Management of Type 2 Diabetes: 2021 ADA Recommendations

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Director, Bellevue Primary Care Diabetes Program

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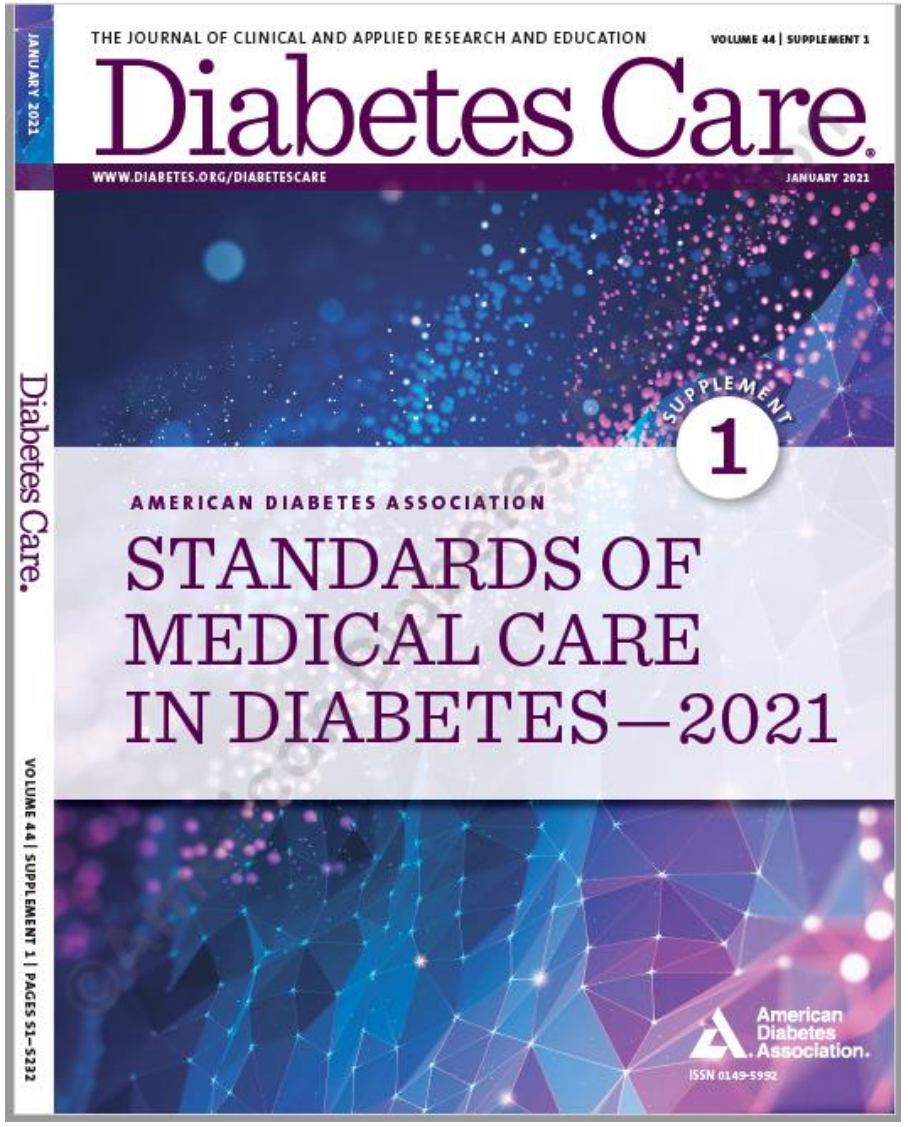
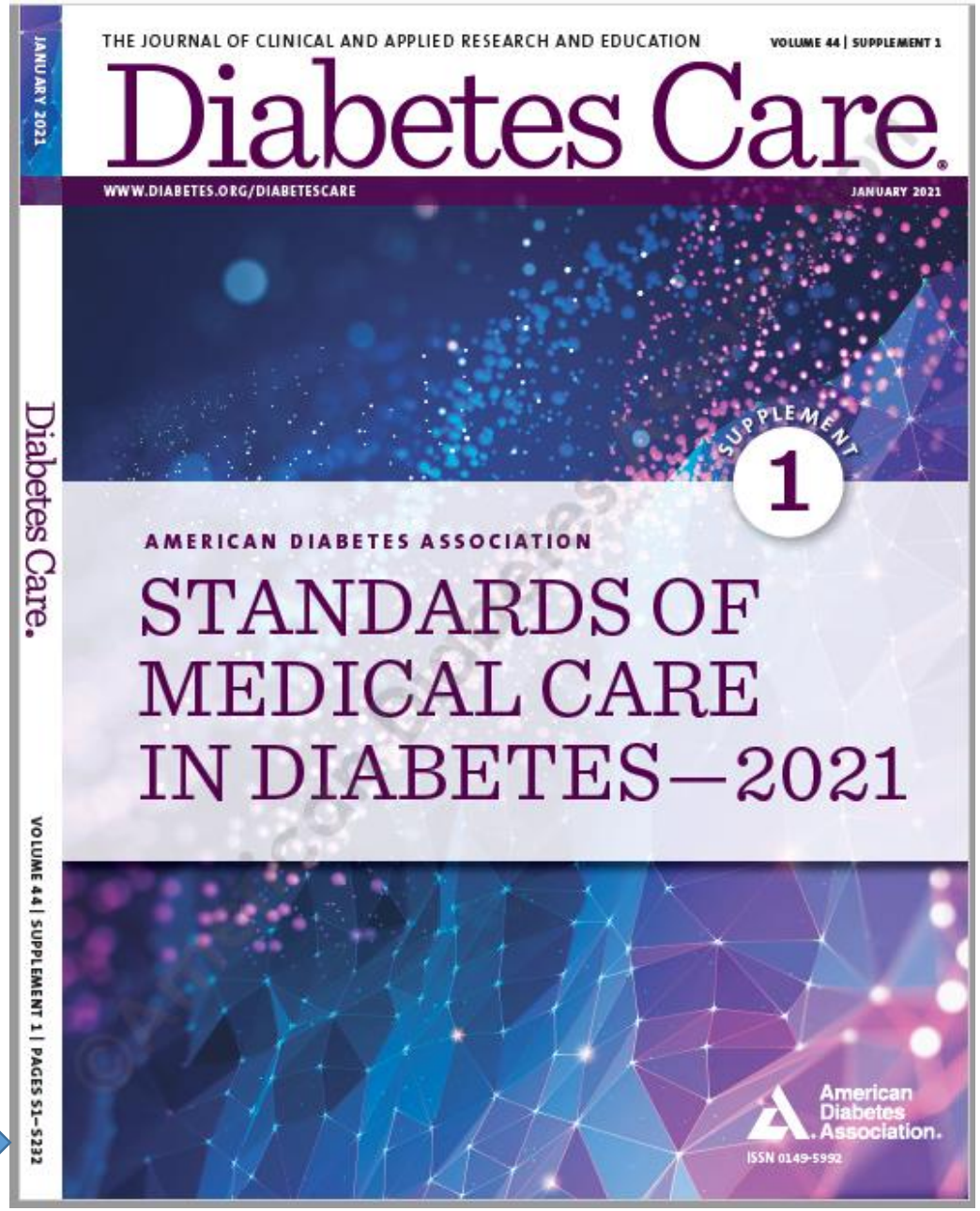
Type 2 Diabetes:
ADA management recommendations

- Blood Glucose
- Blood Pressure
- LDL
- If time allows
  - Pre Diabetes
  - DM Outreach in the Time of Covid





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STANDARDS OF CARE

Check for updates

Standards of Medical Care in Diabetes—2021 Abridged for Primary Care Providers

American Diabetes Association

The American Diabetes Association (ADA) *Standards of Medical Care in Diabetes* is updated and published annually in a supplement to the January issue of *Diabetes Care*. The Standards are developed by the ADA's multidisciplinary Professional Practice Committee, which comprises physicians, diabetes educators, and other expert diabetes health care professionals. The Standards include the most current evidence-based recommendations for diagnosing and treating adults and children with all forms of diabetes. ADA's grading system uses A, B, C, or E to show the evidence level that supports each recommendation.

- A—Clear evidence from well-conducted, generalizable randomized controlled trials that are adequately powered
- B—Supportive evidence from well-conducted cohort studies
- C—Supportive evidence from poorly controlled or uncontrolled studies
- E—Expert consensus or clinical experience

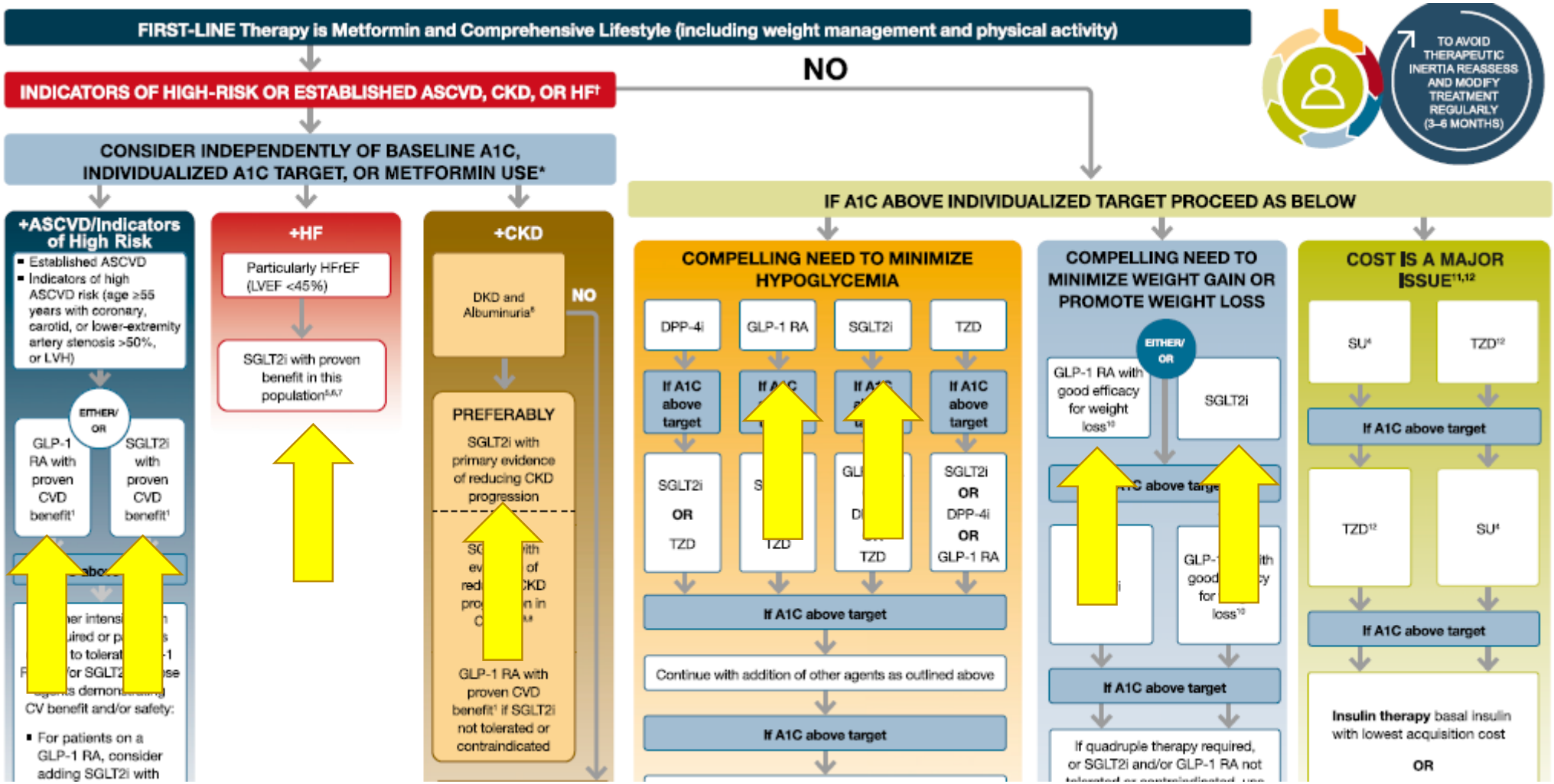
Thus, efforts to improve population health will require a combination of policy-level, system-level, and patient-level approaches. *Patient-centered care* is defined as care that considers individual patient comorbidities and prognoses; is respectful of and responsive to patient preferences, needs, and values; and ensures that patient values guide all clinical decisions. Further, social determinants of health (SDOH)—often out of direct control of the individual and potentially representing lifelong risk—contribute to medical and psychosocial outcomes and must be addressed to improve all health outcomes.

Recommendations

1.2 Align approaches to diabetes management with the Chronic Care Model (CCM). This model emphasizes person-centered team care, integrated long-term treatment approaches to diabetes and comorbidities, and ongoing collaborative communication and goal setting between all team members. A

Blood Glucose

- Blood Glucose-lowering Medication Framework: ADA 2021
- Review GLP1-RA
- Review SGLT2i
- Operationalize This
- Pop-Quiz Questions


FIRST-LINE Therapy is Metformin and Comprehensive Lifestyle (including weight management and physical activity)
INDICATORS OF HIGH-RISK OR ESTABLISHED ASCVD, CKD, OR HF†
NO
CONSIDER INDEPENDENTLY OF BASELINE A1C, INDIVIDUALIZED A1C TARGET, OR METFORMIN USE*
TO AVOID THERAPEUTIC INERTIA REASSESS AND MODIFY TREATMENT REGULARLY (3–6 MONTHS)
IF A1C ABOVE INDIVIDUALIZED TARGET PROCEED AS BELOW
+ASCVD/Indicators of High Risk
Established ASCVD
Indicators of high ASCVD risk (age ≥55 years with coronary, carotid, or lower-extremity artery stenosis >50%, or LVH)
EITHER/ OR
GLP-1 RA with proven CVD benefit[1]
SGLT2i with proven CVD benefit[1]
CV benefit and/or safety:
For patients on a GLP-1 RA, consider adding SGLT2i with
+HF
Particularly HFrEF (LVEF <45%)
SGLT2i with proven benefit in this population[5,6,7]
+CKD
DKD and Albuminuria[8]
NO
PREFERABLY
SGLT2i with primary evidence of reducing CKD progression
GLP-1 RA with proven CVD benefit[1] if SGLT2i not tolerated or contraindicated
COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA
DPP-4i
GLP-1 RA
SGLT2i
TZD
If A1C above target
SGLT2i OR TZD
TZD
TZD
SGLT2i OR DPP-4i OR GLP-1 RA
If A1C above target
Continue with addition of other agents as outlined above
If A1C above target
COMPELLING NEED TO MINIMIZE WEIGHT GAIN OR PROMOTE WEIGHT LOSS
EITHER/ OR
GLP-1 RA with good efficacy for weight loss[10]
SGLT2i
If A1C above target
If A1C above target
If quadruple therapy required, or SGLT2i and/or GLP-1 RA not
COST IS A MAJOR ISSUE[11,12]
SU[4]
TZD[12]
If A1C above target
TZD[12]
SU[4]
If A1C above target
Insulin therapy basal insulin with lowest acquisition cost
OR

GLP1-RA

- Glucagon-like Peptide 1 Receptor Agonist
- GLP1: Secreted by the L cells in the small intestine
  - Increase Insulin
  - Decrease Glucagon
  - Slow gastric emptying
  - Increase satiety
  - Improved Blood Glucose Control

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JULY 28, 2016 VOL. 375 NO. 4

Liraglutide and Cardiovascular Outcomes in Type 2 Diabetes

Steven P. Marso, M.D., Gilbert H. Daniels, M.D., Kirstine Brown-Frandsen, M.D., Peter Kristensen, M.D., E.M.B.A.,

ORIGINAL ARTICLE

Semaglutide and Cardiovascular Outcomes in Patients with Type 2 Diabetes

Steven P. Marso, M.D., Stephen C. Bain, M.D., Agostino Consoli, M.D.,

Dulaglutide and cardiovascular outcomes in type 2 diabetes (REWIND): a double-blind, randomised placebo-controlled trial

*Hertzel C Gerstein, Helen M Colhoun, Gilles R Dagenais, Rafael Diaz, Mark Lakshmanan, Prem Pais, Jeffrey Probstfield, Jeffrey S Riesmeyer, Matthew C Riddle, Lars Rydén, Denis Xavier, Charles Messan Atisso, Leanne Dyal, Stephanie Hall, Purnima Rao-Melacini, Gloria Wong, Alvaro Avezum, Jan Basile, Namsik Chung, Ignacio Conget, William C Cushman, Edward Franek, Nicolae Hancu, Markolf Hanefeld, Shaun Holt, Petr Jansky, Matyas Keltai, Fernando Lanas, Lawrence A Leiter, Patricio Lopez-Jaramillo, Ernesto German Cardona Munoz, Valdis Pirags, Nana Pogosova, Peter J Raubenheimer, Jonathan E Shaw, Wayne H-H Sheu, Theodora Temelkova-Kurktschiev, for the REWIND Investigators**

Summary

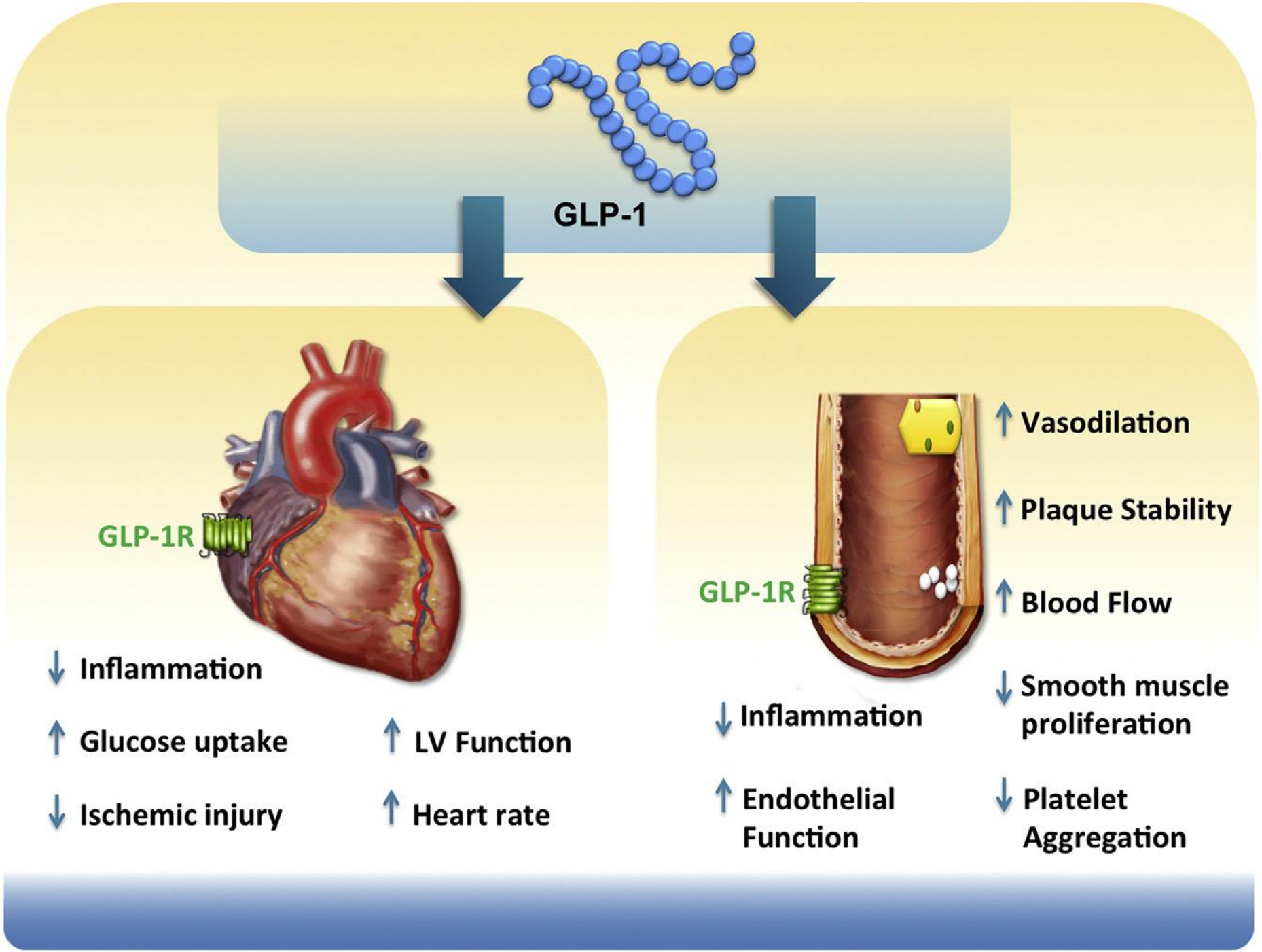
Background Three different glucagon-like peptide-1 (GLP-1) receptor agonists reduce cardiovascular outcomes in

Lancet 2019; 394: 121–30

	Liraglutide Leader 2016	SQ Semaglutide Sustain 2016	Dulaglutide Rewind 2019
Patients	81% ASCVD	72% ASCVD	31% ASCVD
MACE Hazard ratio	0.87 (0.78-0.97)	0.74 (0.58-0.95)	0.88 (0.79-0.99)
HHF Hazard Ratio	0.87 (0.73-1.05)	1.11 (.77-1.61)	0.93 (0.77-1.12)
Macro-albuminuria Hazard Ratio	0.74 (0.60-0.91)	0.54 (0.37-0.57)	0.77 (0.68-0.87)

GLP1-RA and ↓ MACE: Mechanism of Action

- GLP1-RA…
  - Lower Blood Glucose
  - Lower Weight
  - Lower Blood pressure
- ↓ MACE
  - Effects on Blood Glucose, Weight, Blood Pressure: Certainly contribute
  - However, the overall effect on MACE is out of proportion to the Blood Glucose, Weight, BP effects seen w these medications
  - There are felt to be Direct Mechanisms that are cardioprotective



Daniel J. Drucker[1,*]

Cell Metabolism *24*, July 12, 2016

GLP1-RA- Patient Selection

- Ideal patient
  - Hx ASCVD
  - Overweight
  - Important to avoid hypoglycemia
  - Needs significant A1c lowering
  - Liraglutide, Dulaglutide, Semaglutide- not cleared by the kidney, can use w low GFR
- Avoid if History of
  - Gastroparesis
  - Pancreatitis
  - Medullary Thyroid Cancer or MEN2
- Side Effects / Warnings
  - N/V/D. Stop if anything more than mild
  - Severe abdominal pain: Acute Gallstone Disease, Pancreatitis
  - Retinopathy (Semaglutide, likely because it is the strongest)

GLP1-RA- Prescribing

- Liraglutide SQ
  - 0.6mg daily for 2 weeks => 1.2mg daily automatically; 1.8mg if needed
  - Small pen needle, 32 gauge 4mm
  - Significant GI effects possible
- Dulaglutide SQ
  - Less GI side effects
  - Weekly instead of daily
  - 0.75 mg once weekly; 1.5 mg if needed
  - Device is great: single use
  - Needle is embedded: patient never has to handle or see the needle
  - Dispense #4 for one month
- Semaglutide SQ (or po)
  - 0.25mg weekly for 4 weeks => 0.5mg weekly automatically; 1.0 mg weekly if needed
  - Oral
    - 3mg => 7mg at 4 weeks; 14mg daily if needed
    - ≥ 30 min before the first meal, solo, daily

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SGLT2i

- Sodium Glucose Co-Transporter 2 Inhibitor
  - SGLT2 is in the proximal tube
    - Responsible for the majority of reabsorption of filtered glucose
    - Blocking SGLT2 => Excretion of more glucose in the urine
  - Increases Glycosuria
    - Leads to Weight Loss
    - Lowers Blood Glucose

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes

Bernard Zinman, M.D., Christoph Wanner, M.D., John M. Lachin, Sc.D.,

EMPAREG 2015

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Canagliflozin and Cardiovascular and Renal Events in Type 2 Diabetes

Bruce Neal, M.B., Ch.B., Ph.D., Vlado Perkovic, M.B., B.S., Ph.D.,

CANVAS 2017

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Dapagliflozin and Cardiovascular Outcomes in Type 2 Diabetes

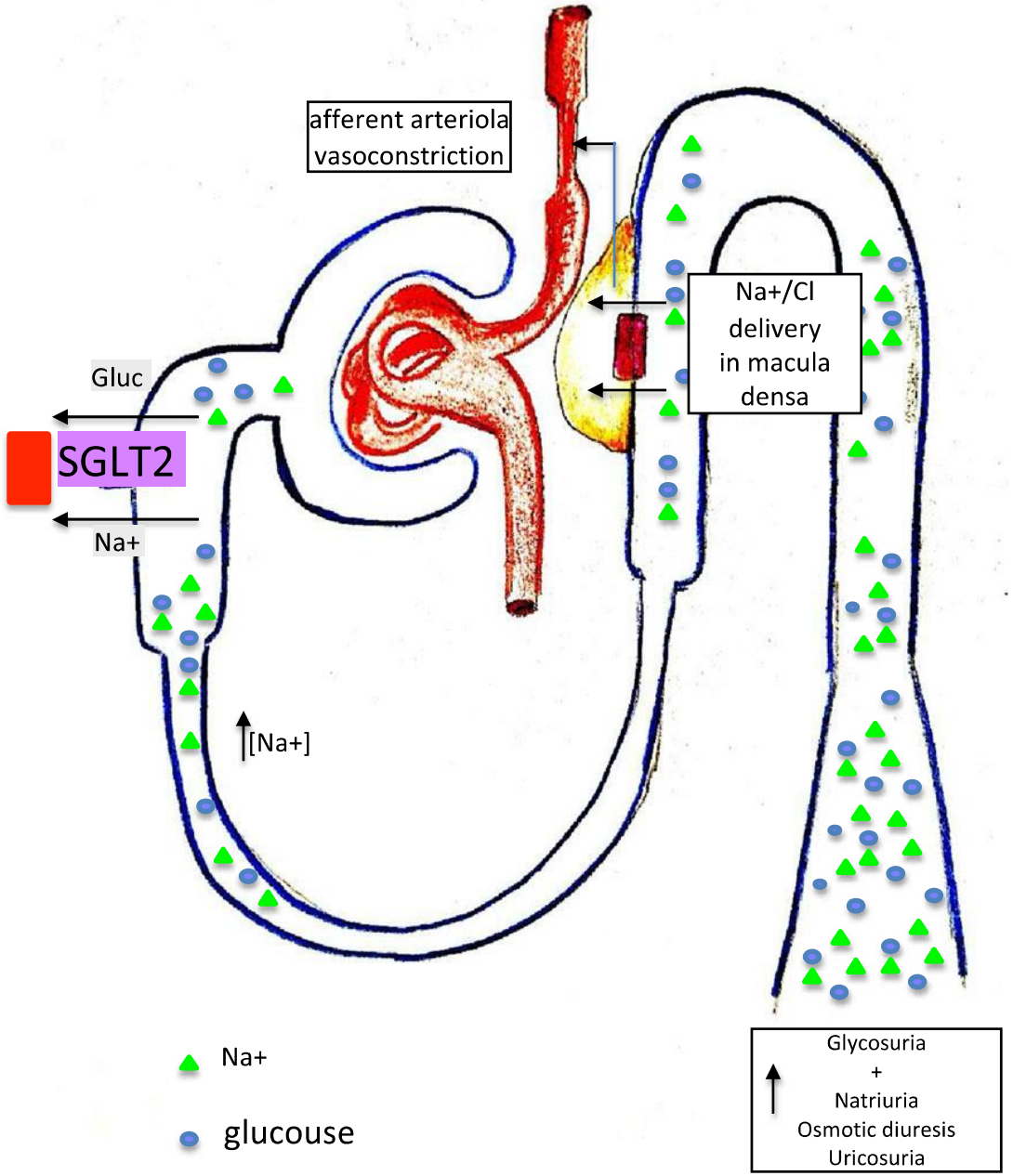
S.D. Wiviott, I. Raz, M.P. Bonaca, O. Mosenzon, E.T. Kato, A. Cahn, M.G. Silverman,

DECLARE TIMI-58 2019

	Empagliflozin 2015	Canagliflozin 2017	Dapagliflozin Declare 2019	Ertugliflozin
Patients	100% ASCVD	72% ASCVD	% 40 ASCVD	100% ASCVD
MACE Hazard ratio	0.86 (0.74-0.99)	0.86 (0.75-0.97)	0.93 (0.84-1.02)	0.97 (0.85-1.11)
HHF Hazard Ratio	0.65 (0.50-0.85)	0.67 (0.52-0.87)	0.73 (0.61-0.88)	0.70 (0.54-0.90)
Renal Outcome Hazard Ratio	0.61 (0.53-70) Macro,2xCr,RRT,RD.	0.60 (0.47-0.77) 0.4GFR,RRT,RD	0.53 (0.43-0.66) 0.4GFR, ESRD, RD	0.81 (0.63-1.04) 2Cr,RRT,RD

SGLT2i and ↓ CKD, hHF: Mechanism of Action

- Like with GLP1-RA, SGLT2i:
  - Lower Blood Glucose
  - Lower Weight
  - Lower Blood Pressure
- Also, like GLP1-RA, the ↓ in CKD and hHF
  - Are out of proportion to SGLT2i's effect on Blood Glucose, Weight, Blood Pressure
  - There are felt to be direct effects that are Cardio and Renal Protective



Glycosuria
Blood sugar goes down
Insulin levels go down
Weight loss

Natriuresis
Reduced intraglomerular pressure, proteinuria
Lower Blood Pressure

hHF MOA?
Decrease Insulin / Glucagon Ratio =>
Increase Ketone Bodies

Heart Failure Reviews
https://doi.org/10.1007/s10741-020-10024-2

SGLT2i- Patient Selection

- Ideal patient
  - Hx ASCVD
  - Hx CKD (of note, GFR can’t be too low)
  - Hx CHF
  - Overweight
  - Important to avoid hypoglycemia
- Avoid if
  - A1c >9%
  - Hx of GU infections; At risk for GU infections
  - Have or at risk for foot infections
- Side Effects / Warnings
  - GU infections: Yeast infections, UTIs, Fournier’s gangrene
  - eDKA: sick day warnings
  - Lower Limb amputation: only w canagliflozin

Empaglifozin CVOT

Table 2. Adverse Events.*

Event	Placebo (N=2333)	Empagliflozin, 10 mg (N=2345)	Empagliflozin, 25 mg (N=2342)	Pooled Empagliflozin (N=4687)
		number of patients (percent)		
Diabetic ketoacidosis¶¶	1 (<0.1)	3 (0.1)	1 (<0.1)	4 (0.1)

Table 2. Adverse Events.*

Event	Canagliflozin	Placebo	P Value†
	event rate per 1000 patient-yr		
Diabetic ketoacidosis (adjudicated)	0.6	0.3	0.14

Table 2. Safety Events.*

Event	Dapagliflozin (N=8574)	Placebo (N=8569)	Hazard Ratio (95% CI)	P Value
	no. (%)			
Diabetic ketoacidosis	27 (0.3)	12 (0.1)	2.18 (1.10–4.30)	0.02

SGLT2i- Patient Selection

- Ideal patient
  - Hx ASCVD
  - Hx CKD (but GFR can't be too low, CKD 3a is a sweet spot, GFR 45-59)
  - Hx CHF
  - Overweight
  - Important to avoid hypoglycemia
- Avoid if
  - A1c >9%
  - Hx of GU infections; At risk for GU infections
  - Have or at risk for foot infections
- Side Effects / Warnings
  - GU infections: Yeast infections, UTIs, Fournier's gangrene
  - DKA: sick day warnings
  - Lower Limb amputation: only w canagliflozin

Table 2. Adverse Events.*

Event	Canagliflozin	Placebo	P Value†
	event rate per 1000 patient-yr		
Amputation	6.3	3.4	<0.001

During the trial, an increased risk of lower limb amputation was identified in another trial of canagliflozin.5 A protocol amendment for the present trial in May 2016 asked investigators to examine patients' feet at each trial visit and temporarily interrupt the assigned treatment in patients with any active condition that might lead to amputation.

Table 2. Efficacy and Safety.*

Variable	Canagliflozin	Placebo	Canagliflozin	Placebo	Hazard Ratio (95% CI)	P Value
	no./total no.		*events/ 1000 patient-yr*			
Amputation	70/2200	63/2197	12.3	11.2	1.11 (0.79–1.56)	NA

SGLT2i- Prescribing

- Empagliflozin
  - 10mg daily
  - Sometimes I increase to 25mg
  - May notice increased UOP, Stay hydrated, Take it in the morning
  - Can lower BP a few points (usually good, but if borderline BP to begin with use w caution)
  - LMK if you have a GU infection
  - Sick day precautions
  - I don't prescribe unless A1c <10% and on its way to 9%
- Dapagliflozin
  - 5mg daily
  - Can go to 10mg if needed
- Canagliflozin
  - 100mg daily before the first meal of the day
  - 300mg if needed

	Empagliflozin 2015	Canagliflozin 2017	Dapagliflozin Declare 2019	Ertugliflozin
Patients	100% ASCVD	72% ASCVD	% 40 ASCVD	100% ASCVD
MACE Hazard ratio	0.86 (0.74-0.99)	0.86 (0.75-0.97)	0.93 (0.84-1.02)	0.97 (0.85-1.11)
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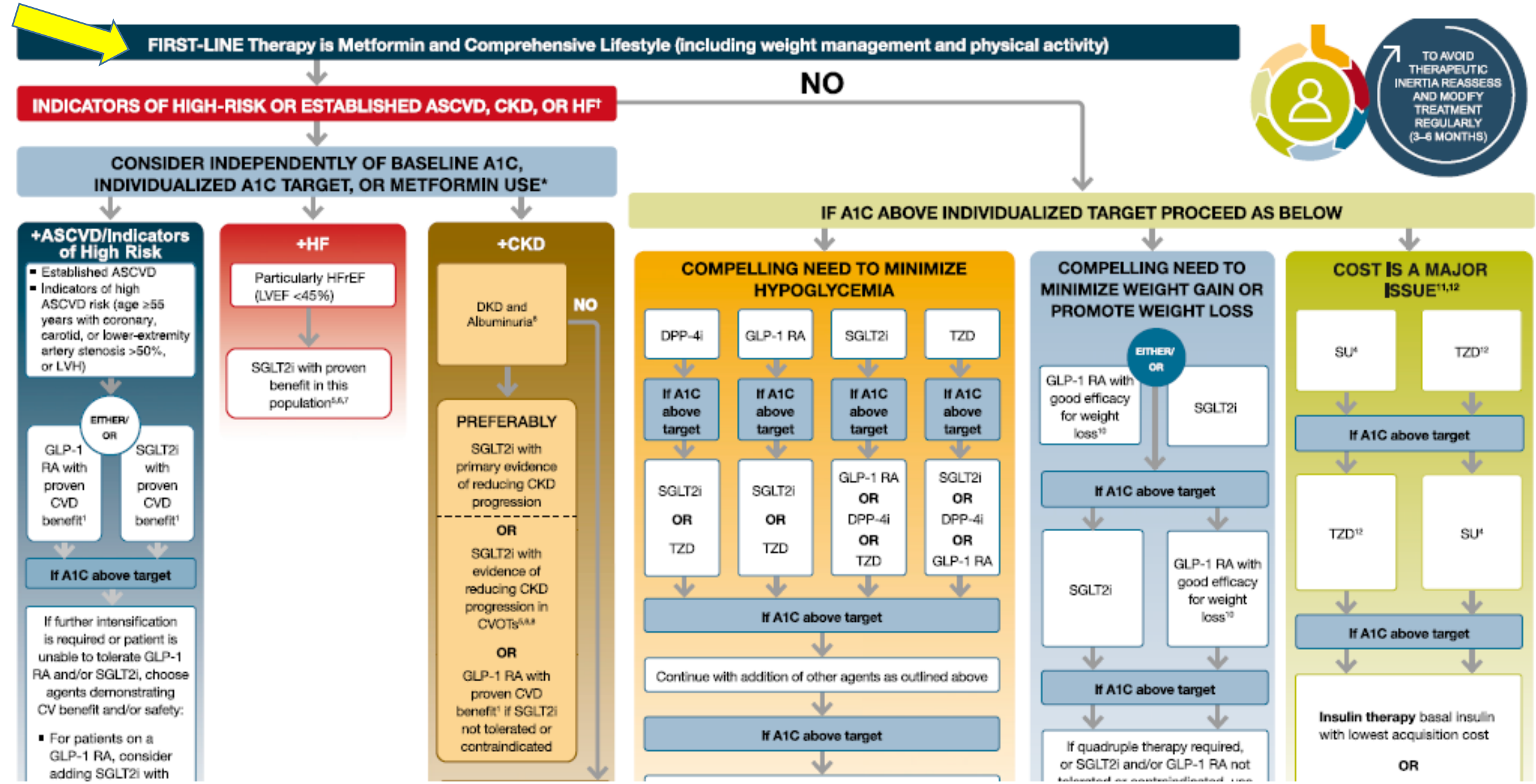
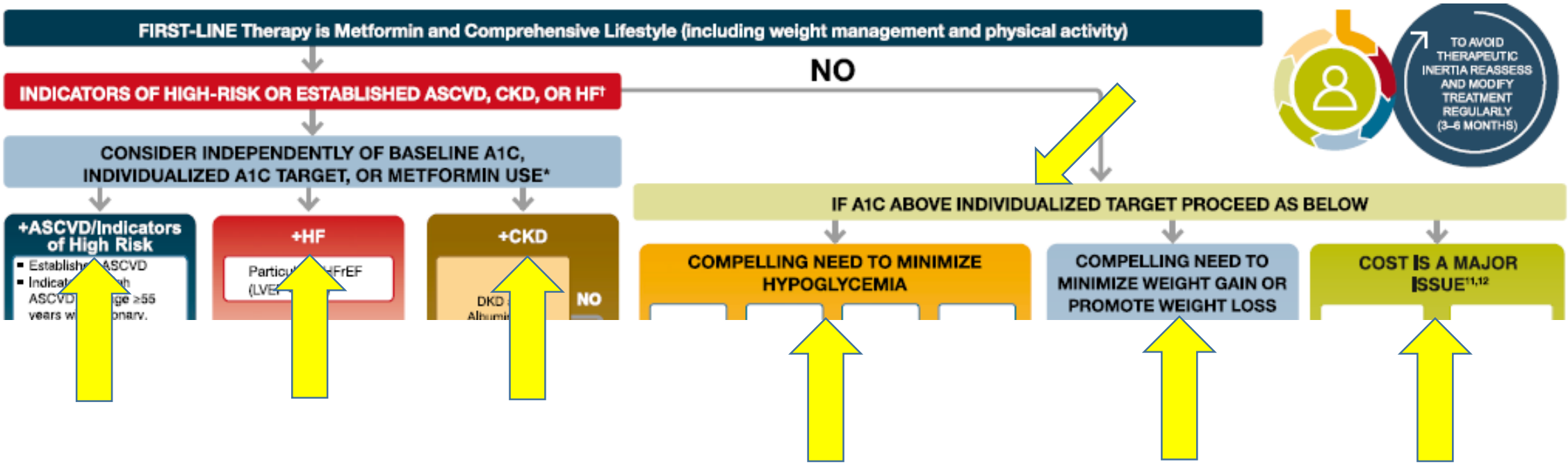


FIGURE 9.1 Glucose-lowering medication in type 2 diabetes: 2021 ADA Professional Practice Committee adaptation of Davies MJ, D'Alessio DA, Fradkin J, et al. Diabetes Care 2018;41: 2669–2701 and Buse JB, Wexler DJ, Tsapas A, et al. Diabetes Care 2020;43:487–493. For appropriate context, see Figure 4.1. In this version, the "Indicators of high-risk or established ASCVD, CKD, or HF" pathway was adapted based on trial populations studied. DPP-4i, DPP-4 inhibitor; GLP-1 RA, GLP-1 receptor agonist; LVEF, left ventricular ejection fraction; SGLT2i, SGLT2 inhibitor; SU, sulfonylurea; T2D, type 2 diabates; TZD, thiazolidinedione.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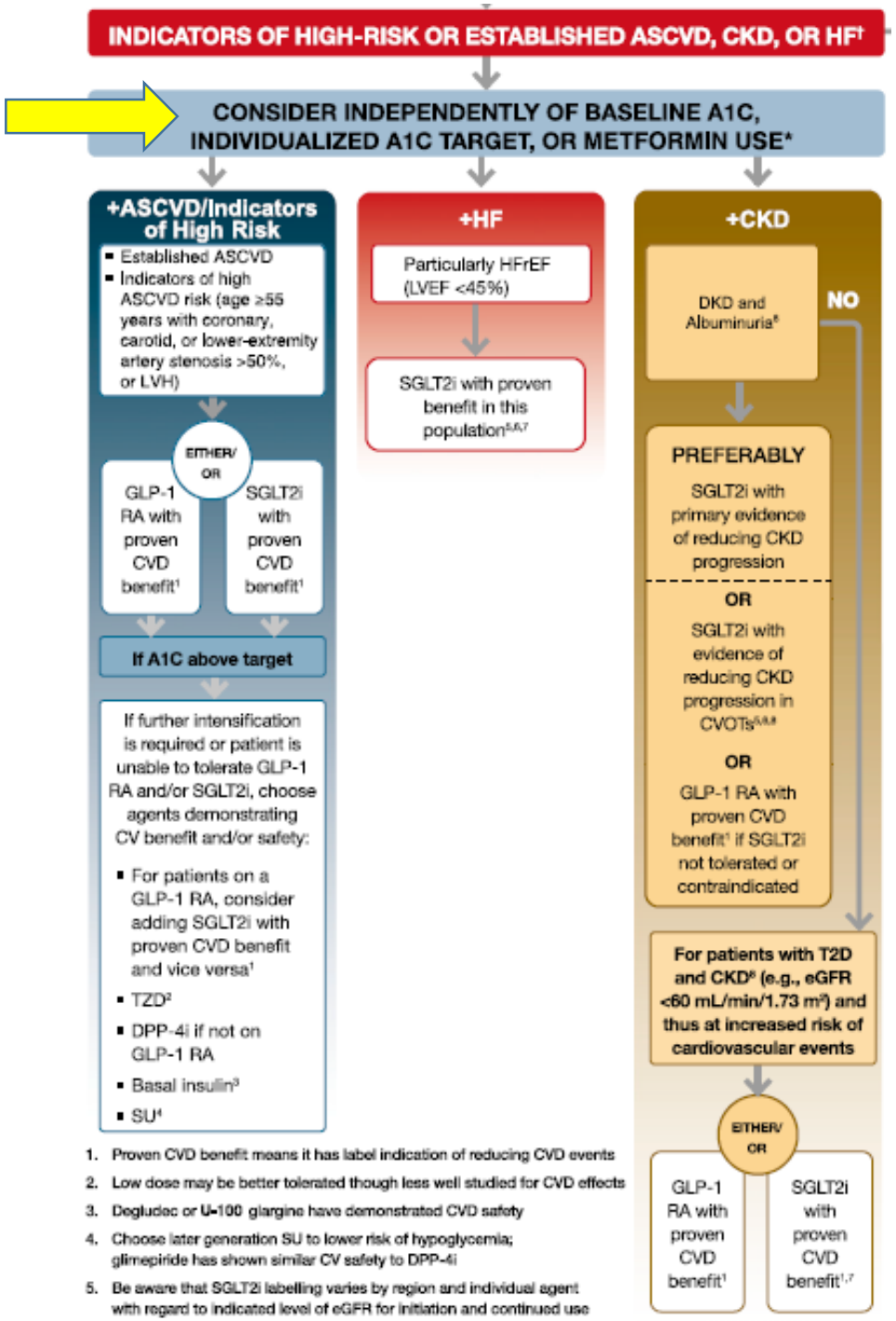
INDICATORS OF HIGH-RISK OR ESTABLISHED ASCVD, CKD, OR HF†
NO
CONSIDER INDEPENDENTLY OF BASELINE A1C, INDIVIDUALIZED A1C TARGET, OR METFORMIN USE*
TO AVOID THERAPEUTIC INERTIA REASSESS AND MODIFY TREATMENT REGULARLY (3–6 MONTHS)
+ASCVD/Indicators of High Risk
+HF
+CKD
NO
IF A1C ABOVE INDIVIDUALIZED TARGET PROCEED AS BELOW
COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA
COMPELLING NEED TO MINIMIZE WEIGHT GAIN OR PROMOTE WEIGHT LOSS
COST IS A MAJOR ISSUE[11,12]



ASCVD:

Either one

GLP1-RA -or- SGLT2i

HF:

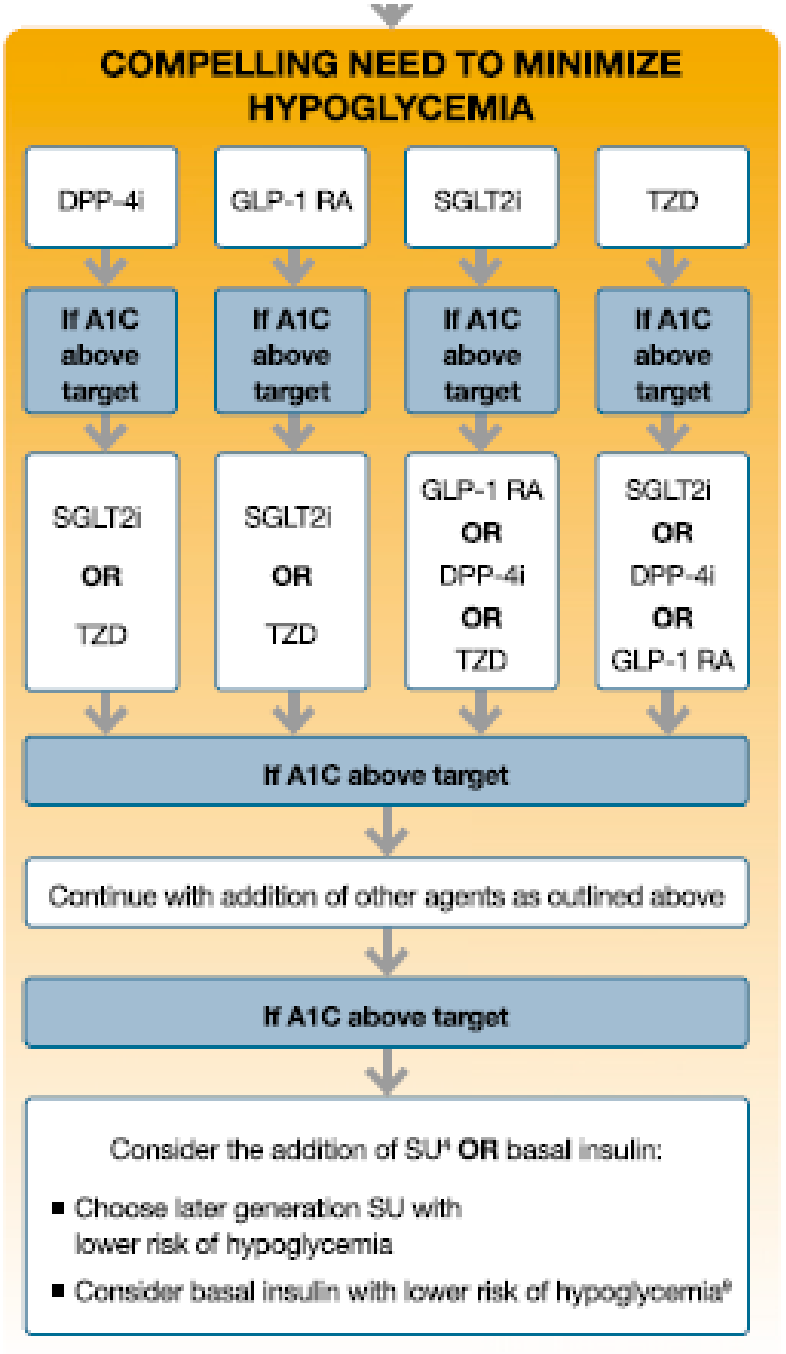
SGLT2i

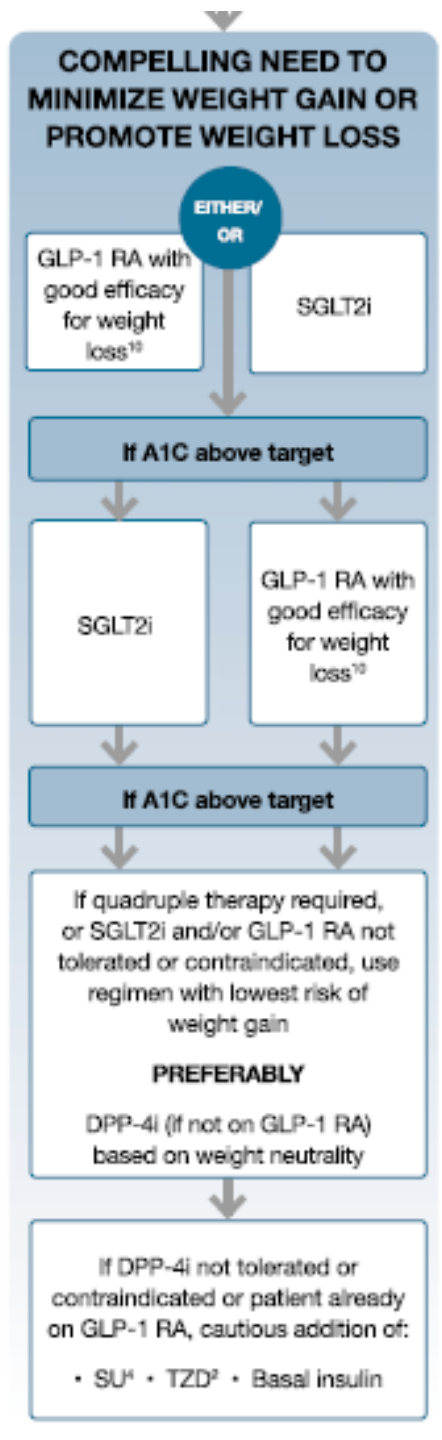
(GLP1-RA while cardioprotective in other ways do not specifically have protection against CHF)

CKD:

SGLT2i

If patient cannot be on an SGLT2i, then use a GLP1-RA


COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA
DPP-4i
GLP-1 RA
SGLT2i
TZD
If A1C above target
If A1C above target
If A1C above target
If A1C above target
SGLT2i OR TZD
SGLT2i OR TZD
GLP-1 RA OR DPP-4i OR TZD
SGLT2i OR DPP-4i OR GLP-1 RA
If A1C above target
Continue with addition of other agents as outlined above
If A1C above target
Consider the addition of SU[a] OR basal insulin:
Choose later generation SU with lower risk of hypoglycemia
Consider basal insulin with lower risk of hypoglycemia[a]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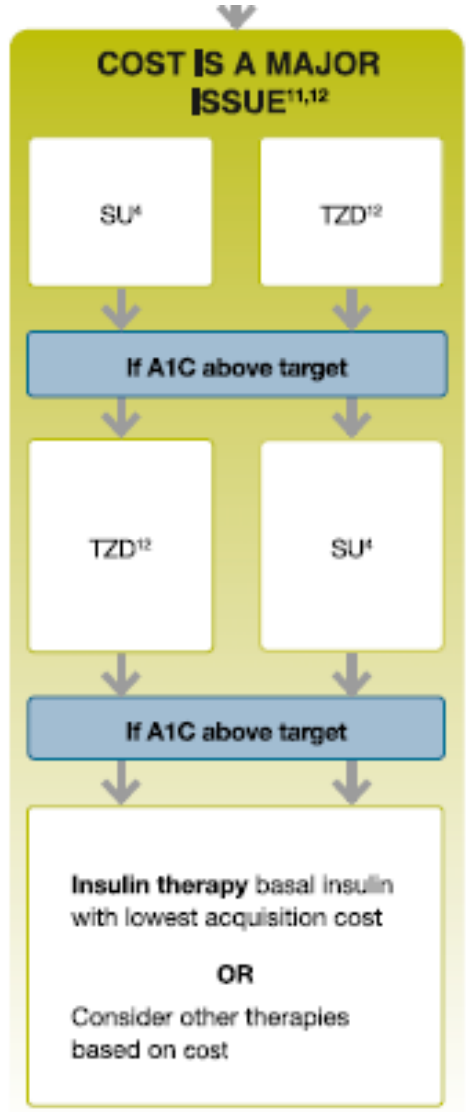
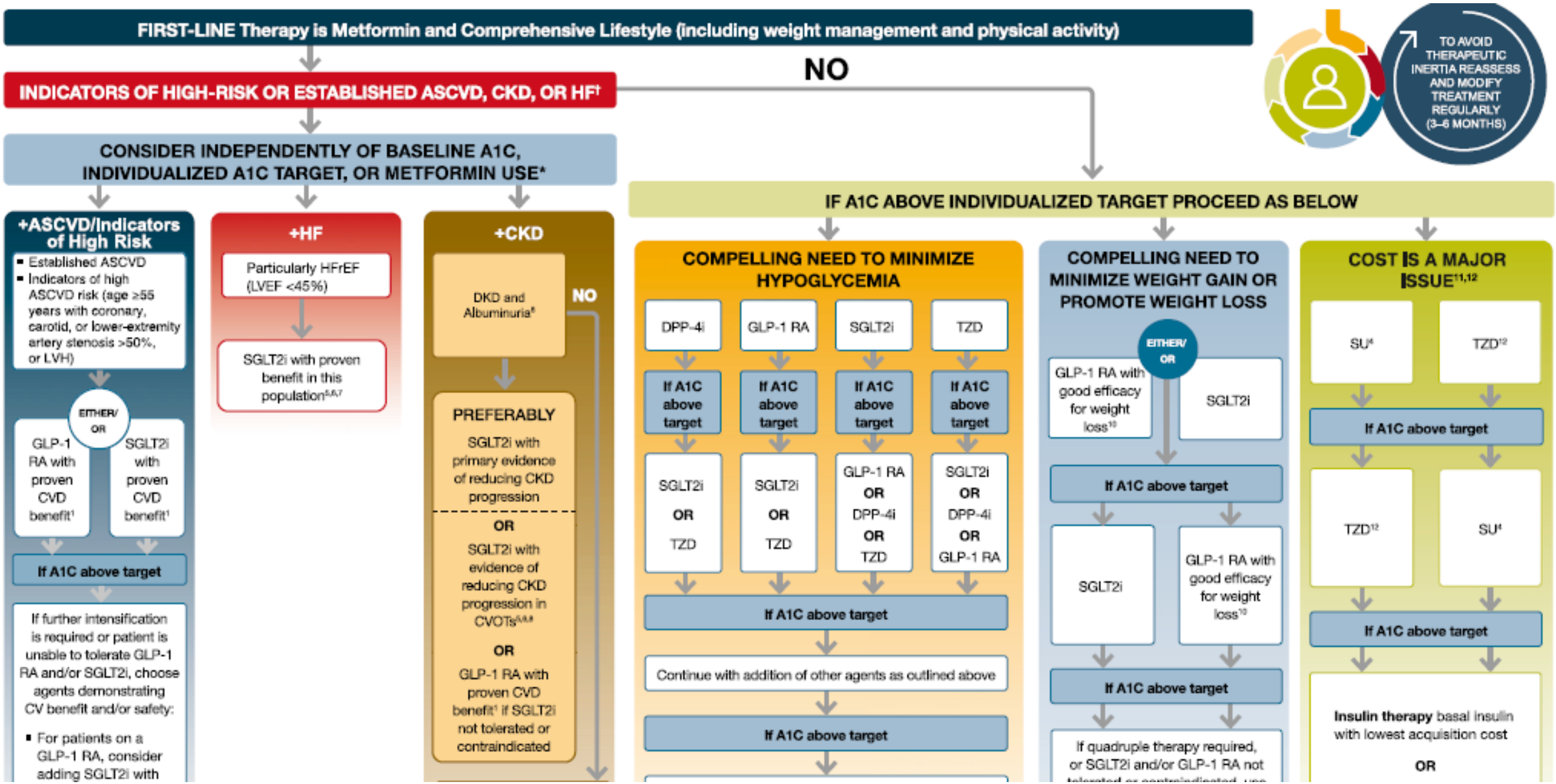
SGLT2i
If A1C above target
SGLT2i
GLP-1 RA with good efficacy for weight loss[10]
If A1C above target
If quadruple therapy required, or SGLT2i and/or GLP-1 RA not tolerated or contraindicated, use regimen with lowest risk of weight gain
PREFERABLY
DPP-4i (if not on GLP-1 RA) based on weight neutrality
If DPP-4i not tolerated or contraindicated or patient already on GLP-1 RA, cautious addition of:
• SU[4] • TZD[2] • Basal insulin


COST IS A MAJOR ISSUE[11,12]
SU[4]
TZD[12]
If A1C above target
TZD[12]
SU[4]
If A1C above target
Insulin therapy basal insulin with lowest acquisition cost
OR
Consider other therapies based on cost

To select the best anti-glycemic medications..... We have to know: Co-Morbidities

- Epic
  - T2DM
  - Overview
- Overview
  - BMI
  - CKD (gfr 54, uacr 15)
  - CAD (NSTEMI, PCI, CABG)
  - CHF (HFpEF, HFrEF)
  - Hypoglycemia unawareness
  - Cost is an issue
  - Retinopathy
  - 10 year ASCVD risk score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CONSIDER INDEPENDENTLY OF BASELINE A1C, INDIVIDUALIZED A1C TARGET, OR METFORMIN USE*
IF A1C ABOVE INDIVIDUALIZED TARGET PROCEED AS BELOW
+ASCVD/Indicators of High Risk
Established ASCVD
Indicators of high ASCVD risk (age ≥55 years with coronary, carotid, or lower-extremity artery stenosis >50%, or LVH)
EITHER/ OR
GLP-1 RA with proven CVD benefit[1]
SGLT2i with proven CVD benefit[1]
If A1C above target
If further intensification is required or patient is unable to tolerate GLP-1 RA and/or SGLT2i, choose agents demonstrating CV benefit and/or safety:
For patients on a GLP-1 RA, consider adding SGLT2i with
+HF
Particularly HFrEF (LVEF <45%)
SGLT2i with proven benefit in this population[5,6,7]
+CKD
DKD and Albuminuria[8]
NO
PREFERABLY
SGLT2i with primary evidence of reducing CKD progression
OR
SGLT2i with evidence of reducing CKD progression in CVOTs[5,6,8]
OR
GLP-1 RA with proven CVD benefit[1] if SGLT2i not tolerated or contraindicated
COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA
DPP-4i
GLP-1 RA
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If A1C above target
SGLT2i OR TZD
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SGLT2i OR DPP-4i OR GLP-1 RA
If A1C above target
Continue with addition of other agents as outlined above
If A1C above target
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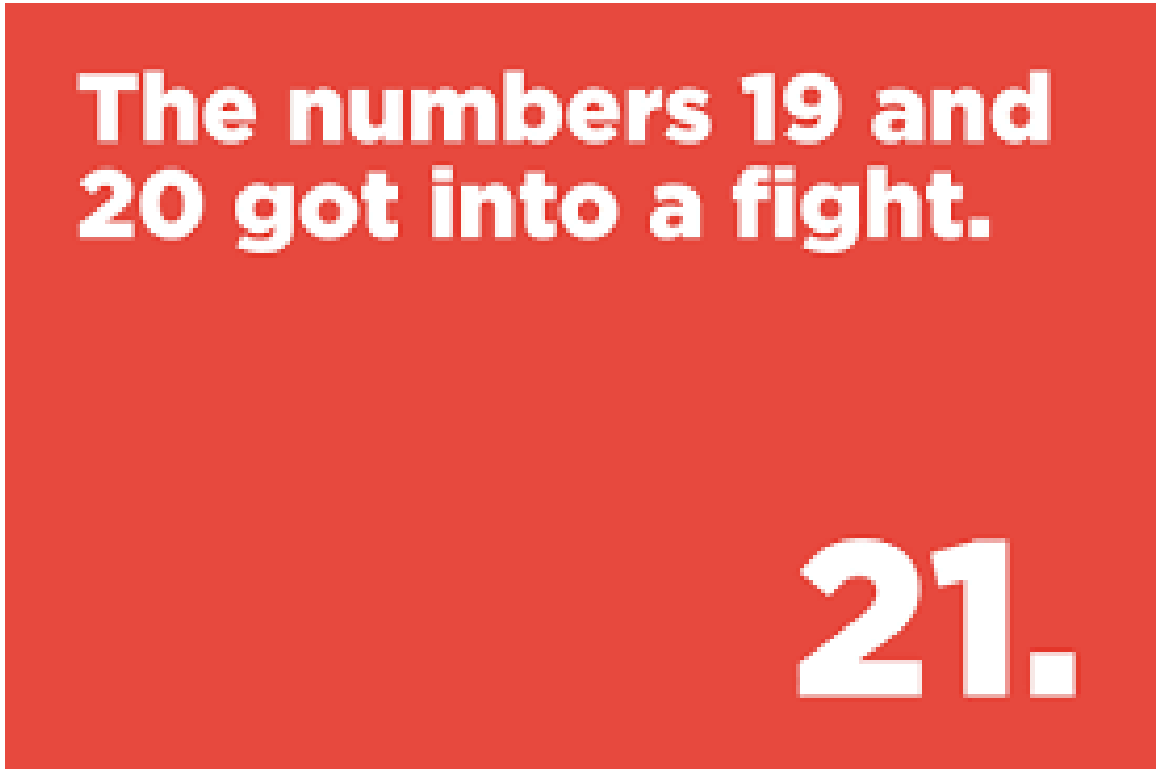
COST IS A MAJOR ISSUE[11,12]
SU[4]
TZD[12]
If A1C above target
TZD[12]
SU[4]
If A1C above target
Insulin therapy basal insulin with lowest acquisition cost
OR

Pop Quiz

- 47 T2DM, metformin, BMI 42
  - GLP1-RA > SGLT2i (add both with time)
- 65, T2DM, Metformin, A1c 10%, Cost is a big issue
  - SU and TZD
- 59 w T2DM on Metformin w hx STEMI, PCI, No CHF, A1c 9%
  - GLP1-RA or SGLT2i
- 59 w T2DM on Metformin w hx STEMI, PCI, w resultant ICM 35%, A1c 9%
  - Which one first? SGLT2i but then GLP1-RA
- 59 w T2DM on Metformin and GFR 58 w UACR 110, A1c of
  - 12%: GLP1-RA first and once A1c closer to 9% add on an SGLT2i
  - 8.5%: SGLT2i first and later on consider a GLP1-RA

Intellectual Break



Blood Glucose -> Blood Pressure

- Goals
- Medications
- Pop Quiz Questions

Blood Pressure: Goals

- What 2 blood pressure goals do we hear about:
  - <140/90
  - <130/80
- Which is the goal?
  - Both
    - IT DEPENDS ON THE RISK OF THE PATIENT…

Blood Pressure: Goals

Treatment Goals

10.3 For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses CV risk, potential adverse effects of antihypertensive medications, and patient preferences. C

10.4 For individuals with diabetes and hypertension at higher CV risk (existing ASCVD or 10-year ASCVD risk ≥15%), a blood pressure target of <130/80 mmHg may be appropriate, if it can be safely attained. C

10.5 For individuals with diabetes and hypertension at lower risk for CVD (10-year ASCVD risk <15%), treat to a blood pressure target of <140/90 mmHg. A

Blood Pressure: Goals

Treatment Goals

10.3 For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses CV risk, potential adverse effects of antihypertensive medications, and patient preferences. C

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Blood Pressure: Goals
POP QUIZ

- Q1: re- The blood pressure goal in lower risk patients with diabetes
  - What 10 year ASCVD risk score is considered lower risk?
    - <15%
  - What is the blood pressure goal for lower risk patients
    - <140/90
- Q2: re- The blood pressure goal in higher risk patients with diabetes
  - What defines higher risk?
    - 10 year ASCVD score ≥15%
    - Known ASCVD
  - What is the blood pressure goal – to be considered- for higher risk patients?
    - <130/80 MAY be appropriate IF it can be done safely
- General agreement that <140/90 is Grade A evidence
- Where does the debate re <130/80 stem from?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus

The ACCORD Study Group*

ABSTRACT

BACKGROUND

There is no evidence from randomized trials to support a strategy of lowering systolic blood pressure below 135 to 140 mm Hg in persons with type 2 diabetes mellitus. We investigated whether therapy targeting normal systolic pressure (i.e., <120 mm Hg) reduces major cardiovascular events in participants with type 2 diabetes at high risk for cardiovascular events.

METHODS

A total of 4733 participants with type 2 diabetes were randomly assigned to intensive therapy, targeting a systolic pressure of less than 120 mm Hg, or standard therapy, targeting a systolic pressure of less than 140 mm Hg. The primary composite outcome was nonfatal myocardial infarction, nonfatal stroke, or death from cardiovascular causes. The mean follow-up was 4.7 years.

Eligible:
HIGH RISK pts w T2DM
>40 + ASCVD
>55 + ASCVD Risk Factors

Blood Pressure: Sometimes Goal of <130/80

RESULTS

After 1 year, the mean systolic blood pressure was 119.3 mm Hg in the intensive-therapy group and 133.5 mm Hg in the standard-therapy group. The annual rate of the primary outcome was 1.87% in the intensive-therapy group and 2.09% in the standard-therapy group (hazard ratio with intensive therapy, 0.88; 95% confidence interval [CI], 0.73 to 1.06; P=0.20). The annual rates of death from any cause were 1.28% and 1.19% in the two groups, respectively (hazard ratio, 1.07; 95% CI, 0.85 to 1.35; P=0.55). The annual rates of stroke, a prespecified secondary outcome, were 0.32% and 0.53% in the two groups, respectively (hazard ratio, 0.59; 95% CI, 0.39 to 0.89; P=0.01). Serious adverse events attributed to antihypertensive treatment occurred in 77 of the 2362 participants in the intensive-therapy group (3.3%) and 30 of the 2371 participants in the standard-therapy group (1.3%) (P<0.001).

CONCLUSIONS

In patients with type 2 diabetes at high risk for cardiovascular events, targeting a systolic blood pressure of less than 120 mm Hg, as compared with less than 140 mm Hg, did not reduce the rate of a composite outcome of fatal and nonfatal major cardiovascular events. (ClinicalTrials.gov number, NCT00000620.)

Accord: 2 Items to point out…

- SBP <120 vs SBP <130
  - SBP 120 mm Hg in a study = ~ 130 mm Hg in real life

- Everyone in ACCORD was high risk
  - >40 years old with ASCVD
  - >55 years old with ASCVD Risk Factors
    - 10 year ASCVD risk probably high

Blood Pressure: Goals

Treatment Goals

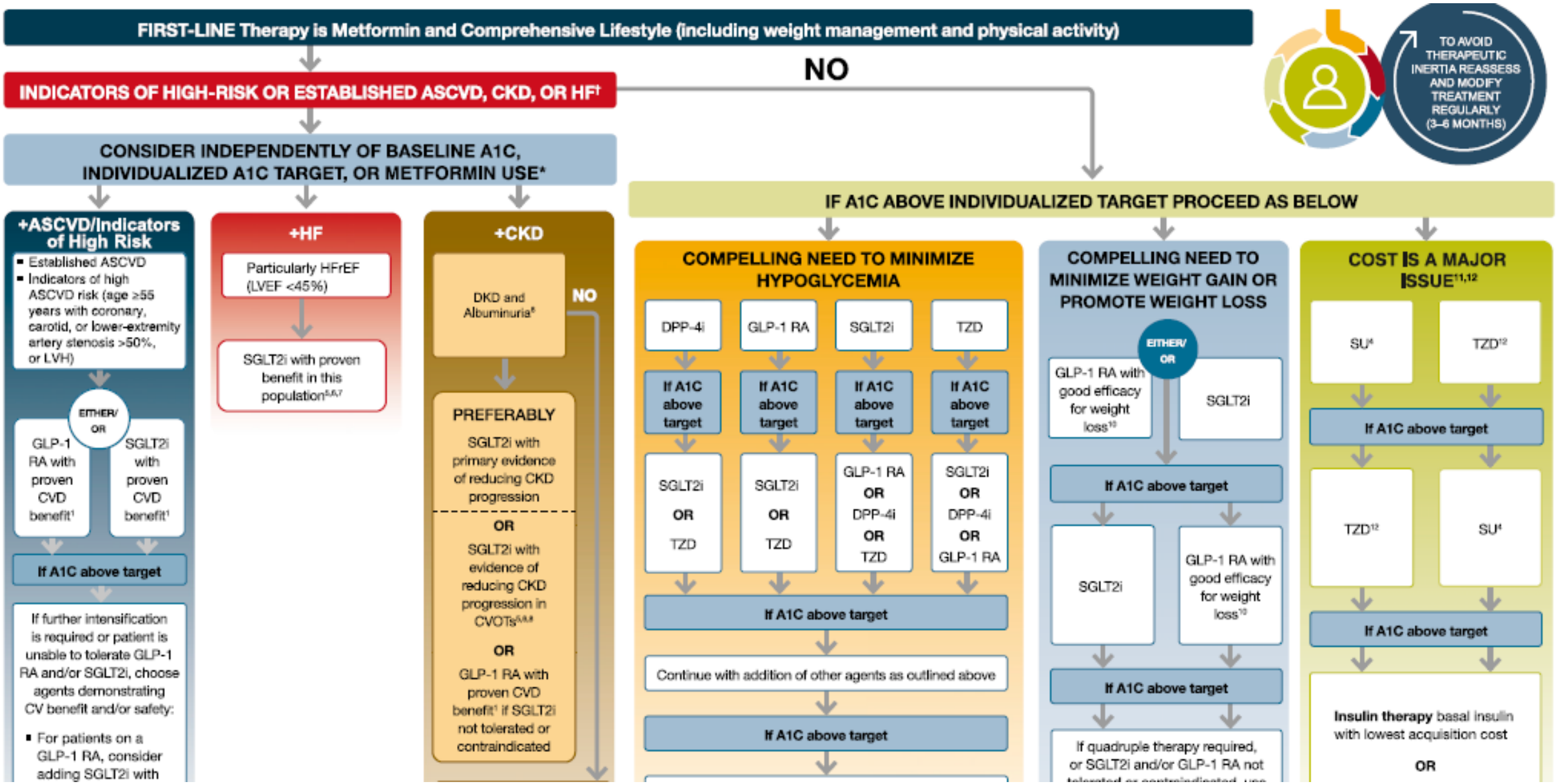
10.3 For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses CV risk, potential adverse effects of antihypertensive medications, and patient preferences. C

10.4 For individuals with diabetes and hypertension at higher CV risk (existing ASCVD or 10-year ASCVD risk ≥15%), a blood pressure target of <130/80 mmHg may be appropriate, if it can be safely attained. C

10.5 For individuals with diabetes and hypertension at lower risk for CVD (10-year ASCVD risk <15%), treat to a blood pressure target of <140/90 mmHg. A

To select the correct BP goal…

The 10 Year ASCVD Risk must be calculated


FIRST-LINE Therapy is Metformin and Comprehensive Lifestyle (including weight management and physical activity)
INDICATORS OF HIGH-RISK OR ESTABLISHED ASCVD, CKD, OR HF†
NO
TO AVOID THERAPEUTIC INERTIA REASSESS AND MODIFY TREATMENT REGULARLY (3–6 MONTHS)
CONSIDER INDEPENDENTLY OF BASELINE A1C, INDIVIDUALIZED A1C TARGET, OR METFORMIN USE*
IF A1C ABOVE INDIVIDUALIZED TARGET PROCEED AS BELOW
+ASCVD/Indicators of High Risk
Established ASCVD
Indicators of high ASCVD risk (age ≥55 years with coronary, carotid, or lower-extremity artery stenosis >50%, or LVH)
EITHER/ OR
GLP-1 RA with proven CVD benefit[1]
SGLT2i with proven CVD benefit[1]
If A1C above target
If further intensification is required or patient is unable to tolerate GLP-1 RA and/or SGLT2i, choose agents demonstrating CV benefit and/or safety:
For patients on a GLP-1 RA, consider adding SGLT2i with
+HF
Particularly HFrEF (LVEF <45%)
SGLT2i with proven benefit in this population[5,6,7]
+CKD
DKD and Albuminuria[8]
NO
PREFERABLY
SGLT2i with primary evidence of reducing CKD progression
OR
SGLT2i with evidence of reducing CKD progression in CVOTs[5,6,8]
OR
GLP-1 RA with proven CVD benefit[1] if SGLT2i not tolerated or contraindicated
COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA
DPP-4i
GLP-1 RA
SGLT2i
TZD
If A1C above target
SGLT2i OR TZD
SGLT2i OR TZD
GLP-1 RA OR DPP-4i OR TZD
SGLT2i OR DPP-4i OR GLP-1 RA
If A1C above target
Continue with addition of other agents as outlined above
If A1C above target
COMPELLING NEED TO MINIMIZE WEIGHT GAIN OR PROMOTE WEIGHT LOSS
EITHER/ OR
GLP-1 RA with good efficacy for weight loss[10]
SGLT2i
If A1C above target
SGLT2i
GLP-1 RA with good efficacy for weight loss[10]
If A1C above target
If quadruple therapy required, or SGLT2i and/or GLP-1 RA not
COST IS A MAJOR ISSUE[11,12]
SU[4]
TZD[12]
If A1C above target
TZD[12]
SU[4]
If A1C above target
Insulin therapy basal insulin with lowest acquisition cost
OR

Blood Pressure: Goals

Treatment Goals

10.3 For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses CV risk, potential adverse effects of antihypertensive medications, and patient preferences. C

10.4 For individuals with diabetes and hypertension at higher CV risk (existing ASCVD or 10-year ASCVD risk ≥15%), a blood pressure target of <130/80 mmHg may be appropriate, if it can be safely attained. C

10.5 For individuals with diabetes and hypertension at lower risk for CVD (10-year ASCVD risk <15%), treat to a blood pressure target of <140/90 mmHg. A

You have to know the
10 year ASCVD Risk Score

Brief comparison: 2017 ACC / AHA HTN Guidelines

Highlights FROM THE 2017 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 Task Force on Clinical Practice Guidelines

New blood pressure targets and treatment recommendations: For years, hypertension was classified as a blood pressure (BP) reading of 140/90 mm Hg or higher, but the updated guideline classifies hypertension as a BP reading of 130/80 mm Hg or higher. The updated guideline also provides new treatment recommendations, which include lifestyle changes as well as BP-lowering medications, as shown in Table 1.

TABLE 1. Classification of BP

BP Category	Systolic BP		Diastolic BP	Treatment or Follow-up
Normal	<120 mm Hg	and	<80 mm Hg	Evaluate yearly; encourage healthy lifestyle changes to maintain normal BP
Elevated	120-129 mm Hg	and	<80 mm Hg	Recommend healthy lifestyle changes and reassess in 3-6 months
Hypertension: stage 1	130-139 mm Hg	or	80-89 mm Hg	Assess the 10-year risk for heart disease and stroke using the atherosclerotic cardiovascular disease (ASCVD) risk calculator • If risk is less than 10%, start with healthy lifestyle recommendations and reassess in 3-6 months • If risk is greater than 10% or the patient has known clinical cardiovascular disease (CVD), diabetes mellitus, or chronic kidney disease, recommend lifestyle changes and BP-lowering medication (1 medication); reassess in 1 month for effectiveness of medication therapy – If goal is met after 1 month, reassess in 3-6 months – If goal is not met after 1 month, consider different medication or titration – Continue monthly follow-up until control is achieved
Hypertension: stage 2	≥140 mm Hg	or	≥90 mm Hg	Recommend healthy lifestyle changes and BP-lowering medication (2 medications of different classes); reassess in 1 month for effectiveness • If goal is met after 1 month, reassess in 3-6 months • If goal is not met after 1 month, consider different medications or titration • Continue monthly follow-up until control is achieved

ADA 2021 Standards

Treatment Goals

10.3 For patients with diabetes and hypertension, blood pressure targets should be individualized through a shared decision-making process that addresses CV risk, potential adverse effects of antihypertensive medications, and patient preferences. C

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Blood Pressure

- Goals
- Medications
- Pop Quiz

Blood Pressure: Medications

10.10 Treatment for hypertension should include drug classes demonstrated to reduce CV events in patients with diabetes. A ACE inhibitors or angiotensin receptor blockers (ARBs) are recommended first-line therapy for hypertension in people with diabetes and coronary artery disease (CAD). A

10.11 Multiple-drug therapy is generally required to achieve blood pressure targets. However, combinations of ACE inhibitors and ARBs and combinations of ACE inhibitors or ARBs with direct renin inhibitors should not be used. A

10.12 An ACE inhibitor or ARB, at the maximum tolerated dose indicated for blood pressure treatment, is the recommended first-line treatment for hypertension in patients with diabetes and urinary albumin-to-creatinine ratio (UACR) ≥300 mg/g creatinine A or 30–299 mg/g creatinine. B If one class is not tolerated, the other should be substituted. B

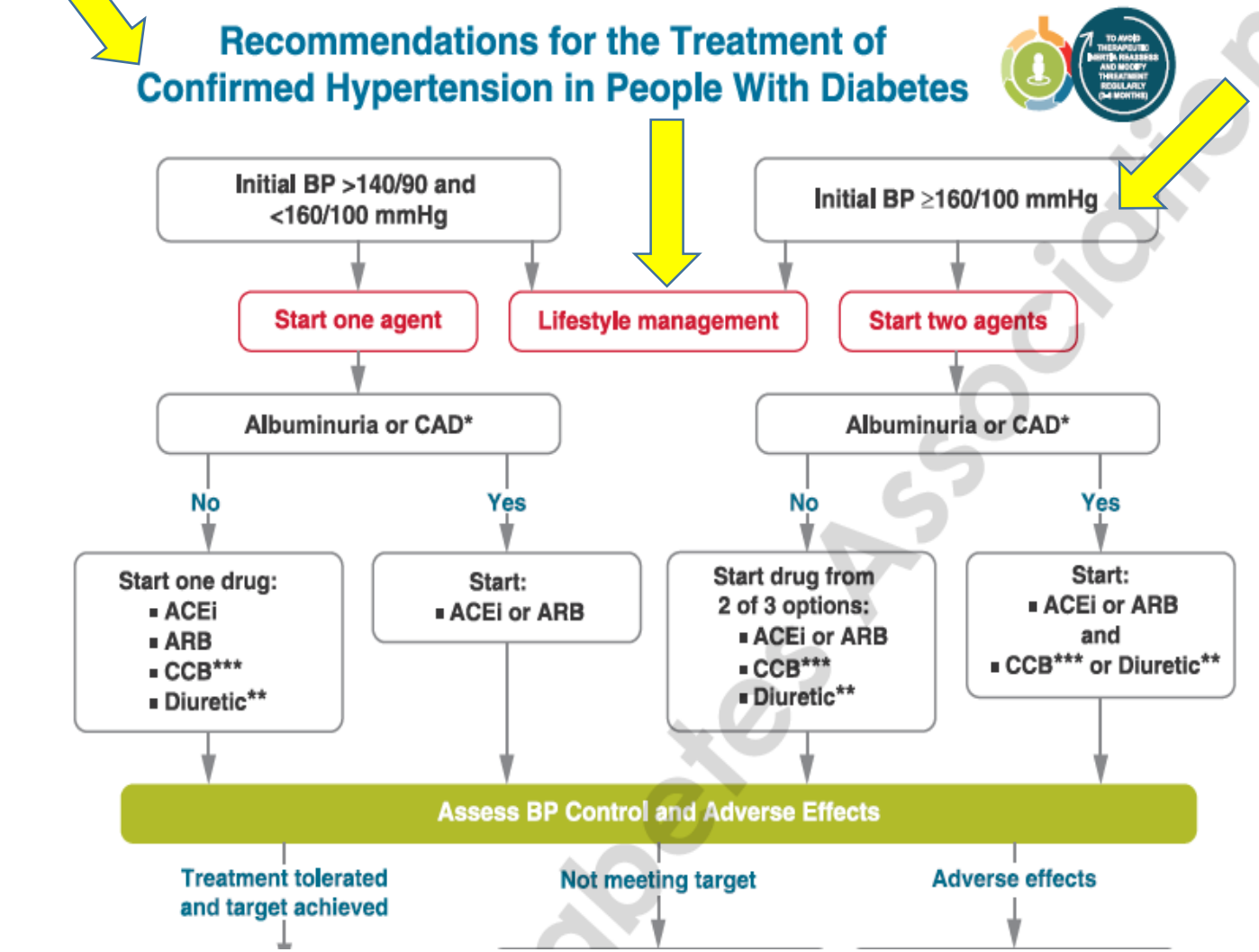
BP Meds that reduce risk of CV events in patient w diabetes
-ACE/ARB
-Calcium Channel Blockers (Dihydropyridine, ex amlodipine)
-Thiazide Diuretics

ACE / ARB are recommended First Line if

- DM + HTN and
  - a history of CAD
  - or
  - UACR ≥30
- Don't use them together

Blood Pressure: Medications

Diabetes Care Volume 44, Supplement 1, January 2021



Blood Pressure
Pop Quiz

- The ADA recommends consideration of a goal of<130/80 if
  - ASCVD 10 year risk score ≥15%
  - The person has a hx of ASCVD
- What are the categories of meds shown to have CV benefit in patients with diabetes?
  - Dihydropyridine Calcium Channel Blockers, ACE/ARB, Thiazide Diuretics
- ACE/ARB should be first line for a person w DM and HTN and what additional conditions
  - Albuminuria ≥30 mg/g
  - Hx CAD

Intellectual Break

Blood Pressure => LDL

LDL: 2021 ADA Recommendations

- Goals
- Treatments
- Pop Quiz Questions

LDL: 2021 ADA Recommendations

- Goals: It is all about risk
- Treatments: Statins, Statins, Statins; but also Ezetimibe and PCSK9i
- Pop Quiz Questions

LDL: 2021 ADA Recommendations

- Goals
- IT IS ALL ABOUT RISK
  - What you prescribe/ What you aim for: It is all about risk of the patient
  - Primary Prevention
    - All patients w T2DM 40-75 A
    - Patients at ‘Higher Risk’ B
    - Patients with a 10 year ASCVD ≥20% C
  - Secondary Prevention
    - T2DM, All Ages, with ASCVD A
    - ASCVD at ‘Very High Risk Using Specific Criteria’ A

LDL: ADA 2021 Statin Rec, Primary Prevention

Statin Treatment

Primary Prevention

Recommendations

10.19 For patients with diabetes aged 40–75 years without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy. **A**

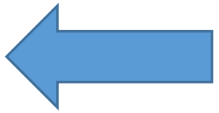
10.20 For patients with diabetes aged 20–39 years with additional ASCVD risk factors, it may be reasonable to initiate statin therapy in addition to lifestyle therapy. **C**

10.21 In patients with diabetes at higher risk, especially those with multiple ASCVD risk factors or aged 50–70 years, it is reasonable to use high-intensity statin therapy. **B**

10.22 In adults with diabetes and 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe to maximally tolerated statin therapy to reduce LDL cholesterol levels by 50% or more. **C**

Everyone w T2DM 40-75 yo

Higher Risk



10 year ≥ 20%

ASCVD: 30%
Starting LDL 150
Goal: LDL 75
Achieved: LDL 90

LDL: 1’ Prevention: What Defines **HIGHER RISK** ?

10.21 In patients with diabetes at higher risk, especially those with multiple ASCVD risk factors or aged 50–70 years, it is reasonable to use high-intensity statin therapy. **B**

- Higher risk =
  - Age 50-70
  - Multiple ASCVD Risk Factors
    - What risk factors?

HTN
Dyslipidemia
Smoking

Family History of Premature ASCVD
Obesity / Overweight
Low GFR
Albuminuria

‘Target’

Statin Treatment

Primary Prevention

Recommendations

10.19 For patients with diabetes aged 40–75 years without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy. **A**

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10.22 In adults with diabetes and 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe to maximally tolerated statin therapy to reduce LDL cholesterol levels by 50% or more. **C**

Everyone w T2DM 40-75

Specific Target: No # Target. ‘Moderate-intensity’ is the Target

Higher Risk

Specific Target: No # Target. ‘High-intensity’ is the Target

10 year ≥ 20%

Specific Target:Lower LDL by ≥50%

LDL Primary Prevention
Pop Quiz Q#1 & 2

- 48 yo woman with T2DM. No Hx ASCVD. Relatively fit. No other ASCVD risk factors. You check an ASCVD (because action is required if the 10 year ASCVD ≥20%) and it is 6%. What type of statin do you start?
  - Moderate-intensity statin Grade A
  - (contraindicated in pregnancy)

- Same 48 yo woman with T2DM. No Hx ASCVD. 10 year risk is still 6%, but this time, her dad had an MI at 51, she herself has a BMI of 32, a GFR of 58, and a UACR of 76. Her ASCVD risk score is the same 6%. What type of statin would you start?
  - Certainly at least moderate-intensity statin
  - 'Consider' a high-intensity statin Grade B

HTN
Dyslipidemia
Smoking

Family History of Premature ASCVD
Obesity / Overweight
Reduced GFR
Albuminuria

Statin Treatment

Primary Prevention

Recommendations

10.19 For patients with diabetes aged 40–75 years without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy. **A**

10.20 For patients with diabetes aged 20–39 years with additional ASCVD risk factors, it may be reasonable to initiate statin therapy in addition to lifestyle therapy. **C**

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10.22 In adults with diabetes and 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe to maximally tolerated statin therapy to reduce LDL cholesterol levels by 50% or more. **C**

48 yo woman, no ASCVD hx, 10 yr ASCVD risk 6%

Scenario 1: otherwise healthy.

Scenario 2: Family Hx, Obesity, GFR 58, UACR 76

LDL Primary Prevention
Pop Quiz Q#3

- 68 yo woman, T2DM, No Hx ASCVD, but this time she has HTN, low HDL, high LDL 160, smokes and her ASCVD score is 28%
  - ASCVD is above the threshold of ≥20%
  - Guidance to add maximally tolerated statin AND…
  - Follow to see if the LDL drops by ≥50%
  - A ≥50% drop would be a follow up LDL of 80 or less

  - 3 months later- LDL dropped to 95
    - You ask yourself:
      - Did the LDL drop by >50%? No
    - Now what
      - Consider adding ezetimibe 10mg

LDL Primary Prevention: Pop Quiz Q#3

Statin Treatment

Primary Prevention

Recommendations

10.19 For patients with diabetes aged 40–75 years without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy. **A**

10.20 For patients with diabetes aged 20–39 years with additional ASCVD risk factors, it may be reasonable to initiate statin therapy in addition to lifestyle therapy. **C**

10.21 In patients with diabetes at higher risk, especially those with multiple ASCVD risk factors or aged 50–70 years, it is reasonable to use high-intensity statin therapy. **B**

10.22 In adults with diabetes and 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe to maximally tolerated statin therapy to reduce LDL cholesterol levels by 50% or more. **C**

68 yo woman
10 year ASCVD risk score is: 28%

Step 1: You stared a high-intensity statin

Step 2: You remembered to look for a ≥50% LDL reduction

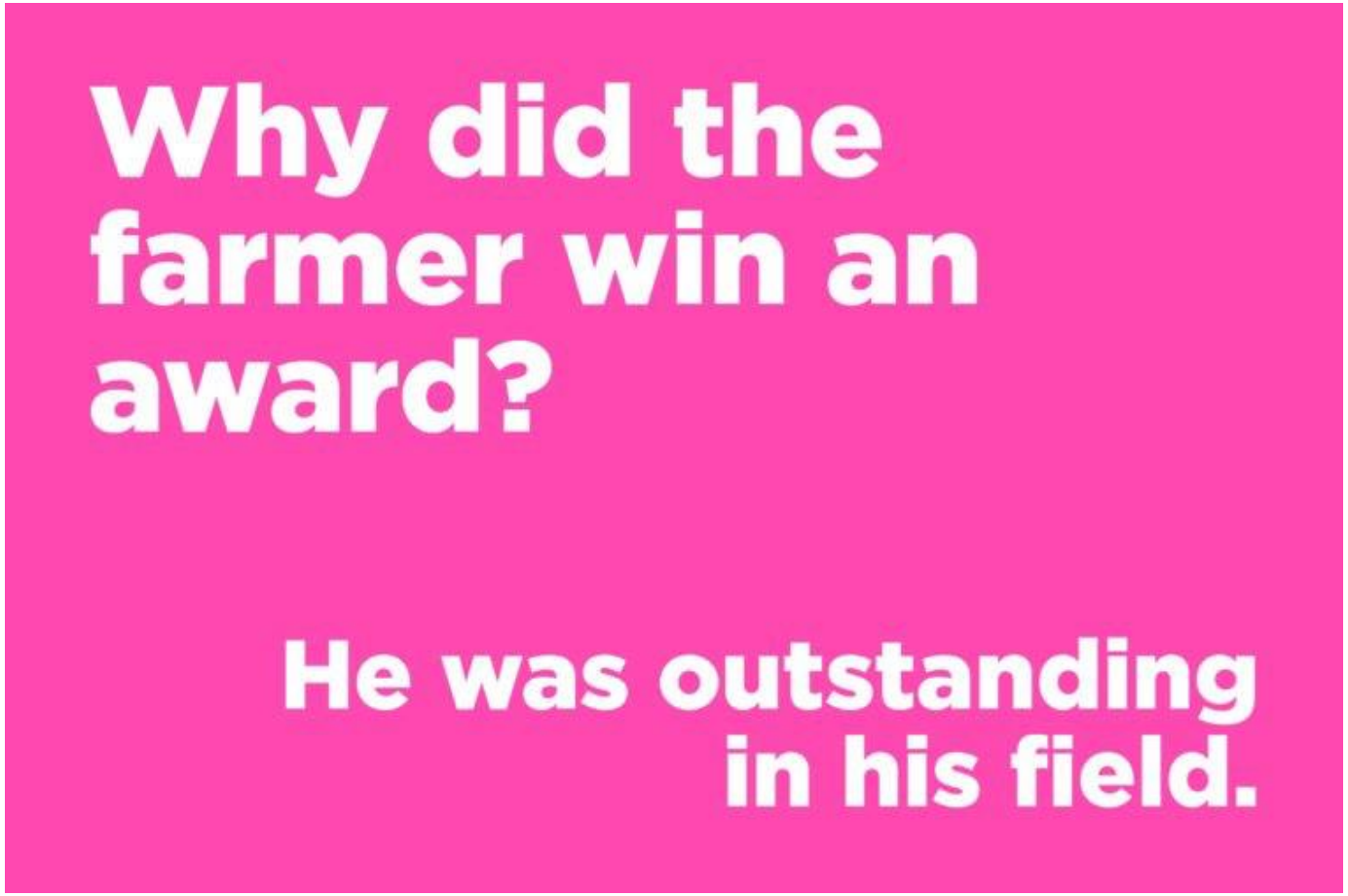
LDL Primary Prevention: Take home points

- Everyone 40-75 gets (at least) a moderate-intensity statin
- But, they need an evaluation for being high risk
  - Calculate a 10 year ASCVD risk score
  - Remember the list of 'high risk' characteristics
  - Discuss if a high-intensity statin should be tried
- If you started a high intensity statin due to
  - A 10 year ASCVD risk score ≥20%
  - Note the starting LDL
  - Look to see if it drops by ≥50%
  - If not, it may be reasonable to add ezetimibe

HTN
Dyslipidemia
Smoking

Family History of Premature ASCVD
Obesity / Overweight
GFR <60
Albuminuria

Intellectual Break



LDL: ADA 2021 Statin Rec, Secondary Prevention

- Simpler
- Primary prevention had 3 risk groups
- Second prevention has only 2 risk groups
  - High potency statin for all
  - In some, aim for an LDL <70 mg/dL

LDL: ADA 2021 Statin Rec, Secondary Prevention

Secondary Prevention

Recommendations

10.23 For patients of all ages with diabetes and ASCVD, high-intensity statin therapy should be added to lifestyle therapy. **A**

10.24 For patients with diabetes and ASCVD considered very high risk using specific criteria, if LDL cholesterol is ≥70 mg/dL on maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor). **A** Ezetimibe may be preferred due to lower cost.

10.25 For patients who do not tolerate the intended intensity, the maximally tolerated statin dose should be used. **E**

Primary Prevention: Multiple ASCVD Risk Factors

HTN
Dyslipidemia
Smoking

Family History of Premature ASCVD
Obesity / Overweight
CKD
Albuminuria

Secondary Prevention: It’s a different list…..

Statin- 2’ Prevention: Definition of Very High Risk

CHOLESTEROL CLINICAL PRACTICE GUIDELINES

2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Statin- 2’ Prevention: Definition of Very High Risk

Table 4. Very High-Risk* of Future ASCVD Events

Major ASCVD Events
Recent ACS (within the past 12 mo)
History of MI (other than recent ACS event listed above)
History of ischemic stroke
Symptomatic peripheral arterial disease (history of claudication with ABI <0.85, or previous revascularization or amputation[S4.1-40])
High-Risk Conditions
Age ≥65 y
Heterozygous familial hypercholesterolemia
History of prior coronary artery bypass surgery or percutaneous coronary intervention outside of the major ASCVD event(s)
Diabetes mellitus
Hypertension
CKD (eGFR 15-59 mL/min/1.73 m^2)[S4.1-15,S4.1-17]
Current smoking
Persistently elevated LDL-C (LDL-C ≥100 mg/dL [≥2.6 mmol/L]) despite maximally tolerated statin therapy and ezetimibe
History of congestive HF

*Very high-risk includes a history of multiple major ASCVD events or one major ASCVD event and multiple high-risk conditions.

ABI indicates ankle-brachial index; ACS, acute coronary syndrome; ASCVD, atherosclerotic cardiovascular disease; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; HF, heart failure; LDL, low-density lipoprotein cholesterol; and MI, myocardial infarction.

LDL Secondary Prevention. Pop Quiz Q#1

- What should my LDL goal be?
  - 75 yo man w T2DM had an MI 3 years ago
  - Already getting a high-potency statin
  - Am I 'very high risk'?

- Answer:
  - Yes, very high risk
  - Goal LDL <70mg/ dL
  - If on: Maximally tolerated statin
  - And: LDL is not < 70mg/ dL
    - Add on ezetimibe first (lower cost)
    - And then a PCSK9i if still not <70

Table 4. Very High-Risk* of Future ASCVD Events

Major ASCVD Events
Recent ACS (within the past 12 mo)
History of MI (other than recent ACS event listed above)
History of ischemic stroke
Symptomatic peripheral arterial disease (history of claudication with ABI <0.85, or previous revascularization or amputation[S4.1-40])
High-Risk Conditions
Age ≥65 y
Heterozygous familial hypercholesterolemia
History of prior coronary artery bypass surgery or percutaneous coronary intervention outside of the major ASCVD event(s)
Diabetes mellitus
Hypertension
CKD (eGFR 15-59 mL/min/1.73 m^2)[S4.1-15,S4.1-17]
Current smoking
Persistently elevated LDL-C (LDL-C ≥100 mg/dL [≥2.6 mmol/L]) despite maximally tolerated statin therapy and ezetimibe
History of congestive HF

LDL: ADA 2021 Statin Rec, Secondary Prevention

Secondary Prevention

Recommendations

10.23 For patients of all ages with diabetes and ASCVD, high-intensity statin therapy should be added to lifestyle therapy. **A**

10.24 For patients with diabetes and ASCVD considered very high risk using specific criteria, if LDL cholesterol is ≥70 mg/dL on maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor). **A** Ezetimibe may be preferred due to lower cost.

10.25 For patients who do not tolerate the intended intensity, the maximally tolerated statin dose should be used. **E**

LDL Secondary Prevention. Pop Quiz Q#2

- What should my LDL goal be?
  - 55 yo man w T2DM had an MI 3 years ago
  - No other 'very high risk' characteristics
- Answer
  - Trick question. No LDL Goal
  - Goal is a High-Intensity statin

Table 4. Very High-Risk* of Future ASCVD Events

Major ASCVD Events
Recent ACS (within the past 12 mo)
History of MI (other than recent ACS event listed above)
History of ischemic stroke
Symptomatic peripheral arterial disease (history of claudication with ABI <0.85, or previous revascularization or amputation[S4.1-40])
High-Risk Conditions
Age ≥65 y
Heterozygous familial hypercholesterolemia
History of prior coronary artery bypass surgery or percutaneous coronary intervention outside of the major ASCVD event(s)
Diabetes mellitus
Hypertension
CKD (eGFR 15-59 mL/min/1.73 m^2)[S4.1-15,S4.1-17]
Current smoking
Persistently elevated LDL-C (LDL-C ≥100 mg/dL [≥2.6 mmol/L]) despite maximally tolerated statin therapy and ezetimibe
History of congestive HF

LDL: ADA 2021 Statin Rec, Secondary Prevention

Secondary Prevention

Recommendations

10.23 For patients of all ages with diabetes and ASCVD, high-intensity statin therapy should be added to lifestyle therapy. **A**

10.24 For patients with diabetes and ASCVD considered very high risk using specific criteria, if LDL cholesterol is ≥70 mg/dL on maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor). **A** Ezetimibe may be preferred due to lower cost.

10.25 For patients who do not tolerate the intended intensity, the maximally tolerated statin dose should be used. **E**

Statin

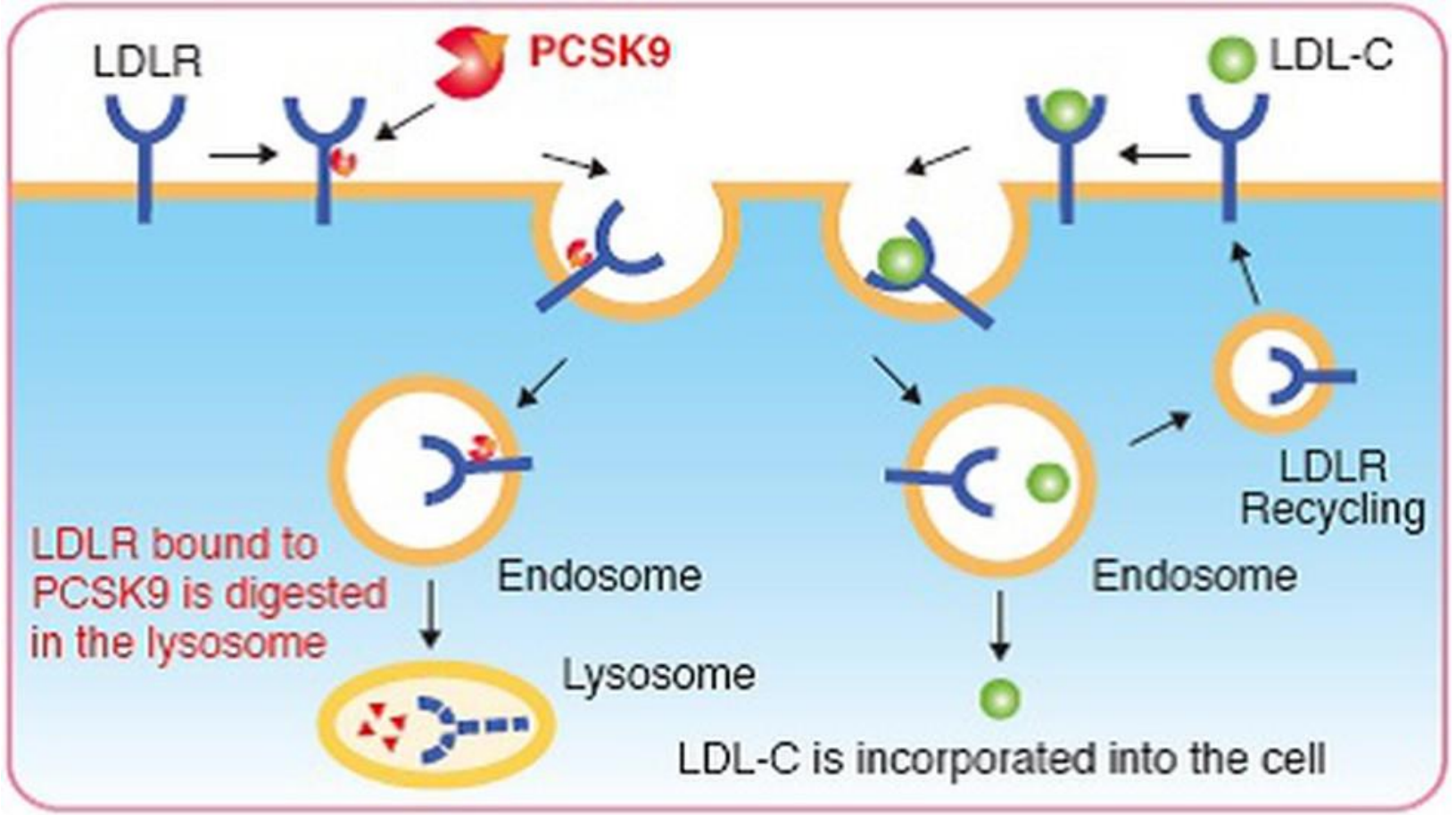
- Statins Statins Statins
  - High Intensity
    - Rosuvastatin 20mg and 40mg
    - Atorvastatin 40mg and 80mg
  - Medium Intensity
    - Rosuvastatin 5mg or 10mg
    - Atorvastatin 10mg or 20mg
    - Simvastatin 20mg or 40mg

Lowering LDL: Beyond Statins

- Ezetimibe
  - Decreases intestinal absorption of cholesterol
    - Dietary Cholesterol + Biliary Cholesterol

Lowering LDL: Beyond Statins

- PCSK9
  - PCSK9 =>
  - Decreased LDL-r =>
  - Increased LDL-c
- PCSK9i
  - Less PCSK9
  - More LDL-r
  - Less LDL-c
  - 2 PCSK9i available
    - Evolocumab and Alirocumab



LDL: ADA 2021 Statin- In Sum
It is all about Risk

Statin Treatment

Primary Prevention

Recommendations

10.19 For patients with diabetes aged 40–75 years without ASCVD, use moderate-intensity statin therapy in addition to lifestyle therapy. **A**

10.20 For patients with diabetes aged 20–39 years with additional ASCVD risk factors, it may be reasonable to initiate statin therapy in addition to lifestyle therapy. **C**

10.21 In patients with diabetes at higher risk, especially those with multiple ASCVD risk factors or aged 50–70 years, it is reasonable to use high-intensity statin therapy. **B**

10.22 In adults with diabetes and 10-year ASCVD risk of 20% or higher, it may be reasonable to add ezetimibe to maximally tolerated statin therapy to reduce LDL cholesterol levels by 50% or more. **C**

Secondary Prevention

Recommendations

10.23 For patients of all ages with diabetes and ASCVD, high-intensity statin therapy should be added to lifestyle therapy. **A**

10.24 For patients with diabetes and ASCVD considered very high risk using specific criteria, if LDL cholesterol is ≥70 mg/dL on maximally tolerated statin dose, consider adding additional LDL-lowering therapy (such as ezetimibe or PCSK9 inhibitor). **A** Ezetimibe may be preferred due to lower cost.

10.25 For patients who do not tolerate the intended intensity, the maximally tolerated statin dose should be used. **E**

Intellectual Break

Pre Diabetes

- It is important to screen for DM and Pre Diabetes
  - ~30 million Americans with Diabetes
  - ~90 million Americans with Pre Diabetes
- A1c 5.7 – 6.4%
- Patients that should be screened …. BMI 25 (23 in Asian Americans), Plus an additional risk factor….(next slide)

Pre Diabetes

TABLE 2.3 Criteria for Testing for Diabetes or Prediabetes in Asymptomatic Adults

1. Testing should be considered in adults with overweight or obesity (BMI ≥25 kg/m^2 or ≥23 kg/m^2 in Asian Americans) who have one or more of the following risk factors:
   - First-degree relative with diabetes
   - High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
   - History of CVD
   - Hypertension (≥140/90 mmHg or on therapy for hypertension)
   - HDL cholesterol level <35 mg/dL (0.90 mmol/L) and/or a triglyceride level >250 mg/dL (2.82 mmol/L)
   - Women with polycystic ovary syndrome
   - Physical inactivity
   - Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
2. Patients with prediabetes (A1C ≥5.7% [39 mmol/mol], impaired glucose tolerance, or impaired fasting glucose) should be tested yearly.
3. Women who were diagnosed with GDM should have lifelong testing at least every 3 years.
4. For all other patients, testing should begin at age 45 years.
5. If results are normal, testing should be repeated at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status.
6. HIV

Pre Diabetes

- It is important to screen for DM
  - ~30 million Americans with Diabetes
  - ~90 million Americans with Pre Diabetes
- A1c 5.7 – 6.4% = Pre Diabetes
  - A1c 6.5% and up = Diabetes
- Patients that should be screened: “BMI ≥ 25 + one other risk factor”
- Do something with the results
  - Counsel the patient yourself
  - Refer to an education class
  - Add Pre Diabetes as a problem on the problem list
  - Talk to patient about lifestyle at each visit
  - Follow the A1c at least annually

Intellectual Break

Diabetes In the Time of Covid

- The main effects of Covid were terrible
- A main side effect of Covid was it's awful impact on chronic disease management, in particular patients with diabetes
  - Patients were afraid to leave the house to get their prescriptions
  - Patients were afraid to leave the house to exercise
  - Many people no longer stuck to their diets
    - Loss of job = inability to pay for healthy food
    - Stress eating
  - So many people were lost to follow-up
- We are trying to be innovative in terms of Diabetes Outreach
  - People are still afraid to come to the hospital
  - If we bring them in it needs to be for a quick visit w minimal waiting room time
  - Monthly outreach letters still being sent
  - One long in-person visit => 2 visits: a short Fast Check (vitals, labs, retinal scan), and then a televisit for analysis and the plan

Last Intellectual Break

Thank you!
Management of Type 2 Diabetes: 2021 ADA Recommendations

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Director, Bellevue Primary Care Diabetes Program

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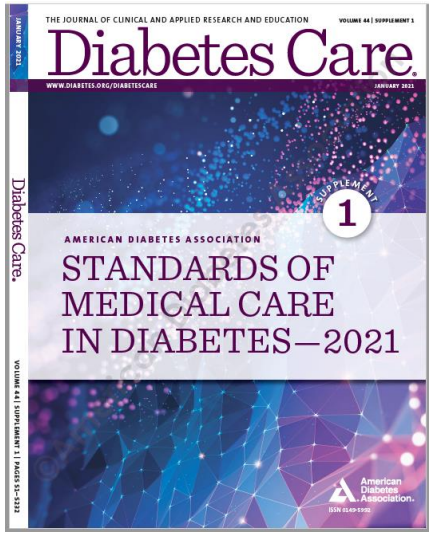

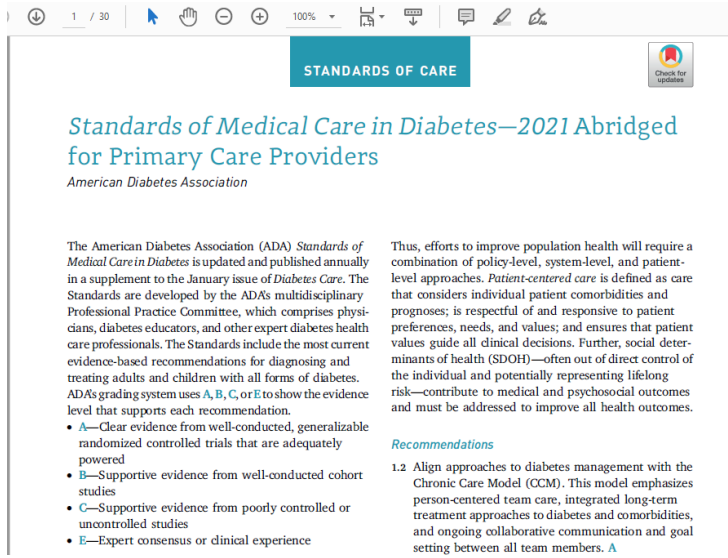

STANDARDS OF CARE

Standards of Medical Care in Diabetes—2021 Abridged for Primary Care Providers

American Diabetes Association

The American Diabetes Association (ADA) *Standards of Medical Care in Diabetes* is updated and published annually in a supplement to the January issue of *Diabetes Care*. The Standards are developed by the ADA's multidisciplinary Professional Practice Committee, which comprises physicians, diabetes educators, and other expert diabetes health care professionals. The Standards include the most current evidence-based recommendations for diagnosing and treating adults and children with all forms of diabetes. ADA's grading system uses A, B, C, or E to show the evidence level that supports each recommendation.

- A—Clear evidence from well-conducted, generalizable randomized controlled trials that are adequately powered
- B—Supportive evidence from well-conducted cohort studies
- C—Supportive evidence from poorly controlled or uncontrolled studies
- E—Expert consensus or clinical experience

Thus, efforts to improve population health will require a combination of policy-level, system-level, and patient-level approaches. *Patient-centered care* is defined as care that considers individual patient comorbidities and prognoses; is respectful of and responsive to patient preferences, needs, and values; and ensures that patient values guide all clinical decisions. Further, social determinants of health (SDOH)—often out of direct control of the individual and potentially representing lifelong risk—contribute to medical and psychosocial outcomes and must be addressed to improve all health outcomes.

Recommendations

1.2 Align approaches to diabetes management with the Chronic Care Model (CCM). This model emphasizes person-centered team care, integrated long-term treatment approaches to diabetes and comorbidities, and ongoing collaborative communication and goal setting between all team members. A