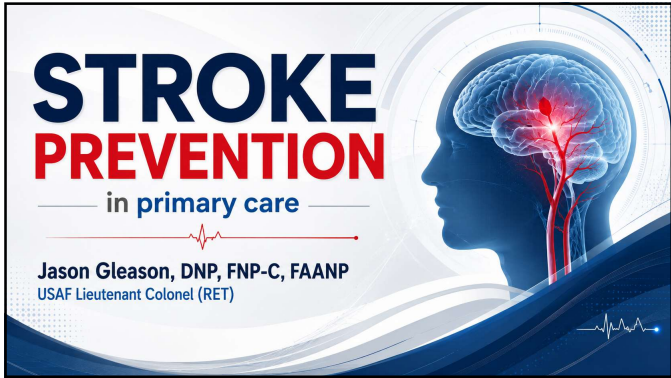




1



2



3

Disclosures

- I have no relevant financial relationships to disclose
- I have no conflicts of interest related to this presentation
- No commercial products, medications, or services are endorsed
- The content is provided for professional education and does not replace individualized clinical judgment
- Medication indications, recommendations, and regulatory information should be verified using current guidelines and prescribing information

4



5

Objectives

1. Identify major modifiable stroke risk factors: tobacco use, hypertension, hyperlipidemia, and diabetes.
2. Apply guideline-aligned lifestyle and pharmacologic strategies to lower stroke risk.
3. Implement a practical primary care prevention plan using patient-centered counseling, treatment modalities and follow-up.

6

Why is primary care a vital link in the chain for stroke prevention?

- **Risk factors often travel in clusters**
 - Patient with one risk factor (suspect) usually has accomplices
- **Primary care has the highest leverage to make a difference...**
 - Screening
 - Medication initiation
 - Behavior counseling
 - Longitudinal follow-up
 - Early intervention



7

an interview with special guest

world-renowned stroke expert

Dr. Medulla Oblongata



8

DR. MEDULLA OBLONGATA

WORLD RENOWNED STROKE EXPERT

AN INTERVIEW WITH
SPECIAL GUEST



9



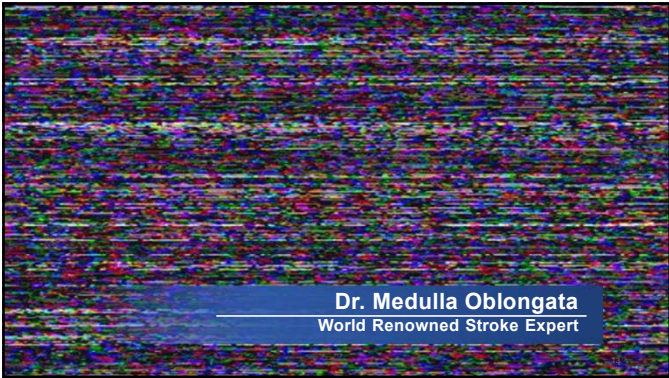
10



11



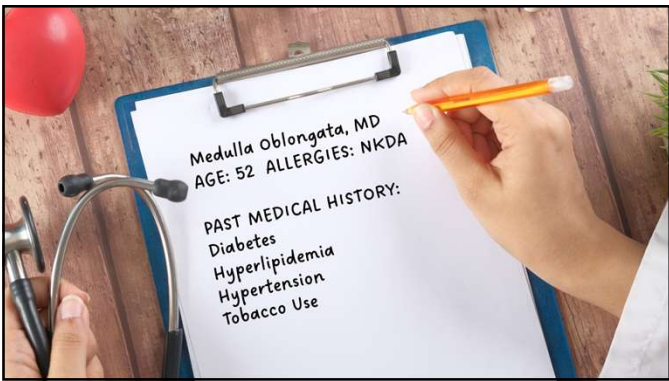
12



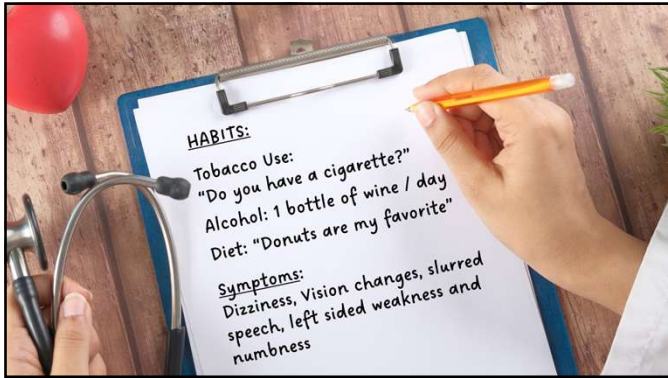
13



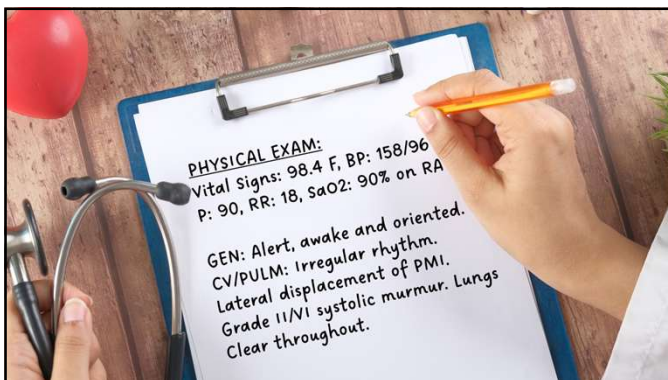
14



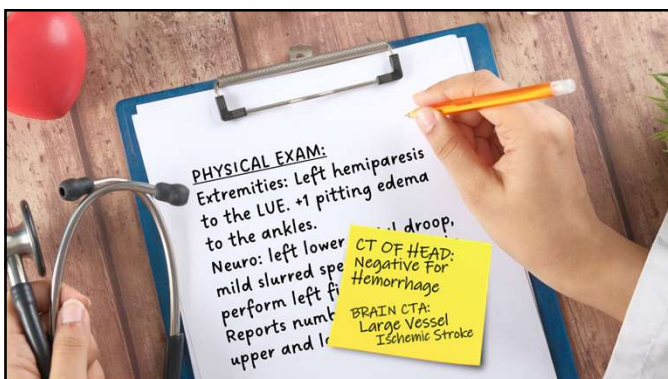
15



16



17



18



19



20



21



22



23



24



25

C. GURETTE (AKA Smokey)

modus operandi -

- Increases triglycerides
- Lowers good cholesterol (HDL)
- Increases blood viscosity
- Damages vessel endothelium
- Increases plaque buildup
- Causes vessel vasoconstriction

Case file and victims

- Doubles the risk of stroke
- Contributes to 12-14% of stroke deaths
- Causes 1 in 4 deaths from heart disease and stroke
- Second hand smoke = 20-30% ↑ risk of stroke
- Second hand smoke = 8,000 deaths per year

26

Tobacco cessation modalities and tools

"Come on one more isn't gonna hurt..." - C. Gurette

Positive coaching

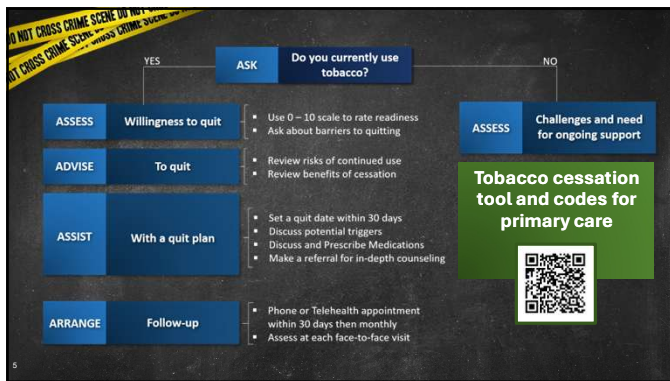
- Ask
- Assess
- Advise
- Assist
- Arrange

Pharmacology

- Nicotine
- Bupropion
- Varenicline

National quitlines'

27



28

Tobacco Cessation Pharmacology

- Nicotine replacement therapy (NRT)**
 - Nicotine acts on the reward pathway in all addictive substances
 - Goal of therapy: relieve cravings and reduce withdrawal symptoms
 - Cessation rates: >17% with NRT vs. 10% in control groups
 - Using **two forms of NRT more effective** than a single type
 - Combine a nicotine patch (slow release) with gum, lozenges, nasal sprays or inhalers (rapid delivery)

29

Tobacco Cessation Pharmacology

- Bupropion SR (Wellbutrin®)**
 - Primary effect is on withdrawal symptoms
 - Mimics nicotinic effects on dopamine and noradrenaline
 - Cessation rates: >19% with Bupropion vs. 11% in control groups
 - Combination with NRT is better than bupropion alone

30

Tobacco Cessation Pharmacology

- **Varenicline (Chantix®, Champix®)**
 - Selective alpha4-beta2 nicotinic receptor partial agonist
 - Reduces cravings and withdrawal symptoms
 - Blocks binding of smoking nicotine
 - Cessation rates: >28% with Varenicline vs. 12% in control group
 - Safety: Adverse psychiatric events (depression and suicidal ideation)
 - FDA required Pfizer to conduct trial for psychiatric effects
 - Risk of events lower than suspected = removed black-box warning

6, 7, 8

31

Tobacco Cessation Pharmacology

- **Varenicline (Chantix®, Champix®)**
 - Slightly increased risk of cardiovascular events in those with ASCVD
 - Chantix® and Champix® – removed from U.S. Market due to impurities
 - Varenicline is still available as generic

6, 8

32

Tobacco Cessation Pharmacology

Medications	Dose	Important	Average cost
Nicotine Short Acting (Gum, Lozenge, Inhaler, Nasal Spray)	Varies	OTC: Gum, lozenge, patch Rx: Inhaler, Nasal	Gum: \$28-15 Lozenge: \$48-15 Inhaler: \$668-498 Nasal Spray: \$569
Nicotine Long Acting (Patch)	Varies	Apply every 24 hrs for 6 weeks then taper	\$72-23
Bupropion SR Wellbutrin®	150mg BID for 7-12 weeks	Assess: Suicide Risk Avoid: Seizure History Helps prevent wt gain	\$54-23
Varenicline Chantix®	0.5mg qd 3 days 0.5mg BID 4 days 1 mg BID	Set quit date 1-4 wks after starting Continue for 12 wks	\$346-178

5, 6, 7

33

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

ICD10 Codes

F17.20 Nicotine Dependence | F17.21 Nicotine Dependence, Cigarettes
F17.22 Nicotine Dependence, Chewing Tobacco

Service	CPT/HCPCS Code
Smoking cessation counseling for 3-10 min (8 sessions per year)	99406 \$18.48 as of March 15, 2026
Smoking cessation counseling for >10 min (8 sessions per year)	99407 \$34.40 as of March 15, 2026

CMS Physician Fee Schedule



- Can be billed in addition to visit
- Documentation requirements
 - Tobacco use status
 - Counseling provided
 - Time spent counseling
 - Behavioral intervention discussed with patient
 - Plan for cessation

34

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE



H.P. TENSION
(AKA Pressure Cooker)

Case file and victims

1/2 of all adult Americans have hypertension

Hypertension contributes to 500,000 deaths in the US each year

1 in 4 adult have their hypertension under control

US spends \$198 billion a year treating hypertension

Hypertension is found in 64% of stroke patients

modus operandi -

Accelerates arteriosclerosis
Increases risk of atrial-fib
Damages vessel endothelium
Vessel rupture/dissection

35

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hypertension treatment and tools

"Keep the damage I cause on the down low"- H.P. Tension

Lifestyle changes

- Exercise
- Weight Loss
- Tobacco Cessation
- Sodium Reduction

Pharmacology

- Diuretics
- ACE and ARB
- Calcium Channel Blockers
- Beta Blockers
- Aldosterone Antagonist*





Blood pressure log



Blood pressure instructions

* Mineralocorticoid receptor antagonists (MRAs)

36

Diagnosis

≥ 140/90
on 2 Separate
Occasions

Targets

AHA: <140/90 mm Hg
ADA: <130/90 mm Hg

Activity






Systolic BP reduction

Walking 30 minutes 5 days per Week:
10-point reduction

Lose 5-10 pounds:
5-point reduction
1 point reduction for every 2.2 lbs

Quit Smoking:
5-10 point reduction

Limiting Sodium intake to < 1500 mg/day
2-3 point reduction
1000 mg reduction by removing saltshaker
1 teaspoon of salt = 2,400 mg of sodium

37

Hypertension Pharmacology

Medication	Important	Average Cost
Thiazide diuretics Hydrochlorothiazide (Microzide®) ▪ Half-life: 6-12 hours Chlorthalidone (Hygroton®) ▪ Preferred agent ▪ 1.5 to 2 x more potent ▪ Start at lower 12.5 mg dose ▪ Duration: 24-72 hours	▪ Na, K, Mg depleting ▪ Calcium sparing ▪ Reduced fracture rates ▪ Electrolytes drop initially 1-3 days after initiation ▪ Electrolytes back to baseline at days 10-12 ▪ Check chemistry panel at 10-12 days	\$4-6 for 90 days

38

Hypertension Pharmacology

Medication	Important	Average Cost
Angiotensin-converting enzyme (ACE) inhibitors Lisinopril (Zestril®)	▪ Potassium sparing ▪ Induced cough/angioedema <1% in general population ▪ ACE induced cough: Males 5%; Females 20%, Chinese 50% ▪ Priority medication in diabetes ▪ DO NOT use in pregnancy	\$6-12 for 90 days
Angiotensin receptor blockers (ARBs) Losartan (Cozaar®)	▪ Similar to ACE with < risk of cough/angioedema ▪ Choose based on ½ life - Losartan: 6-9 hours - Telmisartan: 24 hours	\$6-12 for 90 days

39

Hypertension Pharmacology		
Medication	Important	Average Cost
Calcium channel blockers Amlodipine (Norvasc®) Diltiazem (Cardizem®)	<ul style="list-style-type: none"> Causes edema Fluid shift vascular space to interstitium (space between cell membrane and skin) Diuretics not very helpful Add ACE or ARB can ↓ edema Caution in CHF, renal and liver disease Slowed cardiac conduction with Verapamil and Diltiazem NOT with Amlodipine Increased risk of GI bleed Verapamil and Diltiazem 	\$12-16 for 90 days

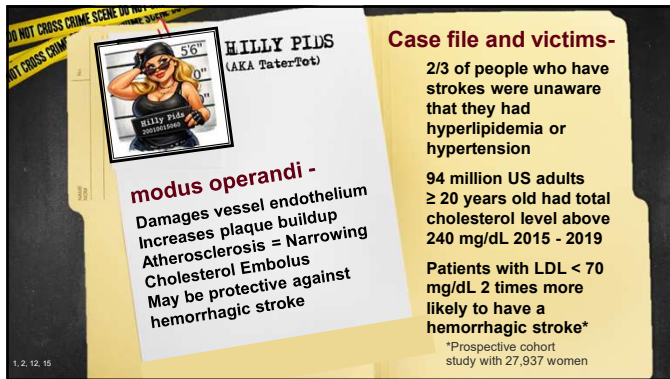
40

Hypertension Pharmacology		
Medication	Important	Average Cost
Beta-Blockers Cardioselective: Atenolol (Tenormin®) Metoprolol (Lopressor®) Nebivolol (Bystolic®) Non-Cardioselective: Propranolol (Inderal LA®) Nadolol (Corgard®) Carvedilol (Coreg®) Labetalol (Trandate®)	<ul style="list-style-type: none"> Decreases HR and BP Not advised if HR < 60 Not a first line Avoid non-cardio-selective in asthma or COPD ↑ glucose EXCEPT Carvedilol and Nebivolol Propranolol and Labetalol can ↑ potassium Depression, fatigue and sexual dysfunction ↑ triglycerides and ↓ HDL 	\$3-10 for 90 days

41

Hypertension Pharmacology		
Medication	Important	Average Cost
Mineralocorticoid receptor antagonist (MRA) Formerly known as: Aldosterone antagonist Spironolactone (Aldactone®)	<ul style="list-style-type: none"> Used in resistant hypertension Hyperkalemia risk especially with ACE, ARBs or BB. Causes gynecomastia Blocks aldosterone receptor-mediated action Not used as first line Used therapeutically in male to female gender transition 	\$6-7 for 90 days

42

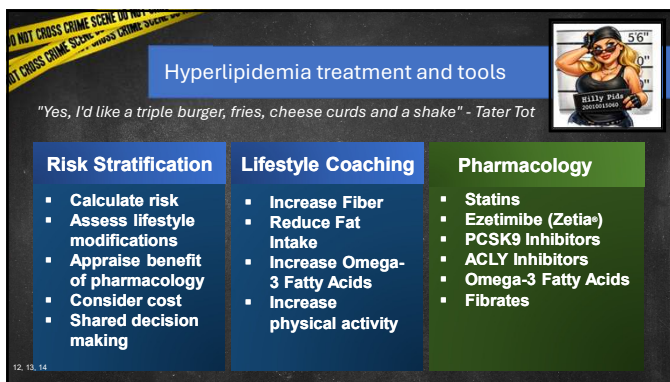


HILLY PILDS
(AKA TaterTot)

modus operandi -
Damages vessel endothelium
Increases plaque buildup
Atherosclerosis = Narrowing
Cholesterol Embolus
May be protective against hemorrhagic stroke

Case file and victims-
2/3 of people who have strokes were unaware that they had hyperlipidemia or hypertension
94 million US adults ≥ 20 years old had total cholesterol level above 240 mg/dL 2015 - 2019
Patients with LDL < 70 mg/dL 2 times more likely to have a hemorrhagic stroke*
*Prospective cohort study with 27,937 women

43

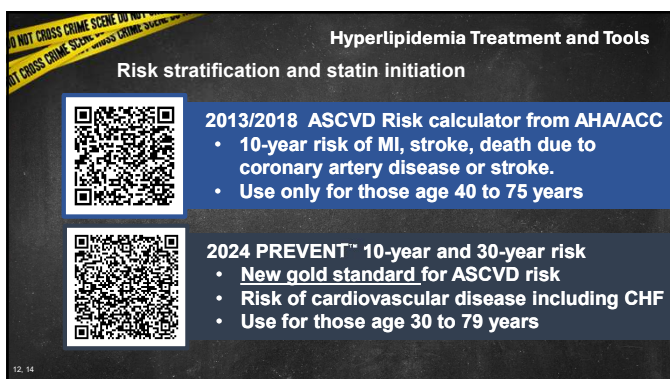


Hyperlipidemia treatment and tools

"Yes, I'd like a triple burger, fries, cheese curds and a shake" - Tater Tot

Risk Stratification	Lifestyle Coaching	Pharmacology
<ul style="list-style-type: none"> Calculate risk Assess lifestyle modifications Appraise benefit of pharmacology Consider cost Shared decision making 	<ul style="list-style-type: none"> Increase Fiber Reduce Fat Intake Increase Omega-3 Fatty Acids Increase physical activity 	<ul style="list-style-type: none"> Statins Ezetimibe (Zetia®) PCSK9 Inhibitors ACLY Inhibitors Omega-3 Fatty Acids Fibrates

44



Hyperlipidemia Treatment and Tools

Risk stratification and statin initiation



2013/2018 ASCVD Risk calculator from AHA/ACC

- 10-year risk of MI, stroke, death due to coronary artery disease or stroke.
- Use only for those age 40 to 75 years



2024 PREVENT® 10-year and 30-year risk

- New gold standard for ASCVD risk
- Risk of cardiovascular disease including CHF
- Use for those age 30 to 79 years

45

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Treatment and Tools

Risk stratification and statin initiation

2013/2018 AHA/ACC ASCVD risk calculator
High risk $\geq 20\%$: High intensity statin therapy

Intermediate risk 7.5% to $<20\%$: Statin therapy recommended after patient discussion

Borderline risk 5% to $\leq 7.5\%$: Statin therapy considered especially with risk enhancement factors (family history, CKD, metabolic syndrome)

Low risk $<5\%$: Statins not generally recommended

2024 PREVENT[™] calculator
High risk $\geq 10\%$: Lipid lowering therapy is recommended

Intermediate risk 5% to $\leq 10\%$: Lipid lowering therapy is recommended

Borderline risk 3% to $<5\%$: Treatment is considered reasonable. Discuss with patient

Low risk $<3\%$: Statins generally not indicated unless LDL is ≥ 160 mg/dL or if 30-year risk is high

46

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Treatment and Tools

Very high-risk ASCVD

- Multiple major ASCVD events, or
- 1 major ASCVD event plus multiple high-risk conditions

Major ASCVD Events

- Acute coronary syndrome within the past 12 months
- History of myocardial infarction
- History of ischemic stroke
- Symptomatic peripheral artery disease, including prior revascularization or amputation

High-risk conditions

- ≥ 65 years
- Diabetes
- Hypertension
- Chronic kidney disease
- Current tobacco use
- History of heart failure
- Familial hyperlipidemia
- Prior coronary revascularization
- Persistent LDL elevation despite therapy

47

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Treatment and Tools

Treatment for very high-risk
LDL-C Goal: <55 mg/dL

- Maximally tolerated high-intensity statin therapy
- If LDL-C ≥ 55 mg/dL add ezetimibe (Zetia[®])
- If LDL-C still ≥ 55 mg/dL add PCSK9 or other medication
- Individualize therapy based on response

Treatment for high-risk
LDL-C Goal: <70 mg/dL

- Maximally tolerated high-intensity statin therapy
- If LDL-C ≥ 70 mg/dL add ezetimibe (Zetia[®])
- If LDL-C still ≥ 70 mg/dL add PCSK9 or other medication
- Individualize therapy based on response

48

Hyperlipidemia Treatment and Tools

Lipids screening

- Assess ASCVD risk factors after age 20
- Repeat lipid assessment every 4 to 6 years, or more often
- Fasting **or non-fasting** lipid profile is acceptable
- If non-fasting triglycerides are ≥ 400 mg/dL, repeat a fasting
- Check baseline liver function tests before starting a statin
- Routine ongoing hepatic monitoring no longer recommended
 - Serious statin hepatotoxicity is rare, about 0.001%

12, 13

49

Hyperlipidemia Treatment and Tools

Lipoprotein (Lp)a

- Assay standardization has historically been challenging
- One measurement can uncover lifelong inherited ASCVD risk
- Assist in guiding how aggressively to treat LDL-C in patients and family
- Levels genetically determined and usually stable across the lifespan = test once and done
- Consider especially in patients with:
 - History of premature ASCVD
 - Familial hypercholesterolemia
 - Calcific aortic valve stenosis

12, 15

50

Hyperlipidemia Treatment and Tools

Lipoprotein (Lp)a

- Elevated estimated ASCVD risk
 - Low risk: <30 mg/dL (<75 nmol/L)
 - Intermediate risk: 30 to <50 mg/dL (75 to <125 nmol/L)
 - High risk: ≥ 50 mg/dL (≥ 125 nmol/L)
 - Very high level: ≥ 100 mg/dL (≥ 250 nmol/L)
- Elevated Lp(a) should prompt more intensive LDL-C lowering and optimization of other risk factors
- Untreated LDL-C often
 - Adults: LDL-C >190 mg/dL in adults
 - Children: LDL-C ≥ 160 mg/dL

12, 15

51

Nutrition

Fiber	Saturated fats	Omega-3
 <ul style="list-style-type: none"> • Viscous soluble fiber (oats): 10–25 grams per day • Plant sterols and stanols (seeds, nuts): 2 grams per day 	 <ul style="list-style-type: none"> • Keep saturated fat < 7% of total calories • Total Fat < 30% of total calories • Cholesterol < 200 mg/day 	 <ul style="list-style-type: none"> • Fish 2x/week (4 oz salmon) • Heart Disease: 1 gram per day • Fish Oil supplement

52

Hyperlipidemia Pharmacology

Medication	Important	Average Cost
Statins Atorvastatin (Lipitor®) Rosuvastatin (Crestor®)	↓ LDL ≥ 50% Minor ↑ HDL and ↓ TG Common side effect: Muscle ache Low Vitamin D (<30 ng/mL) can contribute <ul style="list-style-type: none"> - Based on non-randomized trials - RCT double blind study with 2,083 patients equally likely to develop muscle ache Muscle weakness – Rhabdomyolysis Very low risk: 1.5/100,000 people	\$4-18 for 90 days

Treatment Intensity
High: < 50% LDL
 Atorvastatin 40–80 mg
 Rosuvastatin: 20–40 mg
Moderate: < 30–49% LDL
 Atorvastatin 10–20 mg
 Rosuvastatin 5–10 mg
 Others

• Check LFTs at baseline but no further monitoring
 • Caution with grapefruit juice, clarithromycin and other CYP450 inhibitors

53

Hyperlipidemia Pharmacology

Medication	Important	Average Cost
Selective Cholesterol Absorption Inhibitor Ezetimibe (Zetia®)	↓ LDL by 20% Solo non-statin agent or can be added to a statin to achieve goal	\$16-20 for 90 days
PCSK9 Injection Evolocumab (Repatha®) Alirocumab (Praluent®)	↓ LDL ≥ 60% Minor ↑ HDL Often used for treatment of familial hyperlipidemia	\$691-541 per month
Adenosine triphosphate-citrate lyase inhibitors Bempedoic Acid (Nexletol®)	↓ LDL up to 33% Minor ↑ HDL and ↓ TG Solo agent or add to statin	\$439 for 30 days
Small interfering RNA Inclisiran (Leqvio®)	↓ LDL up to 50% Injection every 6 months	\$6,500 per year

54

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Pharmacology

Major new medications

Medication	Important	Info
NEW PCSK9 Inhibitor Lerodalcibep-liga (Lerochol®)	↓ LDL-C ~50–60%	Once-monthly SC injection ; FDA approved Dec. 2025
NEW Oral PCSK9 Inhibitor Enlicitide (Lipfendra®)	↓ LDL-C ~56–59%	First oral PCSK9 inhibitor ; once-daily tablet; FDA approved July 2026

18, 19

55

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Pharmacology

Medication	Important	Average Cost
Omega-3 Fatty Acids Icosapent ethyl (Vascepa®) Fish Oil Vascepa® contains only eicosapentaenoic acid (EPA) Fish oil contains EPA and docosahexaenoic acid (DHA)	↓ Triglycerides up to 30% Dose: 4 grams/day Increased bleed risk: hold 7-10 days prior to and after elective surgery EPA – reduces triglycerides DHA – reduces triglycerides but also increases LDL-C Take frozen to decrease risk of fishy side effects	Icosapent ethyl: \$446 per month #240 0.5 gm doses Daily dose: 2 gm BID Fish Oil: Variable OTC

12

56

DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE DO NOT CROSS CRIME SCENE

Hyperlipidemia Pharmacology

Medication	Important	Average Cost
Fibrates Gemfibrozil (Lopid®) Fenofibrate (TriCor®) Decreases amount of very-low-density lipoprotein (VLDL) liver creates VLDL particles transport triglycerides	Decrease TG by up to 50% Increase HDL up to 20% Can increase bleed risk with coumadin Fibrates are generally avoided in patients on a statin due to rhabdomyolysis risk	\$6-17 for 30 days

12

57

D. ABEETYZ
(AKA Sugar Daddy)

modus operandi -

- Increases blood viscosity
- Increases RBC aggregation
- Damages vessel endothelium
- Accelerates arteriosclerosis
- Contributes to congestive heart failure

Case file and v

- Two times more have a stroke than patients without
- > 37 million people in the US have diabetes and 1 in 5 of them don't even know it
- 96 million US adults have prediabetes and 8 in 10 of them don't know it
- \$327 billion is spent annually in the US treating diabetes

58

Diabetes treatment and tools

"Sugar? I'm already sweet enough" - Sugar daddy

Diabetes Care 2026 Major Updates

PHARMACOLOGY

- Metformin
- TZDs
- Sulfonureas
- DPP-4 Inhibitors
- GLP-1 Agonist
- SGLT2 Inhibitor
- Insulin

59

Did you know....

- Diabetes was first mentioned in the historical record 1552 B.C
- Egyptian physician Hesy-ra
 - Patients would have excessive thirst and urination before dying
 - Ants were attracted to toilets of patients with diabetes symptoms

60

Major 2026 updates in diabetes care

- Continued glucose monitoring use expanded:
 - Patients using insulin and other meds with hypoglycemia risk
- Automated insulin delivery (insulin pumps)
 - Preferred for adults with Type 2 on intensive insulin therapy
- Weight management is a primary treatment target:
 - Core treatment goal alongside glycemic control
 - 5 to 7% helping and >10% often producing greater metabolic benefit

61

Major 2026 updates in diabetes care

- Heart failure with preserved ejection fraction (HFpEF) and liver disease matter more in diabetes prescribing
 - Dual GIP/GLP-1 therapy for some patients with
 - Type 2 diabetes
 - Obesity
 - Symptomatic HFpEF
 - Stronger guidance for GLP-1–based therapy in Metabolic dysfunction-associated steatotic liver disease

62

Major 2026 updates in diabetes care

- GLP-1 RAs and dual GIP/GLP-1 agents closer to center stage for patients with type 2 diabetes and overweight/obesity
- SGLT2 inhibitors and GLP-1 remain key cardiorenal drugs, with ADA continuing to prioritize them for people with CKD, ASCVD risk, or heart failure, independent of glucose-only thinking
- Earlier combination pharmacotherapy is more strongly supported when monotherapy is unlikely to achieve goals
 - A1C 1.5% to 2% above goal (7% / 8% at age 80)
 - Consider starting two agents to achieve glycemic control more quickly

63

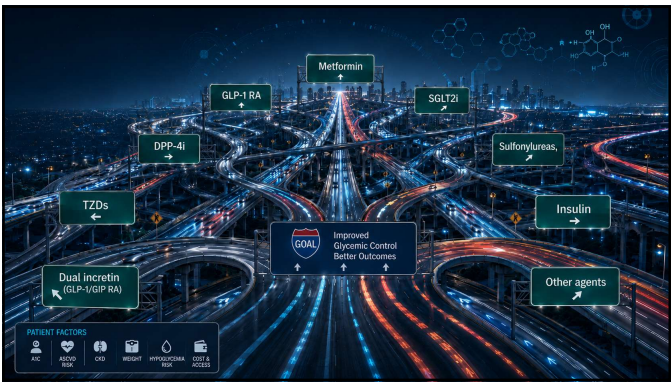
Major 2026 updates in diabetes care

Semaglutide and tirzepatide are emphasized for patients with type 2 diabetes plus overweight/obesity weight

Medication choice explicitly accounts for cardiovascular disease, CKD, heart failure, obesity, and liver disease

20, 21, 22

64



65

medications to treat Type 2 diabetes						
Drug Class, Drugs and MOA	A1C ↓	Hypoglycemia	Weight	Cost	Safety Issues	Added Benefits
Metformin ◆ Insulin Sensitizer ◆◆◆ liver glucose release ◆ glucose absorption in gut	◆ 1-2%	Low	◆	\$	First Line Avoid if eGFR ≤30 mL/min Caution if eGFR ≤45 mL/min Lactic acidosis	Generally safe and well tolerated Inexpensive
Thiazolidinediones (TZD) Pioglitazone (Actos®) ◆◆◆ Insulin Sensitizer ◆ liver glucose release	◆ 1-2%	Low	◆◆◆	\$	Edema and ◆ Fracture risk Avoid in heart failure Avoid with nitrates & insulin	Improved metabolic dysfunction-associated steatotic liver disease (MASLD)
Sulfonylureas Glipizide (Glucotrol®) Insulin Releaser (Stupid)	◆ 1-2%	High	◆	\$	Don't know when to quit ◆◆ Hypoglycemia Caution in elderly	Inexpensive
DPP-4 Inhibitors Sitagliptin (Januvia®) Insulin Releaser (Smart)	◆ 0.75%	Low	◆	\$\$	Avoid in pancreatitis, hypoglycemia and angioedema	Decreases postprandial glucose
GLP-1 and GLP-1/GIP Agonist Semaglutide (Ozempic®) Tirzepatide (Mounjaro®) Insulin Releaser (Smart)	◆ 1-2%	Low	◆◆◆	\$\$\$\$	Slows gut motility Avoid in gastroparesis Avoid in pancreatitis	15-20% weight loss 29% ◆ stroke risk Cardiorenal protective
SGLT2 Inhibitor Empagliflozin (Jardiance®) Renal Glucose Off Loader	◆ 0.75%	Low	◆	\$\$	UTI/candida Groin/GU skin infections Avoid if eGFR ≤ 30 mL/min	Cardiorenal protective

66

medications to treat Type 2 diabetes						
Drug Class, Drugs and MOA	A1C ↓	Hypoglycemia	Weight	Cost	Safety Issues	Added Benefits
Metformin ◆ Insulin Sensitizer ◆◆◆ liver glucose release ◆ glucose absorption in gut	◆ 1-2%	Low	◆	\$	First Line Avoid if eGFR ≤30 mL/min Caution if eGFR ≤45 mL/min Lactic acidosis	Generally safe and well tolerated Inexpensive
Thiazolidinediones (TZD) Pioglitazone (Actos®) ◆◆◆ Insulin Sensitizer ◆ liver glucose release	◆ 1-2%	Low	◆◆◆	\$	Edema and ◆ Fracture risk Avoid in heart failure Avoid with nitrates & insulin	Improved metabolic dysfunction-associated steatotic liver disease (MASLD)
Sulfonylureas Glipizide (Glucotrol®) Insulin Releaser (Stupid)	◆ 1-2%	High	◆	\$	Don't know when to quit ◆◆ Hypoglycemia Caution in elderly	Inexpensive
DPP-4 Inhibitors Sitagliptin (Januvia®) Insulin Releaser (Smart)	◆ 0.75%	Low	◆	\$\$	Avoid in pancreatitis, hypoglycemia and angioedema	Decreases postprandial glucose
GLP-1 and GLP-1/GIP Agonist Semaglutide (Ozempic®) Tirapatide (Mounjaro®) Insulin Releaser (Smart)	◆ 1-2%	Low	◆◆◆	\$\$\$\$	Thyroid cancer in rodents Avoid in gastroparesis Avoid in pancreatitis	15-22% weight loss 29% ◆ stroke risk Cardiorenal protective
SGT2 Inhibitor Empagliflozin (Jardiance®) Renal Glucose Off-Loader	◆ 0.75%	Low	◆	\$\$	UTI/candida Groin/GU skin infections Avoid if eGFR ≤ 30 mL/min	Cardiorenal protective

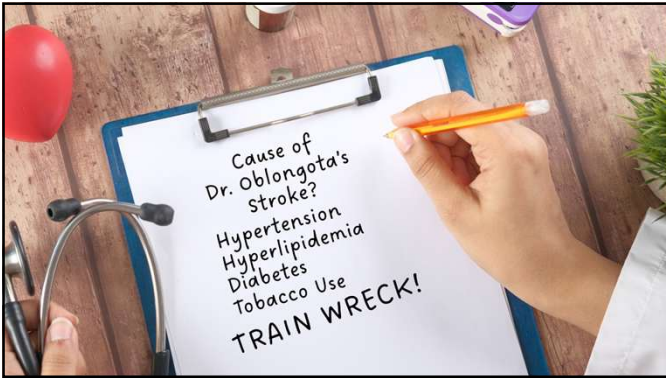
67



68



69



70



71



72



“Beyond Stroke there is a human being, a family, a provider, a hero and team - find them.”

“Encourage your patients to not let their circumstances change them but empower them to use their circumstance to change the world”.

“Patients cannot be what they cannot see – show them the way”

“Be the spark of hope that empowers our patients to get past nope!”

“Strive to have our patients leave our offices feeling like a million-bucks instead of a buck-fifty.”

~Jason Gleason, DNP, NP-C
USAF/ANG LIEUTENANT COLONEL (RET)

73





Follow on Instagram:
@drjgleasonnp
@doctorsgleason



Follow on Facebook:
@jasongleason
@doctorsgleason



Email:
jasongleasonnp@outlook.com

74

Professional Education and Liability Disclaimer

The information contained in this presentation has been carefully researched and reviewed for accuracy as of the date of publication. However, medicine, clinical practice standards, diagnostic criteria, treatment recommendations, pharmaceutical information, product labeling, laws, regulations, and professional guidelines continually evolve. No representation or warranty, express or implied, is made that the information presented is complete, error-free, or current in every clinical circumstance.

This presentation is provided solely for professional education and general informational purposes. It is not intended to replace independent clinical judgment, individualized patient assessment, consultation with appropriate specialists, current clinical guidelines, institutional policies, applicable laws or regulations, or official prescribing information. Participation in or use of this presentation does not establish a clinician-patient, consultant, supervisory, or other professional relationship with Jason Gleason, DNP, FNP-C, FAANP

Clinicians are solely responsible for evaluating the appropriateness, accuracy, risks, benefits, contraindications, dosing, monitoring requirements, and application of any information discussed before incorporating it into patient care. Additional authoritative sources should be consulted whenever clinical decisions are made.

To the fullest extent permitted by law, Jason Gleason, DNP, FNP-C, FAANP, disclaims responsibility and liability for any claim, loss, injury, adverse outcome, expense, or damage arising directly or indirectly from the use, misuse, interpretation, reliance upon, or application of any information contained in this presentation or its accompanying materials. References to medications, products, services, organizations, or third-party websites do not constitute endorsement. External websites and resources were believed to be accurate and accessible at the time of publication, but their content, availability, security, and accuracy cannot be guaranteed.

75

Image sources:

All images and illustrations used in this presentation were created specifically for this educational program using OpenAI's ChatGPT image-generation technology. The images are original AI-generated visual content and are not intended to depict actual patients, clinical encounters, historical events, or identifiable individuals unless expressly stated otherwise.

76

References:

1. Bushnell, C., Kernen, W. N., Sharief, A. Z., Chaturvedi, S., Cole, J. W., Cornwell, W. K., III, Furie, K. L., George, M. G., Goldstein, L. B., Khan, S. S., Kleinendorfer, D. G., Koon, L. L., M., Lintley, K. I., O'Brien, E. C., Panah, A. K., Sacco, R. L., Savitz, S. I., Sheth, K. N., & Yaffe, K. (2024). 2024 guideline for the primary prevention of stroke: A guideline from the American Heart Association/American Stroke Association. *Stroke*. <https://doi.org/10.1161/STR.0000000000000475>
2. O'Donnell, M. J., Chin, S. L., Rangarajan, S., Xavier, D., Liu, L., Zhang, H., Rao-Melacini, P., Zhang, X., Pais, P., Agapay, S., Lopez-Jaramillo, P., Damasceno, A., Langhorne, P., McQueen, M. J., Rosengren, A., Delling, M., Hankey, G. J., Diaz, A. L., Elayeli, A., ... Yusuf, S. (2018). Global and regional effects of potentially modifiable risk factors associated with acute stroke in 32 countries (INTERSTROKE): A case-control study. *The Lancet*, 388(10046), 761–775. [https://doi.org/10.1016/S0140-6736\(18\)30506-2](https://doi.org/10.1016/S0140-6736(18)30506-2)
3. Centers for Disease Control and Prevention. (2020). High blood pressure facts. <https://www.cdc.gov/high-blood-pressure/data-research/facts-stats/index.html>
4. Centers for Disease Control and Prevention. (2020). National Diabetes Statistics Report. <https://www.cdc.gov/diabetes/php/data-research/index.html>
5. U.S. Preventive Services Task Force. (2021). Interventions for tobacco smoking cessation in adults, including pregnant persons: US Preventive Services Task Force recommendation statement. *JAMA*, 325(3), 265–279. <https://doi.org/10.1001/jama.2020.26019>
6. Leone, F. T., Zhang, Y., Evers-Casper, S., Enns, A. E., Eakin, M. N., Fathi, J., Fenning, K., Folan, P., Gollatastos, P., Goginert, H., Kantrow, S., Kathuria, H., Lamphers, T., Neathorn, S., Pacheco, M. C., Palchak, S., Piszczak, D., Sachs, D. P., Tai, B., ... Fagan, H. J. (2020). Initiating pharmacologic treatment in tobacco-dependent adults: An official American Thoracic Society clinical practice guideline. *American Journal of Respiratory and Critical Care Medicine*, 202(2), e5–e31. <https://doi.org/10.1164/rccm.202005-1925>
7. Lindson, N., Teasdale, A., Ordóñez-Mena, J. M., Fanchone, T. R., Sutton, A. J., Livingstone-Banks, J., Hajizadeh, A., Zhu, S., Averyard, P., & Hartmann-Boyce, J. (2023). Pharmacological and electronic cigarette interventions for smoking cessation in adults: Component network meta-analyses. *Cochrane Database of Systematic Reviews*, 2023(9), CD015226. <https://doi.org/10.1002/14651858.CD015226.pub2>
8. Anttilen, R. M., Benowitz, N. L., West, R., De Adair, L., McKee, T., Lawrence, D., Ascher, L., Russ, C., Kishen, A., Evin, A. E., & EAGLES Investigators. (2018). Neuropsychiatric safety and efficacy of varenicline, bupropion, and nicotine patch in smokers with and without psychiatric disorders (EAGLES): A double-blind, randomised, placebo-controlled clinical trial. *The Lancet*, 387(10037), 2507–2520. [https://doi.org/10.1016/S0140-6736\(16\)30272-0](https://doi.org/10.1016/S0140-6736(16)30272-0)
9. Centers for Disease Control and Prevention. (2024). Health problems caused by secondhand smoke. <https://www.cdc.gov/tobacco/secondhand-smoke/health.html>
10. Jones, D. W., Ferdinand, K. C., Teles, S. I., et al. (2023). 2023 AHA/ACC/AHA/AFPA/ABC/ACCP/ACPA/AGS/AMA/ASPC/NAHNP/ANR/APH guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Journal of the American College of Cardiology*. <https://doi.org/10.1016/j.jacc.2023.05.007>

77

References:

11. SPRINT Research Group. (2015). A randomized trial of intensive versus standard blood-pressure control. *The New England Journal of Medicine*, 373(22), 2103–2116. <https://doi.org/10.1056/NEJMoA1511939>
12. Blumenthal, R. S., Morris, P. B., Gaudino, M., Johnson, H. M., Anderson, T. S., Bitner, V. A., et al. (2026). 2026 ACC/AHA/ACVPR/AAC/ACPA/AAHA/AAHA/AAASPC/NAHNP/ANR/APH guideline on the management of dyslipidemia: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. <https://doi.org/10.1161/CIR.0000000000001423>
13. Wiggins, B. S., Morris, P. B., Blumenthal, R. S., et al. (2026). The 2026 ACC/AHA/multisociety guideline on the management of dyslipidemia: Guideline-at-a-glance. *Journal of the American College of Cardiology*. <https://doi.org/10.1016/j.jacc.2026.02.4872>
14. Khan, S. S., Matsushita, K., Song, Y., Bellizzi, K. H., Grooms, M. E., Sarapanen, A., et al. (2024). Development and validation of the American Heart Association Predicting Risk of Cardiovascular Disease Events (PREVENT) equations. *Circulation*, 149(6), 430–448. <https://doi.org/10.1161/CIRCULATIONAHA.123.067626>
15. Koschinsky, M. L., Bajaj, A., Boffa, M. B., Dixon, D. L., Ferdinand, K. C., Gidding, S. S., et al. (2024). A focused update to the 2019 National Lipid Association scientific statement on use of lipoprotein(a) in clinical practice. *Journal of Clinical Lipidology*, 18(3), e308–e319. <https://doi.org/10.1016/j.jacl.2024.03.001>
16. Cholesterol Treatment Trialists' Collaboration. (2022). Effect of statin therapy on muscle symptoms: An individual participant data meta-analysis of large-scale, randomised, double-blind trials. *The Lancet*, 400(10355), 832–845. [https://doi.org/10.1016/S0140-6736\(22\)01545-8](https://doi.org/10.1016/S0140-6736(22)01545-8)
17. Hlatky, M. A., Manson, J. E., Arora, P., et al. (2023). Statin-associated muscle symptoms among new statin users randomly assigned to vitamin D or placebo. *JAMA Cardiology*, 8(1), 74–80. <https://doi.org/10.1001/jamacardio.2022.4260>
18. U.S. Food and Drug Administration. (2026). Drug Trials Snapshot: LEROCHOL (lerodisicbep-liga). <https://www.fda.gov/drugs/drug-trials-snapshots/drug-trials-snapshots-lerochol>
19. U.S. Food and Drug Administration. (2026). FDA approves first oral PCSK9 inhibitor to lower LDL cholesterol in adults with high cholesterol. <https://www.fda.gov/news-events/press-announcements/fda-approves-first-oral-pcsk9-inhibitor-lower-ldl-cholesterol-adults-high-cholesterol>
20. American Diabetes Association Professional Practice Committee for Diabetes, Designated Subject Matter Experts, & ADA Scientific Team. (2026). Pharmacologic approaches to glycemic treatment: Standards of Care in Diabetes—2026. *Diabetes Care*, 49(Supplement_1), S183–S215. <https://doi.org/10.2337/s1366-5999.2025.009>
21. American Diabetes Association Professional Practice Committee for Diabetes, Designated Subject Matter Experts, & ADA Scientific Team. (2026). Summary of revisions: Standards of Care in Diabetes—2026. *Diabetes Care*, 49(Supplement_1), S16–S17. <https://doi.org/10.2337/s1366-5999.2025.009>
22. American Diabetes Association Professional Practice Committee for Diabetes, Designated Subject Matter Experts, & ADA Scientific Team. (2026). Obesity and weight management for the prevention and treatment of diabetes: Standards of Care in Diabetes—2026. *Diabetes Care*, 49(Supplement_1), S166–S182. <https://doi.org/10.2337/s1366-5999.2025.009>

78

References:

23. Lincoff, A. M., Brown-Frandsen, K., Colhoun, H. M., Deanfield, J., Emerson, S. S., Esbjerg, S., Hardt-Lindberg, S., Hovingh, G. K., Kahn, S. E., Kushner, R. F., Lingvay, L., Piazky, J., Pyra, D. K., Sorica, B. M., & SELECT Trial Investigators. (2023). Semaglutide and cardiovascular outcomes in obesity without diabetes. *The New England Journal of Medicine*, 389(24), 2221-2232. <https://doi.org/10.1056/NEJMoa2307863>

24. Adamou, A., Vassilopoulos, S., Zand, R., et al. (2024). Glucagon-like peptide-1 receptor agonists and stroke: A systematic review and meta-analysis of cardiovascular outcome trials. *International Journal of Stroke*. <https://doi.org/10.1177/17474860241253888>

Copyright Notice
© 2026 Jason Gleason. All rights reserved.

This presentation and all accompanying materials, including text, graphics, illustrations, photographs, algorithms, and educational content, are protected by copyright. No part of this presentation may be copied, reproduced, recorded, photographed, distributed, transmitted, modified, published, uploaded, or used in any form or by any means without the prior express written permission of the copyright owner, except as otherwise permitted by applicable law. Unauthorized use, reproduction, or distribution is strictly prohibited.
