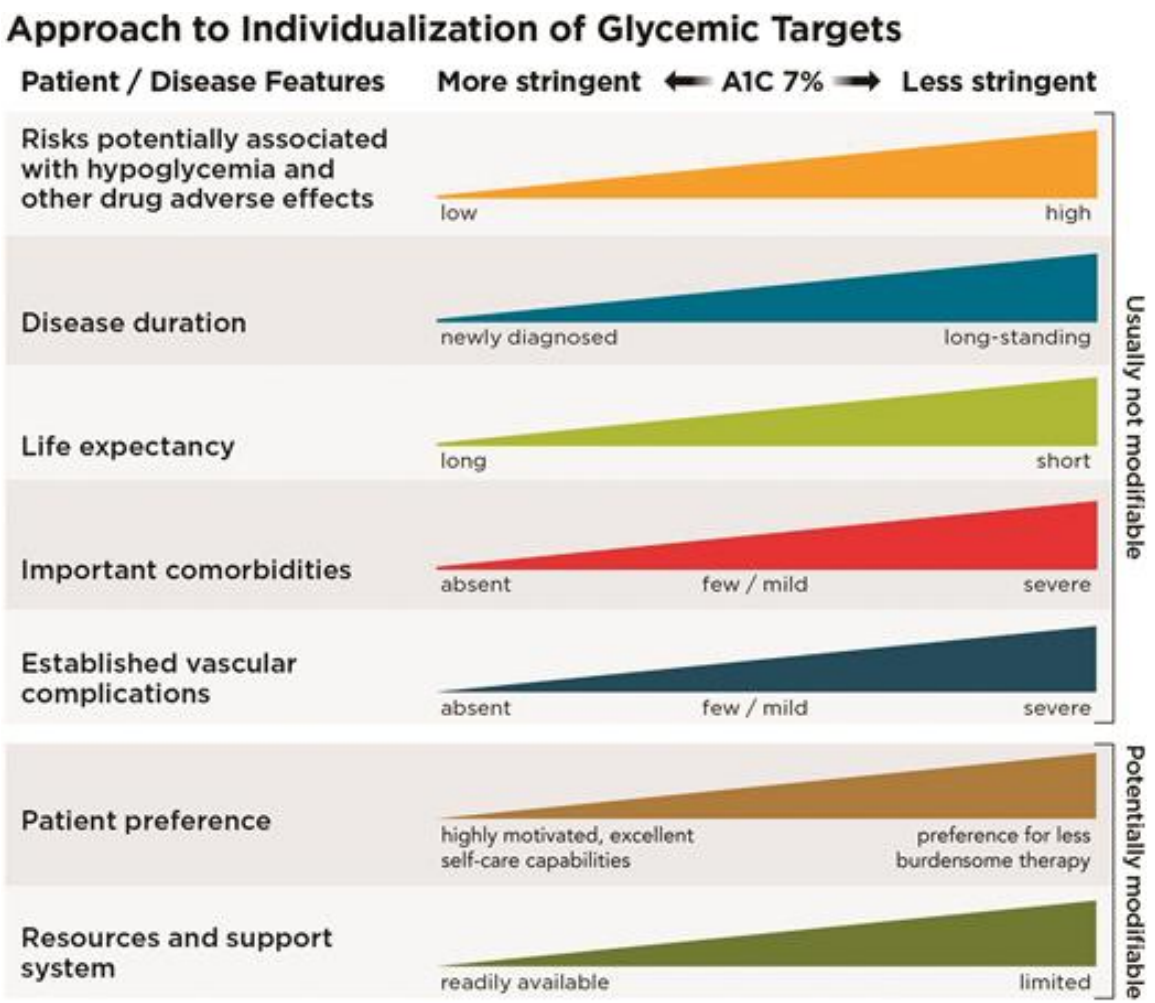
An A1C for nonpregnant adults of >7% without significant hypoglycemia is desired

Less stringent A1C goals (such as <8%) may be appropriate for patients with limited life expectancy or where the harms of treatment are greater than the benefits.

If poorly controlled or therapy has recently changed, patients should have glycemic control checked every 3 months.

A1C % converted to eAG

A1C (%)	mg/dL*	mmol/L
5	97 (76-120)	5.4 (4.2-6.7)
6	126 (100-152)	7.0 (5.5-8.5)
7	154 (123-185)	8.6 (6.8-10.3)
8	183 (147-217)	10.2 (8.1-12.1)
9	212 (170-249)	11.8 (9.4-13.9)
10	240 (193-282)	13.4 (10.7-15.7)
11	269 (217-314)	14.9 (12.0-17.5)
12	298 (240-347)	16.5 (13.3-19.3)



Glycemic Targets

Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

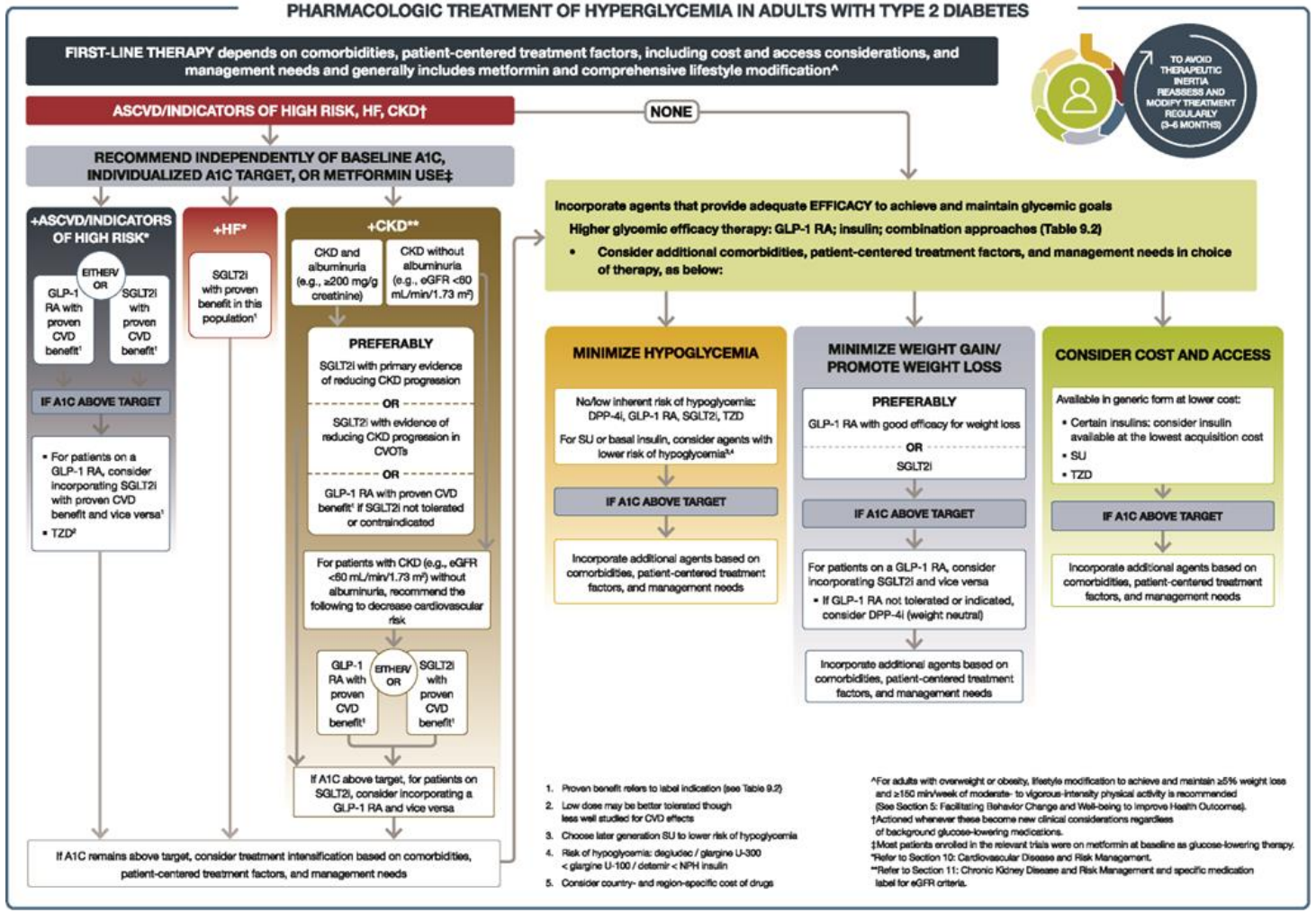
- First-line therapy typically includes metformin and comprehensive lifestyle modification.
  - Metformin should be continued upon initiation of insulin (unless contraindicated).
- Other medications (GLP-1s and SGLT2) with or without metformin are appropriate first line therapy for individuals at risk for or with ASCVD, HF, CKD.
- Early combination therapy can be considered on initiation to extend the time to treatment failure.
- Insulin should be considered if there is evidence of ongoing catabolism (weight loss), if symptoms of hyperglycemia are present, or when A1C levels are >10% or glucose levels are >300.

Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

- A patient-centered approach should guide your choice in pharmacologic agents. Consider the effects on CV and renal comorbidities, efficacy, hypoglycemic risk, impact on weight, cost and access, risk for side effects, and patient preferences.
- Among individuals who have established ASCVD or indicators of high CV risk, established CKD, or HF, an SGLT2 inhibitor and/or a GLP-1 receptor agonist with demonstrated CVD benefit is recommended as part of the glucose-lowering regimen and comprehensive CV risk reduction, independent of A1C.
- GLP-1 receptor agonist is preferred to insulin when possible.
- When insulin is used, a GLP-1 receptor agonist is recommended for greater efficacy and durability of treatment effect.

Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

- Medication regimen and medication-taking behavior should be reevaluated at regular intervals (every 3-6 months) and adjusted as needed.
- Clinicians should be aware of the potential for overbasalization with insulin therapy include basal dose more than 0.5 IU/kg/day, high bedtime-morning or post-preprandial glucose differential, hypoglycemia, and high glycemic variability.



Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

		Efficacy	Hypoglycemia	Weight change	CV effects		Cost	Oral/SQ	Renal effects		Additional considerations
					ASCVD	HF			Progression of DKD	Dosing/use considerations*	
Metformin		High	No	Neutral (potential for modest loss)	Potential benefit	Neutral	Low	Oral	Neutral	▪ Contraindicated with eGFR <30 mL/min/1.73 m^2	▪ Gastrointestinal side effects common (diarrhea, nausea) ▪ Potential for B12 deficiency
SGLT2 inhibitors		Intermediate	No	Loss	Benefit: empagliflozin†, canagliflozin†	Benefit: empagliflozin‡, canagliflozin, dapagliflozin‡, ertugliflozin	High	Oral	Benefit: canagliflozin§, empagliflozin, dapagliflozin§	▪ See labels for renal dose considerations of individual agents ▪ Glucose-lowering effect is lower for SGLT2 inhibitors at lower eGFR	▪ Should be discontinued before any scheduled surgery to avoid potential risk for DKA ▪ DKA risk (all agents, rare in T2D) ▪ Risk of bone fractures (canagliflozin) ▪ Genitourinary infections ▪ Risk of volume depletion, hypotension ▪ ↑LDL cholesterol ▪ Risk of Fournier's gangrene
GLP-1 RAs		High	No	Loss	Benefit: dulaglutide†, liraglutide†, semaglutide (SQ)† Neutral: exenatide once weekly, lixisenatide	Neutral	High	SQ; oral (semaglutide)	Benefit on renal end points in CVOTs, driven by albuminuria outcomes: liraglutide, semaglutide (SQ), dulaglutide	▪ See labels for renal dose considerations of individual agents ▪ No dose adjustment for dulaglutide, liraglutide, semaglutide ▪ Caution when initiating or increasing dose due to potential risk of nausea, vomiting, diarrhea, or dehydration. Monitor renal function in patients reporting severe adverse GI reactions when initiating or increasing dose of therapy.	▪ **FDA Black Box:** Risk of thyroid C-cell tumors in rodents; human relevance not determined **(liraglutide, dulaglutide, exenatide extended release, semaglutide)** ▪ GI side effects common (nausea, vomiting, diarrhea) ▪ Injection site reactions ▪ Pancreatitis has been reported in clinical trials but causality has not been established. Discontinue if pancreatitis is suspected.
DPP-4 inhibitors		Intermediate	No	Neutral	Neutral	Potential risk: saxagliptin	High	Oral	Neutral	▪ Renal dose adjustment required (sitagliptin, saxagliptin, alogliptin); can be used in renal impairment ▪ No dose adjustment required for linagliptin	▪ Pancreatitis has been reported in clinical trials but causality has not been established. Discontinue if pancreatitis is suspected. ▪ Joint pain
Thiazolidinediones		High	No	Gain	Potential benefit: pioglitazone	Increased risk	Low	Oral	Neutral	▪ No dose adjustment required ▪ Generally not recommended in renal impairment due to potential for fluid retention	▪ **FDA Black Box:** Congestive heart failure **(pioglitazone, rosiglitazone)** ▪ Fluid retention (edema; heart failure) ▪ Benefit in NASH ▪ Risk of bone fractures ▪ Bladder cancer (pioglitazone) ▪ ↑LDL cholesterol (rosiglitazone)
Sulfonylureas (2nd generation)		High	Yes	Gain	Neutral	Neutral	Low	Oral	Neutral	▪ Glyburide: generally not recommended in chronic kidney disease ▪ Glipizide and glimepiride: initiate conservatively to avoid hypoglycemia	▪ FDA Special Warning on increased risk of cardiovascular mortality based on studies of an older sulfonylurea (tolbutamide)
Insulin	Human insulin	High	Yes	Gain	Neutral	Neutral	Low (SQ)	SQ; inhaled	Neutral	▪ Lower insulin doses required with a decrease in eGFR; titrate per clinical response	▪ Injection site reactions ▪ Higher risk of hypoglycemia with human insulin (NPH or premixed formulations) vs. analogs
	Analogs						High	SQ			

Standards of Care, 2022: Pharmacologic Approaches to Glycemic Treatment

FDA approves Mounjaro (GIP and GLP-1 receptor agonist), a new class of medication for diabetic management.

A1c reductions averaged 1.8 to 2.4%

Standards of Care, 2022: CVD and Risk Management (Blood Pressure)

- Blood pressure should be measured at every routine clinical visit. If found to be >140/90, the BP should be confirmed through multiple readings on a separate day for a diagnosis of HTN. In the event a BP is >180/110, a diagnosis of HTN is appropriate during the initial visit.
- Individuals with both HTN and DM:
  - Should measure their BP at home
  - BP targets should be patient-centered
  - When higher CV risk (ASCVD or ASCVD 10-year risk >15%) a BP target of <130/80 is appropriate.
  - Lower risk patients should aim for a BP target of <140/90.

Standards of Care, 2022: CVD and Risk Management (HTN Management)

- Lifestyle intervention should be first-line treatment and include weight loss, a DASH-style eating pattern, reductions in sodium and alcohol, increasing potassium intake, and physical activity.
- BP readings >140/90 warrant pharmacologic treatment. If >160/100 pharmacologic treatment should include two drugs, or a single-bill combination of drugs demonstrated to reduce CV events in patients with diabetes.
- ACE inhibitors or ARBs are recommended first-line therapy for HTN.
- Multiple-drug therapy is often required to manage HTN.
- Treatment resistant HTN should be treated with a mineralocorticoid receptor antagonist (MRA) therapy.

Standards of Care, 2022: CVD and Risk Management (Lipid Management)

- Lifestyle modification focusing on weight loss; application of a Mediterranean style or DASH eating pattern; reduction of saturated fat and *trans* fat; increase of dietary n-3 fatty acids, viscous fiber, and plant stanols/sterols intake; and increased physical activity should be recommended to reduce the risk of developing ASCVD.
- Intensify lifestyle therapy and optimize glycemic control for patients with elevated triglycerides levels (>150) and/or low HDL (<40 [M]; <50 [F]).
- For adults 40-75 without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy.
- For adults at higher risk, especially with multiple ASCVD risk factors or are 50-70 years, it is reasonable to use high-intensity statin therapy.
- For adults with 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe (Zetia) to maximally tolerated statin therapy to reduce LDL cholesterol by 50% or more.

Standards of Care, 2022: CVD and Risk Management (Lipid Management)

Individuals with ASCVD, high-intensity therapy should be added to lifestyle therapy.

LDL goal is <70.

Maximally tolerated statin dose should be used.

Triglyceride levels >500 should be evaluated for secondary causes of hypertriglyceridemia. Medication therapy should be considered to avoid pancreatitis.

Triglycerides levels 175-499 should receive treatment for lifestyle factors (obesity and metabolic syndrome), secondary factors (diabetes, CKD, CLD, hypothyroidism), and medications that raise triglycerides.

With a controlled LDL, but elevated triglycerides, the addition of icosapent ethyl can be considered.

Standards of Care, 2022: CVD and Risk Management (Antiplatelet Agents)

- In individuals with a history of ASCVD should take a daily aspirin (75-162 mg/day). In individuals with a documented allergy to aspirin, clopidogrel (75 mg/day) should be used
- Dual antiplatelet therapy (low-dose aspirin and P2Y12 inhibitor) is reasonable for the year after an acute coronary syndrome. Combination therapy may be recommended longer in for individuals with prior coronary intervention, high ischemic risk, and low bleeding risks to prevent major adverse cardiovascular events.
- Combination therapy with aspiring and low-dose rivaroxaban should be considered for individuals with stable CAD and/or PAD with a low risk for bleeding as prevention from adverse limb and CV events.

Standards of Care, 2022: CVD and Risk Management (CVD Screening & Treatment)

- CAD screening is not recommended for asymptomatic patients. Treating the risk factors for CAD is essential.
- CAD screening should occur in individuals with atypical cardiac symptoms (unexplained dyspnea, chest discomfort); s/s associated with vascular disease, including carotid bruits, TIAs, strokes, claudication, or PAD, or ECG abnormalities.
- Individuals with CKD treated with a maximum tolerated dose of ACE/ARB the addition of fenereone should be considered to improve CV outcomes and reduce the risk of CKD progression,

Standards of Care, 2022: CKD and Risk Management

- Annual urine albumin and eGFR should be obtained.
  - Urine albumin >300/eGFR 30-60 should be tested every six months.
  - CKD diagnosis occurs with 2/3 specimens show reduced eGFRs.
- Optimization of BP control and reductions in BP variability is recommended to reduce the progression of CKD.
- For nondialysis-dependent stage 3 or higher CKD, dietary protein intake should be a maximum of 0.8 g/kg of body weight/day.
- ACEs/ARBs are not recommended for prevention in individuals with a normal BP.
- Referral to a nephrologist should occur when the eGFR <30; or, when there is uncertainty about the etiology of kidney disease, difficult management issues, or rapidly progressing kidney disease.

Standards of Care, 2022: Retinopathy, Neuropathy, and Foot Care (Retinopathy)

Optimize glycemic control, BP, and lipid control to reduce or slow the progression of diabetic retinopathy.

Dilated and comprehensive eye exams are recommended annually.

Any level of diabetic macular edema, moderate or worse nonproliferative diabetic retinopathy, or any proliferative diabetic retinopathy requires referral.

Standards of Care, 2022: Retinopathy, Neuropathy, and Foot Care (Neuropathy)

- Screen annually for diabetic peripheral neuropathy through history, assessment of temperature/pinprick sensation (small-fiber function) and vibration sensation using a 1280Hz tuning fork (large-fiber function). All patients should have an annual 10-g monofilament exam, to determine risk for ulceration and amputation.
- Autonomic neuropathy should be assessed periodically.
- Pregabalin, duloxetine, or gabapentin treat peripheral neuropathy,

Standards of Care, 2022: Retinopathy, Neuropathy, and Foot Care (Foot Care)

- Comprehensive foot evaluations should occur annually.
  - Assessment should include Prior history of ulceration, amputation, Charcot foot, angioplasty, vascular surgery, smoking, retinopathy, and renal disease should be obtained.
  - Assess for symptoms of neuropathy (pain, burning, numbness) and vascular disease (leg fatigue claudication) every visit.
  - Exam should include inspection of the skin, assessment of food deformities, neurological assessment (10-g monofilament testing with pinprick, temperature, or vibration assessment), vascular assessment (including pulses in legs and feet)
- Evidence of sensory loss, prior ulceration, or amputation should receive a foot exam every visit.
- Claudication or decreased/absent pedal pulses should prompt a referral for a vascular evaluation.
- Involving foot care specialists in individuals with a history of smoking, lower-extremity complications, loss of protective sensation, structural abnormalities or PAD is recommended.

Optimizing Care through Community Resources: NC Diabetes Advisory Council

- Expansive resources on diabetes prevention and diabetes management strategies
  - Continuing education credits for healthcare providers
  - Complete guides on diabetes prevention and management
    - What can employers do?
    - What can healthcare providers and insurers do?
    - What can local communities do?

Optimizing Care through Community Resources: Diabetes Prevention Programs (DPP)

Over 75 CDC-recognized DPP courses exist in NC.

- Offered in health departments, YMCAs, community centers, faith-based organizations, hospitals, and worksites.

NC Prevents Diabetes: a partnership between NCSU and the NC Division of Public Health with Blue Cross and Blue Shield of NC offers DPPs regardless of insurance status.

- Funds online and onsite programs across the state by covering the program fee (average cost $430).
- Provides participant incentives and optional transportation and childcare supports.
- Goal to remove the cost barrier to access/participate in DPPs.
- Visit: diabetesfreenc.com

Optimizing Care through Community Resources: Medicare DPP

Medicare's Diabetes Prevention Program

- Expanded model is a structured behavior change intervention that aims to prevent the onset of T2D among Medicare beneficiaries with an indication of prediabetes.
- CDC Diabetes Prevention Recognition require for reimbursement

Medicare Part B will cover if:

- You have prediabetes
- You have a BMI of 25 or more (23 if Asian)
- You have never been diagnosed with diabetes or end-stage renal disease
- You have never participated in the Medicare DPP

Optimizing Care through Community Resources: Medicare DPP

Program begins with 16 core sessions offered in a group setting over a 6-month period focused on

- Training to make realistic, lasting behavior changes
- Tips on how to get more physical activity
- Strategies for controlling your weight
- A behavior coach, specially trained to help keep you motivated
- Support from people with similar goals

Once completed there is:

- 6 more months of less intensive monthly follow-up sessions to help maintain health habits
- 12 months of ongoing maintenance sessions (with attendance and BMI criteria being met)

Optimizing Care through Community Resources: Diabetes Self-Management Education and Support (DSMES)

- Diabetes Management NC: Sponsored by the NC Department of Health and Human Services
  - Interactive map to identify DSMES courses in your area (sorted by county)
  - Community handouts (for patients and caregivers)
  - Healthcare provider resources (tool kits, guides, etc)
  - Sponsor of DiabetesSmartNC.

Optimizing Care through Community Resources: DSMES

- Organizations can become part of the DiabetesSmartNC program to provide reimbursable, ADA approved diabetes education.
  - Statewide umbrella program
  - Technical assistance (billing, marketing, curriculum, program development, and quality improvement)
  - Monthly communication and training
  - Access to the DiabetesSmart portal

Case Study 1: 49, M, Previous MI, T2D

- Newly diagnosed type 2 diabetic presents to your clinic after spending 2 weeks in the hospital for acute coronary syndrome.
  - **Insurance:** Sliding Fee Scale, uninsured.
  - **PMHx:** HTN and HLD
  - **PSHx:** CABAG
  - **Medications**: Atorvastatin 20 mg/daily; Losartan 50 mg/daily; Metformin 2000 mg/daily
    - Reports he stopped taking aspirin
  - **POCT A1C:** 10.5%
    - Hospital A1C: 9%

Case Study 1: Question 1

- Based on current guidelines, which of the following medications should be added?
  - A: Aspirin
  - B: Amaryl (glimepiride)
  - C: Aspirin & Plavix (clopidogrel)
  - D: Farxiga (dapagliflozin)

Case Study 1: Question 2

- Given the patient's current A1C, it is recommended to start insulin. Upon discussion, the patient is hesitant to start injections and is asking for a different medication. You both agree starting an oral agent in addition to diet and exercise for the next three months is appropriate. What care model is being utilized?
  - A: Chronic Care Model
  - B: Health Home Model
  - C: Value-Based Care Model

Case Study 1: Question 3

- During your discussion, the patient agrees to work on diet and exercise and asks for resources on classes he can take to better understand his diagnosis. What resources would you recommend?
  - A: NC Prevents Diabetes
  - *B:* Diabetes Management NC
  - *C:* Both A & B

Case Study 2: 45, F, T2D

- Established T2D. No history of MI or stroke. Labs obtained at previous visit shows CKD Stage 3a. (eGFR 45-59)
  - **Insurance**: BCBS, private insurance
  - **PMHx**: HLD, now CKD 3a
  - **PSHx**: Tubal Ligation
  - **Medications**: Atorvastatin 20 mg/daily; Metformin 2000 mg/daily
  - **POCT A1C**: 7.5%

Case Study 2: Question 1

- Based on current ADA guidelines and patient background, what should the patient's A1c goal be?
  - A: Less than 8%
  - B: Less than 7%
  - C: Less than 7%, ideally as close to a non-diabetic range as you can get without hypoglycemia
  - D: Less than 10%

Case Study 2: Question 2

- Based on A1c, you and the patient agree to add a new medication to her regimen. Given her last labs and a new diagnosis of CKD which medication is the best option for the patient?
  - A: Mounjaro (tirzepatide)
  - B: Januvia (stagliptin)
  - C: Farxiga (dapagliflozin)

Case Study 2: Question 3

- At a three-month follow-up the patient's A1c is 6.7% and the patient reports no adverse side-effects from the medication. Upon assessment, the patient reports a new onset of numbness and stabbing/tingling in both of her feet. You determine she has peripheral neuropathy, which of the following would you **not** recommend?
  - A: Managing A1c and blood sugar can help reduce the progression of peripheral neuropathy.
  - B: Medication therapy can include Cymablta (Duloxetine).
  - C: Checking the temperature of your bath is not important.
  - D: Medication therapy with gabapentin (Neurontin) and pregabalin (Lyrica) may cause drowsiness.

American Diabetes Association. (2022). Standards of medical care in diabetes: 2022 abridged for primary care providers. *Clinical Diabetes*, *40*(1), 10–38. https://doi.org/10.2337/cd22-as01

Bureau of Primary Health Care. (2022, April 15). *Uniform data system reporting requirements for 2022 health center data*. Data & Reporting. Retrieved October 19, 2022, from https://bphc.hrsa.gov/sites/default/files/bphc/data-reporting/2022-uds-manual.pdf

Eli Lilly and Company. (2022, May 13). *FDA approves Lilly's mounjaro™ (tirzepatide) injection, the first and only GIP and GLP-1 receptor agonist for the treatment of adults with type 2 diabetes*. Lilly Investors. Retrieved October 19, 2022, from https://investor.lilly.com/news-releases/news-release-details/fda-approves-lillys-mounjarotm-tirzepatide-injection-first-and

Modica, C., Lewis, J. H., & Bay, R. C. (2021). The value transformation framework: Applied to diabetes control in Federally Qualified Health Centers. *Journal of Multidisciplinary Healthcare*, *Volume 14*, 3005–3014. https://doi.org/10.2147/jmdh.s284885

North Carolina Department of Health and Human Services. (n.d.). *DiabetesSmartNC*. Diabetes Management NC. Retrieved October 19, 2022, from https://diabetesmanagementnc.com/diabetessmart/

North Carolina Diabetes Advisory Council. (2020, November 24). *North Carolina diabetes advisory council*. Diabetes NC. Retrieved October 19, 2022, from https://www.diabetesnc.com/diabetes-advisory-council/

Thorsen, M., McGarvey, R., & Thorsen, A. (2020). Diabetes management at community health centers: Examining associations with patient and regional characteristics, efficiency, and staffing patterns. *Social Science & Medicine*, *255*, 1–25. https://doi.org/10.1016/j.socscimed.2020.113017

References