



Cardi-OH ECHO Tackling Type 2 Diabetes

Thursday, March 4, 2021

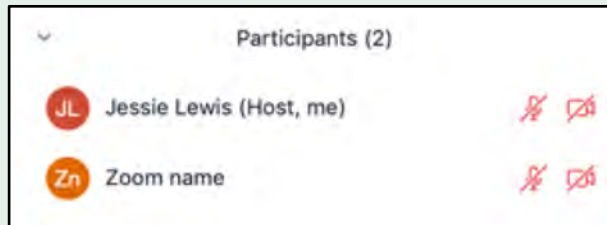


Reminders

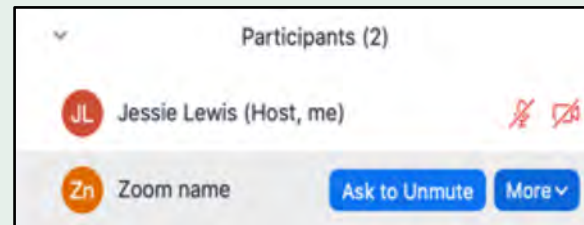


- Enter your name and practice name into the Chat to record your attendance
- Rename yourself in the Participant List with your full name and practice name

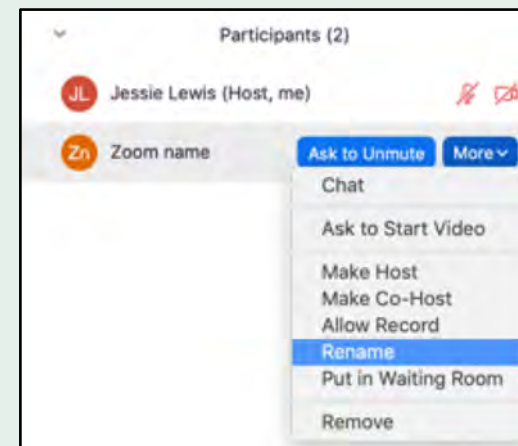
1. Hover over your name



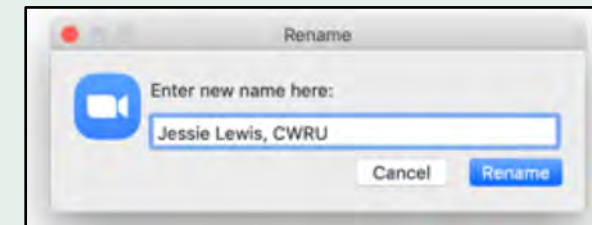
2. Select More



3. Select Rename



4. Type name and practice



- Mute your microphone unless speaking
- Comment or ask questions in the Chat at any time

Cardi-OH ECHO Hub Team

LEAD

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Structure of ECHO Clinics



Duration	Item
5 minutes	Announcements and introductions
25 minutes	Didactic presentation, followed by Q&A
25 minutes	Case study presentation and discussion
5 minutes	Wrap-up/Post-Clinic Survey completion

Disclosure Statements



- The following planners, speakers, moderators, and/or panelists of the CME activity have financial relationships with commercial interests to disclose:
 - Kathleen Dungan, MD, MPH receives consulting fees from Eli Lilly and Tolerion, institutional research fees from Eli Lilly, Novo Nordisk, and Sanofi Aventis, and presentation honoraria from Nova Biomedical, Integritas, and Uptodate.
 - Adam T. Perzynski, PhD reports being co-owner of Global Health Metrics LLC, a Cleveland-based software company and royalty agreements for book authorship with Springer Nature publishing and Taylor Francis publishing.
 - Christopher A. Taylor, PhD, RDN, LD, FAND reports grant funding for his role as a researcher and presenter for Abbott Nutrition and grant funding for research studies with both the National Cattleman's Beef Association and the American Dairy Association.
 - Jackson T. Wright, Jr., MD, PhD reports research support from the NIH and Ohio Department of Medicaid and consulting with NIH, AHA, and ACC.
 - These financial relationships are outside the presented work.
- All other planners, speakers, moderators, and/or panelists of the CME activity have no financial relationships with commercial interests to disclose.

Type 2 Diabetes in the Context of Cardiovascular Risk



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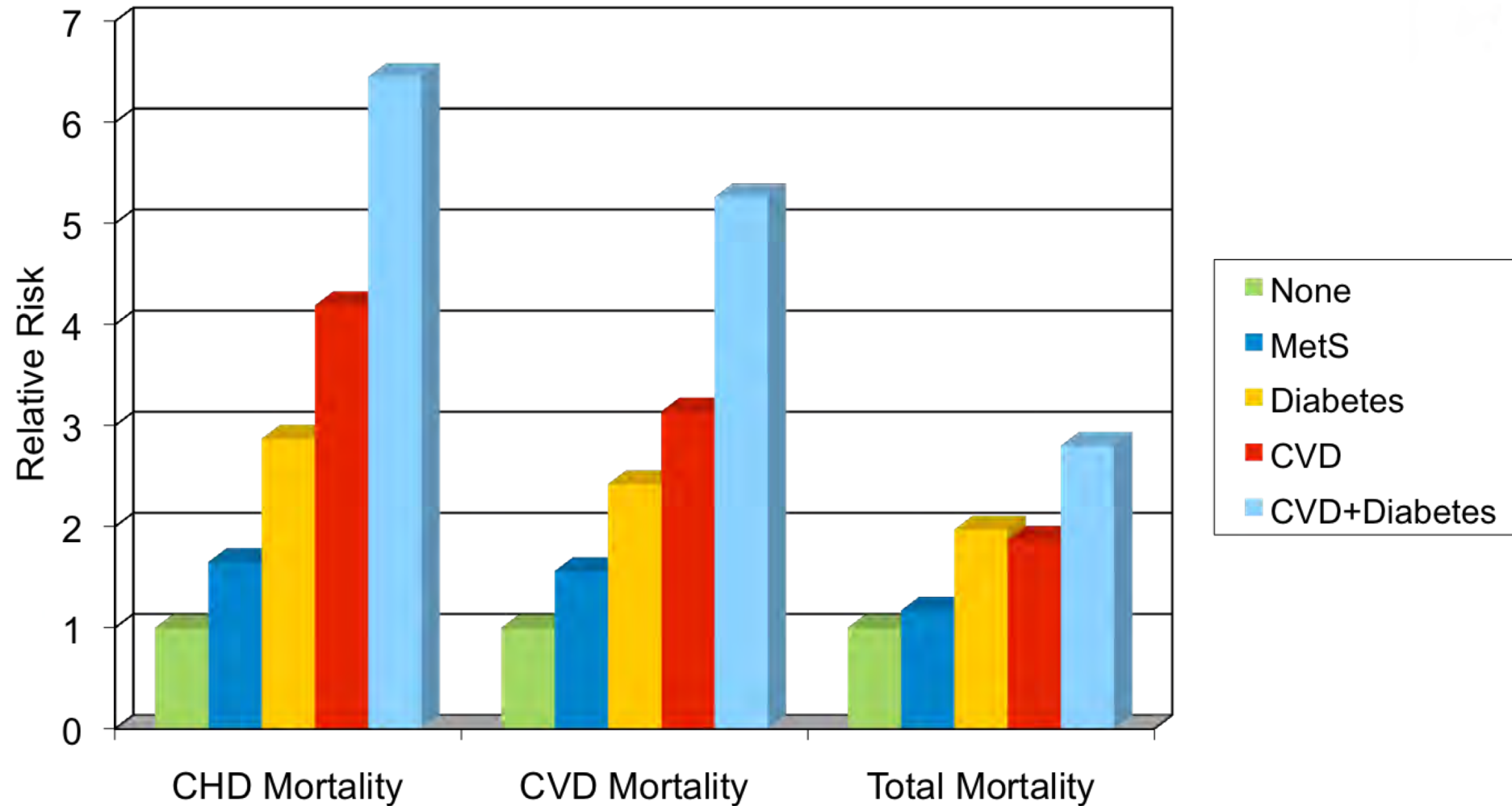
University Hospitals Cleveland Medical Center

Learning Objectives

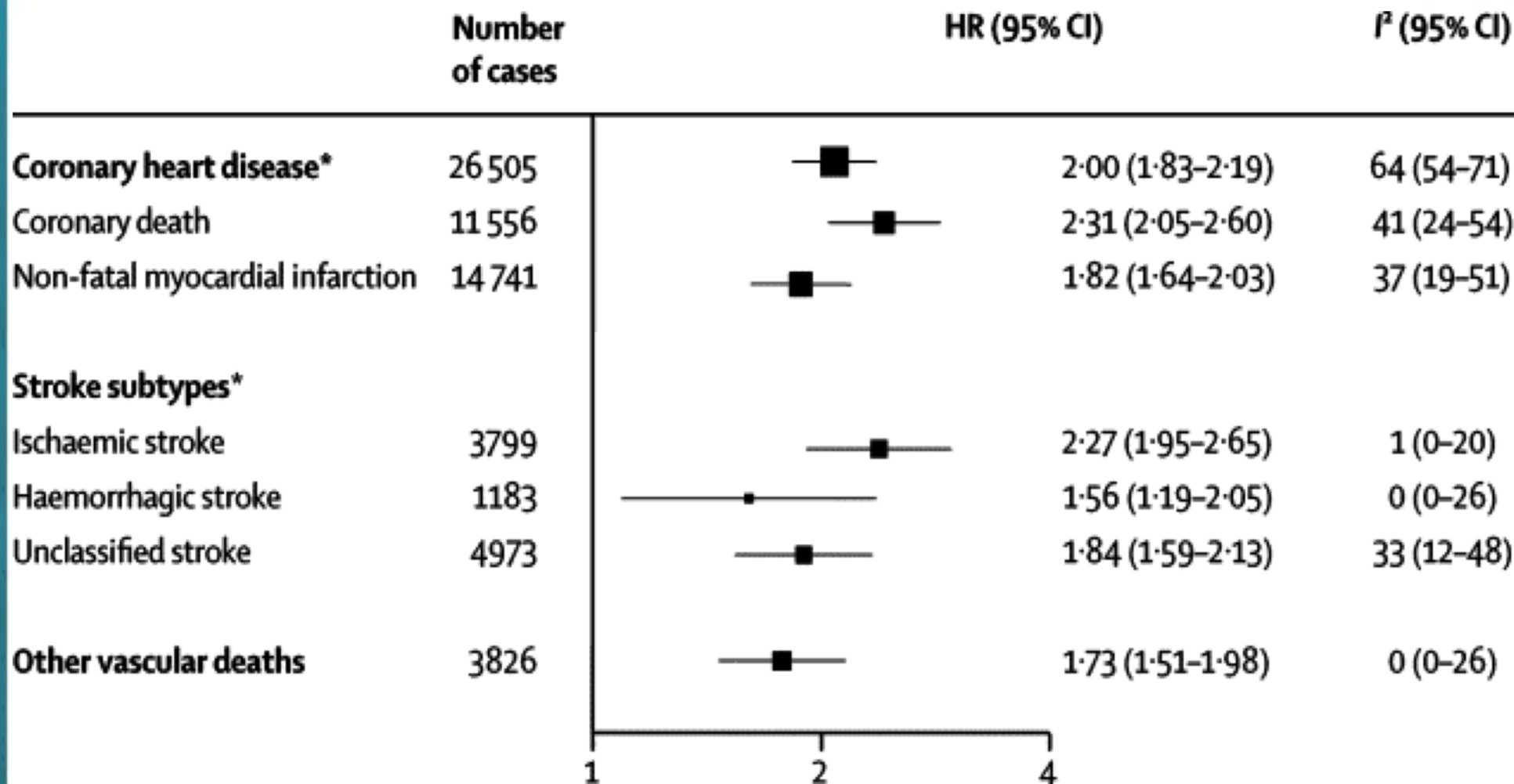


1. Describe the epidemiology of diabetes on global, national, and statewide level
2. Describe how diabetes increases the risk of cardiovascular disease
3. Identify the therapies approved to treat diabetes and lower cardiovascular risk
4. Identify when to use GLP1 agonists vs SGLT2 inhibitors
5. Describe a brief, evidence-based approach to smoking cessation among smokers with type 2 diabetes

Risk of Cardiovascular Events and Death



Diabetes Mellitus Significantly Increases the Risk of Adverse CV Events

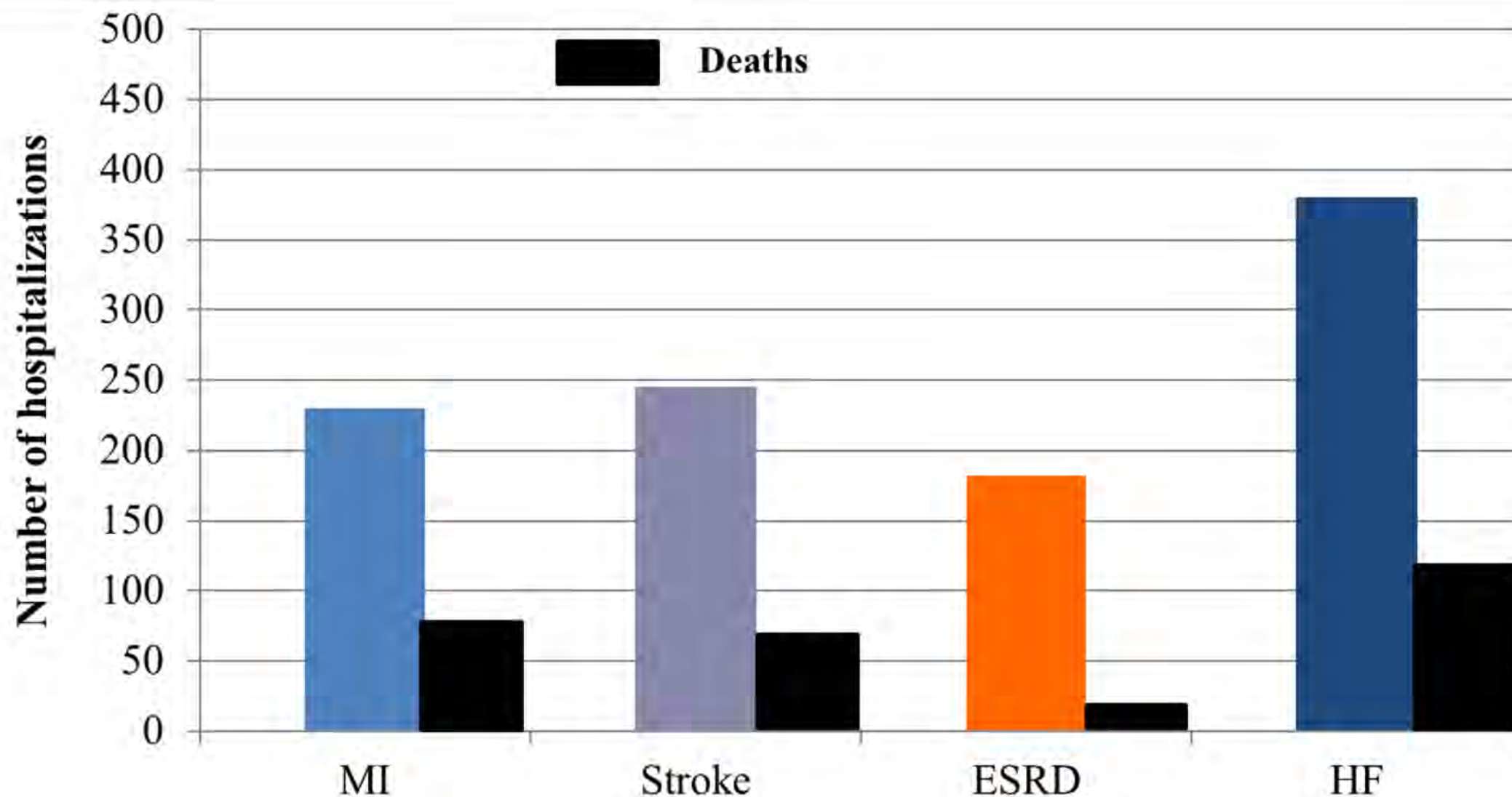


Meta-analysis of 102 clinical trials evaluating the risk of cardiovascular events due to diabetes mellitus

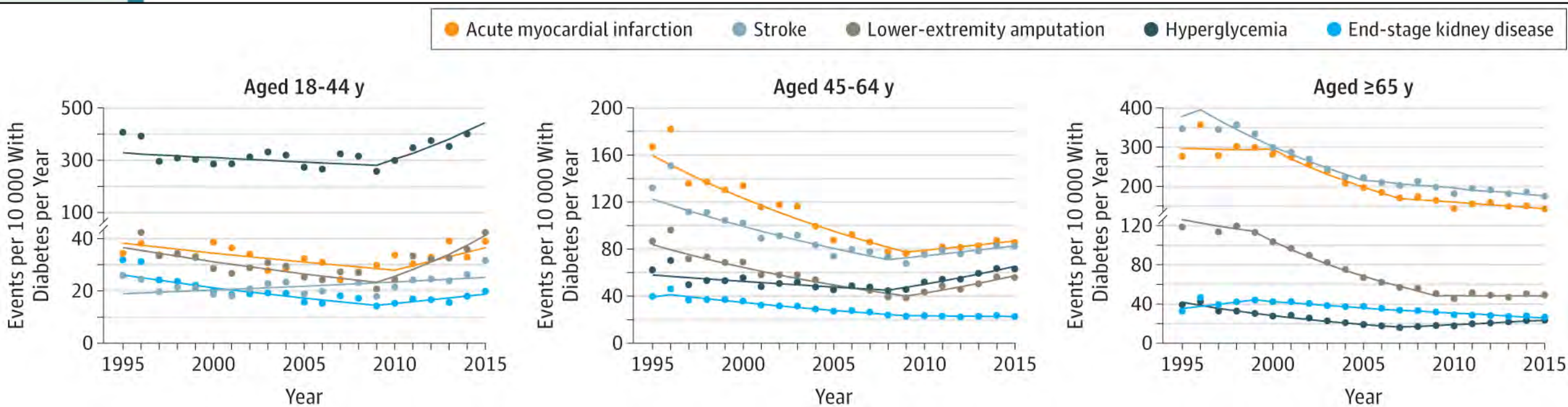
Cardiorenal Complications in T2D



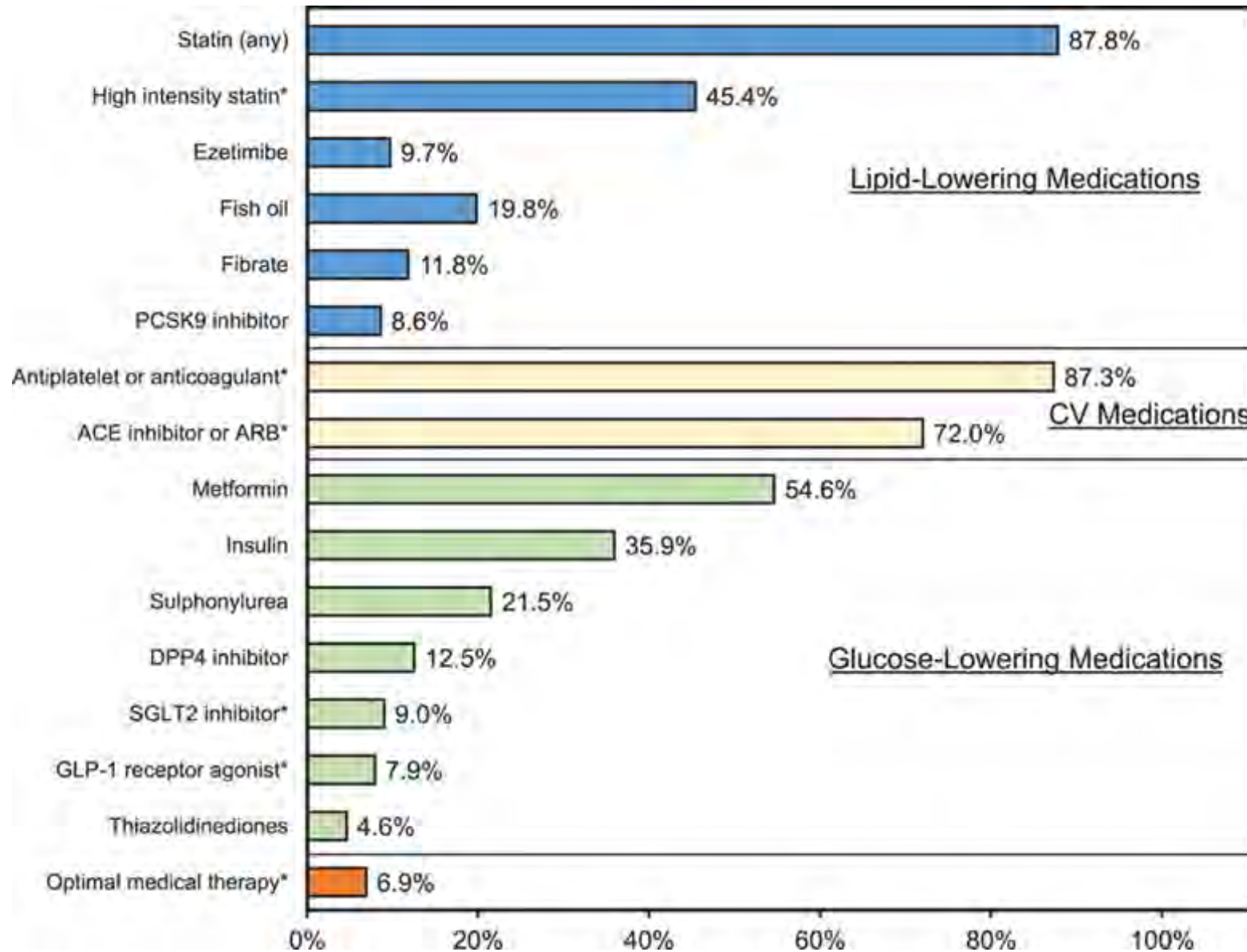
OH
Collaborative



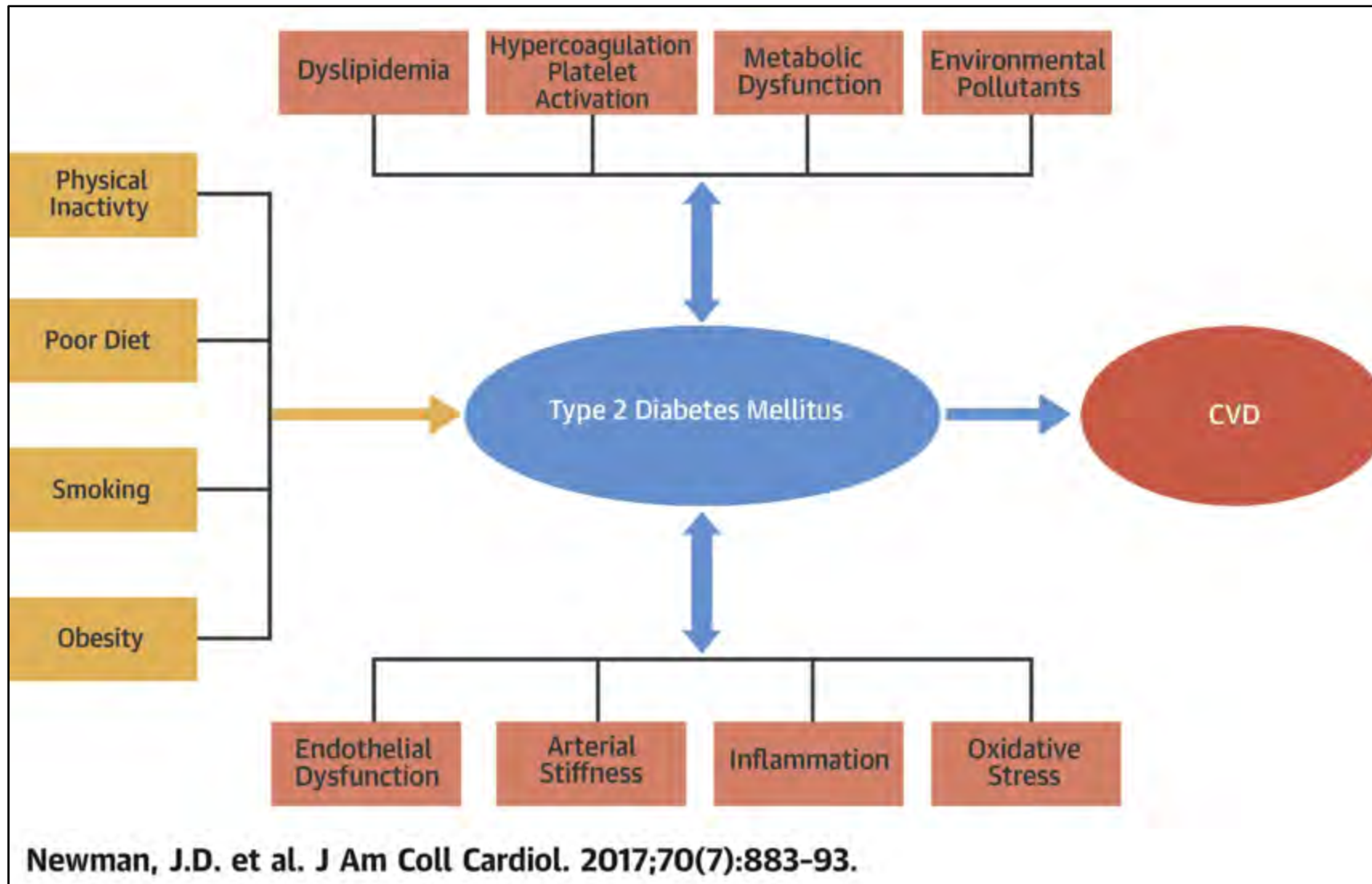
Resurgence in Diabetes-Related Complications



Less Than 10% of Patients with T2D are on Optimal Therapy



Pathways Linking T2D with CVD



Most Excess Risk in T2D is Attributed to CV Risk Factors



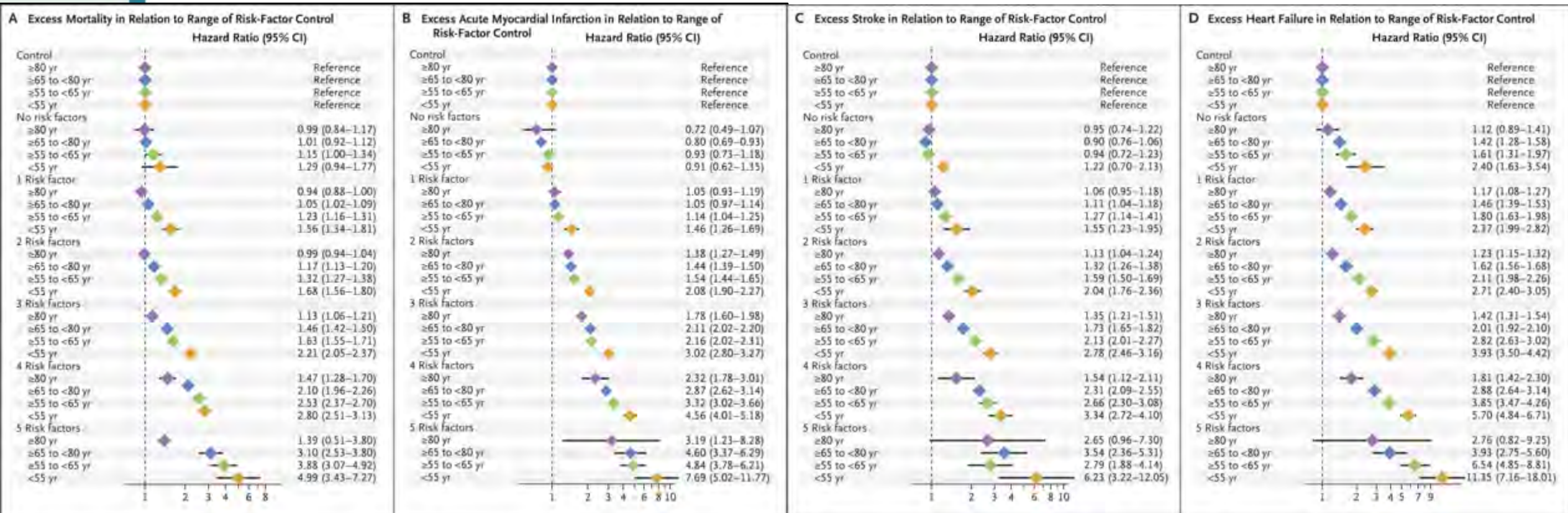
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MORTALITY

MI

STROKE

HF



How Do We Lower CV Risk in T2D?

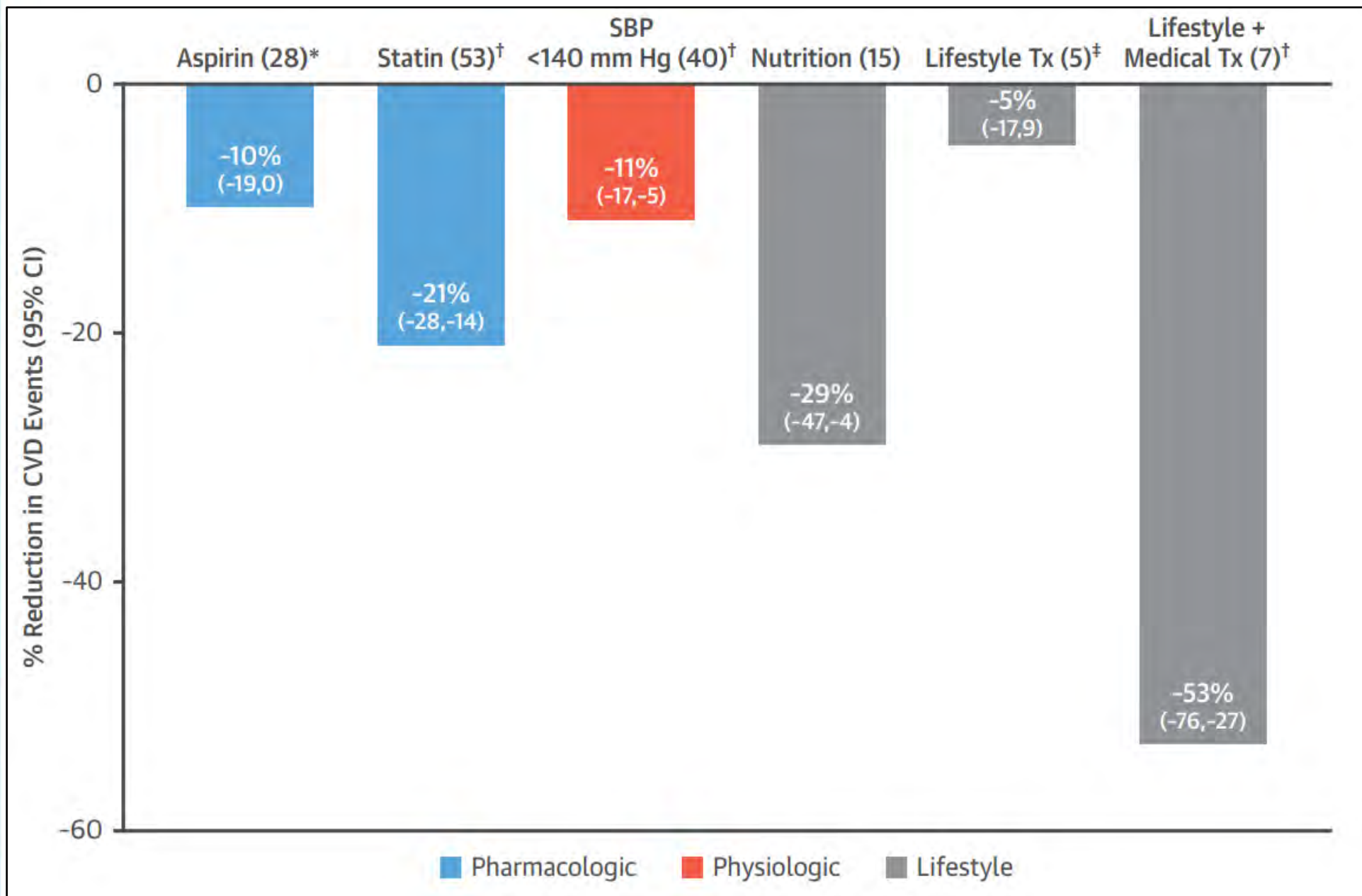


TABLE 1 Guideline-Based Care for CVD Prevention for Patients With Diabetes Mellitus

Risk Factor	Specific Recommendation	Level of Evidence (Ref. #)
Physical activity	≥150 min/week moderate intensity (50%–70% MPRH) over ≥3 days/week with ≤2 consecutive days without exercise	ADA LOE: A (13)
Nutrition	Mediterranean style diet may improve glycemic control and CVD risk factors Consumption of fruits, vegetables, legumes, whole grains, and dairy in place of other carbohydrate sources Carbohydrate monitoring as an important strategy for glycemic control	ADA LOE: B (13)
Weight management	Counsel overweight and obese patients that lifestyle changes can lead to a sustained 3%–5% rate of weight loss and clinically meaningful health benefits	ACC/AHA Class I, LOE: A (20)
Cigarette Smoking	Advise all patients not to use cigarettes, other tobacco products, or e-cigarettes Include smoking cessation counseling and other forms of treatment as a routine component of care	ADA LOE: A (13)
Glycemic control	Lower HbA _{1c} ≤7% in most patients to reduce risk of microvascular disease	ADA LOE: B (13)
	Consider HbA _{1c} <6.5% for patients with diabetes of short duration, long life expectancy, and no significant CVD if can be achieved safely	ADA LOE: C (13)
	HbA _{1c} <8% or higher for patients with severe hypoglycemia, limited life expectancy, and/or comorbid conditions	ADA LOE: B (13)
Blood pressure	Achieve a goal of <140/90 mm Hg for most diabetic patients	ADA LOE: A, JNC-8 LOE: E (13,43)
	A goal of <130/80 mm Hg may be appropriate for younger diabetic patients with cerebrovascular disease or multiple CV risk factors,* assuming target can be safely achieved	ADA LOE: B/C (13)
	Pharmacotherapy should include either an ACE inhibitor or an ARB; if intolerant to one, substitute the other	ADA LOE: B/C (13,40)
Cholesterol	Diabetic patients 40–75 yrs of age with LDL 70–189 mg/dl should receive at least moderate-intensity statin†	ACC/AHA Class I, LOE: A; ADA LOE: A (13,54)
	If age 40–75 yrs with CV risk factors,* high-intensity statin‡ should be given	ACC/AHA Class IIa, LOE: B (54)
Antiplatelet therapy	Aspirin 75–162 mg is reasonable for diabetic patients ≥50 yrs of age with at least 1 CV risk factor§ without increased GI bleeding risk	ACC/AHA Class IIa, LOE: B; ADA LOE: C (1,13,30)
	Aspirin 75–162 mg might be reasonable for diabetic patients <50 yrs of age with 1 or more CV risk factors¶	ACC/AHA Class IIb, LOE: C; ADA LOE: E (1,13,30)



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Recommendations for the Treatment of Confirmed Hypertension in People With Diabetes

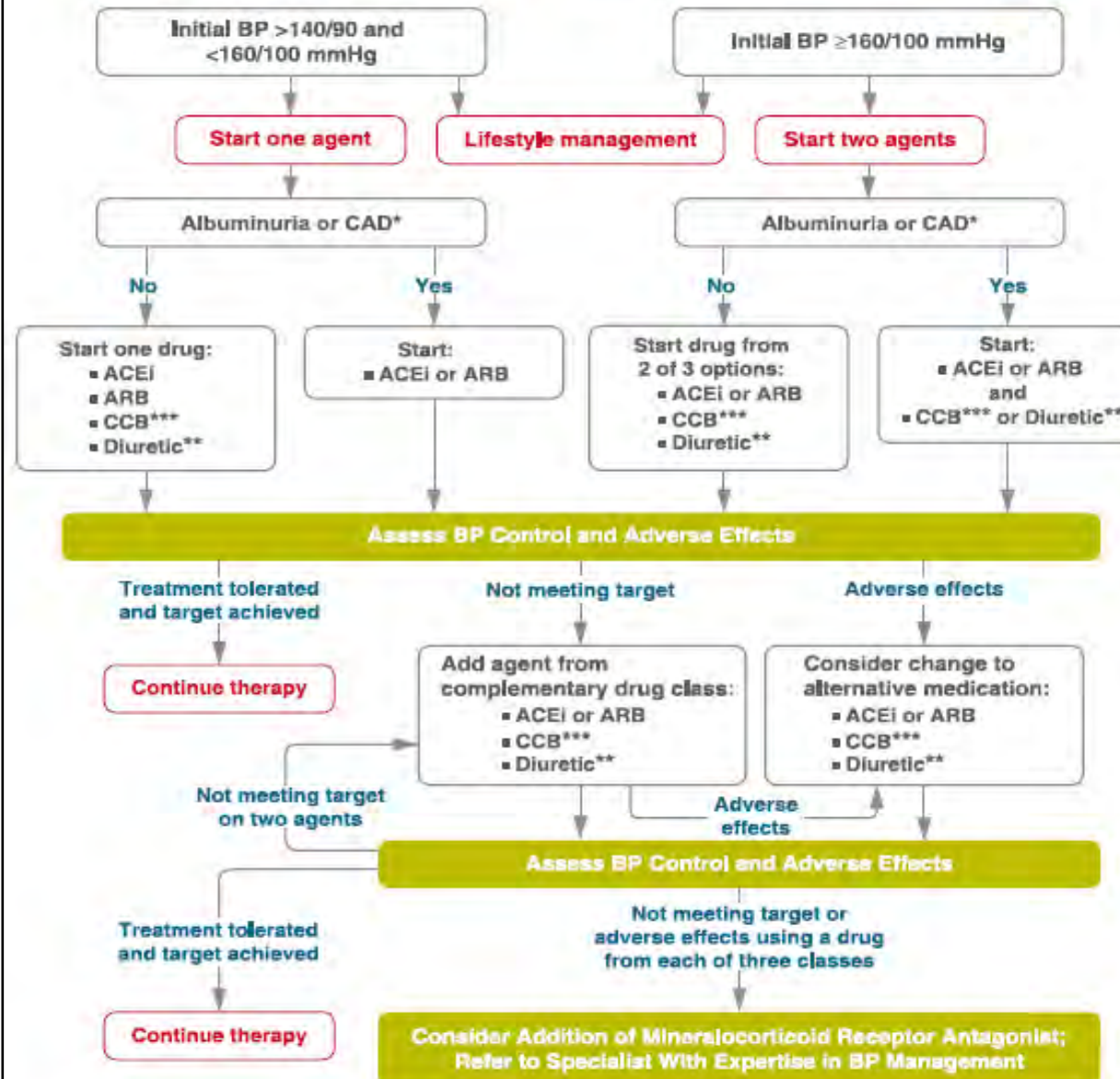
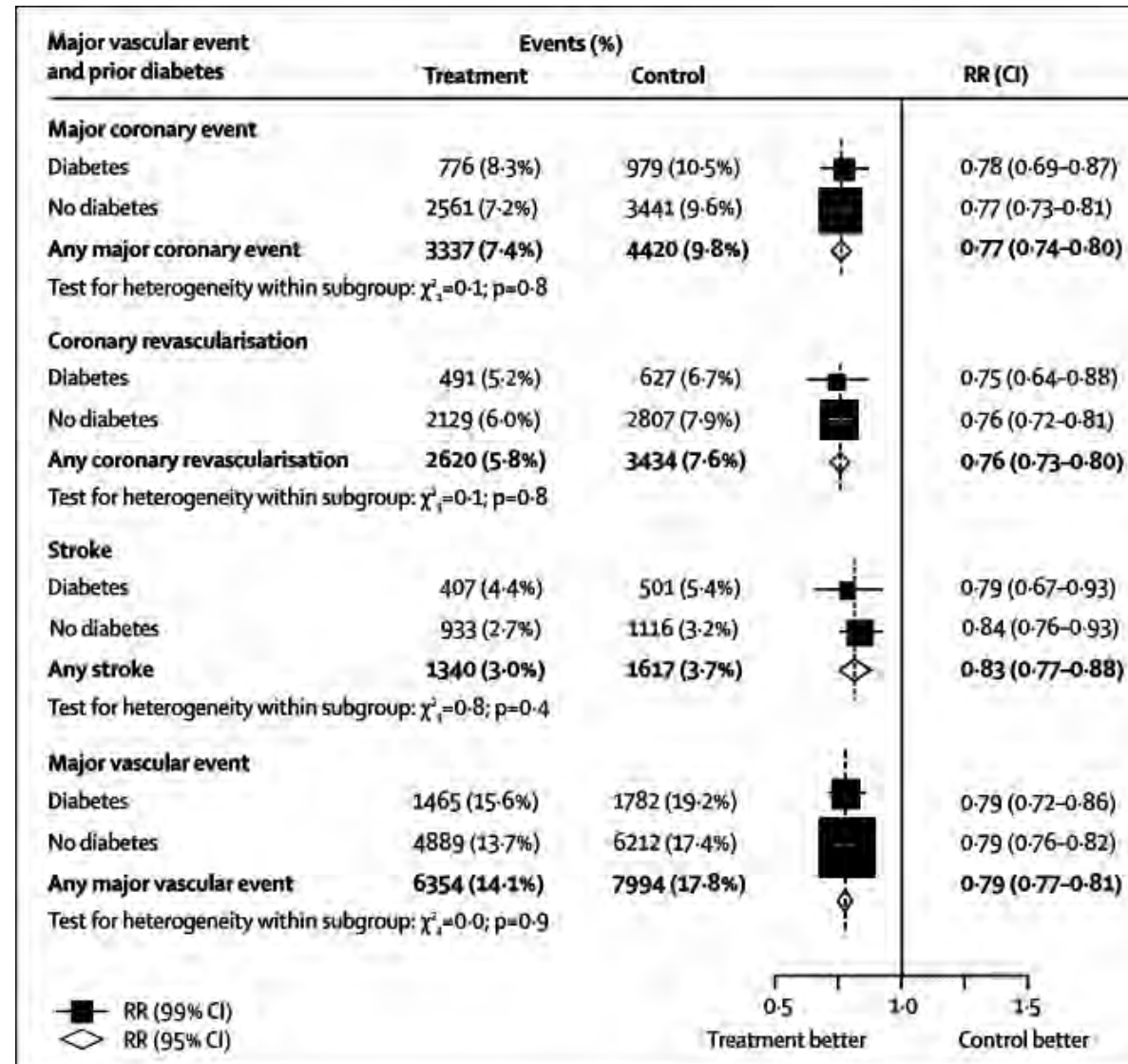


Figure 10.1—Recommendations for the treatment of confirmed hypertension in people with diabetes. *An ACE inhibitor (ACEi) or angiotensin receptor blocker (ARB) is suggested to treat hypertension for patients with coronary artery disease (CAD) or urine albumin-to-creatinine ratio 30–299 mg/g creatinine and strongly recommended for patients with urine albumin-to-creatinine ratio ≥300 mg/g creatinine. **Thiazide-like diuretic long-acting agents shown to reduce cardiovascular events, such as chlorthalidone and indapamide, are preferred. ***Dihydropyridine calcium channel blocker (CCB). BP, blood pressure. Adapted from de Boer et al. (17).

Meta-analysis of 18,686 Patients with DM Randomized to Treatment with a HMG-CoA Reductase Inhibitor



A statin reduces adverse CV events in T2D

Aspirin?



- **10.34** Use aspirin therapy (75–162 mg/day) as a **secondary prevention** strategy in those with diabetes and a history of atherosclerotic cardiovascular disease. **A**
- **10.39** Aspirin therapy (75–162 mg/day) **may be considered as a primary prevention** strategy in those with diabetes who are at increased cardiovascular risk, after a comprehensive discussion with the patient on the benefits versus the comparable increased risk of bleeding. **A**

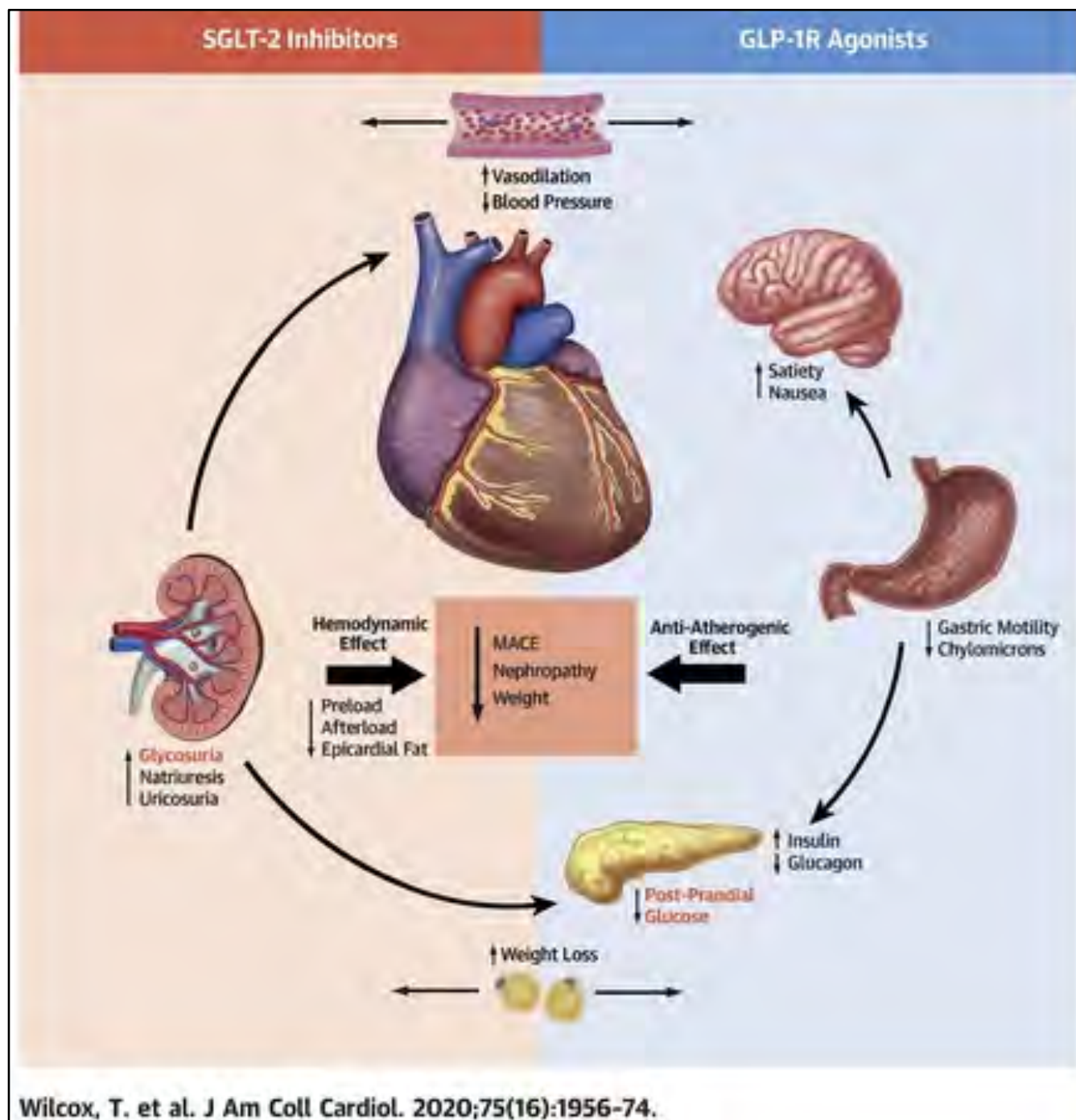








NEW KIDS ON THE BLOCK



NEW KIDS ON THE BLOCK



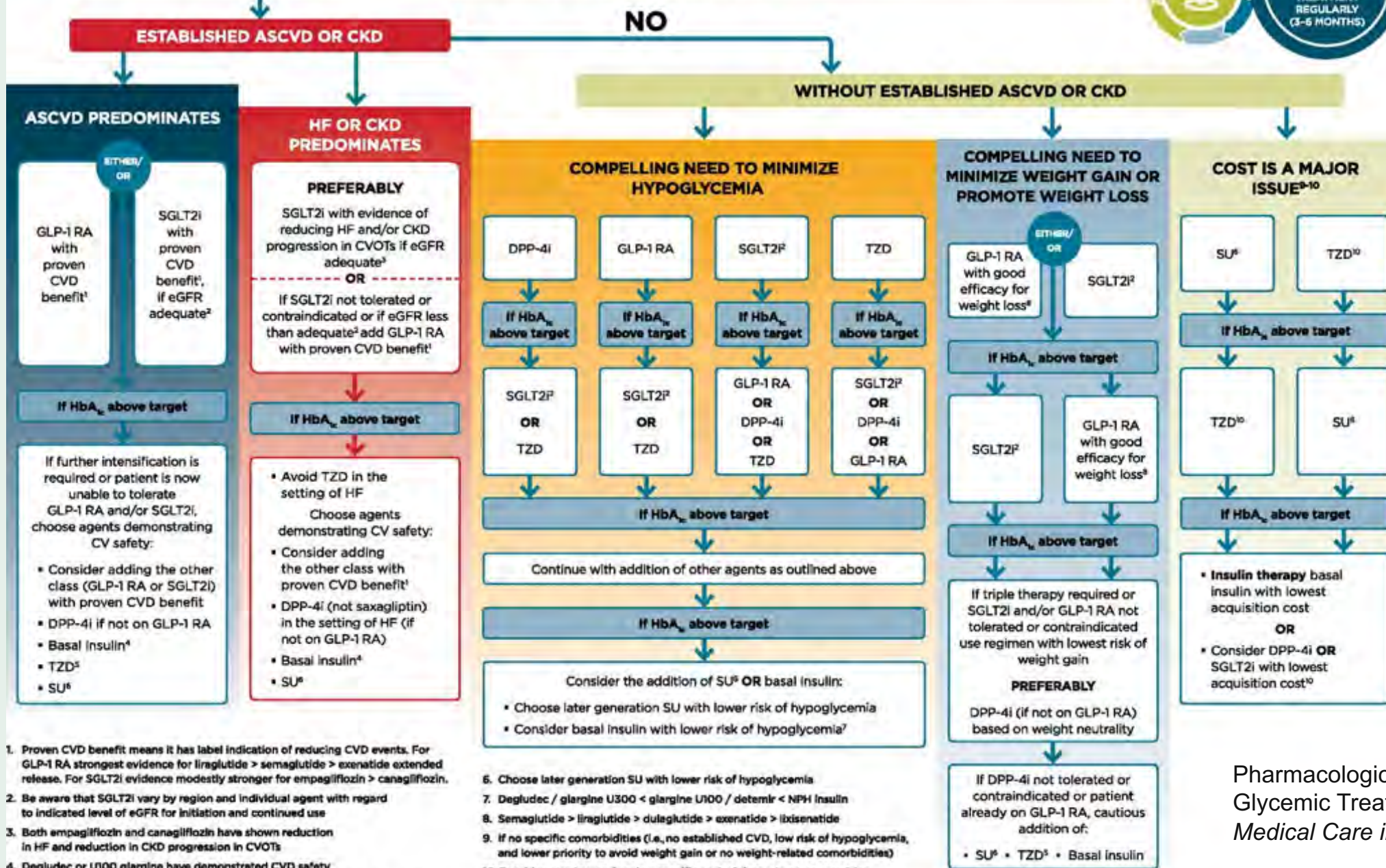


	GLP-1 receptor agonist		SGLT2 inhibitor	Combination therapy
Appetite	↓		↑ (?)	↓
Bodyweight	↓		↓	↓ ↓
Ischaemic cardiovascular events	↓		↓	↓ ↓
Heart failure events	↔		↓	↓
Insulin secretion	↑		↓	↑
Glucagon secretion	↓		↑	↔
Hepatic glucose output	↓		↑	↔
Ketone body production	↓ (?)		↑	↔
Glucose uptake (insulin-mediated)	↑ (?)		↑	↑ ↑
Diuresis, natriuresis	↑ (acutely)		↑	↑
Urinary glucose excretion	↔		↑	↑
Renoprotection	↔		↑	↑

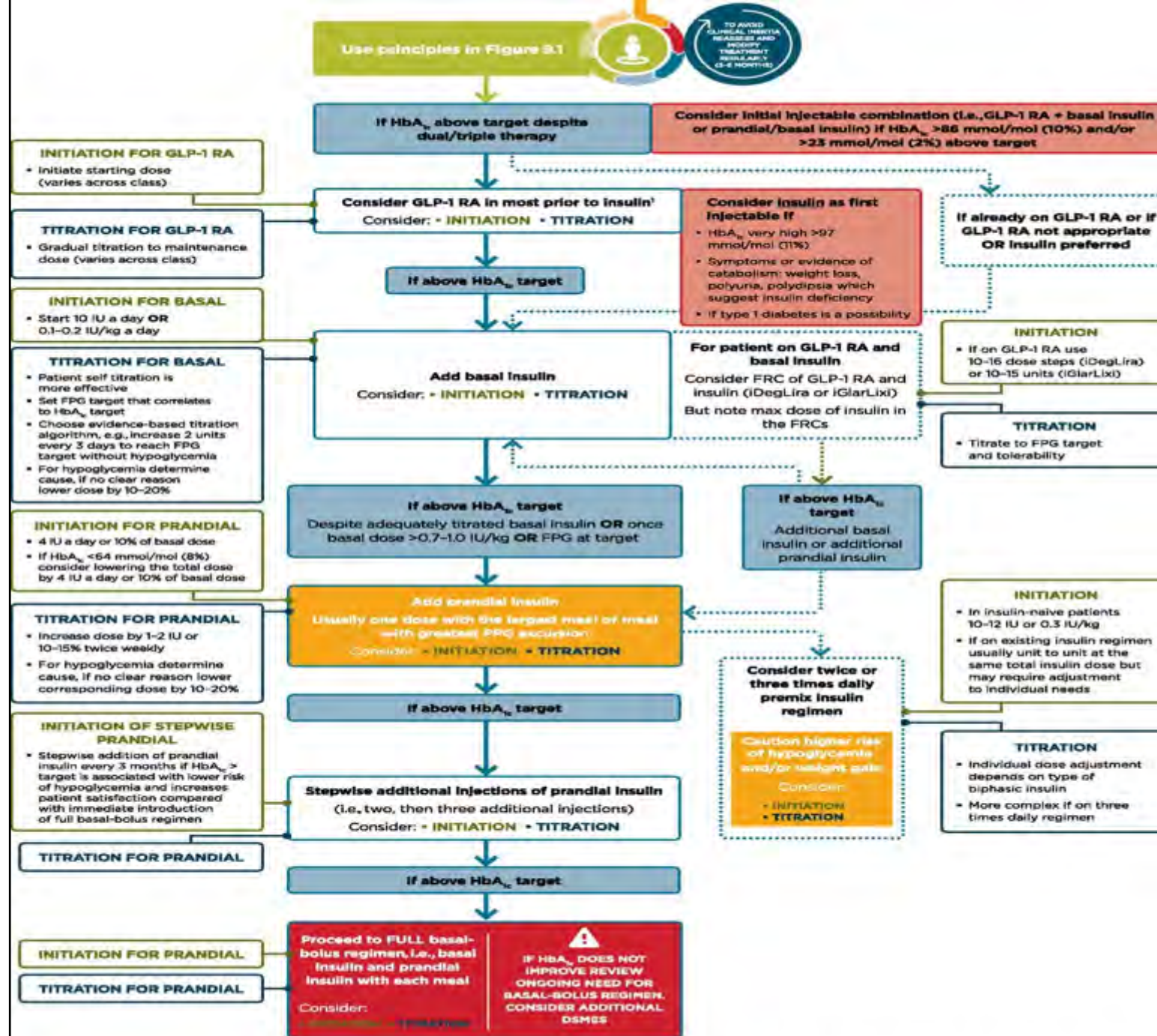
FIRST-LINE therapy is metformin and comprehensive lifestyle (including weight management and physical activity)
If HbA_{1c} above target proceed as below



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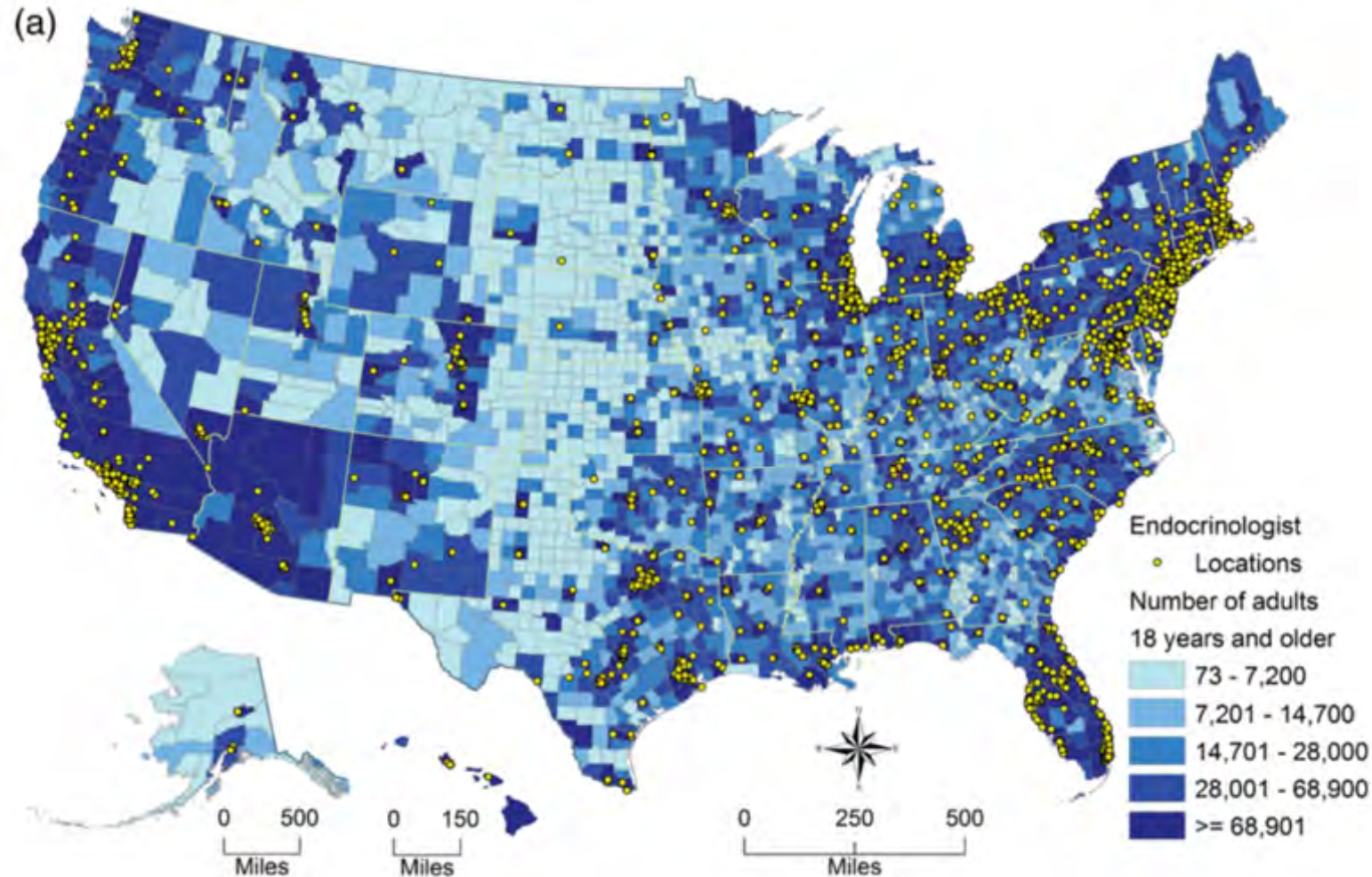


Pharmacologic Approaches to
Glycemic Treatment: *Standards of
Medical Care in Diabetes—2019*



1. When selecting GLP-1 RA, consider: patient preference, HbA_{1c} lowering, weight-lowering effect, or frequency of injection. If CVD, consider GLP-1 RA with proven CVD benefit

Shortage of Endocrinologists in the US



The overall population-to-endocrinologist ratio within 20 miles was 29,887:1 for adults aged 18–64 years, and 6,194:1 for adults aged ≥ 65 year

Practical Approach to Prescribing SGLT2 Inhibitors



Patients with T2DM with or at High Risk for CV Disease, Already on Metformin

Below Individualized HbA1c Target:

Switch non-metformin oral therapies (e.g. sulfonylureas) to a SGLT2i

Above Individualized HbA1c Target:

Consider SGLT2i initiation

Drug Type

Canagliflozin, dapagliflozin, & empagliflozin with similar efficacy profile in reducing HF events

Starting Dose

(once daily in AM)

- Canagliflozin (100mg)
- Dapagliflozin (5mg)
- Empagliflozin (10mg)
- Ertugliflozin (5mg)

Metformin+SGLT2i

Combination Therapies

Consider to limit non-adherence and pill burden

Stable Hemodynamic and Clinical Status

Pre-Initiation eGFR must be above:

- 60 mL/min/1.73 m² (dapagliflozin, ertugliflozin)
- 45 mL/min/1.73 m² (canagliflozin, empagliflozin)

Anticipatory Guidance

Consider diuretic dose reduction

Patient Counseling

- Genital/perineal hygiene
- Orthostatic hypotension
- Regular foot exams
- Symptoms of DKA
- Avoid excessive alcohol

Multidisciplinary Care

Close communication with other providers, including PCPs and endocrinologists

Follow-up and Monitoring

- Serial assessment of renal function, body weights, blood pressure, and symptoms
- Dose uptitration guided by need for glycemic control
- Ensure adherence to SGLT2i, other therapies, and therapeutic lifestyle
- Multidisciplinary care team follow-up

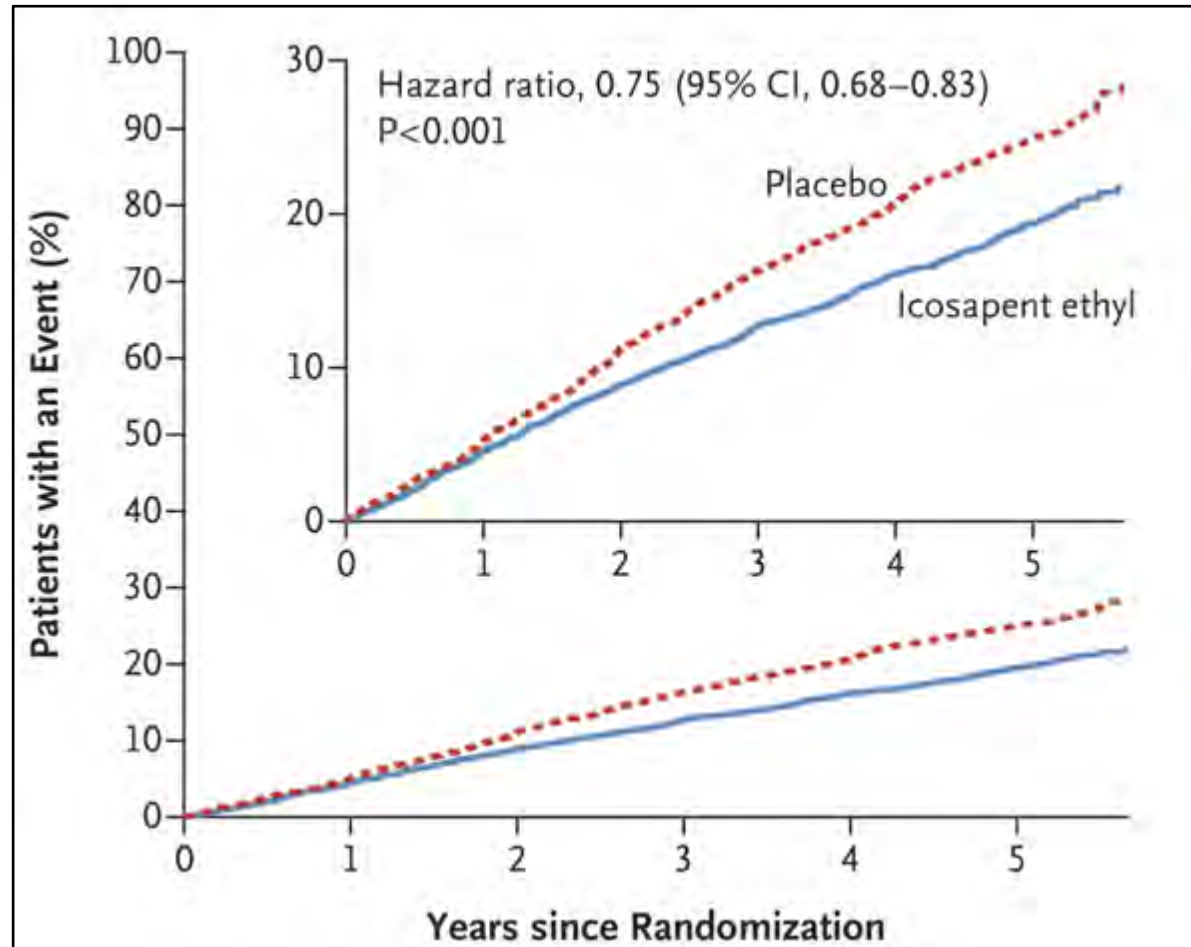
TABLE 1 Practical Considerations With Use of SGLT2 inhibitors

Potential Adverse Effect	Practical Considerations
Adverse drug-drug interaction	Pharmacokinetic drug-drug interactions are minimal Canagliflozin is a P-glycoprotein substrate (modest inhibition); co-administration with digoxin may increase plasma levels of digoxin; monitor digoxin levels and for signs and symptoms of toxicity when both are used together
Genital and urinary infections	Mycotic infections more common among females and in uncircumcised males Reinforce importance of adequate hygiene Counsel patients to urgently report genital/perineal tenderness, redness, or swelling No significant increase in risk of urinary tract infections
Hypoglycemia	Uncommon; risk increased with concomitant use of sulfonylureas and insulin
Diabetic ketoacidosis	Avoid pre-emptive substantial reductions in insulin dose Hold dose if acutely ill with limited oral intake, and 3 days before major surgery Use caution with low carbohydrate diets to minimize excessive ketosis Discourage excessive alcohol intake Asymptomatic elevations in beta-hydroxybutyrate are frequent with SGLT2 inhibitors, but only a fraction lead to overt diabetic ketoacidosis Counsel patients regarding potential symptoms of diabetic ketoacidosis (fruity odor on breath, thirst, polyuria, nausea, vomiting, abdominal pain, confusion, and fever)
Renal injury	Baseline and periodic monitoring of renal function is recommended, especially if used in chronic kidney disease Modest decrease in eGFR (3 to 4 ml/min/1.73 m ²) is expected with initiation Currently being investigated in eGFR <30 ml/min/1.73 m ² Cases of acute kidney injury are rare, except in concert with volume depletion
Volume depletion	Increased risk with concomitant diuretic use; consider diuretic dose adjustment Educate patient about potential for orthostatic hypotension and necessity to monitor daily weights and blood pressure, particularly in the first week of therapy Anticipatory guidance to call healthcare provider if home weight decreases by 3 or more pounds over 24 h, or 5 or more pounds in a week, or in the setting of symptomatic hypotension
Lower limb amputations	Predominantly toe and metatarsal More apparent with canagliflozin Increased risk among those with previous amputations or in patients with peripheral artery disease Remind patients to perform regular foot exams and to see a podiatrist annually



ADDITIONAL THERAPIES TO LOWER CV RISK

Icosapently Ethyl (Vascepa)



Bhatt et al. NEJM 2019

10.31 In patients with atherosclerotic cardiovascular disease or other cardiovascular risk factors on a statin with controlled LDL cholesterol but elevated triglycerides (135–499 mg/dL), the addition of icosapent ethyl can be considered to reduce cardiovascular risk. A



Ticagrelor in Stable Coronary Disease and Diabetes

MULTICENTER, DOUBLE-BLIND, RANDOMIZED, CONTROLLED TRIAL

19,220

Patients with
type 2 diabetes
and stable
coronary
artery disease



Ticagrelor
60 mg twice daily +
low-dose aspirin
75–150 mg once daily



N=9619

Placebo +
low-dose aspirin
75–150 mg once daily



N=9601

Cardiovascular death,
MI, or stroke (median
follow-up, 39.9 mo)

7.7%
(N=736)

P=0.04

8.5%
(N=818)

TIMI major bleeding

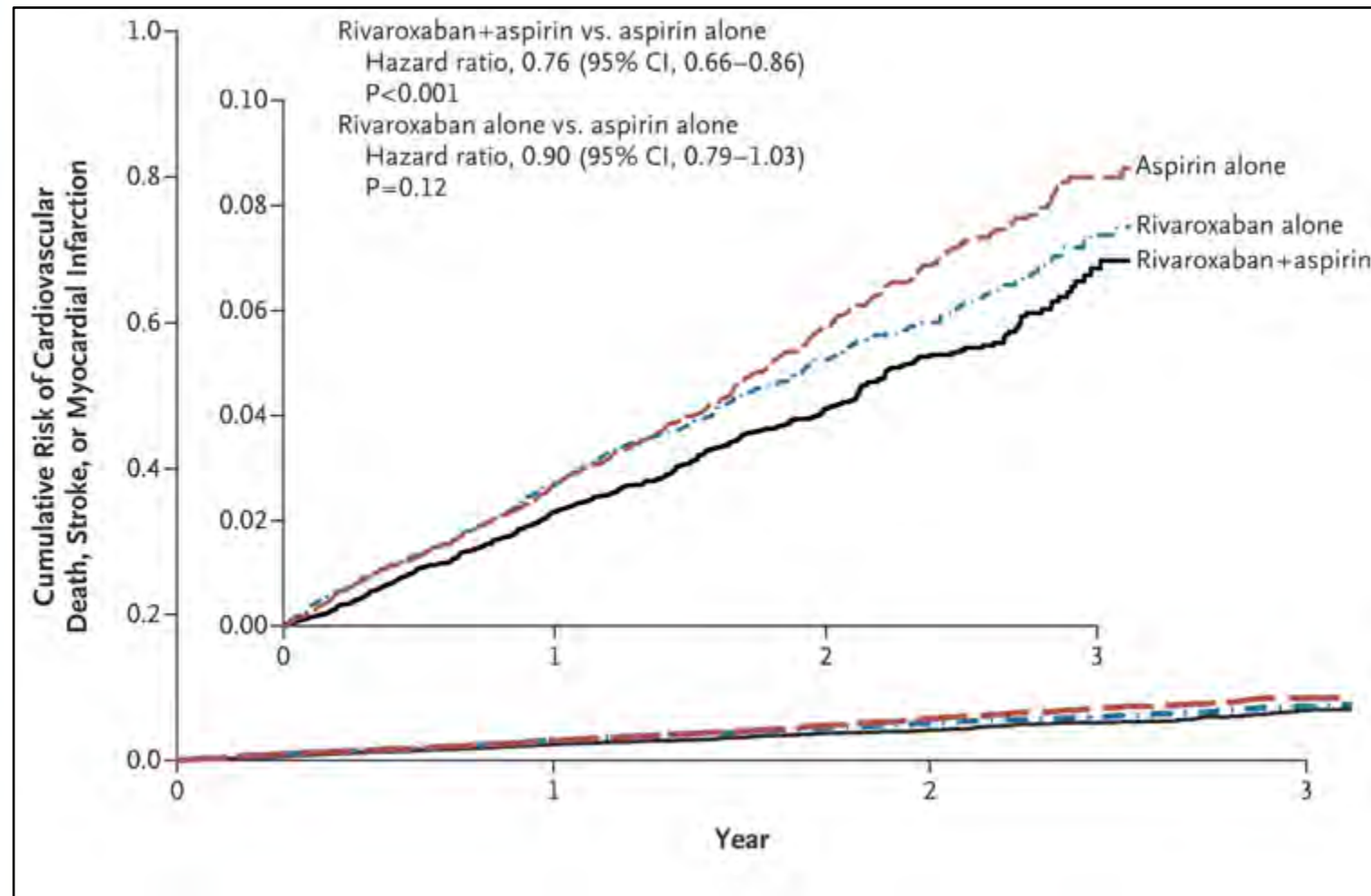
2.2%
(N=206)

P<0.001

1.0%
(N=100)

**Ticagrelor + aspirin decreased ischemic cardiovascular
events but increased major bleeding**

Low Dose Rivaroxaban



Eikelboom et al. NEJM 2017

10.38 Combination therapy with aspirin plus low-dose rivaroxaban should be considered for patients with stable coronary and/or peripheral artery disease and low bleeding risk to prevent major adverse limb and cardiovascular events. A



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Evidence-based Approaches to Smoking Cessation

Teachable Moments



- Health-related events such as a diabetes diagnosis, increasing disease severity, or hospitalization can¹:
 - Increase patients' interest in smoking cessation
 - Trigger attempts to quit smoking
 - Improve rates of smoking cessation
- Fewer than 30% of patients use evidence-based methods to quit smoking²
 - 25% used only one method for quitting on most recent quit attempt
 - 15% tried cold turkey as their only method (~5% success rate)
 - 25% switched completely to e-cigarettes
 - 15% got assistance from a health professional

1. U.S. Department of Health and Human Services, 2020. Smoking Cessation. A Report of the Surgeon General.

2. Caraballo RS, et al. Quit Methods Used by US Adult Cigarette Smokers, 2014–2016. *Prev Chronic Dis* 2017; 14:160600.



Tobacco Cessation Guidelines



- The USPSTF recommends that clinicians ask all adults about tobacco use, advise them to stop using, and provide behavioral interventions and FDA-approved medications for cessation.
- Grade: A
 - *The USPSTF recommends the service. There is high certainty that the net benefit is substantial.*
 - *Suggestions for Practice: Offer or provide this service.*



Evidence for Behavioral Methods



- ***Evidence is strongest for physician and nurse advice*** (8-13% cessation rates), telephone quit lines, and tailored self-help materials¹
 - Brief in-person counseling (<10 min) by primary care providers increases the proportion of adults who quit smoking and remain abstinent for 1 year²
 - Even minimal interventions (<3 min) have been found to increase cessation rates²

1. Stead LF, et al. *Cochrane Database Syst Rev*. 2013;5:CD000165.

2. USPSTF Recommendations. *Ann Intern Med*. 2015;163:622-634. doi:10.7326/M15-2023



Screening, Brief Intervention & Referral to Treatment (SBIRT)



- Brief integrated approach to treatment for people with substance use disorders and those at-risk (5-10 minutes)
- Used across diverse populations for tobacco, alcohol, substance use, & abuse of prescription meds
- Associated with increased likelihood of smoking quit attempts & increased satisfaction with care¹
- Even low-intensity SBIRT may prompt quit attempts and decrease cigarette use^{2,3} (3-5 minutes)

1. Bernstein S. et al. *J Emerg Med* 2010, 38(4), e35-e40.
2. Rahm AK, et al. *Subst Abus* 2015;36(3):281-8.
3. Cunningham et al. *Acad Emerg Med* 2010, 16(11), 1078-1088.



‘Opening the Door’ (+ SBIRT & MI)



Screening

- Step 1: After establishing rapport, **Ask about tobacco use**
 - Clinician: Mrs. Williams, do you currently smoke or use tobacco?
 - Mrs. Williams: Yes, I smoke.
 - Optional: Assess usage patterns and dependence (eg., CAGE for smoking, 4 C's, Fagerstrom)

Brief Intervention

- Step 2: **Express Concern:** I'm concerned about your smoking.
- Step 3: **Medicalize the concern**
 - Clinician: Smoking makes it harder to control diabetes. It also increases your risk of developing serious health problems from diabetes.
- Step 4: **Solicit mutual concern**
 - Clinician: Does this concern you as well?
 - Mrs. Williams: Well, yes it does.
- Step 5: **Collaborate**
 - Clinician: Would it be okay if we discuss this for a few minutes today?
 - Mrs. Williams: Yes, that would be fine.
- Step 6: **Assess Importance**
 - Clinician: “On a scale from 0 to 10, how important would you say it is for you to quit smoking?”



Options



Referral for Treatment

- If patient is willing to consider quitting or is ready to quit, refer to the Ohio Tobacco Quit Line, Freedom from Smoking program, Smokefree.gov, or other resources
 - *Quitting tobacco is a process. Whether you are thinking about quitting, are not yet ready to quit, or have already quit, the Ohio Tobacco Quit Line can help you each step of the way.*
-- <https://ohio.quitlogix.org/en-US/>



Options

If not ready to consider quitting or make a quit attempt:

- Provide printed information about smoking risks & cessation methods
- Ask for permission to resume the discussion at a future visit
- During subsequent visits, provide brief motivational interviewing-based counseling to increase motivation and self-efficacy
 - Discuss health benefits, assess & build confidence, address concerns and barriers



Reframing Quitting Cold Turkey



- 25% used only one method for quitting on most recent quit attempt
- 15% tried cold turkey as their only method (~5% success rate)
- *When patients tell me they want to quit on their own, I try to build on their enthusiasm.*
- *What I say is, "It's great that you want to quit cold turkey. I want to give you a couple tools that will increase the likelihood that your effort to quit is successful."*
- *"I recommend that you talk with the Quit Line and also take nicotine lozenges to take the edge off when you're quitting cold turkey."*
- *I don't try to change their mind. I just try to reframe what cold turkey can be.*

Michael Fiore, MD, MPH, Director, Center for Tobacco Research and Intervention, University of Wisconsin School of Medicine and Public Health. In AMA Public Health, July 14, 2020. <https://www.ama-assn.org/delivering-care/public-health/latest-smoking-cessation-8-things-physicians-should-know>



Ohio Tobacco Quit Line (1-800-Quit-Now)



- **Phone + Online**

Coaching over the telephone, plus email, text, chat, web-based materials, and quit progress tracking via website; English, Spanish, & translation service

- **Pharmacotherapy**

NRT available to patients for up to 8 weeks (patch, lozenge, gum) for those who work with a coach; 2 weeks of NRT provided at a time

- **Phone Only**

Coaching over the phone, plus materials, quit planning, and quit progress tracking

- **Online Only**

Materials, quit planning, and quit progress tracking via website



Freedom from Smoking Program

- American Lung Association
www.lung.org/quit-smoking/join-freedom-from-smoking
- Helpline counselors, apps for quitting, 'group clinics' (8 week-long facilitated small groups)
- From now through June 30, 2021, Ohio residents can access *Freedom From Smoking Plus* at no cost—a \$99.95 value. All participants are eligible for up to eight weeks of Nicotine Replacement Therapy (patches) at no cost.
 - <https://www.lung.org/local-content/oh/ffs-cvs>



SmokeFree.gov

smokefree.gov



- Sponsored by the National Cancer Institute
- Telephone counseling 877-44U-QUIT (877-448-7848)
 - Trained counselors provide information and support for quitting in English and Spanish
- Texting, smartphone apps, social media
 - Planning to quit, withdrawal, cravings, stress, mood
 - Relapse prevention
 - Tailored texting, apps, & social media content for:
 - Women, teens, veterans, Spanish-speaking, over age 60
- NRT information for patients



Facilitating Referrals



- EHRs can be programmed for electronic referral of patients to:
 - Ohio Tobacco Quit Line (1-800-QUIT-NOW)
 - Technical guidance for EHR integration is available
 - National Cancer Institute's [smokefree.gov](https://www.smokefree.gov) suite of cessation resources (including SmokefreeTXT)
 - Health system-based smoking cessation programs
 - Community smoking cessation programs
- Optimizing workflow: Care team members can implement the referral process via EHR, online, or via fax



Resources for Quitting



- Tobaccofree.org/
 - Point-of-care materials, patient-level information about how to quit, videos for schools, speakers, advocacy
- National Cancer Institute's free Smoking Quitline, 1-877-44U-Quit
- www.BecomeAnEx.org
 - For tobacco users who want to quit. Personalized quit plans, text messages, online support groups.
- Nicotine-anonymous.org
 - Group support using the Twelve Steps to achieve abstinence from nicotine. Five in-person meetings in Cleveland area, 56 Zoom support groups available.
- www.cdc.gov/tobacco/index.htm
 - Quit information, information and tools for healthcare providers
- Million Hearts
 - https://millionhearts.hhs.gov/files/Tobacco_Cessation_Change_Pkg.pdf
 - Guidance and tools for developing clinic- and system-level cessation programs



Recap

- Use the 'Opening the Door' technique plus SBIRT & MI
- Refer patients to the Ohio Tobacco Quit Line, Freedom from Smoking program, Smokefree.gov, or community resources
 - Care team members can implement referrals via EHR, online, or by fax
- For patients who are not ready, request permission to resume the discussion at a future visit
 - Brief MI-based conversations over multiple visits
 - Support the patient in moving through the stages of change



Thank you!

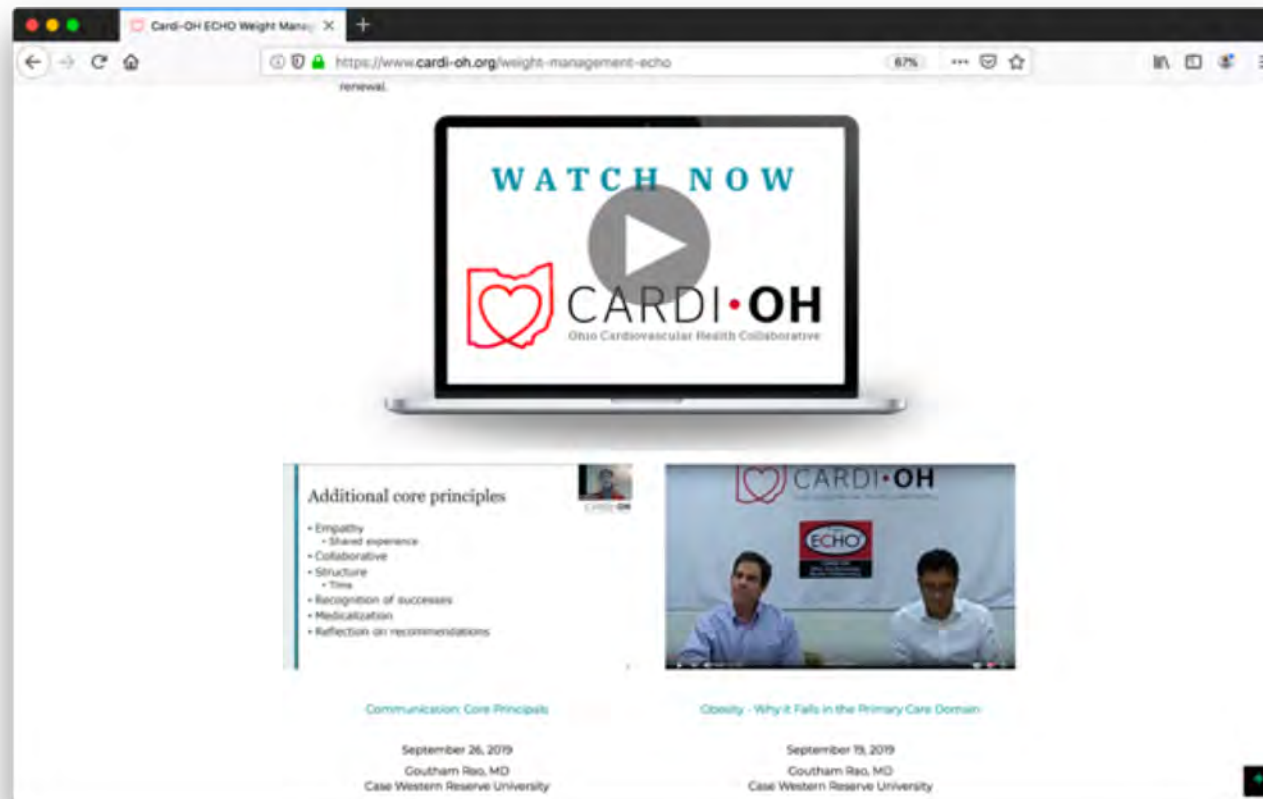
Questions/Discussion

Watch Previous Cardi-OH TeleECHO Clinics



Register on Cardi-OH.org to watch all Tackling Type 2 Diabetes TeleECHO Clinics:

<https://www.cardi-oh.org/user/register>
<https://www.cardi-oh.org/echo/diabetes-spring-2021>





Reminders



- A Post-Clinic Survey has been emailed to you.
Please complete this survey **by Friday at 5:00 PM.**
- *The MetroHealth System is accredited by the Ohio State Medical Association to provide continuing medical education for physicians.*
- *The MetroHealth System designates this educational activity for a maximum of 1 AMA PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity.*